

Indonesia



Organization: Yayasan Besi Pae

Location: Noemuke, Oe Kiu and Lasi Villages, Timor Tengah Selatan District, East Nusa Tenggara

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)



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 West Timor, Yayasan Besi Pae is supporting climate adaptation and resilience for its communities.



Key achievements

- 550 hectares of trees planted
- 336 small-scale women farmers involved in crop cultivation for seed production
- 331 families trained in improved household nutrition from vegetable seed production
- 750 people engaged in restoration activities



Social impact

- The initiative specifically 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.
- By identifying new markets and connecting women farmers to supply chains, it opened economic opportunities, enhanced incomes, and strengthened their role in sustainable value chains.
- Identifying new markets and connecting primarily 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: \$170,000 (first grant: \$60,000; scaling grant: \$110,000- under implementation- data still unavailable)

Investability

Revenue per year	The initiative is exploring revenue streams from selling carbon and biodiversity credits, as well as direct sales of biochar, while seeking potential buyers to expand its market. Established two operational WasteX sites and is generating revenue by selling carbon credits at \$50 per ton.
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.
Expected return	\$1,500 annually from biochar, shared equally between YBP and community \$50 per tonne of biomass wood chips Established two operational WasteX sites with an expected annual revenue of at least \$10,000 from 200 tons per year.