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**Publication Date**

02/01/2024

**Partner Standard**

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**DUE DILIGENCE**

# Karathuru project

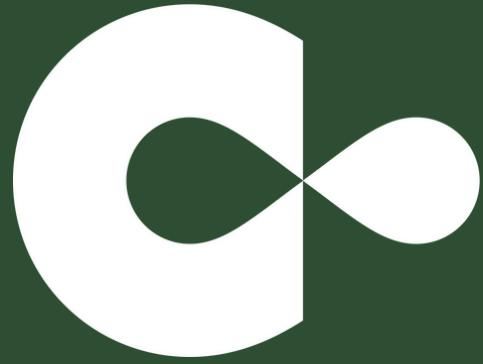
Mangrove Restoration Project - Myanmar



**Carbonable** - Empowering Actionable and Verifiable Carbon Removal



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# I - PROJECT SUMMARY

For mangrove restoration in the Bokpyin Township and Karathuru Township, Tanintharyi Region, Myanmar. Implemented by Worldview International Foundation in cooperation with local communities, supported by Myanmar Forest Department.

The project involves the regeneration of 500 ha in 2024 with the planting of 1.25 million trees (2,500 per ha), that will result in a forecasted amount of 374,285 certified carbon units amongst which 187,142 Carbon Units will be reserved for funders and the other half to local communities.

The project has very strong livelihoods, biodiversity, and resilience to climate change co-benefits. It is actively supporting 7 of the United Nations' Sustainable Development Goals

- No poverty
- Decent Work and Economic Growth
- Quality Education
- Gender Equality
- Climate Action
- Life Below Water
- Life On Land

The project is rated AA



## II - PROJECT DETAILS



### USER RIGHT TO THE LAND

According to Myanmar Forest Law of 1998 with latest amendments, Ministry of Natural Resources and Environmental Conservation/Forest Department has the authority to grant user right of land for mangrove restoration for 30 years to local communities with capacity/support to implement mangrove restoration and take care of the planted trees. This can be extended for another 30 years based on proper management, or cancelled in case of land misuse. The process to provide communities is followed up by WIF with practical support, based on MOU with each village track management committee, guaranteed and supported by Forest Department. The area has already been declared as Public Protected Forest. This gives Forest Department the authority to intervene in case of misuse of the land, as a guarantee for future land protection.

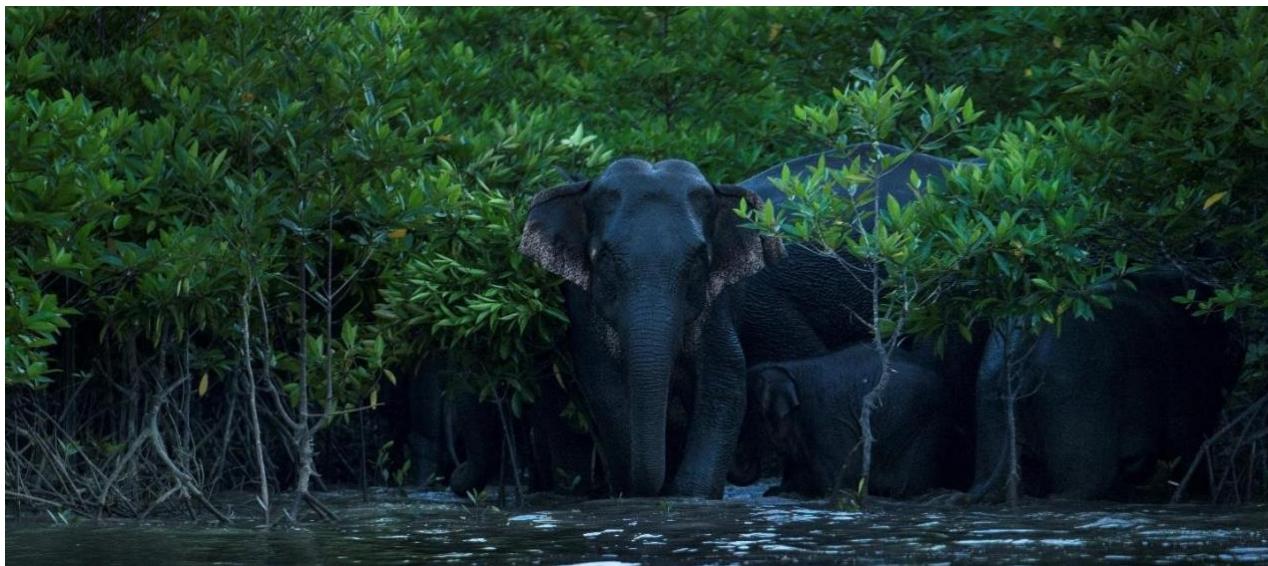
WIF has already gained considerable experience since 2012 when the first mangrove project with research was started in Myanmar. Presently WIF is implementing restoration projects on 30,000 ha in 5 regions in cooperation with local communities and Forest Department. WIFs first VERRA restoration project was approved by VERRA in 2017, as the first project of its kind in Asia.

## SHARING OF VCU's CARBON RIGHT

The area was surveyed in July 2022 in line with MOU between WIF and Forest Department, providing WIF with VCS carbon rights with 50% of carbon to investors and 50% for livelihoods/sustainable development to participatory communities. Estimated carbon from 1,000 ha during 25 years from the project's **1,641,600 tons CO<sub>2</sub>** (to be finally confirmed by auditor). Present price for blue carbon USD 25 per ton and expected to increase. Investment USD 2,200 per ha, estimated total **USD 2.2 million**. Annual carbon costs to be shared 50% investor and 50% WIF. Refer example investment calculation.

## BIO DIVERSITY AND HIGH QUALITY

WIF has from the start maintained bio diversity in its projects, with 5-9 different mangrove species in each project, based on local conditions and quality control. The survival rate of plants is exceptionally high, up to 96% documented by frequent control of sample plots and general forest inspections. One example is the endangered species *Bruguiera hainesii* (on IUCNs red list). During the last 5 years, WIF has nursed and planted more than 10,000 of this species to make a contribution to protection of endangered mangrove species. The following mangrove species will be planted in the project: *Rhizophora mucronata*, *Rhizophora apiculata*, *Ceriops tagal*, *Sonneratia apetala*, *Avicennia officinalis*, *Bruguiera gymnorhiza*, *Bruguiera sexangular*, *Bruguiera cylindrical* and *Bruguiera hainesii*. WIF mangrove Gene Bank consist of 34 different species, targeted to reach 64 by 2023.



In the first mangrove park, wild elephants are seeking shelter in the newly planted forest, including providing survival for other endangered species (animals and birds). Life is back. We don't only plant trees, but new life with HOPE.

WIF will provide the highest quality management with experienced and motivated field leadership, supported by technical assistants graduated from Forest University and with well trained, committed planters from the communities. The forest will regularly be inspected by WIF staff, in addition to regular satellite observations and use of a special drone with AI and sensors for carbon mitigation, especially developed for this purpose by Andoya Space Centre, Norway.



## HUMAN RIGHTS, LIVELIHOODS AND WOMEN ENPOWERMENT

As part of WIFs commitment to UN Sustainable Development Goals, all are included in the total commitment. The majority of trained planters are women, all planters are paid 50% above normal day laborer salary. Women are also given preference in livelihood activities, with a special scholarship for girls from poor families from the project areas, seeking university education. Each school going child is awarded a solar lamp (no electricity in the villages) and each school is provided with solar panels and computer lab as part of upgrading learning capacity of the children. More on livelihoods in attachment.

The livelihood program is to increase earnings for the poorest (62% of the community live below the poverty line). Our aim is to increase their income by 100% within the next 5 years, by creating income opportunities from sustainable use of the natural environment in the area: Aqua culture, clam culture, crab culture (crab hatchery in construction phase) sea weed production, virgin coconut oil production, fishing and fish processing, ice production for the local fishing fleet, and many more activities based on request from the communities, as well as training in social enterprises, women empowerment, school support, distribution of solar panels and solar lamps, energy forest for cooking, energy saving cook stoves, flood protection, safe drinking water supply (partly with rain water harvesting) and other small scale infrastructure projects.



*Images: Livelihood and training with community participants, including seaweed production.*

## STATUS OF THE PROJECT

The land issue has been cleared with Forest Department in the region and WIF is presently in the process of formalizing user right to the communities.

Our estimate is to have all formalities with partner communities and regional authorities cleared by February 2023. Thereafter, practical work on the ground will be started. In case of green light from investors before end of March, resources will be available for collection of propagules for planting from May 2023, to continue during the monsoon season (normal planting season May-September). Target for first year completion 1,000 ha for Atos. Limiting factor is available planting material from first year. First year estimated to minimum 2.5 million trees based on propagule harvest by March 2023. Additional planting material to be developed for planting in 2023, in addition to propagules, securing enough planting material for expansion and biodiversity. There is plenty of willing labor to train and hire, but it is not advisable to plant more than 9-10 million plants per year in same area, to maintain full control for highest survival rate and general quality management.

## VERRA REGISTRATION

Our aim is to list the project with VERRA before end of 2023. This will provide VCUs from 2024, based on first audit same year and approvals by VERRA. Amount of carbon from growth of trees will be less the first years except for carbon in the ground from first year based on soil samples. Attached calculation indicates yearly carbon harvest and economic analysis.

## SECURING A SAFER WORLD WITH MANGROVE RESTORATION

Existing mangrove forests under attack with escalating deforestation, is a ticking bomb.

Over 6 billion tons of CO<sub>2</sub> stored in these global wetlands is a ticking bomb. This danger can only be defused by rapid stop of forest destruction with large scale mangrove restoration.



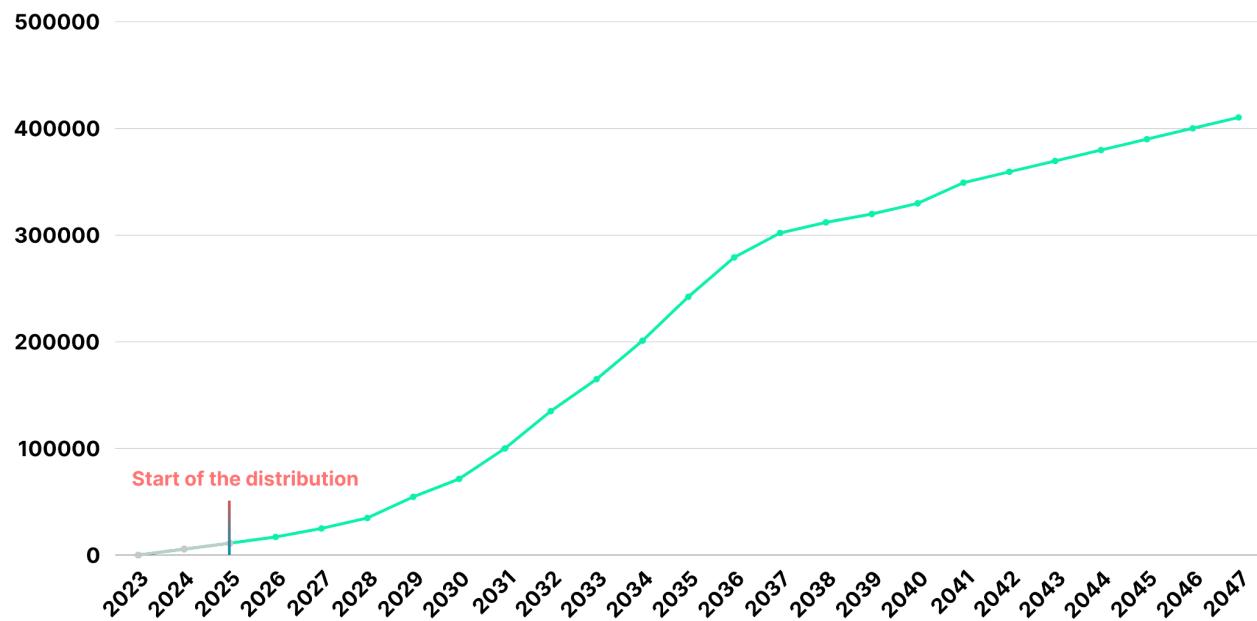
Mangrove restoration in solidarity with children of the future.

### III - CARBON CREDITS ISSUANCE CURVE

In our commitment to ethics and transparency, we diligently ensure that the schedule for carbon credits closely issuance mirrors actual environmental conditions, guided by rigorous scientific principles. Carbon capture is directly related to the volume of trees and follows their growth curve. The rate of development varies according to their age and size.

Enclosed is the forecasted curve for the entire lifetime of the project.

The initial audit is scheduled for 2025, which aligns with the first issuance of carbon credits, with subsequent audits and issuances occurring annually.



## IV - DUE DILIGENCE

### 1. External Carbon Rating Agency

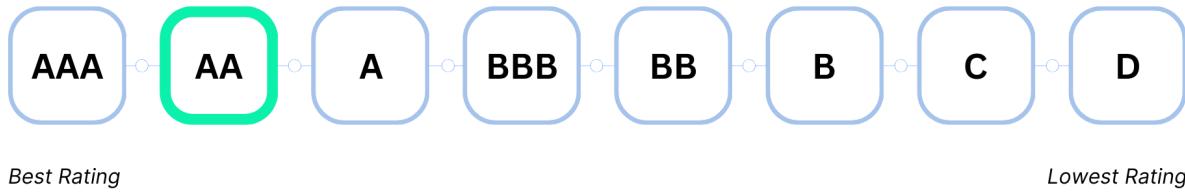
An external rating agency (Be Zero) has awarded an AA rating to past project developed by the same project developer within the same country and involving a highly similar project. All indicators point to the likelihood of this project maintaining a similar level of quality.

According to their public database of over 300 projects, **less than 2% of all projects combined get a AA rating** (and no project has achieved AAA yet)

### 2. Carbonable's Risk Analysis

At Carbonable, we take project screening very seriously and only select projects with the best or very best ratings.

The selected project underwent a thorough risk assessment to understand the odds of it making it to term successfully. On risk assessment matrix ranging from AAA to D, this **project scored an AA** after calculating the risk. Here is how this score was determined:



#### Effective governance

The carbon-crediting program shall have effective program governance to ensure transparency, accountability, continuous improvement and the overall quality of carbon credits."

- Score: **5/5**

#### Land Ownership

Is land ownership and hence carbon unit ownership subject to risk?

- Score: **4/5**

## Tracking

The carbon-crediting program shall operate or make use of a registry to uniquely identify, record and track mitigation activities and carbon credits issued to ensure credits can be identified securely and unambiguously.

- Score: **5/5**

## Transparency

The carbon-crediting program shall provide comprehensive and transparent information on all credited mitigation activities. The information shall be publicly available in electronic format and shall be accessible to non-specialized audiences, to enable scrutiny of mitigation activities

- Score: **4/5**

## Robust independent third-party validation and verification

The carbon-crediting program shall have program-level requirements for robust independent third-party validation and verification of mitigation activities.

- Score: **5/5**

## Geopolitical

Will the project suffer because of geopolitical challenges like administrative problems, lack of government cooperation, war, famine, poaching, and illegal logging?

- Score: **2/5**

## Additionality

The greenhouse gas (GHG) emission reductions or removals from the mitigation activity shall be additional, i.e., they would not have occurred in the absence of the incentive created by carbon credit revenues.

- Score: **5/5**

## Leakage

This occurs when emissions avoided from the installation of a project are displaced or occur elsewhere (like through deforestation).

- Score: **4/5**

## Durability

The GHG emission reductions or removals from the mitigation activity shall be permanent or, where there is a risk of reversal, there shall be measures in place to address those risks and compensate reversals.

- Score: **4/5**

## Robust quantification of emissions reductions and removals

The GHG emission reductions or removals from the mitigation activity shall be robustly quantified, based on conservative approaches, completeness and sound scientific methods

- Score: **3/5**

## No double counting

The GHG emission reductions or removals from the mitigation activity shall not be double counted, i.e., they shall only be counted once towards achieving mitigation targets or goals. Double counting covers double issuance, double claiming, and double use.”\*

- Score: **5/5**

## Livelihoods

In order to favour community ownership of projects, seed collecting, tree planting and project management must be carried out by locals. Does the project guarantee gender parity? Are workers paid fair living wages or rewarded in the form of economic alternatives?”\*

- Score: **5/5**

## Biodiversity

Projects must improve local ecosystems by restoring biodiversity hotspots. Do the project forms corridors between or buffer zones around existing habitats, with a species protection or reintroduction aspect? “\*

- Score: **5/5**

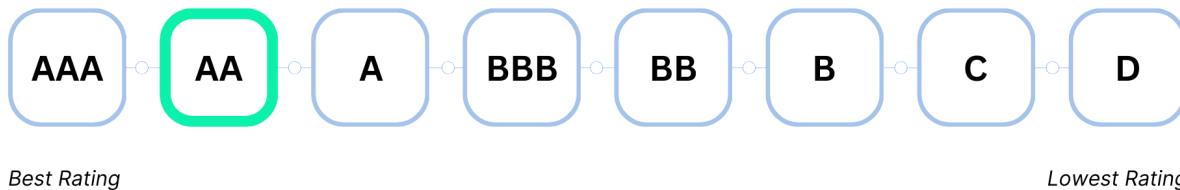
## Climate change resilience

Does the project improves the resilience of the ecosystem against climate hazards?\*

- Score: **5/5**

**Total: 61/70**

Ranking: AA



	1	2	3	4	5	TOTAL
<b>PROJECT GOVERNANCE</b>						
Effective governance					X	5
Land Ownership				X		4
Tracking					X	5
Transparency				X		4
Robust validation					X	5
Geopolitical		X				2
<b>ENVIRONMENTAL IMPACT</b>						
Additionality					X	5
Leakage				X		4
Durability				X		4
Robust quantification			X			3
No double counting					X	5
<b>CO-BENEFITS</b>						
Livelihoods					X	5
Biodiversity					X	5
Climate Change Resilience					X	5

61/70

TOTAL POINTS	SCORE
65-70	AAA
<b>60-64</b>	<b>AA</b>
55-59	A
50-54	BBB
45-49	BB
40-44	B
35-39	C
30-34	D