Indonesia



Organization: Yayasan Besi Pae
Location: Timor Tengah Selatan District, East NusaTenggara
Solution: Regenerating land and livelihoods through climate-smart agriculture and ecosystem-based restoration in West Timor, Indonesia
Factsheet Period: First round of UNDP AFCIA funding (18 months); Second round of UNDP AFCIA funding (10 months)



Community members played a vital role in planting 550 hectares of trees in Indonesia @Yayasan Besi Pae

Around 90% of villages in West Timor rely on agriculture for their livelihoods (World Bank, 2023), and farmers have seen greater risk of crop failure during the wet season due to increased rainfall variability from unstable climate patterns. At the same time, Timor Tengah Selatan is one of the driest areas in the country, with some areas receiving only 900mm of rainfall a year in a short-wet season of four months. Yayasan Besi Pae's solution assists households in adapting to climate change by planting drought- and rain-tolerant crops and promoting the use of drip irrigation to improve vegetable production during dry season. By improving agricultural, nutritional and economic outcomes in the villages of Noemuke, Oe Kiu and Lasi, Yayasan Besi Pae is supporting climate adaptation and resilience for its communities.

Key achievements

- 800 hectares of trees planted
- Three nurseries established to support large-scale planting
- 5,231 households planted trees in their cropping and rangeland areas
- 750 people engaged in restoration activities
- WasteX machines installed and producing 200 kg of biochar per day with fully trained staff
- The project is currently in the design phase (Draft PDD) of the carbon credit lifecycle for Gold Standard registration, following the completion of key preparatory steps such as stakeholder consultations, baseline studies, feasibility assessments and project scoping activities
- Gold Standard carbon credit certification process underway, using the "With One Seed" methodology successfully deployed in Timor-Leste

Social impact

- Empowered women by equipping them with skills to plant and harvest tree legumes and fruit trees, while also exploring kapok as an eco-friendly textile option, promoting sustainable livelihoods
- Opened economic opportunities, enhanced incomes and strengthened women's role in sustainable value chains, by identifying new markets and connecting women farmers to supply chains
- Identified new markets and connected women farmers to participate in supply chains





Adaptation benefits

- Drip irrigation enables dry-season vegetable production
- Training in climate-smart agricultural techniques, equips farmers with the knowledge to better withstand more extreme and unpredictable rainfall
- Biochar produced with partner WasteX has contributed to improved soil health and reduced agricultural waste burning
- The planting of fast-growing tree legumes helps to restore soil fertility, fuel biomass and support livestock

Innovation

- Supply of biomass woodchips to coal-fired power stations to reduce reliance on coal (with accompanying reduction in carbon emissions)
- Promotion of regenerative cotton farming practices to create sustainable livelihoods

Replication potential

- This model of combining climate-smart agriculture, land restoration, biodiversity conservation and carbon finance can be replicated in other at-risk communities

Funding snapshot

- UNDP-AFCIA grant: US$170,000 (initial grant: $60,000; scaling grant: $110,000

Investability	
Revenue per year	Established two operational WasteX sites and is producing 200 kg of biochar a day and generating revenue by selling carbon credits at US$50 per ton. $2,500 from the sale of the carbon credit and $1,350 from the sale of the biochar via WasteX site. The initiative is targeting revenue streams from selling carbon and biodiversity credits, as well as direct sales of biochar, while seeking potential buyers to expand its market.
Sustaining criteria	The initiative is looking at a blended finance model to sustain operations, exploring partnership with private sector players to generate carbon and biodiversity credits for trade finance.
Financial innovation	YBP partnered with WasteX, a waste-to-biochar solution, to generate revenue through carbon sales and biochar. Gold Standard Carbon Credit Certification is underway.
Expected return	By year 20, the initiative is expected to generate approximately US$4.9 million in annual revenue through carbon credit monetisation.

To read their story, visit UNDP-AFCIA

To watch their video, click here

To contact the initiative, visit Yayasan Besi Pae