2024 Annual Report

Tahiry Honko

Community-led mangrove carbon project Southwest Madagascar

Submitted by: Blue Ventures
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Acronyms and glossary

CAST: Special Appropriations Account of the Treasury

CSE: Monitoring and Evaluation Committee

DBH: Diameter at Breast Height

Dina: Local laws used by communities as a social norm at village level

Fokontany: Smallest unit of administrative level in Madagascar

Foibe: Executive committee of the Velondriake Association

KMD: Dina Enforcement Committee

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

SUZ: Sustainable Use Zones

Vondrona: administrative sub-units of the Velondriake Association

PVC: Plan Vivo Certificate

Summary

Project overview	
Reporting period	January 1st, 2024 to December 31st, 2024
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 to date (reporting period end)	
No. smallholder households with PES agreements (where applicable)	NA
No. community groups with PES agreements (where applicable)	10
Approximate number of households (or individuals) in these community groups (if known)	895
Area under management (ha) where PES agreements are in place	1,393
Total PES payments made to participants (USD)	0[1]
Total sum held in trust for future PES payments (USD)	$ 20,000*
Plan Vivo Certificates (PVCs) issued to date	0[2]
Allocation to Plan Vivo buffer to date	TBC
Unsold Stock at time of submission (If comprising various vintages, detail all vintages on additional lines as required)	0

*The sum held in trust refers to amounts received from buyers of carbon credits who sent the money with the understanding that they will receive the credits once the policy issues are resolved.

Project activity this reporting period	
No. smallholder households with PES agreements signed	0
No. community groups with PES agreements signed	10
Approximate number of households (or individuals) in these	895

[1] Please note that since certificates have not been issued, in this reporting period Blue Ventures has advanced USD 1287 for PES payments. This is reported in Table I2 Allocation of costs.
[2] Please note that from 2018-2022, 6,855 certificates have been verified, but not issued, due to policy blockages described in section 'A2 Successes and challenges'

community groups (if known)	
Area put under management by participants with PES agreements this year (Ha)	1,393
Plan Vivo Certificates (PVCs) requested for issuance this reporting period	TBC

Part A: Project updates

A1 Key events

Three key events, one local and two international, took place during this reporting period, engaging both local community members and Blue Ventures technical staff.

- **Mangrove reforestation during the Women's day**

To celebrate World Forest Day in March 2024, a series of mangrove reforestation events was organized in four villages involved in the Tahiry Honko project: Andalambezo, Ankitambagna, Tampolove, and Lamboara. The objective was to raise awareness among local communities about the importance of mangroves as part of forest ecosystems and their crucial role in supporting biodiversity and sustaining fisheries. A total of 3.45 hectares of degraded mangrove areas were restored, with the active participation of 276 people of whom 80% were women, highlighting strong female engagement in environmental conservation.

Figure A1 (a): A group of young boys and girls in the village of Andalambezo participated in this reforestation event

- ***Blue Ventures' global fisheries and blue carbon learning exchange in Kenya***

The Global Fisheries and Blue Carbon team from Blue Ventures representing Madagascar, Indonesia, Timor-Leste, Kenya, and Senegal gathered in Watamu, Kenya, for a Learning Exchange focused on Blue Carbon and its links to fisheries management. During the exchange, participants shared knowledge and experiences in implementing community-led

mangrove and seagrass management and governance. Emphasis was placed on the critical role of local communities, particularly their knowledge and involvement in mapping and monitoring efforts. Discussions also explored how policy frameworks influence the implementation of Blue Carbon initiatives, using the Tahiry Honko project as a case study. Participants reflected on key policy-related challenges and identified potential solutions to improve enabling conditions for community-based Blue Carbon work. The exchange was enriched by field visits to a mangrove conservation initiative and a successful Beach Management Unit operating along the Watamu coastline, providing valuable practical insights.

Figure A1 (c): Desk-based learning session (left) complemented by a field visit to a mangrove conservation project along the Watamu coastline (right)

- ***Blue Carbon Initiative Working Group in Cape Town, South Africa***

The Blue Carbon Initiative Working Group convened in Cape Town, South Africa, from September 2 to 5, 2024 bringing together 133 leading scientists, policymakers, and conservation practitioners. The meeting focused on addressing critical challenges facing blue carbon ecosystems and strengthening the link between science and policy. It aimed to foster collaboration and drive collective action toward the conservation and sustainable management of blue carbon ecosystems, with particular emphasis on South Africa and the wider Southern African region. It also emphasized the importance of integrating blue carbon data into greenhouse gas inventories and Nationally Determined Contributions, which is critical for aligning policies with climate commitments. The event provided an opportunity to share lessons learned and challenges encountered through the Tahiry Honko project, while also gathering valuable insights from participants.

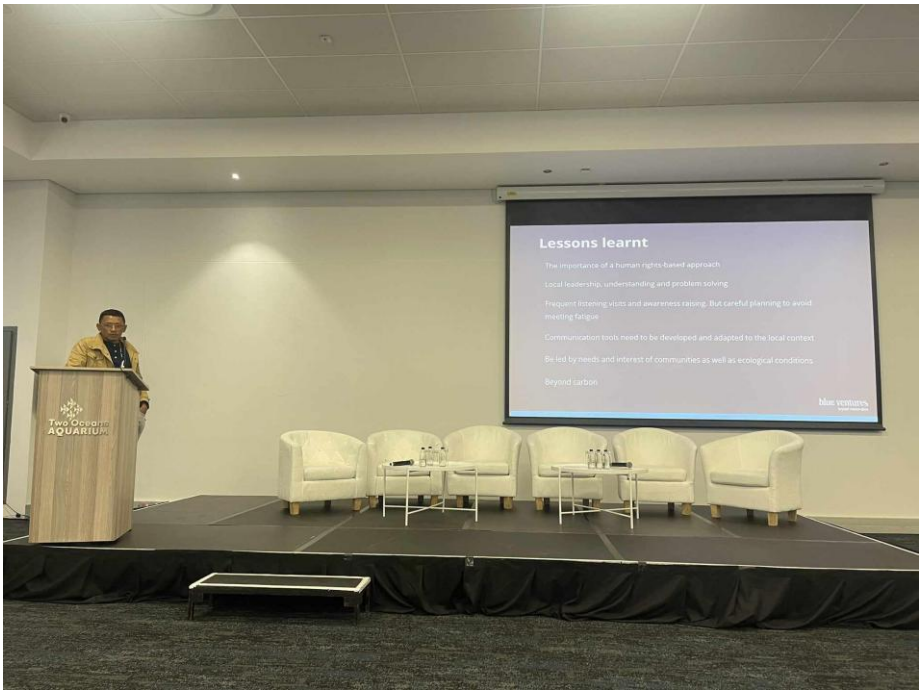

Figure A2 (c): Jaona Ravelonjatovo, National Technical Lead for Mangrove Science & Policy, presented key lessons and challenges from the implementation of the Blue Carbon project in Madagascar.

A2 Successes and challenges

- **Successes**

Australian Award Fellowship

One of the mangrove forest technicians working on the Tahiry Honko project was selected for the 2024 Australian Awards Fellowship. This fellowship focused on the Blue Economy, with an emphasis on Blue Carbon ecosystems. The training took place from 5th to 26th February 2024 in Perth and Brisbane, Australia. Fellows received in-depth training on topics such as coastal blue carbon, international collaboration for blue carbon management, ocean finance, marine pollution, coastal resilience, and seagrass monitoring. The program also included field visits and practical sessions. This fellowship provided a valuable opportunity for the technician to gain international experience and knowledge that can be applied to his work in Madagascar, while also sharing best practices in community-led mangrove management from the Tahiry Honko initiative.

Figure A2 (a): Patty, the mangrove forest technician from the Tahiry Honko project (in the middle), using a PVC pipe corer to collect seagrass soil samples in Perth, Australia.

Five years audit and verification of Tahiry Honko project

The audit and verification of the Tahiry Honko project were successfully completed in July 2024. A consultant from INSUCO Madagascar was engaged to carry out the process, ensuring the project's compliance with the Plan Vivo standard. The verification assessed multiple criteria, including, community benefits and engagement, ecosystem services delivered by the project, positive impacts on livelihoods and socio-economic well-being, project management (transparency, accountability, stakeholder engagement, and compliance with national legislation), community ownership and participation in project design and implementation, effectiveness of the project's monitoring system, and equitable benefit-sharing mechanisms. As part of the audit, five of the ten project villages (Ankindranoke, Vatoavo, Tampolove, Agnolignoly, and Lamboara) were visited. A wide range of stakeholders were interviewed, including local monitoring groups (CSE), members of the Velondriake management committees, beekeepers, local authorities, seaweed and sea cucumber farmers, law enforcement committees, lime producers, and general community members. These interviews were complemented by field visits to mangrove reforestation sites, community-managed zones, beekeeping and seaweed farming areas, terrestrial tree planting sites, and field measurement of carbon. Additionally, meetings were held in Andavadoake with the Velondriake management board and Blue Ventures staff to evaluate project governance and overall management. The field audit and verification were successfully carried out, and the final report is now available.

a)  b) 

c)  d) 

Figure A2 (b): Interviews with various community groups (a); visits to the mangrove reforestation site (b) and beekeeping activities (c) in Ankindranoke; and carbon stock measurement conducted in Tampolove (d).

One peer-reviewed paper related to Tahiry Honko project published

A peer-reviewed article titled "*Using a Long Short-Term Memory Neural Network Model to Forecast Mangrove Change in Two Blue Forests Conservation Projects*" has been published in the journal Discover Forests, with contributions from our Blue Carbon scientist. The study presents the development of a Long Short-Term Memory (LSTM) model to predict mangrove change and forecast mangrove area from 2023 to 2027 in two locations: the Bay of Assassins in southwest Madagascar and Abu Dhabi in the United Arab Emirates. Findings from the study underscore the effectiveness of conservation and restoration efforts implemented under the Tahiry Honko project. Link to the paper is here

- **Challenges**

While we were able to submit the Emission Reduction Purchase Agreement (ERPA) to the Ministry of Environment and Sustainable Development for signature, the process was interrupted by a government reshuffle that required the resignation of all ministries. Fortunately, the Ministry of Environment and Sustainable Development has since been reappointed. However, the reshuffle has delayed the signing process. To help move things forward, the Velondriake Association led by its president and accompanied by Blue Ventures' advocacy team met personally with the Minister in Antananarivo. The Minister expressed a willingness to sign the agreement, pending a legal review to ensure compliance with existing national legislation. In the meantime, due to the delay, Blue Ventures continues to advance the funds needed to cover school fees for all children enrolled in state and Catholic primary schools across the Tahiry Honko project villages.

Figure A2 (c): Members of the Velondriake Association, together with the Blue Ventures advocacy team (left and right), met with the Minister of Environment and Sustainable Development (center) in Antananarivo.

While the issue affecting seaweed farming has been addressed through the introduction of new disease-resistant strains, challenges with sea cucumber farming in the village of Tampolove persist. Despite various efforts by the Velondriake Association to persuade the Indian Ocean Trepang (IOT) company to resume collaboration, no agreement has been reached. Discussions with IOT are ongoing, while alternative livelihood options for the

community continue to be explored..

A3 Project developments

No update.

A4 Future Developments

No future development is currently planned.

Part B: Project activities

B1 Project activities generating Plan Vivo Certificates

Table B1 Project activity summary

This section summarizes the key project activities implemented across the intervention area. The mangrove management plan, developed through a participatory approach, categorizes mangrove areas into three management zones: prevention of ecosystem conversion, improved land use management, and ecosystem restoration. These interventions are guided by specific technical approaches, including community-based natural resource management frameworks that regulate the cutting of intact mangroves, sustainable land use practices through the establishment of annual harvesting quotas per household, and locally adapted restoration techniques to rehabilitate degraded mangrove areas. Overall, these management efforts are expected to benefit 895 households across the ten villages within the project area.

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

B2 Project activities in addition to those generating Plan Vivo Certificates

- ***Beekeeping***

Out of 65 beekeepers enrolled across six villages, 28 were active, with 20 successfully producing and harvesting honey. A total of 491.5 kg of honey was collected, generating 4,915,000 MGA (approximately USD 1,117). This marks an improvement compared to the 2023 production. However, many beekeepers still face challenges in mastering the technical aspects of beekeeping, highlighting the need for ongoing capacity building and regular monitoring. With the Velondriake Association now overseeing the management of this

activity, strengthening the technical skills of local supervisors is part of its priority. To avoid delays in payment to beekeepers, the association has adopted a system where it purchases all honey produced and later resells it at a higher price. The profit generated from these sales is reinvested into the association's fund, which supports the onboarding and training of new beekeepers.

Table B2 Summary of honey harvest from the four villages

Villages	Number of beekeepers harvesting honey	Total honey harvested (kg)
Befandefa	4	161.2
Vatoavo	2	10.5
Ampasimara	1	9.9
Ankindranoke	10	287.7
Agnolignoly	1	8
Tampolove	2	14.2
TOTAL	**20**	**491.5**

Figure B2 (a): Honey harvested from the village of Befandefa

- ***Terrestrial tree plantation***

No terrestrial tree plantation activities were carried out in 2024, as the funding (ICF) previously allocated for both plantation and monitoring had already been fully utilized. No additional funding was available to continue these activities. This issue has already been discussed between Blue Ventures and the Velondriake Association. To ensure the sustainability of this activity, part of the funding from carbon credits will be allocated to support it. In addition, the Velondriake Association's executive staff will

be trained to take the lead in plantation and monitoring. The remaining challenge is that the funds from the sale of carbon credits have not yet become available.

On the other side, we continue to monitor the survival rate of sapling to know which species record higher survival rates and are more resistant to external factors such as drought and other factors source of

- ***Seaweed farming***

In terms of seaweed farming, a total of 867 farmers from 8 villages of the project participated in the activity. In total, 102, 546 kg of dried seaweed (*Kappaphycus alvarezii)* was harvested, generating an annual net revenue of 153,302,385 MGA (34841 USD).

Table B3 : Summary of dried seaweed harvested from the eight villages of the project

Villages	**Total farmers**	**Production (Kg)**	**Annual revenue (USD)**	**Annual revenue (MGA)**
Agnolignoly	157	21 939	7479.205	32 908 500
Ampasimara	97	11 497	39.065	171 885
Ampengoke	102	1 241	4230.682	18 615 000
Ankindranoke	189	23 011	7844.659	34 516 500
Ankintambana	3	488	166.364	732 000
Lamboara	87	8 832	3010.909	13 248 000
Tampolove	79	10 279	3459.545	15 222 000
Vatoavo	153	25 259	8611.023	37 888 500

Total	**867**	**102 546**	**34841.452**	**153 302 385**

Figure B2 (c): Seaweed Kappaphycus alvarezii (new strains) dried by a woman farmer in the village of Lamboara

Part C: Plan Vivo Certificate issuance submission

C1 Contractual statement

This payment issuance is based on 10 signed Payment for Ecosystem Services (PES) agreements, each established between the project and the village leaders representing approximately 850 households across the ten villages in the project area.

The agreements specify performance-based conditions, including protection of intact mangroves (no cut in these areas) , reforestation targets (1 ha/year for each village) , and compliance with local management rules. Payments are released only after verification that these conditions have been met, based on agreed monitoring indicators which are monitored every year.

As certificates have not yet been issued, an advance of USD 1,287 for PES payments was disbursed by Blue Ventures to support school fees for children from the ten project villages.

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 tCO2 reductions available for issuance as Plan Vivo Certificates based on activity for reporting period January 2024 – December 2024

Area ID	Total area (ha)	Tech. Spec	Saleable ER's (tCO_2) available from previous periods*	Total ER's (tCO_2) achieved this period**	% Buffer	No. of PVCs allocated to buffer from ER's achieved this period	Saleable ER's (tCO_2) from this period	Issuance request (PVCs)	ER's (tCO_2) available for future issuances
Strict conservation	*257*	*Prevention of ecosystem conversion*	*714*	*140*	*15*	*21*	*119*	*0*	*833*
Sustainable use	*973*	*Improved land use management*	*2,532*	*497*	*15*	*75*	*422*	*0*	*2,954*
Reforestation	*163*	*Ecosystem restoration*	*4,980*	*977*	*15*	*147*	*830*	*0*	*5,810*
TOTAL	***1,393***		***8,226***			***243***	***1,371***		***9,597***

*Number of tCO_2 sequestered or avoided emission through participants' activities in previous reporting periods which have not yet been issued as PVCs

** Number of tCO_2 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, all of the threshold targets from the project intervention were met, the monitoring result shows that:

- there is no decrease in the diameter at breast height (DBH) when analysing the mean DBH change within standard error within Strict Conservation, the actual extraction pressure within the Sustainable Use Zone is far below the allowable annual cutting quota defined in the management plan between the two dates, indicating that the "Green" target is reached (Annex 1.1).
- communities have planted 10.81 ha degraded mangrove forest, surpassing the set annual objective to replant 10 ha (Annex 1.2);
- Survival rate of the planted mangrove is 71.22%, surpassing the required 60% (Annex 2.1);

- No infractions were recorded or subject to enforcement during the reporting period (Annex 2,2)

From 2022, the number of forest patrols was set at 12 per month, based on available funding and the capacity of local patrollers (Annex 2.3). The Project Design Document (PDD) will be updated in 2025.

Part D: Sales of Plan Vivo Certificates

D1: Sales of Plan Vivo Certificates

As mentioned above, the sale of carbon credits remains pending due to delays in finalizing the signature of Emission Reduction Purchase Agreement (ERPA) between Blue Ventures, as the buyer, and the Government of Madagascar, as the seller. The document has already been signed by the Ministry of Environment, awaiting subsequent approval by the Ministry of Finance and, ultimately, signature by Blue Ventures. With the support of Blue Ventures, the Velondriake Association continues to advocate for the signing of the agreement at every appropriate opportunity.

Table D1 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	15	14,145		
2018	Only One	428	25	10,700		

*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 monitored to assess the effectiveness of the project activities,

determine whether the targets have been met, and support the request for a new issuance. 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.

Table E1 (a) Measurable indicators

Specific: Characteristic	Measurable: Indicat		Attainable					
			Green	Amber		Red		
Ecosystem services benefits		Target		Level 1 mitigatior	Mitigation measures	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	> 10% decrease outside SE	Review management plans and adjust activities, quotas or zones, if necessary	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	Increase forest patrols Meet with communities to ensure "no harvest within conservation zones" is understood and respected Ensure signs delineating zones are present	Greater than 15% of number of trees/ha are cut	Increase forest patrols Adjust management zones to enlarge conservation areas Reduce quotas in sustainable use areas	
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% surviv	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	

* Figures in the area replanted, between 9ha-10 ha is not presented in the threshold indicators but this is to be adjusted in the next verification

Table E1 (b) Monitoring results

Intervention	Indicators	Targets	Monitoring results	Threshold
Tahiry Honko	Carbon plot: change in average DHB	No decrease within SE	No decrease within SE on the mean DBH Annex 1.1	Green
	Number of stumps	No harvest in conservation zone Below quota on sustainable use	Annex 1.1	Green
Forests area	Area planted (ha)	10ha/year	10.81 Annex 1.2	Green
	Survival rate (%)	> 60% survival rate	71.22 % Annex 2.1	Green
Drivers of deforestation	Infraction for illegal harvesting	100 % of infraction reported enforced	No infraction has been reported and enforced Annex 2.2a	Green
	Number of patrols	16 patrols/month	12 patrols/month Annex 2.2b	Amber*

*The number of patrols was limited to 12 patrols/month because of a change in approach. Twelve (12) patrols will be targeted in the strict conservation area and 4 patrols in the sustainable harvest areas as advised during the 5 year verification in 2024.

E2: Maintaining commitments

No participants have resigned from the project this year. Communities from the ten villages remain actively engaged and committed to protecting their mangroves, despite administrative delays at the national level. We are continuing to advance the funds needed to cover the school fees for children in the primary schools of the ten villages involved in the project.

E3: Socioeconomic monitoring

Prior to the arrival of the recruited auditor for the five-year audit and verification of the Tahiry Honko project, we conducted a five-year social impact assessment of the project. We conducted household surveys with 296 respondents across ten participating villages, representing 30% of the total households to capture community perceptions. The results highlight notable social benefits, including improved access to education, job creation, inclusive community participation, and enhanced local empowerment. However, areas that need to be improved include livelihood diversification, gender disparities in

employment, and representation of minority groups in decision-making processes. Dashboard containing the results is seen here.

Table E3 (a) Other 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	Less than 2 per year	Review schedule and minutes of VA meetings
	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 89% of grievances received were handled according to procedure	Co-managers to meet with Civil Society of Toliara 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 Toliara 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

The Velondriake Association (VA) carried out six regular meetings, details found in Annex 4.

Table E3 (b) Institutional indicators

Intervention	Indicator Target	Monitoring	Result	Threshold
Institutional indicators	Capacity and activity level for the Velondriake Association	Number of meetings of the VA per year	Velondriake Association held 06 meetings Annex 4	Green
	Effectiveness of the CSE	Audit of CSE work	Following the last verification of the project, the work of CSE has been audited and one refresher training has been conducted build their capacity (Link)	Green
	Number of grievances handled	>90% of grievance received were handled according to procedure	No grievance report was received	Green

E4: Environmental and biodiversity monitoring

Our remote sensing analysis, conducted using the Google Earth Engine Mangrove Mapping Methodology (GEM), assessed mangrove extent and dynamics across the project area between 2017 and 2023. Results showed a 26.5% increase in the Open-Canopy Mangrove I class, expanding from 409.7 ha to 518.2 ha (Table 4). The Open-Canopy Mangrove II class recorded a modest increase of 3.1%, while the Closed-Canopy Mangrove class showed only a slight increase of 0.7%. This demonstrates that project interventions, such as community-led conservation and restoration, have a positive impact on the mangrove forests in the area. Results are here.

In parallel with the social impacts assessment, we also conducted a biodiversity survey with the CSE team. Faunal inventories, including both invertebrates and vertebrates, were conducted at 16 sites across two conservation zones in the ten villages of the project, using transect and quadrat methods. Results recorded a total of 57 species, including 16 invertebrates and 47 vertebrates. Overall, species richness was higher in the sustainable use zones (49 species) than in the strict conservation zones (39 species). However, in terms of invertebrates such as barnacles, bivalves, mud crabs, shrimps, gastropods, sponges, and sea cucumbers species richness was slightly higher in the strict conservation zones (15 species) compared to the sustainable use zones (13 species). Although the methods used differed between the biodiversity baseline assessment conducted in 2018 and the one carried out in 2024, the comparison of recorded species indicates an overall improvement in biodiversity (See Table below, and report here).

Table E4 (a): Comparison of the number of animal species identified in 2018 and 2024

Classes	Baseline assessment 2018	Biodiversity survey 2024
Birds	25	29
Mammals	3	4
Reptiles	2	9
Finishes	2	3
Molluscus	2	5
Crustaceans	2	9
Sponges	N.I	1
Echinoderma	N.I	1
Total	**36**	**61**

With regard to the four indicator species including *Geckolepis typica* (reptile), *Pteropus*

rufus (mammal), *Vanga curvirostris* (bird), and *Coua verreauxi* (bird), results showed that among the six surveyed villages (the same as those included in the baseline assessment), *Geckolepis typica* and *Pteropus rufus* were observed only in the mangroves of Befandefa, with abundances of 4 and 35 individuals respectively. In contrast, the 9 individuals of *Vanga curvirostris* were found exclusively in the mangroves of Tampolove. *Coua verreauxi* was not observed in or around the mangroves, consistent with its classification as a terrestrial forest bird; its occasional presence in mangroves is likely linked to foraging or seeking shelter from the sun (Report here).

Overall, although the number of indicator species recorded was low (48 individuals) and they were found only in specific areas, the mangroves within the project site still support their presence. Given the vast extent of the mangrove area, detecting these species is challenging, as each has distinct characteristics, behaviors, and preferred habitats. Their absence in surveyed sites does not necessarily indicate they are absent from the mangroves; rather, it may reflect that observations did not coincide with the locations or times they favor.

Part F: Impacts

F1: Evidence of outcomes

181 kids from the three villages (Vatoavo, Agnolignoly, and Andalambezo) concerned by the Tahiry Honko project (catholic school) received school fees from the Tahiry Honko project advanced by Blue Ventures. In addition, details found in Annex 6. Only these villages received payments because the others have already benefited from support provided by United World Schools (UWS), which works closely with Blue Ventures. UWS covers primary school fees for children, recruits and trains teachers, builds schools, and provides school furniture. The seven villages concerned are still discussing how to use the advance from Blue Ventures to address community needs beyond school fee support.

Figure F1 (a) : A meeting held by the Velondriake Association with the parents in the village of Vatoavo to pay school fees

Part G: Payments for Ecosystem Services

G1: Summary of PES by year

Table 8: 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
2020	0	0	0	20,000*	0
2021	0	0	0	0	0
2022	0	0	0	0	0
TOTAL	**0**	**0**	**0**	**20,000**	**0**

* The sum held in trust refers to amounts received from buyers of carbon credits who sent the money with the understanding that they will receive the credits once the policy issues are resolved.

Part H: Ongoing participation

H1: Recruitment

No recruitment occurred during this reporting period

H2: Project Potential

No update

H3: Community participation

Participation in mangrove reforestation increased in 2024 (850 participants) compared to 2023 (678 participants). A similar trend was observed for the annual results dissemination, with higher attendance in 2024 (484 participants) than in 2023 (337 participants). In both activities, women represented the majority of participants, accounting for 67% in reforestation and 61% in results dissemination.

Table H3: Total number of attendees at the mangrove reforestation events and village outreach for dissemination in 2023 and 2024

	Mangrove reforestation				Annual dissemination			
	2023		2024		2023		2024	
Village	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**	**Men**	**Women**
Andalambezo	18	30	17	29	18	21	06	11
Ankitambagna	0	0	3	17	18	14	15	30
Agnolignoly	22	48	15	37	11	22	06	22
Tampolove	0	0	13	71	25	18	39	60
Vatoavo	40	64	47	58	26	34	19	21
Ankindranoke	45	70	97	157	17	39	30	33
Befandefa	75	124	49	63	20	18	13	41
Ankilimalinike	18	29	20	31	12	02	07	16
Ampasimara	45	50	0	0	14	08	17	08
Lamboara	11	80	22	104	0	0	35	55
Total	**263**	**415**	**283**	**567**	**161**	**176**	**187**	**297**
Rate of participation (%)	39	61	43	67	48	52	49	61

Figure H3 (a): Mangrove reforestation in the village of Andalambezo

Figure H3 (a): Annual dissemination held in the village of Lamboara

Part I: Project operating costs

I1: Allocation of costs

Table I2: Allocation of costs

Expense	Narrative	Amount (USD)	Amount (MGA)	Contribution from sale of PVCs'	Contribution from other sources
Ecosystem restoration	Mangrove plantation (village meals for the 12 sessions)	1522	6,850,000	0	Blue Forest Cartier (from Cartier Foundation)
	Food allowance for the CSE carried out the monitoring of the survival rate of the planted mangrove	1827	8,222,500	0	Blue Forest Cartier (from Cartier Foundation)
Forest patrols	Food allowance for the 12 CSE and equipment for the forest's patrols (paints & field sheet)	2317	10,425,000	0	Blue Forest Cartier (from Cartier Foundation)
Carbon stock monitoring	Carbon stock inventory carried out by the CSE	678	3052500	0	Blue Forest Cartier (from Cartier Foundation)
CSE refresher training	Training on carbon measurement to refresh the capacity of CSE	233	1050000		Blue Forest Cartier (from Cartier Foundation)

Other project activities (alternative wood plantation and beekeeping)	Alternative wood plantation	0	0	0	Blue Forest International Climate Fund (ICF) from DEFRA
	Beekeeping	1526	6,865,000	0	Blue Forest International Climate Fund (ICF) from DEFRA
Governance	Outreach tours in 10 villages to disseminate the Tahiry Honko achievements and update	556	2,500,000	0	Blue Forest Cartier (from Cartier Foundation
	Meeting of the VA executive committee regular mangrove management meeting	358	1,612,000	0	Blue Forest Cartier (from Cartier Foundation
	Meeting of the VA management committee in the southern group (01 meeting)	607	2,730,000	0	Blue Forest Cartier (from Cartier Foundation
	General Assembly	1676	7,540,000	0	Blue Forest Cartier (from Cartier Foundation
Social investment community project	School fees for 193 school children from the 10 villages enrolled at primary school (state and catholic)	1287	5,790,000	From cash advance from Blue Ventures fund (from the 60% community share)	Blue Ventures Unrestricted Fund
Audit and verification of the project	Honorary of expert auditor	13,306	59,876,541	0	Blue Forest Cartier (from Cartier Foundation
Socio-economic and biodiversity survey	Honorary of the hired students	2341	10,532,500		Blue Ventures Unrestricted Fund
Legal Review of Emission Reduction Purchase Agreement	Honorary of the legal firm	3,119.4	14,037,300	0	Blue Forest International Climate Fund (ICF) from DEFRA
	TOTAL	**31,353.4**	**131,718,341**		

1USD=4,500 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 (total = 10 plots) of the carbon plots established in the project area in 2014/2015 were re-taken.

Table Annex 1.1 (a) Mean change in mangrove dbh and number of stumps from 2014/15 to 2024

Management zone	Forest attributes	2014/2015	2024	Mean change	Target status
Strict Conservation **# plot: 2**	Stump density (ha^{-1})	425.0 (±425.0)	0.0(±0.0)	-425	Significantly decreased
	DBH (cm)	6.7 (±0.24)	7.18 (±0.37)	+0.47	Significantly increased
Sustainable Use	Stump density (ha^{-1})	428.1 (±102.3)	12.5 (±9.4)	-415.6	Significantly decreased

# plot: 8					
	DBH (cm)	9.0 (±0.8)	7.8 (±0.7)	-1.1	No change within SE

Where DBH: Diameter at Breast Height and SE: Standard Error
* Negative values imply that stump density and mean DBH decreased while compared with the baseline data.

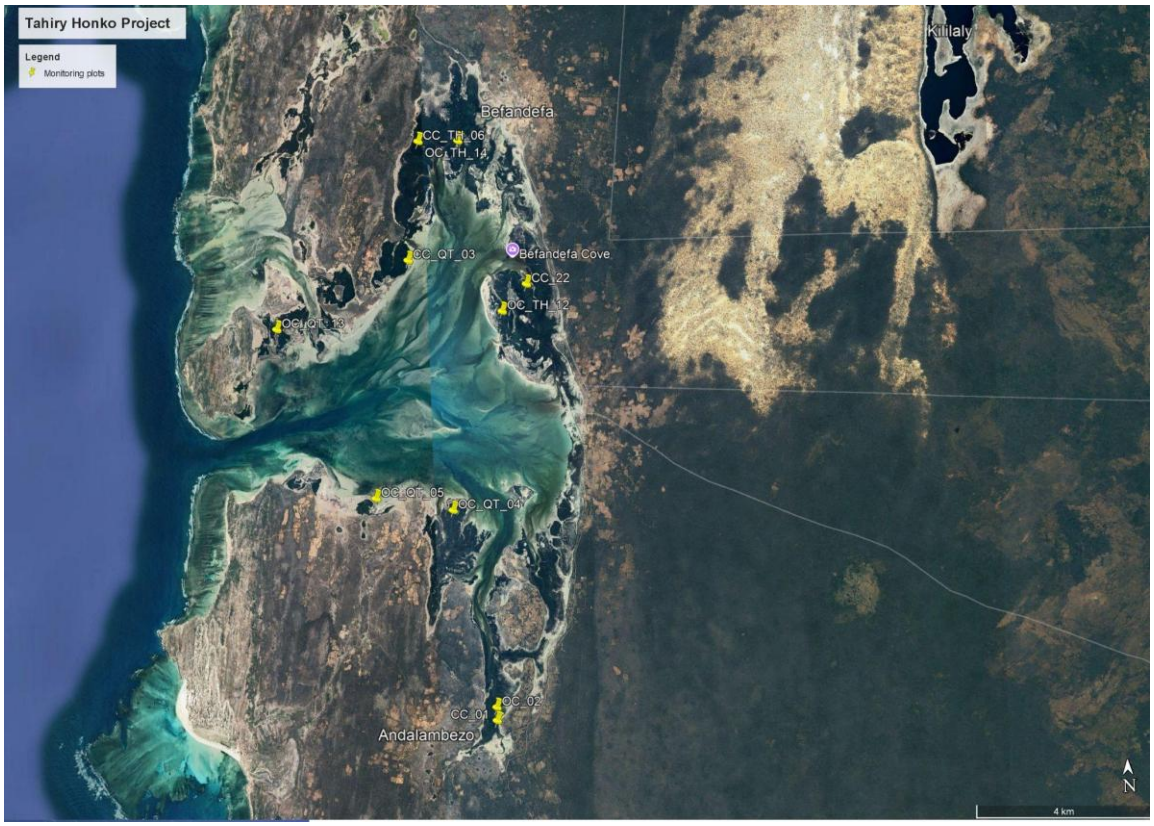

Figure annex 1. - Map of the carbon stock plots remeasured

Table annex 1.1 (b) Result of the carbon stocks monitoring

plot ID	Site_Name	Management_zone	x	y	2014/2015 Mean DBH (cm)	2024 Mean DBH (cm)	Difference in mean DBH (cm)	2014/2015 Stump density (ha-1)	2024 Stump Density (ha)	Difference in Stump density (ha-1)	dbh	stump
CC_01	Antsaragnaboa	Sustainable use	324241	7535939	12.5	5.9	-6.6	0.0	0.0	0.0	decreased	no change
CC_22	Bealovo	Tahiry honko	325136	7545846	7.0	7.6	0.6	850.0	0.0	-850.0	increased	decreased
CC_QT_03	Ampangoke	Sustainable use	322448	7546442	11.4	11.9	0.5	825.0	0.0	-825.0	increased	decreased
OC_02	Antsaranandaka	Tahiry honko	324241	7536242	6.5	6.8	0.4	0.0	0.0	0.0	increased	no change
OC_QT_04	Beambariake	Sustainable use	323343	7540741	7.2	6.6	-0.6	525.0	0.0	-525.0	decreased	decreased
OC_QT_05	Abedeka	Sustainable use	321593	7541046	9.6	6.1	-3.5	225.0	0.0	-225.0	decreased	decreased
OC_TH_12	Antsahavaky	Sustainable use	324567	7545241	8.3	6.8	-1.5	750.0	0.0	-750.0	decreased	decreased
OC_TH_14	Antsaragnakele	Sustainable use	323644	7549136	9.5	8.1	-1.5	575.0	0.0	-575.0	decreased	decreased
CC_TH_06	Andirna	Sustainable use	322736	7549142	5.2	9.6	4.5	350.0	75.0	-275.0	increased	decreased
OC_QT_13	Beakio	Sustainable use	319414	7544938	8.4	7.9	-0.5	175.0	25.0	-150.0	decreased	decreased

Number of plots with increasing dbh:	4.0	0.0	Number of plots with increasing cut stump
Number of plots with decreasing dbh:	6.0	8.0	Number of plots with decreasing cut stump
Number of plot with unchanged dbh:	0.0	2.0	Number of plots with unchanged cut stump
Mean dbh change	-0.8	-417.5	Mean stump change
StdDev dbh 2024:	1.8	24.2	StdDev stump 2024
SE Reference value dbh 2024 (N=10):	0.6	7.6	SE Reference value stump 2024 (N=10)

The Monitoring Plan target requires that the mean DBH remains stable within the SE range and no tree is harvested in the Strict Conservation Zone (SCZ). Results from the 2024 annual monitoring (10 plots measured) indicate a significant increase in mean DBH of +0.47 cm while compared to the baseline. This positive change meets the “Green” target, signalling an overall increase in biomass and associated carbon stocks (see Table Annex 1.1). In addition, the 2024 assessment confirmed no new cutting within the SCZ. A marked reduction in stump density was observed, demonstrating the effectiveness of the implemented management measures and local regulations.

Determination of annual quota at ha-level

Annual allowable cutting quotas have been estimated for the entire SUZ in the Mangrove Management Plan or 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 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

Baseline stump density (SD) in 20214/2015 and the plots re-measured in 2024 are as follow:
2014/2015 SD = 428.1 stumps/ha
2024 SD = 12.5 stumps/ha
Annualized SD = (12.5-428.1)/(2024-2015) = -46.1 stumps/ha/year

The negative annualized value indicates a substantial reduction in stump density within the SUZ over time, consistent with improved forest management and reduced cutting. When compared to the allowable annual cutting quota:

-46.1 << 122.1 (AC/ha/yr)

This demonstrates that actual extraction pressure is far below the sustainable threshold defined in the management plan.

Annex 1.2. Mangrove replanting

During this reporting period, 10.81 hectares of degraded mangrove were replanted with 29,204 seedlings from three species: *Ceriops tagal*, *Bruguiera gymnorrhiza*, and *Rhizophora mucronata*. Overall, the community successfully achieved the annual replanting target of 10 hectares.

Table Annex 1.2: Mangrove replanting

Year	Date of replanting	Village	Area planted (ha)	Total participants	*Ceriops tagal*	*Bruguiera gymnorrhiza*	*Rhizophora mucronata*	Total Planted
2024	17-Feb-24	Befandefa	1.28	112	1300	50	2150	2,734
2024	18-Feb-24	Ankilimalinike	1.36	51	3700	0	80	3780
2024	19-Feb-24	Ankindranoke	2	254	700	687	2000	3387
2024	20-Feb-24	Vatoavo	1.51	105	250	2030	860	3140
2024	22-Feb-24	Agnolignoly	1.21	52	3375	35	880	4290
2024	14-Mar-24	Andalambezo	0.89	46	20	0	3100	3120
2024	15-Mar-24	Tampolove	1.1	84	3200	60	1200	4400
2024	16-Mar-24	Ankitambagna	0.26	20	1150	0	520	1670
2024	17-Mar-24	Lamboara	1.2	126	175	8	2500	2683
		TOTAL	**10.81**	**850**	**13870**	**2870**	**13290**	**29204**

Annex 2. Ongoing monitoring results for all participants

Annex 2.1. Mangrove replanting survival rate monitoring

The average survival rate of the seedlings planted during this reporting period was 71.22%, exceeding the target of over 60%.

Table Annex 2.1 Mangrove replanting survival rate monitoring

Year	Date of replanting	Village	Area planted (ha)	*Ceriops tagal*	*Bruguiera gymnorrhiza*	*Rhizophora mucronata*	Total Planted	Date of monitoring	*Survival rate (%)*
2024	17-Feb-24	Befandefa	1.28	112	1300	50	2150	18/08/2024	68.61
2024	19-Feb-24	Ankilimalinike	1.36	51	3700	0	80	19/08/2024	97.32
2024	19-Feb-24	Ankindranoke	2	254	700	687	2000	20/08/2024	95
2024	20-Feb-24	Vatoavo	1.51	105	250	2030	860	21/08/2024	58.11
2024	22-Feb-24	Agnolignoly	1.21	52	3375	35	880	25/02/2025	57.53
2024	14-Mar-24	Andalambezo	0.89	46	20	0	3100	Missing	0
2024	15-Mar-24	Tampolove	1.1	84	3200	60	1200	28/10/2024	86.11
2024	16-Mar-24	Ankitambagna	0.26	20	1150	0	520	22/08/2024	95
2024	17-Mar-24	Lamboara	1.2	126	175	8	2500	26/10/2024	83.33
		TOTAL	**10.81**	**850**	**13870**	**2870**	**13290**	**AVERAGE**	**71.22**

Annex 2.2. Forest monitoring and patrolling

The number of patrols was limited to 12 per month following a change in approach. However, after the project audit and verification in 2024, the auditor recommended an addition of 4 patrols specifically in the sustainable harvest areas to reach the required total of 16. We are in the process of updating the PDD and increasing the number of patrols to 16 from 2026. During the reporting period, the 12 CSEs conducted 144 patrols

in total. The objective of completing one patrol per month per CSE, equivalent to 144 patrols annually, was successfully achieved.

Table Annex 2.3. Forest monitoring and patrolling

NUMBER OF PATROLS FOR 2023																	
Village	**Name**	**Sex**	**Role**	**Site TH**	**Jan**	**Fév**	**Mar**	**Avr**	**Mai**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Total**
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	1	1	1	1	1	1	1	1	1	1	1	1	12
Befandefa	Norbert	M	CSE	Andamalama	1	1	1	1	1	1	1	1	1	1	1	1	12
Ankindranoke	Baranda	M	CSE	Ampotapotaky	1	1	1	1	1	1	1	1	1	1	1	1	12
	Mampionina	M	CSE	Andalantsarety	1	1	1	1	1	1	1	1	1	1	1	1	12
Vatoavo	Tsivalake(Naie)	M	CSE	Ampanihy	1	1	1	1	1	1	1	1	1	1	1	1	12
Andalambezo	Andre(Fenty)	M	CSE	Antseragnandaka	1	1	1	1	1	1	1	1	1	1	1	1	12
Agnolignoly	Velomama	M	CSE	Ankatsakitsibogna	1	1	1	1	1	1	1	1	1	1	1	1	12
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
				TOTAL	**144 patrols**												

Annex 3. Reallocation of commitments

Not applicable

Annex 4. Socioeconomic monitoring results

- ***Five years Social impact survey***

A social impact survey was conducted from June to July 2024 across the ten villages of the Bay of Assassins, with two hired students serving as interns. In total, 296 households were surveyed to assess the impacts of the Tahiry Honko project. Results are here

Figure Annex 4 . One of the interns conducted an interview with a female respondent in the village of Lamboara

- ***Meeting of the Velondriake Association executive committee***

The Velondriake Association held six meetings in 2024, including three Executive Committee meetings (FOIBE), one Vondrona meeting, and two General Assemblies, summarized below.

Table Annex 4. Socioeconomic monitoring results

Date of meeting	Type of the meeting	Topic of the meeting & discussion
14-16 February 2024	Executive committee	• Reminder of the role and responsibility of the executive committees, as well as their key achievements • Presentation of each village's annual achievements • Overview of Tahiry Honko project work plan • planning for the election of Enforcement Committees' at the village level

		• Good governance training
08-09 March 2024	Southern Vondrona	• Training on how to use the activity record book • Update on the progress of enforcement activities and identification of communities needs
20- 21 June 2024	Executive committee	• Report on advocacy activities with the central government • Report on management compliance • Review of the Velondriake Association's work plan
18- 19 July 2024	General Assembly	• Report of the achievements from January to June • Report on the Velondriake President's visit in Bali • Assessment of management committees' performance • Management Compliance report • Report on beekeeping and seaweed activities • Enforcement committees' election report • Patrol report
10 October 2024	Executive committee	• Presentation of the Tahiry Honko Audit and Verification report • Discussion and consultation on the corrective actions to be implemented • Discussion on the plan for implementing the corrective actions
18-19 Dec 2023	General Assembly	• Report on achievements from January to June • Development of the 2025 annual work plan • Presentation of each village's priorities • Assessment of patrol activities • Report on alternative livelihood activities (beekeeping and seaweed) • Presentation of challenges faced by the CSE and CCS • Financial report

Annex 5. Conservation and monitoring results

During this reporting period, we monitored the project's impacts on both biodiversity and mangrove deforestation. Deforestation trends were assessed through remote sensing for the period 2017–2023, while biodiversity assessments were carried out from February to March 2024. The results indicate positive impacts on both biodiversity and deforestation reduction. Results are here.

Annex 6. Impacts

181 primary school children from three villages have benefited from Tahiry Honko project scholarships .

Table Annex 6. Number of the school children receiving Tahiry Honko scholarships

Villages	Type of school	Number of school children
Ankitambagna	Primary public school	0
Andalambezo	Primary Catholic School	65
Tampolove	Primary Catholic School	0
Agnolignoly	Primary Catholic School	58
Lamboara	Primary Catholic School	0
Vatoavo	Primary Catholic School	58
Ankindranoke	Primary public school	0
Befandefa & Ampasimarà	Primary public school	0
Ankilimalinike	Primary public school	0
	TOTAL	**181**

Annex 7. Community meeting records (summary)

Two types of meetings were held during this reporting period. The first focused on sharing the results of project activities, during which communities were informed about the achievements in 2024, the challenges encountered, and the next steps. The second meeting involved discussing the results of the five-year audit and verification of the project with the Velondriake Association board members. A total of 455 people participated in the first meeting, while 37 attended the second. In addition, 850 people from the ten villages took part in the mangrove reforestation activity.

Figure Annex 7 . The Blue Ventures Tahiry Honko Technical Coordinator presented the results of the five-year audit and verification during the Velondriake Association board meeting in Andavadoake.