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FINDING WHAT WORKS

ECONUSA
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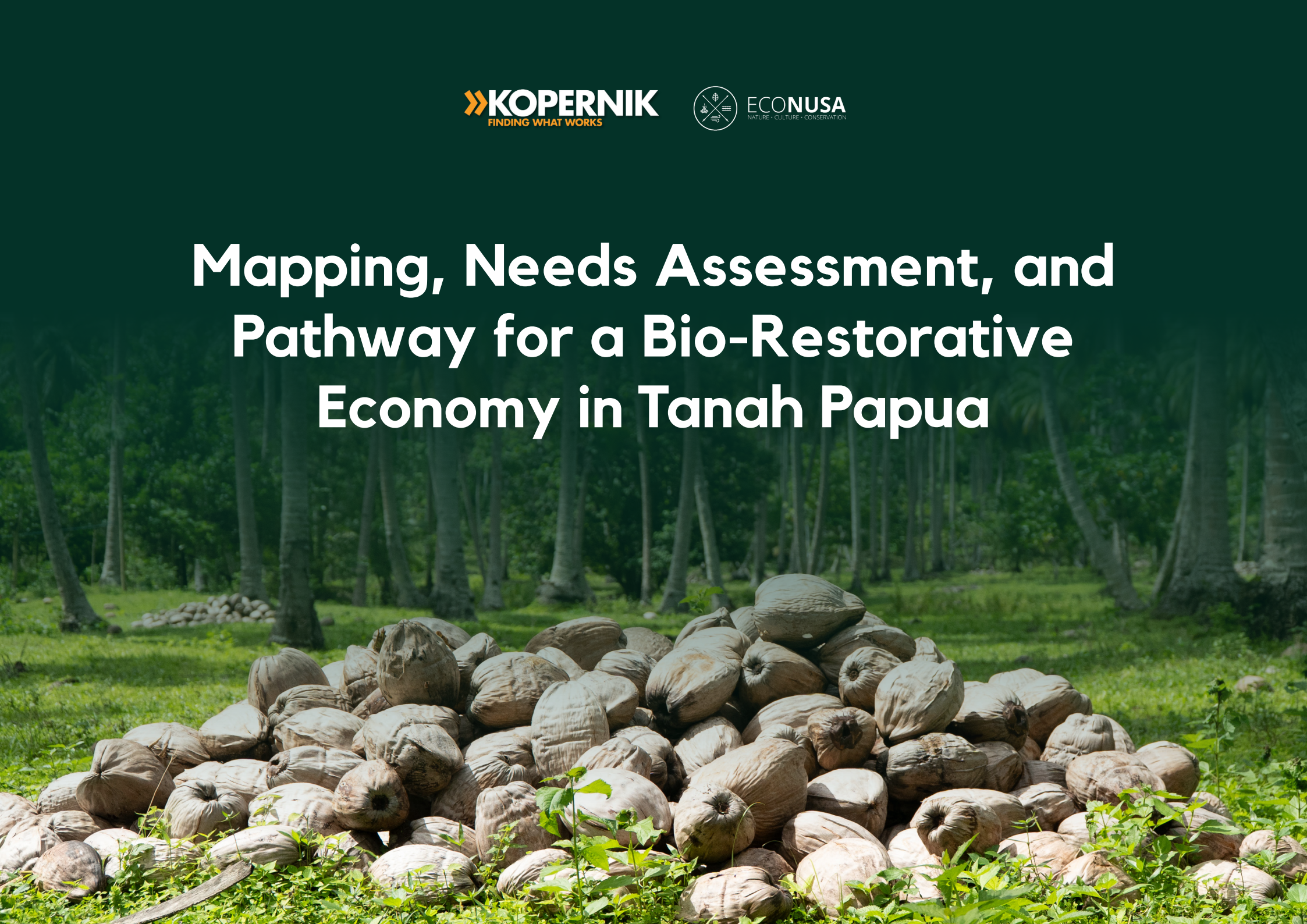
Mapping, Needs Assessment, and Pathway for a Bio-Restorative Economy in Tanah Papua



Daftar Isi

Executive Summary

BACKGROUND

Indonesia's **natural wealth** sustains millions, yet **unchecked extraction** erodes both ecosystems and livelihoods. **Restorative economic models**—those that regenerate the environment while **boosting local incomes**—offer a promising alternative. Governments, donors, NGOs, businesses, and communities have already begun embedding such approaches in Papua.

Against this background, together with Eco-Nusa, Kopernik embarked on a **three month research** to **map** such initiatives, and **project** the **potential** of restorative economy across Papua.

METHODOLOGY

Kopernik interviewed **38 organizations across eight regions in Papua.** The team then compiled and summarised the current high-level activities and near-term aspirations of those organizations, in terms of **economic, social,** and **environmental** dimensions.

Drawing on these insights gathered through the interviews, we further **extrapolated the potential** of the restorative economy if it is expanded to other areas of Papua, based on a number of ambitious assumptions.

POTENTIAL OF RESTORATIVE ECONOMY IN PAPUA

The bottom up calculation shows that the restorative economic activities currently generate **IDR 1.4 trillion annually**, engaging over **10,000 people** (of which 90% are Indigenous Papuans), and protecting **1.1 million** ha of land. These organizations aspire to expand their activities in the near future to generate **IDR 3.4 trillion**, engaging **28,000 people**, while protecting **2.7 million ha** of land. Most common activities center around **six commodities**, such as cacao, coffee, sago, copra, nutmeg, seaweed and other fishery products.

Based on a number of **ambitious assumptions,** Kopernik further estimates that the restorative economy **has the potential** to generate up to **IDR 65-130 trillion annually**, primarily from agriculture and fisheries sectors. This scenario also offers pathways to engage over **520,000 people** in the initiatives, and to protect up to **9.2 million hectares** of forested areas.

SUPPORT NEEDED

This transformative potential, however, can only be attained with extraordinary and combined efforts of all stakeholders, especially in the three main areas:

- **Capacity building:** Drastically expand training and technical support to strengthen local capabilities and economic participation.
- **Funding:** Mobilize up to **IDR 2.8 trillion** to realize the highest potential scenario.
- **Policy adjustment:** Strengthen land-tenure recognition, streamline permitting, and enforce existing environmental regulations while ramping up public-sector awareness campaigns and monitoring systems.

With **bold investment**, Papua's restorative economy can **scale from pilots** to a **province-wide growth engine**, equaling— and potentially exceeding— the economic weight of extractive industries while delivering **richer social** and **environmental** gains.

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Why restorative and regenerative economy

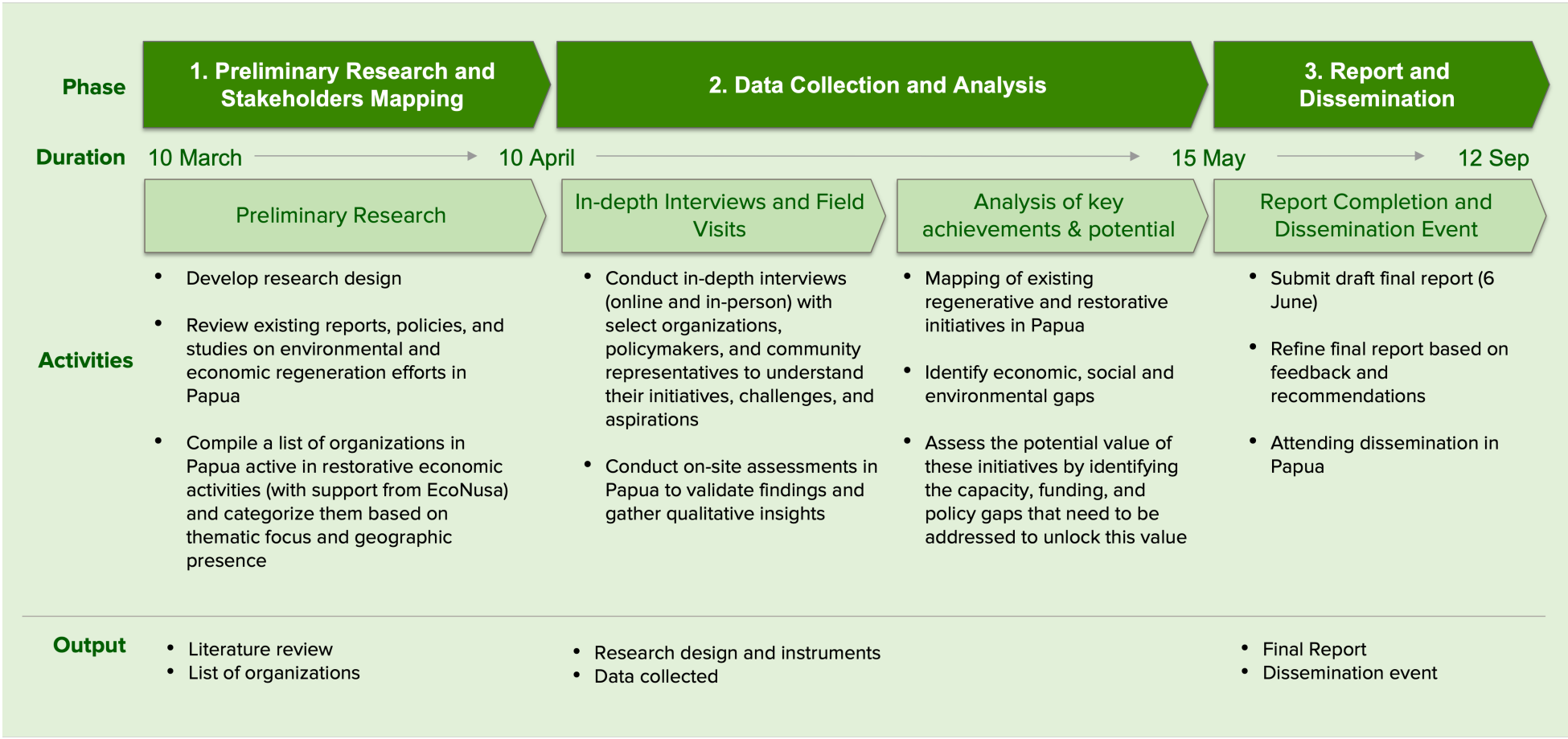
Papua's heavy reliance on extractive industries, **with sectors such as Mining and Quarrying contributing significantly around 18.7%1 to its GDRP, highlights a stark disconnect between resource wealth and community well-being.** Poverty rates remain high at around 18.1% in Papua province, and Human Development Indices are alarmingly low2, especially in regions like Papua Pegunungan (53.42)3, far below the national average.

Furthermore, the environmental costs caused by extractive industries are severe: nearly 35,000 hectares of deforestation in 2024 alone4, contributing to 480 million tons of CO_2 emissions over two decades, and massive tailings discharge devastating ecosystems6. This extractive model has also fueled widespread social challenges, with Indigenous Communities facing displacement, loss of livelihoods, and exclusion from decision-making. Land conflicts are rampant, with 154 nationally reported cases, highlighting systemic disregard for customary rights7.

Restorative economy offers a transformative alternative, shifting focus from extraction to regeneration. Environmentally, this means protecting forests not just for their resources, but as life-support systems that sustain clean air, water, biodiversity, and cultural heritage. Socially, it prioritizes secure land rights and empowers Indigenous Communities as stewards and beneficiaries of their lands. Economically, this approach nurtures diverse, inclusive, and locally rooted enterprises that integrate traditional wisdom with modern practices. Intertwining ecological regeneration with social equity and grassroots economic development, restorative economy provides a roadmap for Papua to build a just, thriving, and enduring future for its people and its globally significant environment.

[1] BPS Papua (2024). *Produk Domestik Regional Bruto Provinsi Papua Menurut Lapangan Usaha*
[2] BPS Indonesia (2024). *Poverty Profile of Indonesia.*
[3] BPS Indonesia (2024). *Indeks Pembangunan Manusia (IPM) 2023.*
[4] Global Forest Watch (2024). *Deforestation Alerts - Papua.*
[6] WALHI & Mongabay Indonesia (2023). *Tailings Freeport dan Dampaknya terhadap Lingkungan.*
[7] Konsorsium Pembaruan Agraria (KPA) (2024). *Catatan Akhir Tahun: Konflik Agraria 2023.*

The project activities are organized in 3 phases, from March to September 2025.



As background information, GDRP in Papua provinces is mainly driven by Mining (18.7%), Construction (15.9%), and Agriculture (13.2%).

Gross Domestic Regional Product (GDRP) by Papua Provinces

By sectors, In %, per province in Papua

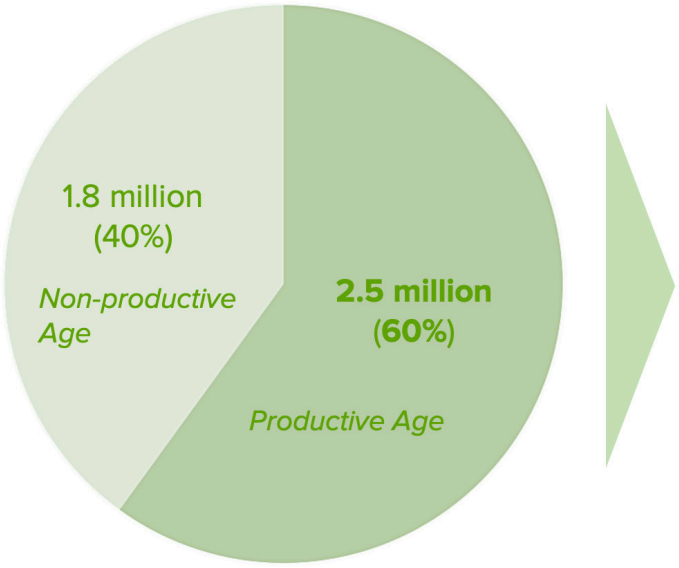
	South-West Papua	West Papua	Papua	Central Papua	South Papua	Mountain Papua	Tanah Papua (Average)
Agriculture, Forestry, and Fishing	12.4		14.5	4.1	22.6	17.7	13.2
Mining and Quarrying	**10.3**	**23.4**		**75**			**18.7**
Manufacturing	17.3	35.7					10.4
Electricity and Gas							
Water and Waste Management							
Construction	14.8		20.4	6.4	24	20.4	15.9
Wholesale and Retail Trade							10.8
Transportation and Storage							
Accommodation and Food Services							
Information and Communication							
Financial and Insurance							
Real Estate							
Business Activities							
Public Administration and Defense	13.5	9.2	11.6	3.5	11.3	19.8	11.5
Education							
Health							
Other Services Activities							

Source: BPS, 2024

... and Agriculture, Forestry, and Fishing sector engages 68% (or 1.7 million) of total number of people in the productive age (2.5 million).

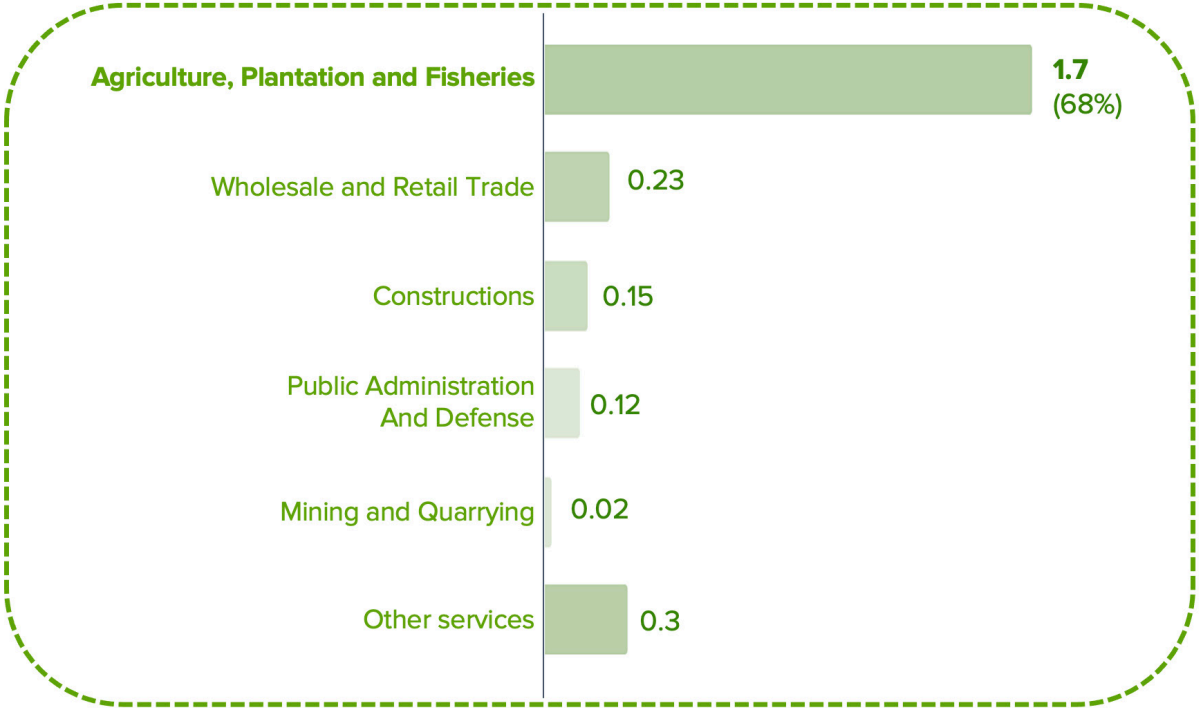
Total Population of Tanah Papua

In number, total = 4.3 million



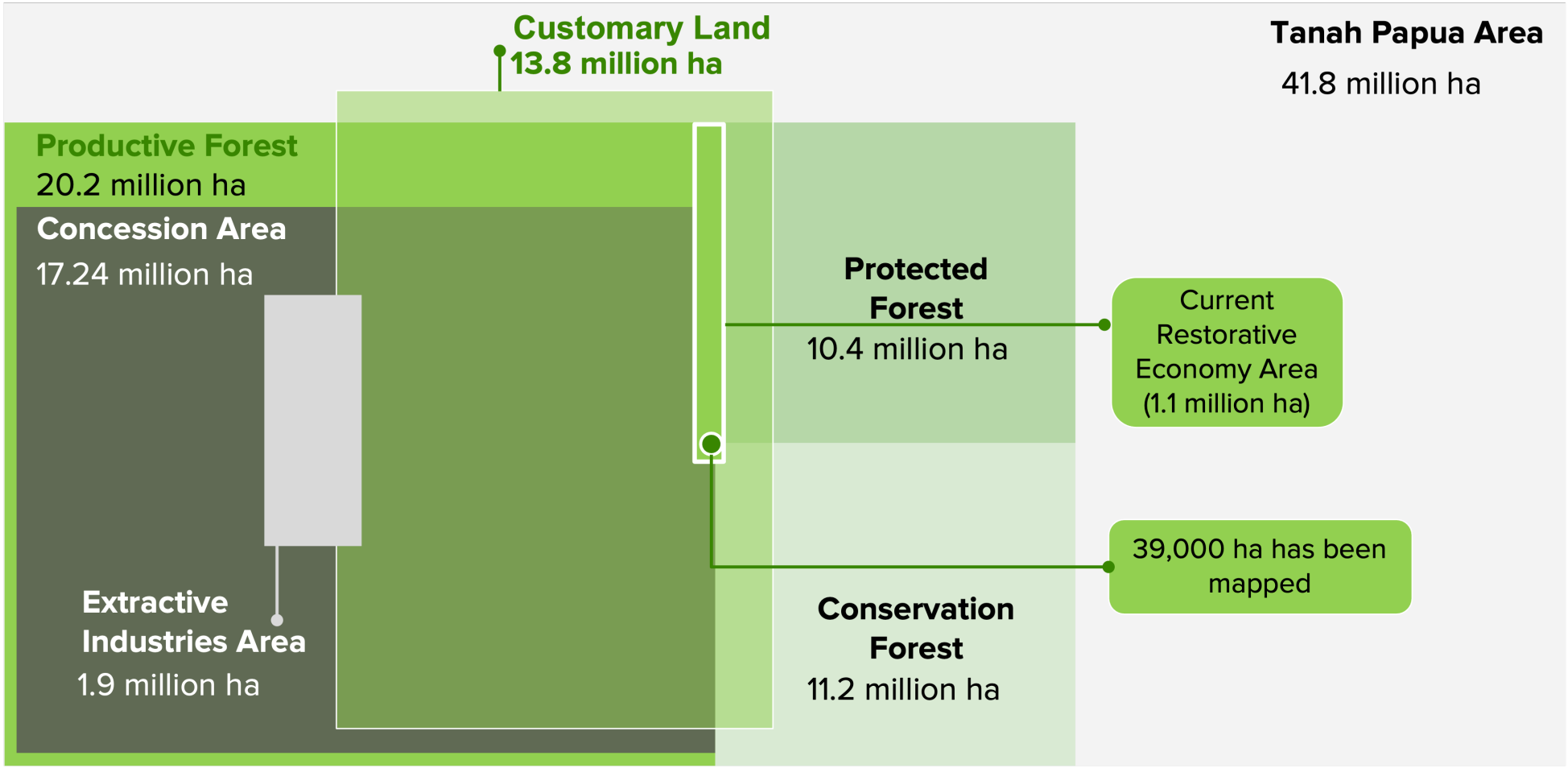
People in the Productive Age Employed per Sector

In millions of people, total = 2.5 million



In terms of land distribution, the Tanah Papua area is divided into productive forest, protected forest, and conservation forest, which overlap with concession areas, customary land, and other types of forest

ILLUSTRATIVE



Methodology

To understand the current status and potential of restorative economic activities in Papua, we focused on three key dimensions: economic, social, and environmental.

Economic

We estimate the total **value generated by restorative economy actors** using data on **yield**, **price per hectare**, and producer participation across **14 key commodities** (e.g., cacao, copra, honey).

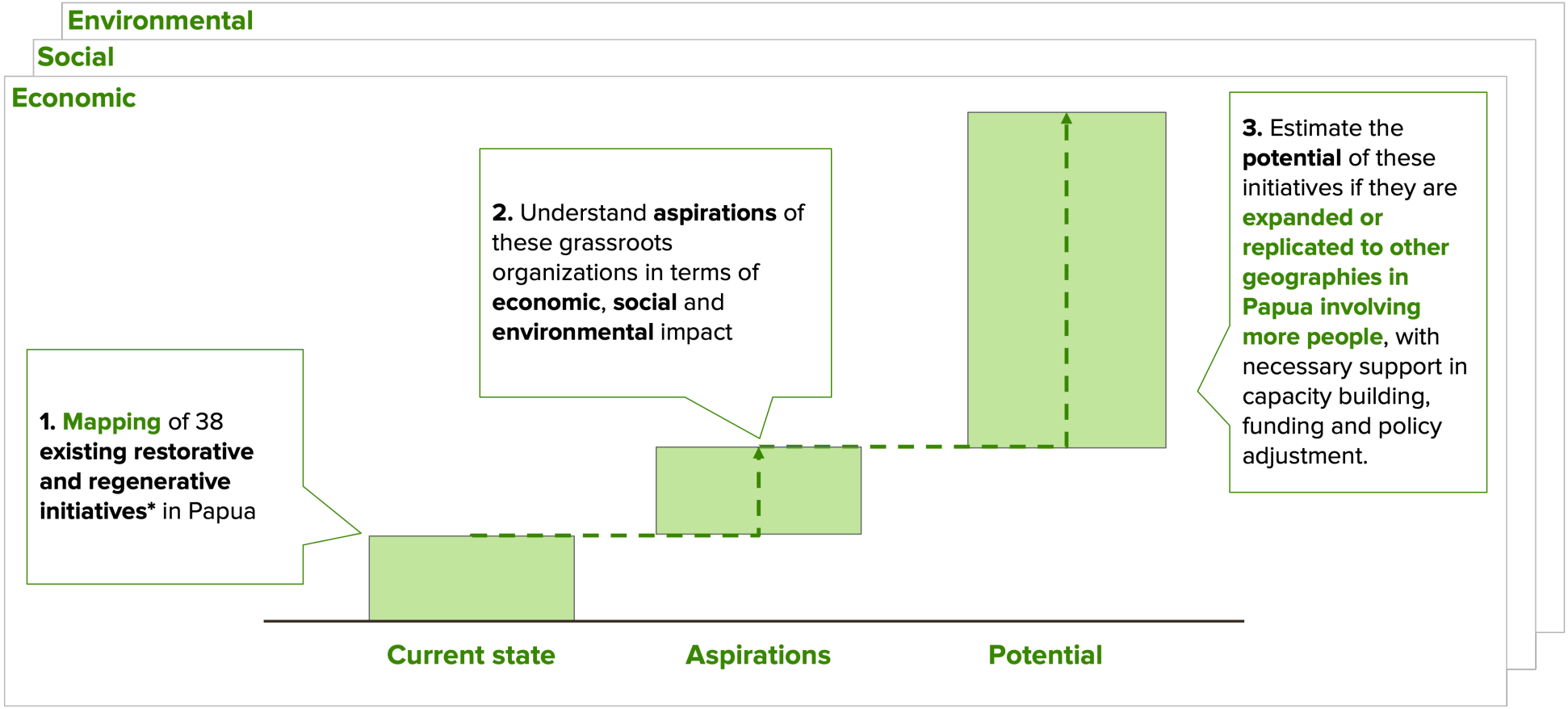
Social

We examine Papuan people's **participation in restorative initiatives**, especially Indigenous Papuans.

Environment

We assess **forest areas under protection** or **restoration**, focusing on **customary forests** managed by **Indigenous Communities**.

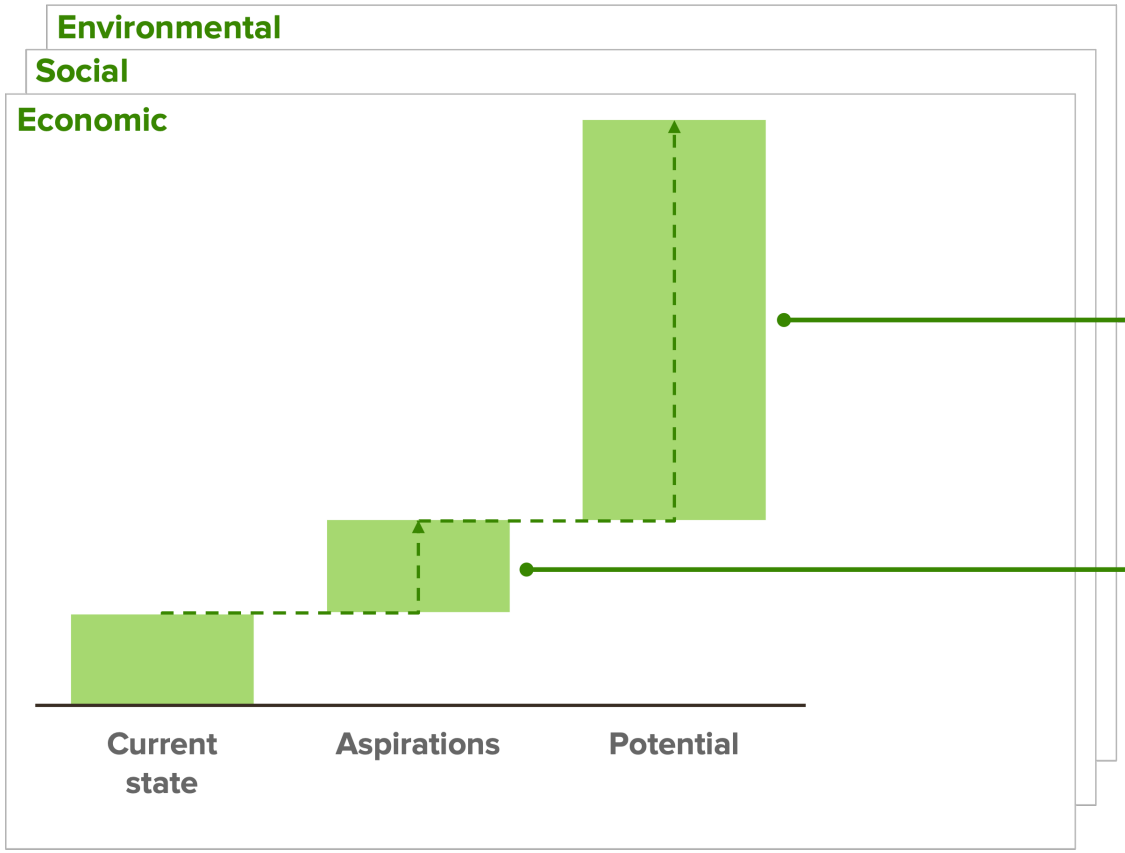
This project first mapped the current restorative economy initiatives of 38 grassroots organizations in Papua, as well as their near-term aspirations. We then extrapolated the potential of restorative economy if these activities are expanded to other areas in Papua.



**Note: The list of these 38 initiatives are compiled based on the recommendation of EcoNusa*

The assessment also uncovered perceived support needed in capacity building, funding, and policy areas to unlock the aspirational and potential level of impact.

Mapping and Gap Analysis



Perceived Support Needed

Capacity Building

Perceived capacity development needs of organizations and communities to implement and sustain initiatives (knowledge, skills, organizational resources, etc.).

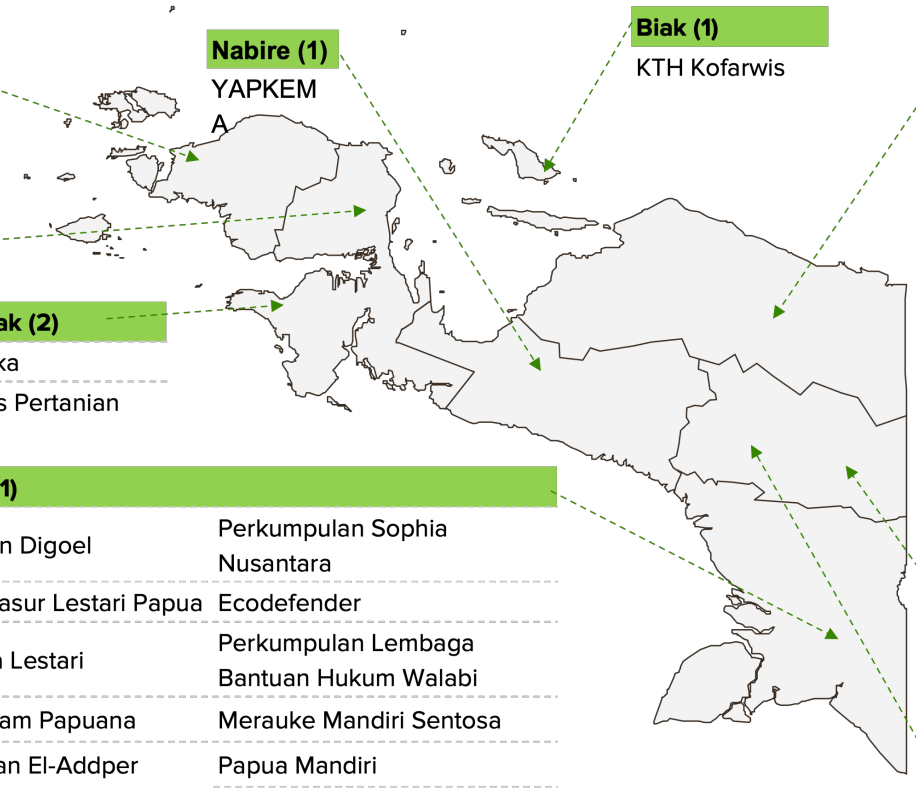
Funding

Perceived financial resources needed for facilities, equipment, logistics, etc., to implement restorative economic initiatives.

Policy Adjustments

Perceived local/regional policy and regulatory barriers to be addressed to create a more enabling environment for restorative/regenerative initiatives

Kopernik interviewed 38 organizations engaged in restorative activities across the region.



Sorong (3)
- Sinagi Papua
- Bina Tani
- Lingkar Jerat Papua

Manokwari (4)
- Eiber Suth Cokran
- Konservasi Indonesia
- Bentara
- WRI Manokwari

Nabire (1)
- YAPKEMA

Fakfak (2)
- Kaleka
- Dinas Pertanian

Biak (1)
- KTH Kofarwis

Jayapura (13)
- Panah Papua and Transfermer
- Kipra
- Yayasan Ekologi Sahul Lestari
- Dinas Perkebunan dan Peternakan Provinsi Papua
- Intstia
- Yayasan Pembangunan Masyarakat Desa Irian Jaya (YPMD)
- Yora Mekhande Jaya Cooperative Jayapura (under EcoNusa)
- Pengkajian dan Pemberdayaan Masyarakat Adat (PPMA)
- Dinas Perhutanan Provinsi Papua
- Badan Registrasi Wilayah Adat (BRWA)
- Lembaga Bantuan Hukum (LBH) Papua
- Yayasan Anak Dusun Papua (YADUPA)
- WRI Jayapura

Merauke (11)
- KPHL Boven Digoel
- Yayasan Wasur Lestari Papua
- Silva Papua Lestari
- Harmoni Alam Papuana
- Perkumpulan El-Addper
- Perkumpulan Papua Paradise
- Perkumpulan Sophia Nusantara
- Ecodefender
- Perkumpulan Lembaga Bantuan Hukum Walabi
- Merauke Mandiri Sentosa
- Papua Mandiri

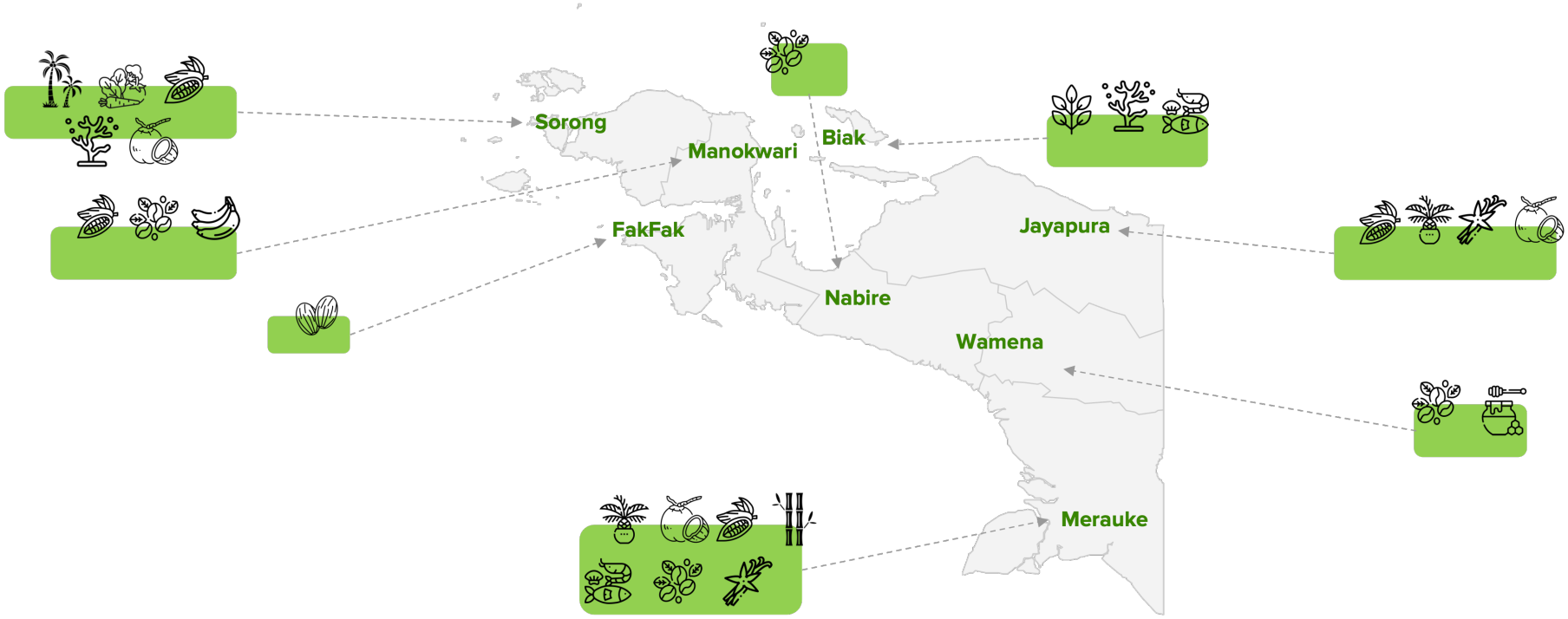
Pegunungan Bintang (1)
- Gereja Katolik Abmisibil

Other (1)
- CELIOS

Wamena (1)
- Asosiasi Pengusaha Madu Jayawijaya

Key Achievements and Near-term Aspirations

We identified key commodities across Papua with potential for expanded cultivation and value-added processing to restore the economic livelihoods while protecting forests



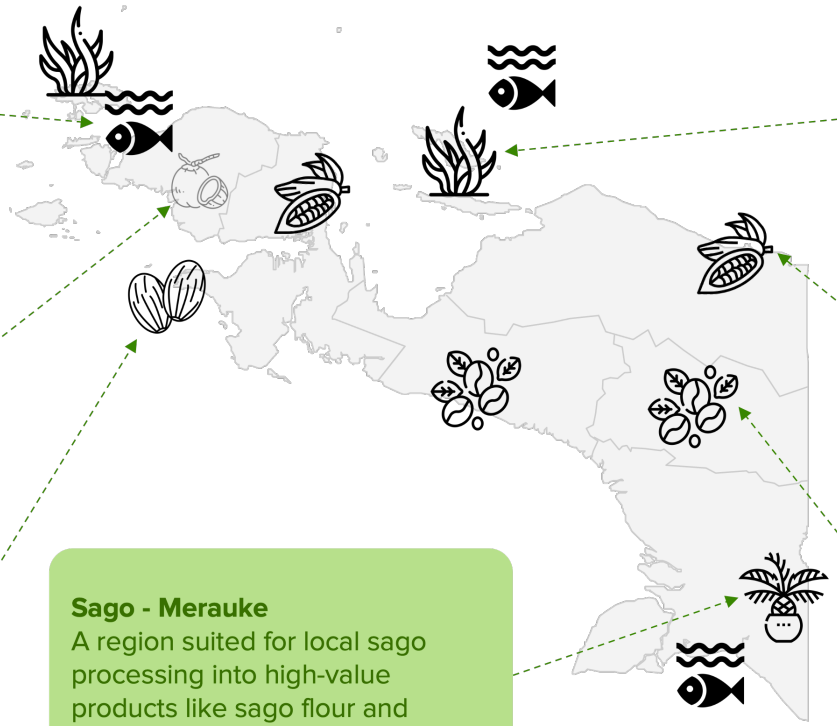
Fisheries | Nipah | Cacao | Horticulture | Coffee | Sago | Nutmeg | Banana | Copra | Rattan | Seaweed | Kayu Putih | Vanilla | Honey

These six commodity hubs represent high-potential regions where targeted investments in value-added processing, logistics, and local capacity can transform Papua's economy—shifting it from raw material extraction to inclusive, community-led development

Fisheries - Sorong, Manokwari, Biak, and Merauke
A rich marine biodiversity area where community-led, sustainable fishing and processing can strengthen local livelihoods.

Copra - Sorong, Merauke
A key coconut area with potential to upgrade from raw copra to higher-value products like coconut oil and charcoal through better drying, standards, and cooperative trade.

Nutmeg - Fakfak
Home to Papua's wild nutmeg, this area holds cultural and economic significance, with opportunities for post-harvest improvement and cooperative-based trade.



Sago - Merauke
A region suited for local sago processing into high-value products like sago flour and materials

Seaweed - Biak, Sorong
A promising coastal zone with vast underutilized marine farming potential, ideal for developing processed seaweed products for global markets.

Cacao - Jayapura & Manokwari
Known for quality cacao, this region can benefit from better post-harvest handling, drying, and fermentation infrastructure.

Coffee - Wamena and Nabire
Produces distinct Arabica beans. With proper processing and marketing, it could enter global specialty coffee markets.

Case study: EcoNusa created opportunities for coconut farmers to improve their livelihoods by purchasing their products at higher prices, enabling them to increase their income.

EcoNusa, through its community-based cooperative, **KOBUMI, have been actively engaging small-holder coconut farmers in Sorong, West Papua**. Covering coastal and smallholder farming areas, the initiative supports farmers to overcome economic inequalities by promoting **sustainable coconut** and **copra production**, providing **training**, and strengthening collective **market access**.

Challenges and Opportunities

- Economic dependence on copra exposes farmers to **fluctuating prices** and **reliance on middlemen**, resulting in unstable income.
- Farmers mainly sell raw copra with minimal processing, limiting income potential because of **low-value addition.**
- **Limited access to post-harvest technologies** reduces productivity and quality.
- **Farmers lack training in processing the commodity into value-added products** such as VCO, coconut oil, etc

Program

- **Provide trainings** for farmers on cultivation, quality copra processing, and product diversification (e.g., VCO)
- **Strengthen farmer cooperatives** to improve bargaining power, fair pricing, and collective access to markets.
- Support value addition by introducing **simple processing technologies**
- **Facilitate market linkages** by connecting cooperatives to reliable buyers, fair markets, and sustainable supply chains.

Result

- Farmers engaged in sustainable coconut cultivation and copra processing.
- **Increase income** for farmers
- Farmers have **received training** on cultivation, post-harvest handling, and financial literacy.
- **Improved market access** through cooperative networks and partnerships with fair buyers.
- Profits from collective sales are used to invest in **better equipment** and **community development.**

Case study: In Pegunungan Bintang, Papua, coffee plantations have been the source livelihoods of the indigenous people amid geographical isolation and access to market

Organizations such as **Abmisibil Catholic Church** have been actively engaging **coffee farmers in Pegunungan Bintang**. Covering around 64 hectares and involving approximately 100 farmers, the initiative aims to address significant economic inequalities among farmers by promoting coffee cultivation, providing training, and improving market access through a cooperative.

Challenges and Opportunities

- The **economic inequalities** cause farmers to face low and unstable income due to limited market access and geographical limitations.
- **Limited access to agricultural materials** and **equipment** restricts the area farmers can cultivate and increases the time and effort required for their work.
- **Farmers need training** in cultivation, post-harvest processing, and cooperative management to increase quality and volume sustainably.

Program

- **Provide trainings** for farmers on cultivation, post-harvest handling, and quality control.
- **Strengthen and improve cooperative** structures to foster fair price, collective bargaining and market access.
- **Aggregate coffee beans** from farmers and **connect cooperatives to reliable buyers** and fair markets for specialty coffee.
- **Expand cultivation areas** by engaging more farmers in villages to promote coffee cultivation

Result

- **100 farmers** involved in managing **64 hectares** of coffee plantations.
- **Farmers have received basic training** in coffee plantation, agroforestry and financial management.
- Initial **improvements in market linkage** through cooperative structures.
- **Profits** from the cooperative are used to **fund training** and **agricultural equipment**.
- **More farmers are clearing abandoned fields** to begin with coffee cultivation.

Case study: Cacao trees grow in many land forest in Papua, the high price of the commodity provides opportunities for the indigenous people to improve their livelihoods

Yayasan Pembangunan Masyarakat Desa (YPMD) in **Jayapura** and **Eiber South Cokran** in **Manokwari** work with farmers and communities in villages to **cultivate, process,** and **sell cacao** as a means to improve livelihoods. YPMD, in particular, has successfully supported the establishment of PT Kakao Kita, a youth-led MSME that supplies cacao beans to domestic markets and exports to Japan.

Challenges and Opportunities

- **Climate change** has reduced soil fertility, leading to lower cacao production and impacting farmers' incomes.
- **Fluctuating cacao prices** result in unpredictable income, making it difficult for farmers to connect to stable markets.
- **Farmers require advanced training** in agroforestry and the use of agricultural equipment
- Large areas of post-concession land often remain unproductive, and many **cacao trees are old**, in need of **regeneration** which requires significant investment.

Program

- Eiber South Cokran has replanted 1,200 hectares with cacao, **regenerating degraded land** post-concession while developing agroforestry models for sustainable cultivation.
- **Improved access to quality seedlings** and **land rehabilitation** efforts are creating job opportunities
- YPMD has assisted cacao farmers with **agricultural equipment**, **bean provision**, and **financial management** training while opening **market access pathways** for farmers to sell their cacao.

Result

- **Increasing production capacity** to meet the international demand for cacao, including export opportunities.
- **Raising awareness** among youth on the importance of protecting forests while improving economic livelihoods through agroforestry practices.
- **Trainings**, particularly in financial management, enable farmers not only to cultivate cacao but also to plan production and manage related costs, helping them allocate their income more mindfully.

Case study: In Papua and other parts of Eastern Indonesia, KOBUMI helps indigenous fishers harvest shrimp sustainably, securing incomes and protecting mangroves

KOBUMI has **supported indigenous fishers** in Eastern Indonesia by purchasing sustainably **harvested shrimp** from ecologically important mangrove areas, ensuring fair, upfront payments while managing quality, logistics, and market access. This cooperative model has sold **1.8 tonnes of shrimp** in two years, helping communities **secure income** while **protecting mangroves** and **strengthening local food security**.

Challenges and Opportunities

- **Ensuring consistent shrimp** quality from small-scale fishers requires ongoing monitoring.
- **Expanding storage, cold chain**, and **logistics infrastructure** requires investment beyond current cooperative capacities.
- **Building skills** in cooperative management, financial literacy, and business planning among fishers takes time.
- **Navigating permits** and **compliance** for sustainable harvesting and export can be challenging for cooperatives.

Program

- **Engage indigenous fishers** to harvest shrimp sustainably in ecologically significant mangrove and forest areas.
- **Purchase shrimp directly**, ensuring fair, upfront payments while handling quality control and logistics.
- Use a multi-party **cooperative model** to strengthen local economic resilience.
- **Train communities** to process shrimp into products like shrimp broth or paste, similar to nearby initiatives where fishery by-products are developed into commercial goods .

Result

- **1.8 tonnes of shrimp sold** in the first two years through their cooperative model, directly benefiting Indigenous fishers with fair, upfront payments.
- By focusing on shrimp from mangrove and forest areas—often former palm oil concessions—KOBUMI **aligns economic activity with ecosystem protection** and rehabilitation.
- Starting from Papua, the enterprise has **expanded its cooperative model to Maluku and North Maluku.**

Case study: While conserving forests in Papua, KALEKA boosts farmer incomes with sustainable nutmeg processing and opens access to international markets

KALEKA in **Fakfak**, **Southwest Papua,** is **working with local communities to restore the economy and protect forests through sustainable nutmeg cultivation and processing.** By introducing agroforestry models on post-concession lands and reviving traditional forest stewardship practices, KALEKA helps farmers increase income while conserving biodiversity.

Challenges and Opportunities

- Farmers need **ongoing technical and financial management training** to maintain quality and scale production.
- **Cooperatives may lack experience** in managing production planning and profit-sharing systems.
- **Ensuring a steady supply** of quality nutmeg from farmers can be difficult due to varying harvest times and climate impacts.
- **Scaling processing facilities** and diversifying products requires larger funding.

Program

- Through the Wewowo Lestari program, KALEKA **empowers women farmers** with training in improved processing techniques for nutmeg, such as solar drying and compliance with SOPs, boosting farmers' income by 13–40%.
- **Revive community production facilities** (e.g. in Kampung Puar) for essential oil extraction and are partnering with cooperatives like Mery Tora Qpohi to produce export-grade nutmeg oil for international markets.

Result

- Through cooperative processing and diversified products, **farmers gain an additional 11–40% income**, compare to sell raw nuts to middlemen.
- Cultural harvest rituals and agroforestry models guard against deforestation, ensuring **long-term ecological stability.**
- By 2025, KALEKA's cooperatives partners aim to export high-grade essential oils and perfumes, **turning smallholder nutmeg into globally competitive product.**

Case study: Organizations across Papua work with indigenous communities to improve sago plantations while protecting forests, enhancing food security and women's incomes

Sago is a key forest commodity found across Papua. Organizations such as **Bentara in Manokwari**, **Panah Papua in West Papua**, **Intsia in Jayapura**, and **Yayasan Wasur Lestari in Merauke** are working together with indigenous communities to **restore economic livelihoods** while **protecting forests** through sago-based initiatives.

Challenges and Opportunities

- **Land conversion** pressures for oil palm, mining, or infrastructure threaten sago forest areas.
- Processing sago remains **labor-intensive**, with **limited equipment access.**
- Introducing modern techniques while preserving traditional sago processing knowledge takes time and **requires careful engagement** with indigenous communities.
- **Limited support for product licensing** made by local communities.

Program

- Bentara Papua engages communities in organic and local-food farming (including sago) to **enhance food security and resilience** in West Papua
- Yayasan Wasur Lestari implements **participatory mapping** of Indigenous territories, particularly sago groves, to support customary land rights.
- These organizations help communities **preserve traditional techniques** like *menopok* (sago pounding) while introducing new processing tool.

Result

- **Improved sago processing capacity** has provided additional income for families, especially for women involved in sago flour processing and sales.
- **Cultural practices** and **Indigenous knowledge** of sago management are **preserved** through youth engagement and training.
- Sago has been positioned as a **sustainable food security** commodity aligned with forest conservation efforts in participating areas.

Case study: KOPERNIK restored seaweed farming in Biak, Papua, boosting coastal community livelihoods and enabling the sale of 1.5 tonnes of dried seaweed to market

Throughout 2022 to 2024, KOPERNIK has empowered seaweed farmers in Biak, Papua, to sustainably cultivate seaweed while actively involving women in the seaweed value chain and value-added product (VAP) development. The program aims to **increase the income of coastal households** and **promote the active involvement of women**, especially in value-added seaweed product development and sales.

Challenges and Opportunities

- **High logistics costs has** limited the farmers' access to broader markets and high quality seedlings, stunting economic growth.
- Many **participants struggled to apply the newly acquired knowledge**, especially since most were new to seaweed cultivation. Continuance assistant is highly needed.
- There is still **limited development of the local seaweed VAP market**, with challenges in product differentiation and pricing.

Program

- Kopernik **restored seaweed farming** in these communities. The program included 16 farmers managing a total of 10 developed plots (0.65ha).
- **Provided trainings, mentoring**, and **monitoring** to farmers to improve the cultivation practices.
- **Opened market access** for farmers to sell the dried seaweed, providing additional income and motivating them to continue the cultivation.
- **Involve women** in the island to develop seaweed VAPs.

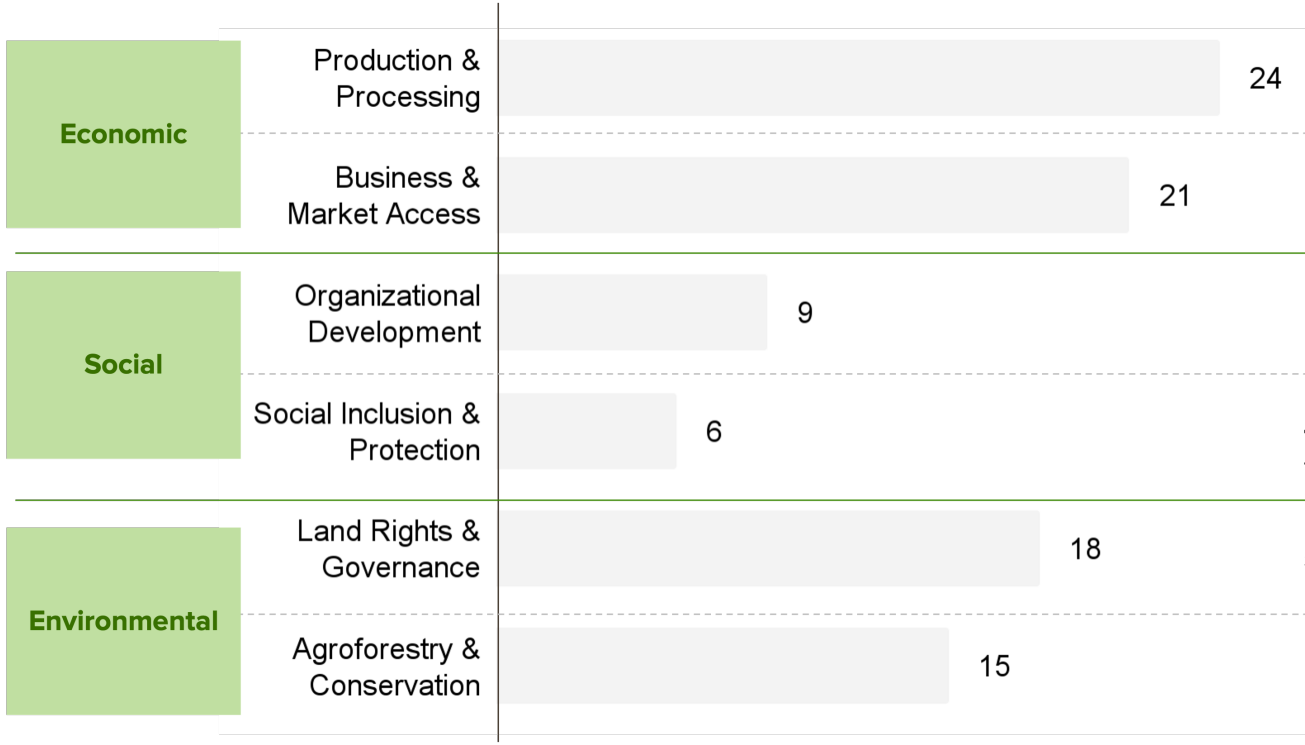
Result

- In 2025, Kopernik successfully connected farmers to markets, resulting in **1.5 tonnes of dried seaweed cultivated by farmers sold**, while increasing women's involvement in the seaweed value chain and laying the foundation for local VAPs development in Biak.
- The successful sales has **motivated the farmers to continue cultivating seaweed,** exposing seaweed from Papua to other regions in Indonesia.

Through the grassroots organizations, communities received a wide range of capacity building support in economic, social and environmental dimensions. At the same time, the near-term aspirations of these organizations for additional support were also identified.

Training received by communities

Type of training, N=38, multiple answers



Near Term Aspiration

Expand access to **advanced technology and processing machinery** for smallholder farmers to increase consistency and product quality.

Enhance access to **larger markets**, both regionally and internationally

Expand **training opportunities for women and marginalized groups**

Equip organizations with the tools and knowledge to engage effectively in policy advocacy, allowing them to advocate for their local needs.

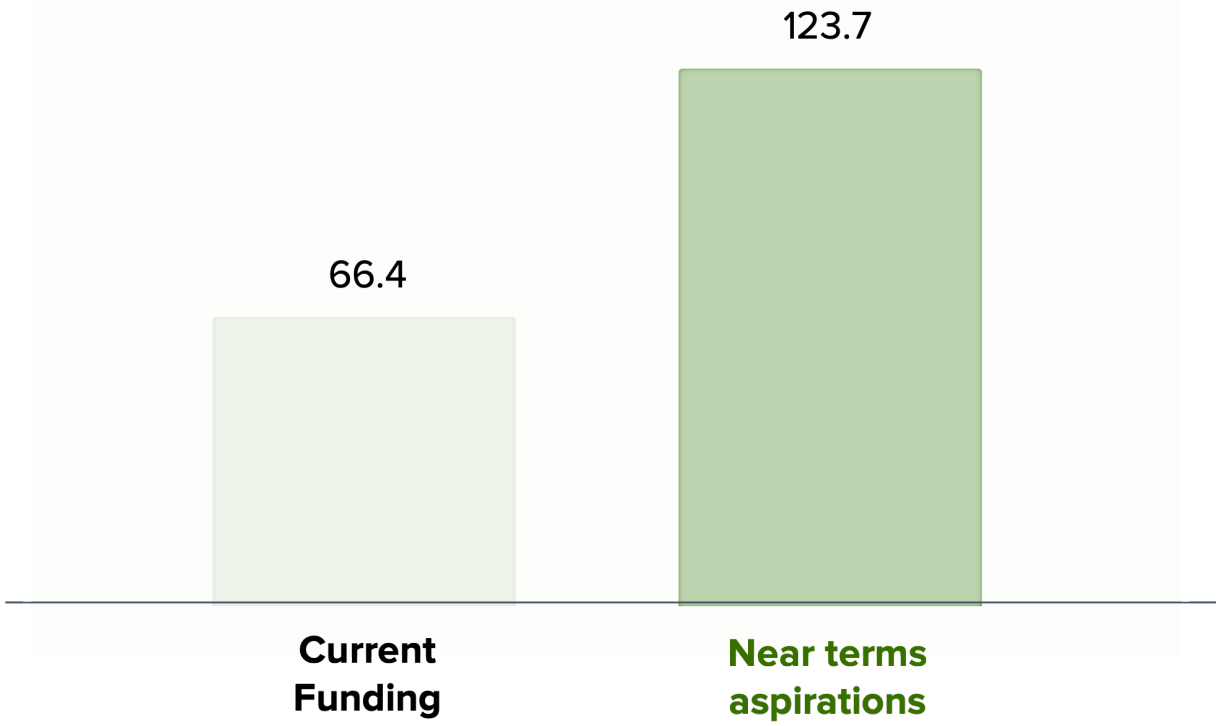
Focus on **accelerating land tenure recognition and supporting legal processes** for Indigenous communities to secure long-term land rights.

Promote **large-scale adoption of agroforestry practices**, integrating them into mainstream agricultural models and ensuring financial viability for communities.

The interviewed organizations' combined annual funding amounts to IDR 66.4 billion per year, while they aspire to expand their activities with increased funding of IDR 123.7 billion.

Combined annual funding of the interviewed organizations

IDR billion, per year



Interviewed organizations have been helping implement various policies related to restorative economy on the ground, and they have shared activities they wish to focus on in the near term.

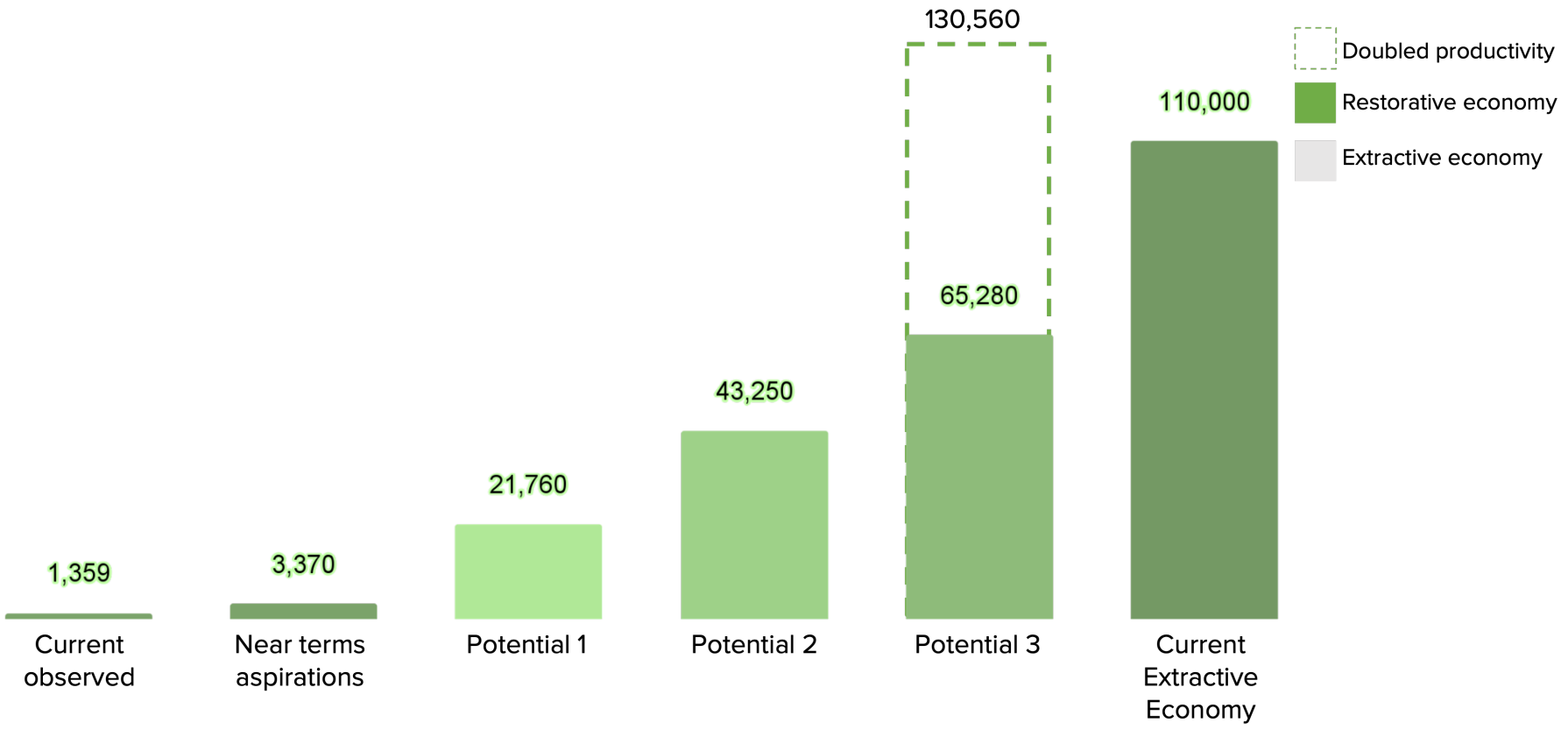
	Type of Policy	(Being) Implemented	Near-term Aspiration
Economic	**Protection of agricultural land**	Preservation of agricultural land for long-term farming and securing farmer income, including business registration, promoting sustainable farming practices, and establishing accessible markets.	**Strengthen enforcement** and **monitoring mechanisms** to prevent land conversion, and ensure sustainable land use practices and forest protection initiatives.
	Promotion of local food systems	Strengthening food sovereignty and creating value chains for native crops, supporting smallholders with certifications such as PIRT and halal for market entry	**Increase awareness** and provide targeted support to farmers to foster the adoption of sustainable and regenerative agricultural practices.
Social	**Customary land recognition and legal support**	Legal recognition of customary land to empower local governance and support sustainable resource management.	**Streamline bureaucratic processes** for legal recognition and funding for local communities and enterprises.
	Dispute resolutions	Fair dispute resolution for indigenous people to protect community livelihoods	**Establish clear legal frameworks** and provide strong institutional support to ensure timely and effective enforcement of policies.
Environmental	**Forest Protection and Sustainable Use**	Promoting sustainable forest management practices that benefit both ecosystems and local communities, including initiatives like smart patrols.	**Increase funding** to scale up reforestation and conservation programs.
	Reforestation and forest conservation initiatives	Protect and restore ecosystems through community-led conservation efforts	**Promote large-scale agroforestry adoption** to integrate sustainable land management practices into agricultural systems.

Potential of Restorative Economy and Support Needed

Economic Dimension: The restorative economy in Tanah Papua has the potential to generate up to IDR 130 trillion, compared to the current extractive economic value of IDR 110 trillion

Economic value generated

In a billion IDR



Assumptions for the scenario: Economic Dimension

Economic Value per Year= Ha cultivated x Harvest per ha x Price per kg x Harvests per year

Scenario	Description	Estimated No. of People Involved*	Share of Agricultural Workforce
Current observed	Aggregate economic value generated by 27** organizations currently engaged in restorative economic activities across Tanah Papua.	10,591	0.6%
Near terms aspiration	Projected value if all 27 organizations expand their reach to 28,068 individuals using similar models.	28,068	1.6%
Potential 1	Projected value if 10% of the productive agricultural population in Tanah Papua adopts restorative practices.	175,591	10%
Potential 2	Projected value if 20% of the productive agricultural population in Tanah Papua adopts restorative practices, with strong enabling policies and investments.	351,182	20%
Potential 3	Projected value if 30% of the productive agricultural population in Tanah Papua adopts restorative practices, with strong enabling policies and investments.	526,773	30%
Current Extractive Economy	Estimated economic footprint of mining, oil palm, logging, and forestry industries in Papua.	290,000	n/a

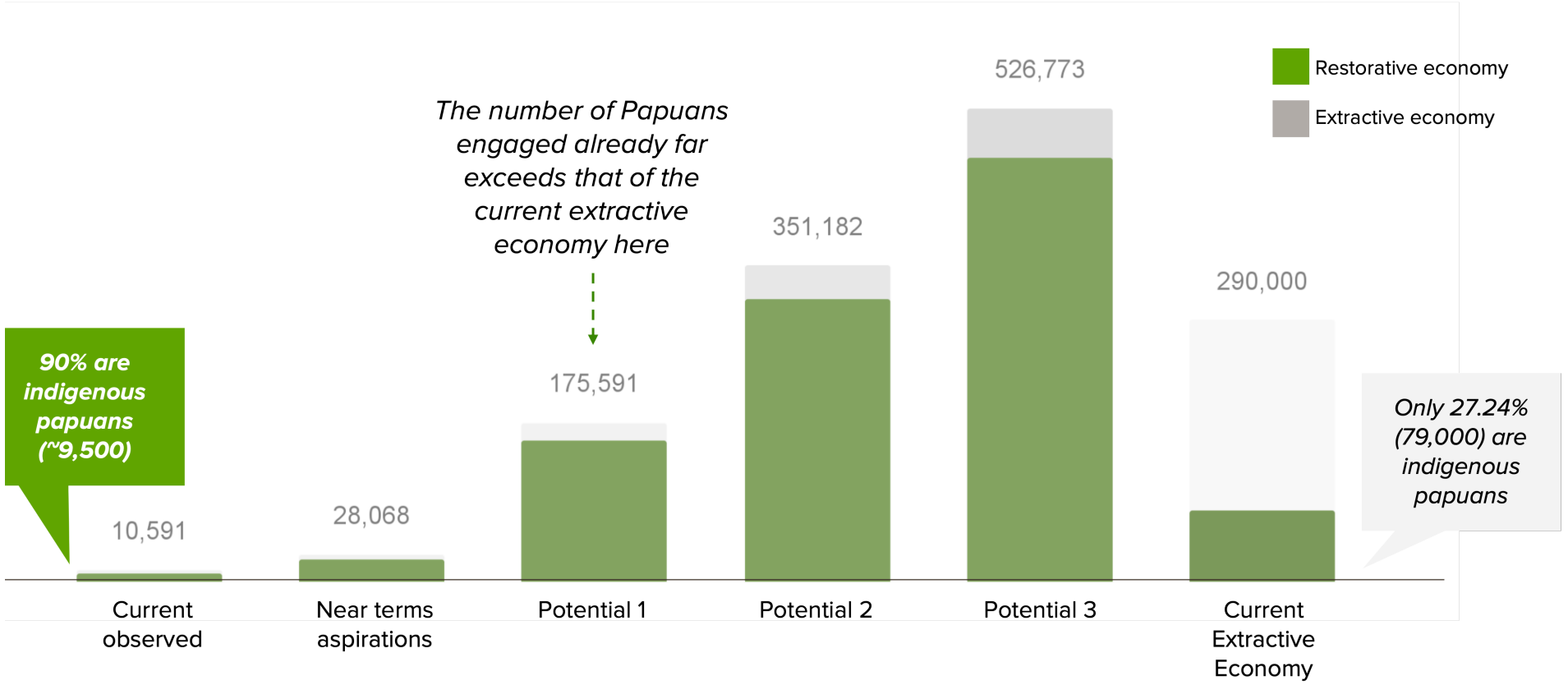
**See slide 8*

***27 organizations (out of 38 organizations interviewed) are directly involved in economic activities that support restorative efforts.*

Social Dimension: Restorative economic activities in Tanah Papua currently involve 0.6% of the agricultural workforce. With broader adoption, they could engage up to 30% and drive larger-scale social transformation.

Number of people involved

#



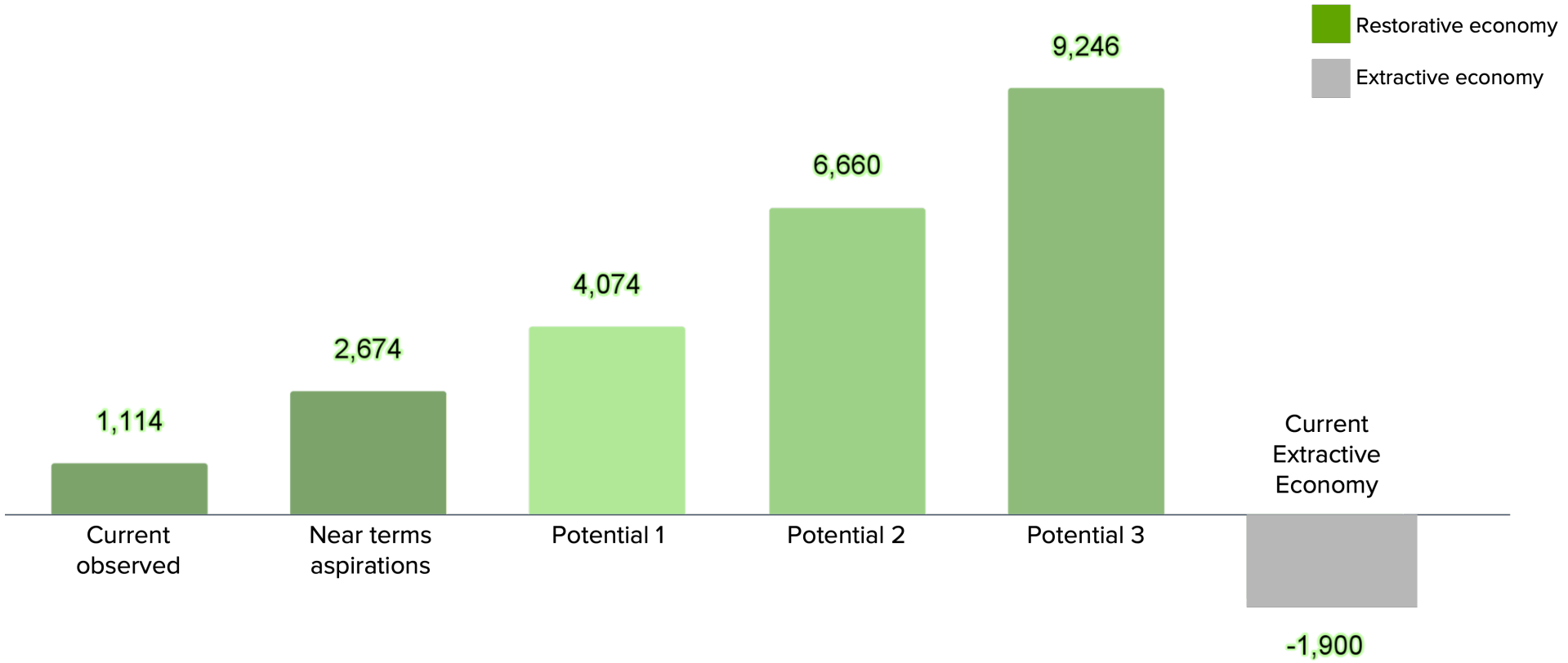
Assumptions for the scenario: Social Dimension

Social Value per Year = Number of People Involved in Restorative Activities* per year

Scenario	Description	Limitations
Current observed	The aggregate number of people currently engaged in restorative economic activities across Tanah Papua by 27 organizations.	Only reflects a small share of the workforce; may not capture informal or Indigenous participation fully.
Near terms aspiration	The aggregate number of people 27 organizations aspire to engage in restorative economic activities.	Community readiness, geographic reach, and equity in benefit-sharing may vary across locations.
Potential 1	10% of the productive agricultural population adopts restorative practices.	Assumes uniform adoption and support systems. Cultural, land tenure, and education barriers could limit uptake.
Potential 2	20% of the productive agricultural population adopts restorative practices.	
Potential 3	30% of the productive agricultural population adopts restorative practices.	Ambitious scenario. Needs systemic support and safeguards to ensure fair inclusion, especially for Indigenous communities.
Current extractive	Estimated number of people engaged in extractive activities such as mining, oil palm, logging, and forestry industries in Papua (of which 27% is indigenous Papuan.)	Estimates only; company data undisclosed. Excludes informal and illegal activity.

**In this calculator, the 'restorative activities' focus on the people engaged in the agriculture and fisheries sector, as it not only reflects the ecological grounding of the restorative economy but also the reality that the sector which engages the majority of rural and Indigenous workers in Tanah Papua. See slide 33 in the Annex for more information.*

Environmental Dimension: Restorative initiatives now cover 1.1 million ha and could potentially expand to 9.2 million ha. By contrast, the extractive economy produces a net loss of 1.9 million ha.



Assumptions for the scenario: Environmental Dimension

Environmental Value per Year = Estimated Forest Area Protected (in hectares)

Scenario	Description	Limitations
Current Observed	Forest area currently protected (1.1 million ha) through active restoration initiatives of the 27 organizations.	This excludes other initiatives that are not captured in the bottom up interviews.
Near-Term Aspiration	Target forest area the 27 organizations aim to protect (2.7 million ha) in the near term by expanding their work.	Actual implementation depends on future funding and capacity.
Potential 1	Current observed area (1.1 million ha) plus maximum area outside concession zones that can be protected, calculated as total productive forest area minus extractive concession area. (2.96 million Ha*)	
Potential 2	Potential 1 + partial recovery (15%) of underutilized concession land	Underutilized concession area may not be recovered for restorative use
Potential 3	Potential 1 + partial recovery (30%) of underutilized concession land.	
Current Extractive	Out of the forest area allocated (17 million Ha) for the extractive industries, 1.9 million Ha is actively used (Forest Watch Indonesia)	Many licenses remain idle; estimate may not reflect unofficial or informal extraction.

**see annex, slide 37. To be precise, part of the 2.96 million ha may have already been covered by the current restorative initiatives, but the extent is not known. We therefore simply add the current 1.1 million ha and the total productive area that is not been assigned to concession.*

Realizing these potential scenarios will require extraordinary and concerted efforts in capacity-building, funding, and support for policy adjustments.

	SUPPORT NEEDED*		
	Economic	**Social**	**Environment**
Capacity Building Perceived capacity development needs of organizations and communities to implement and sustain initiatives	● Expand access to **advanced technology** ● Enhance **market access** *(through connecting with market and improving the logistics)*	● Increase training opportunities for **women** and **marginalized** groups ● Equip organizations with tools and knowledge for **advocacy**	● Accelerate **land tenure recognition** and support legal processes ● Promote large-scale **agroforestry adoption**
Funding Perceived financial resources needed for facilities, equipment, logistics, etc. to implement restorative economic initiatives.	**Estimate funding needed** IDR billion, per year 66.44 (Current) 123.68 (Aspirations) 937.65 (Potential 1) 1,875.30 (Potential 2) 2,812.95 (Potential 3)		
Policy Adjustments Perceived local/regional policy and regulatory barriers to be addressed to create a more enabling environment	● Strengthen **enforcement** and **monitoring** mechanisms ● Increase **awareness**	● **Streamline** bureaucratic processes ● Establish **clear legal frameworks**	● Promote large-scale agroforestry adoption

** The current list of capacity building and policy adjustment support needs are expressed by the NGOs for the near future, and they need to be adjusted to meet the future conditions*

Annex

1. 5-Year High-Level Roadmap for the Restorative Economy

Customary-based restorative economy

Potential Solution	Year 1–2	Year 3–4	Year 4–5	Main Actors
Strengthening local economic institutions (cooperatives, BUMKAM, BUMA)	Institutional development & mentoring	20% of local economic institutions operate actively & healthily	10% of institutions categorized as advanced and able to access large-scale financing	SME Agency, Customary Communities, NGOs
Business training & financial literacy	Training on natural resource processing and basic financial literacy	Training on branding & digital marketing	Local products can enter provincial retail & e-commerce	NGOs
Increasing added value of nature-based products	Identification of groups & commodities (sago, seaweed, cacao, tubers, nutmeg, coffee, etc.)	Production of simple processed goods with added value	Local products sold outside Papua & to premium markets	Customary Communities
Market access & supply chain analysis	Training on quality standards and research (market access and supply chain)	Procurement of drying machines/packaging equipment	Partnerships with national & export buyers	NGOs

Participatory mapping of customary land

Potential Solution	Year 1–2	Year 3–4	Year 4–5	Main Actors
Advocacy for governor's instruction	Building support & multi-stakeholder workshops	Ratification & dissemination of instruction	Implementation & evaluation of instruction	NGOs, CSOs
Protection of customary territories	Identification of land threats & advocacy to government	Draft protection included in spatial plan (RTRW)	Formal regulation for recognition of customary territories	Customary Communities
Participatory customary territory mapping	Socialization & training on GPS/GIS and start participatory mapping – 40,000 ha	Participatory mapping – 80,000 ha and recognized as social forestry	Participatory mapping – 100,000 ha and recognized as social forestry	CSOs, Customary Communities, Government

Policy and Advocacy

Potential Solution	Year 1–2	Year 3–4	Year 4–5	Main Actors
Special Provincial Regulation (Perdasus) for customary land mapping	Preparation of academic manuscript & draft Perdasus; public consultation with customary communities & district governments	Ratification of Perdasus and pilot implementation in 3 priority districts/cities	Perdasus implemented province-wide; minimum of 10 customary territories officially recognized	Government, Academia, Customary Communities
Audit of overlapping regulations	Inventory of overlapping regulations (national, provincial, district)	Gap analysis, harmonization, and recommendation for regulatory revision	Priority regulations revised/harmonized; new regulations issued to support restorative economy	CSOs, Academia, Government
Establishing a task force for restorative economy initiatives	Establishment of multi-stakeholder task force (government, NGOs, academia, private sector, customary communities)	Task force runs pilot coordination in 2 districts, prepares joint action plan	Task force institutionalized as a permanent cross-sector forum at provincial level	Government, Customary Communities

Sustainable Financing

Potential Solution	Year 1–2	Year 3–4	Year 4–5	Main Actors
Inclusive financing	Identification of schemes (green KUR, village credit cooperatives)	Pilot financing for 300 farmers	Scheme replicated in 5 districts & institutionalized	Government, Financial Institutions
Environmental services (PES)	Identification of PES potential (water, customary forests)	PES pilots in 2 watersheds and social forestry areas (Jayapura & Manokwari)	PES institutionalized at provincial level	Government
Restorative CSR	Mapping CSR & CSR regulations	Partnerships with 5 local companies	CSR institutionalized as co-funding for restorative efforts	Private sector
Subgrants for local organizations	Subgrants of IDR 200 million for 5 grassroots organizations	15 organizations receive subgrants & support 500 farmers/fishers	Subgrant scheme integrated into local government budgets (APBD)	NGOs

Annex

2. Other information

Detailed timeline

Timeline	March				April				May				June
	1	2	3	4	1	2	3	4	1	2	3	4	1
Preliminary research													
Develop research design													
Review existing reports, policies, and studies on environmental and economic regeneration efforts in Papua.													
Compile a list of organizations in Papua (with support from EcoNusa) and categorize them based on thematic focus and geographic presence													
Field visit prep													
In-depth Interviews and Field Visits													
Online interviews													
Visit to organisations in **Sorong**													
Visit to organisations in **Manokwari**													
Visit to organisations in **Nabire**													
Visit to organisations in **Fakfak**													
Visit to organisations in **Jayapura**													
Visit to organisations in **Merauke**													
Visit to organisations in **Wamena**													
Visit to organisations in **Biak**													
Gap and Impact Analysis													
Mapping of existing restorative and regenerative initiatives in Papua													
Identify Aspirations, and the economic, social and environmental gaps between those and the current state													
Assess the Potential of these initiatives if they were expanded and replicated to other geographies in Papua													
Reporting													
Dissemination													

: Nyepi and Eid al Fitr holiday

Economic Dimension: The economic value calculation in this report differs from the GDRP sector share calculations.

	Bottom-up Economic Value calculation	GRDP Sector Shares
Definitions	Estimates total value by sampling local producers (farmers, households) and scaling up. Captures ground-level output and income.	Official value-added share of each sector in the Gross Regional Domestic Product (GRDP). Shows the formal sector mix.
Data source	Primary surveys, interviews, direct measurements, participatory appraisals.	Government accounts, tax records, other administrative statistics.
Approach	Aggregates micro data (e.g., yields, hectares)	Uses input-output tables to break GRDP into sectors and trace inter-sector flows and multipliers.
Purpose	Reveal informal, small-scale or unrecorded activities; ground-truth official figures; show household livelihoods and resilience.	Guide macro policy, budgeting, and regional planning; track growth and compare regions over time.
Limitation	Sensitive to sampling errors and respondent accuracy; narrow coverage can bias extrapolation.	Misses informal or subsistence output; accuracy depends on timely, reliable government reporting.

Approach in this report

Economic Dimension: Our economic value calculation broadly corresponds to the 'output' in the production approach of GDRP calculation

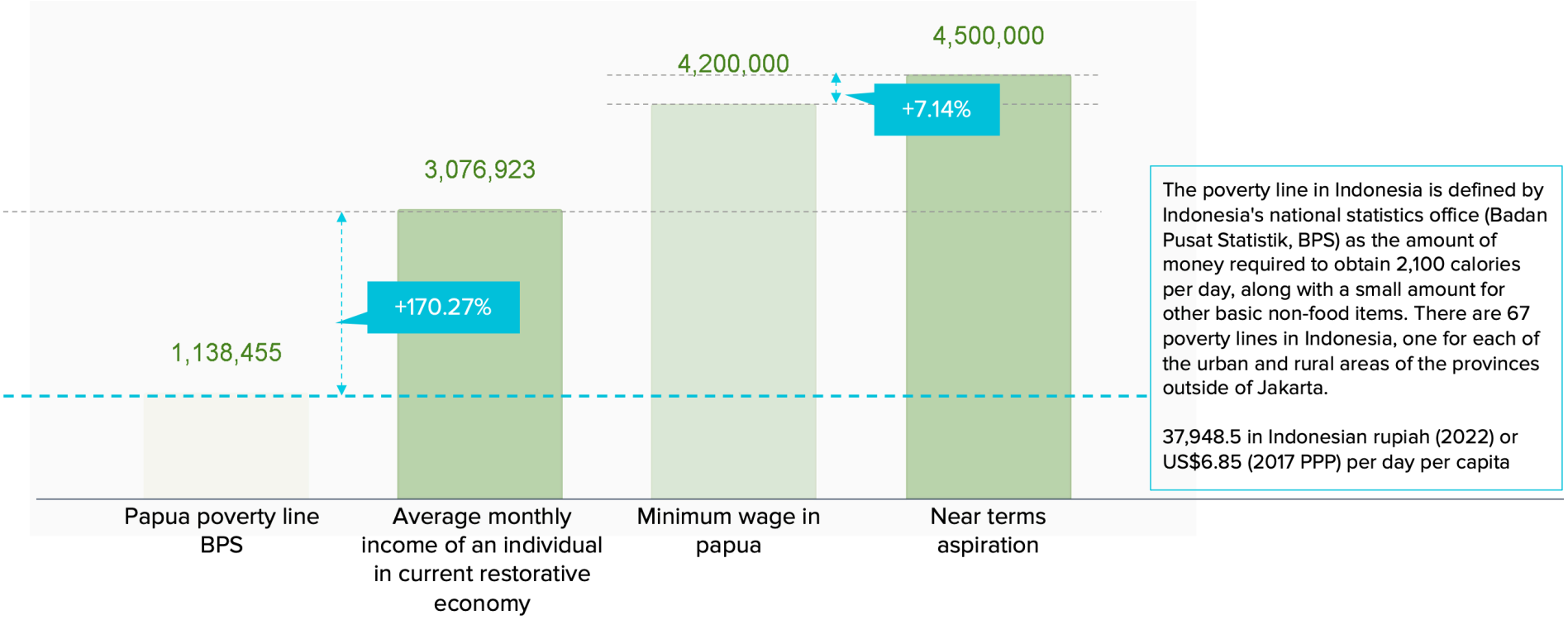
GDRP compilation approach	What it sums up	High-level (current-price) formula
1: Production (industry / value-added)	Net value created by every industry located in the region	$\text{GDRP} = \sum_{i=1}^{N} (\text{Output}_i - \text{Intermediate Inputs}_i) + (\text{Taxes on Products} - \text{Subsidies on Products})$
2: Expenditure (final-use / demand)	Final spending by residents, firms, government, plus the trade balance	$\text{GDRP} = C_{\text{HH}} + C_{\text{NPISH}} + C_{\text{Gov}} + I_{\text{GFCF}} + \Delta\text{Inventories} + (\text{Exports} - \text{Imports})$
3: Income (factor-cost)	All primary incomes earned while producing those goods & services	$\text{GDRP} = W + \Pi + (\text{Taxes on Production and Imports} - \text{Subsidies})$

'Economic Value generated' in our bottom up estimate

Economic Dimension: Restorative economy initiatives in Papua generate income 170% above the national poverty line. Near-term aspirational income would be 7% above the minimum wage in Papua.

Monthly income due to restorative economy activities

Month income in IDR, per person

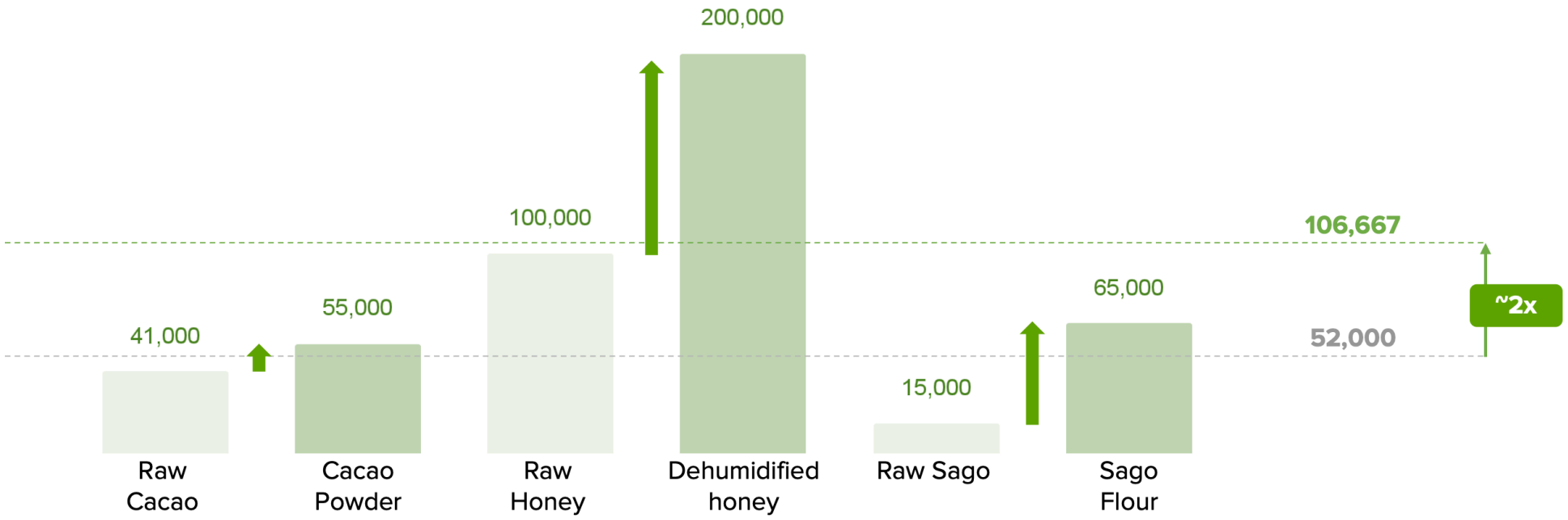


Sources: Indonesia's poverty line with IDR1,138,455 per month (World Bank, 2023)

Economic Dimension: Potential 3's '2x productivity scenario' highlights the importance of processing raw commodities into higher-value products.

Price comparison between raw and value-added commodities

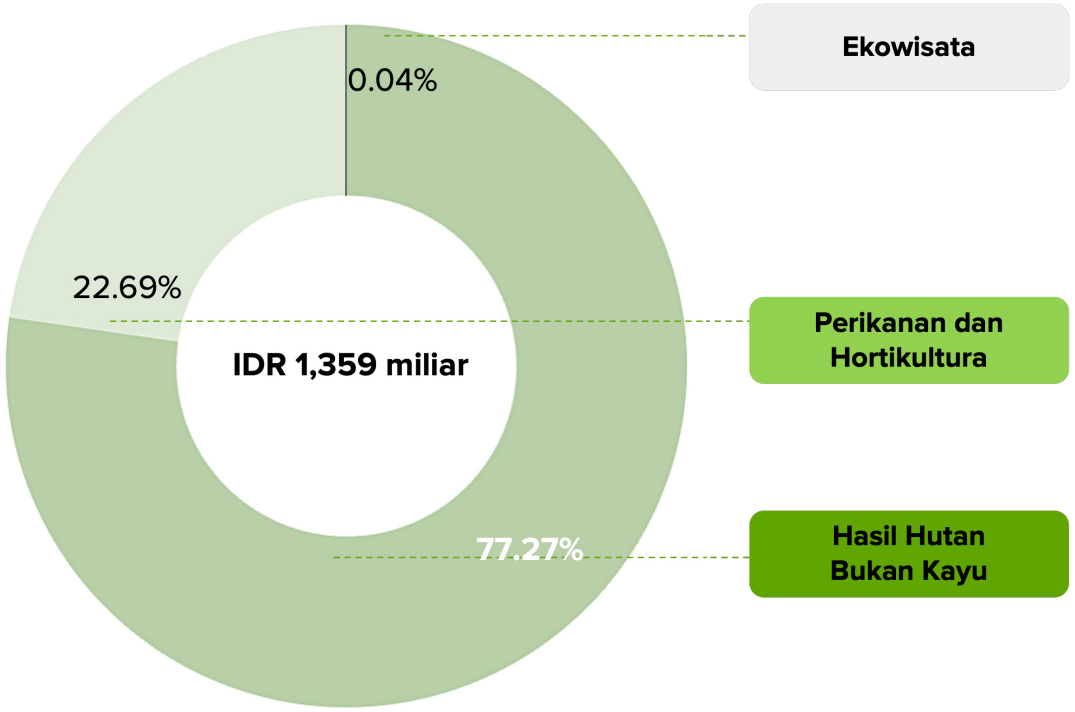
IDR per kg



Economic Dimension: Non-Timber Forest Products (NTFPs) generate the highest value (77.27%) through restoration-linked commodities like cacao and copra. Fisheries and horticulture (22.69%) support quick income and food security.

Economic value generated

In a billion IDR



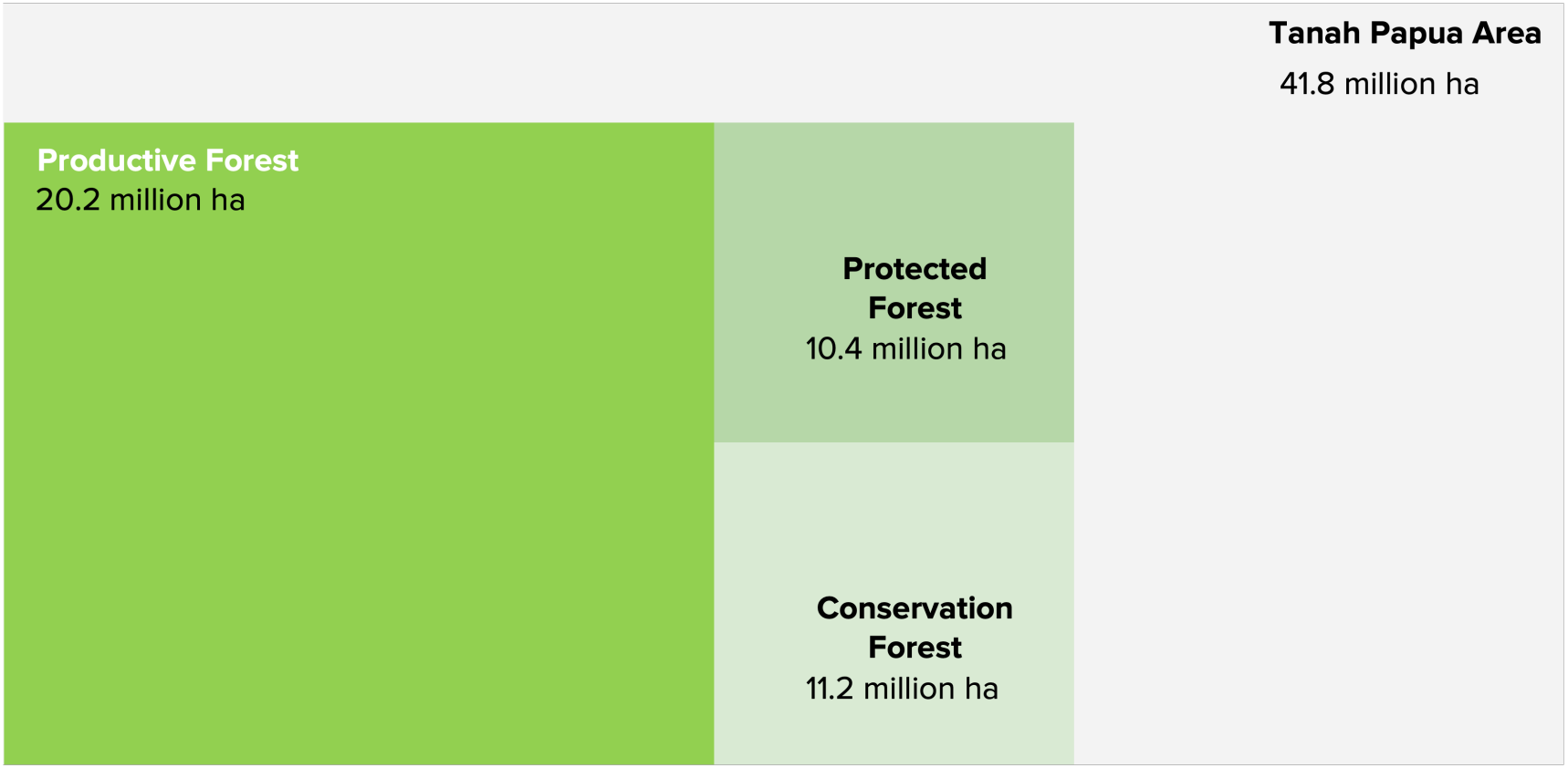
Though still emerging, ecotourism presents a strategic opportunity to link conservation with employment. Current contributions are **low due to access and infrastructure barriers,** but initiatives in community-led tourism and environmental education show potential for growth, especially when tied to cultural preservation and protected areas.

This category provides **essential livelihoods, especially in coastal and lowland areas.** With faster production cycles, fisheries and horticulture contribute significantly to household income and food security.

NTFPs generate the largest economic value, driven by high-demand commodities like **cacao, copra, honey, and sago.** Supported by formalized community enterprises and agroforestry initiatives, these products offer scalable, long-term income while supporting land restoration. Strong institutional backing and local policies have further increased market access and investment in this sector.

Environment Dimension: The Tanah Papua area is divided into productive forest, protected forest, and conservation forest.

ILLUSTRATIVE



Source: Forest Watch Indonesia

Environment Dimension: The productive forest area includes 17.24 million ha of concession areas for extractive industries, of which 1.9 million ha is actively exploited.

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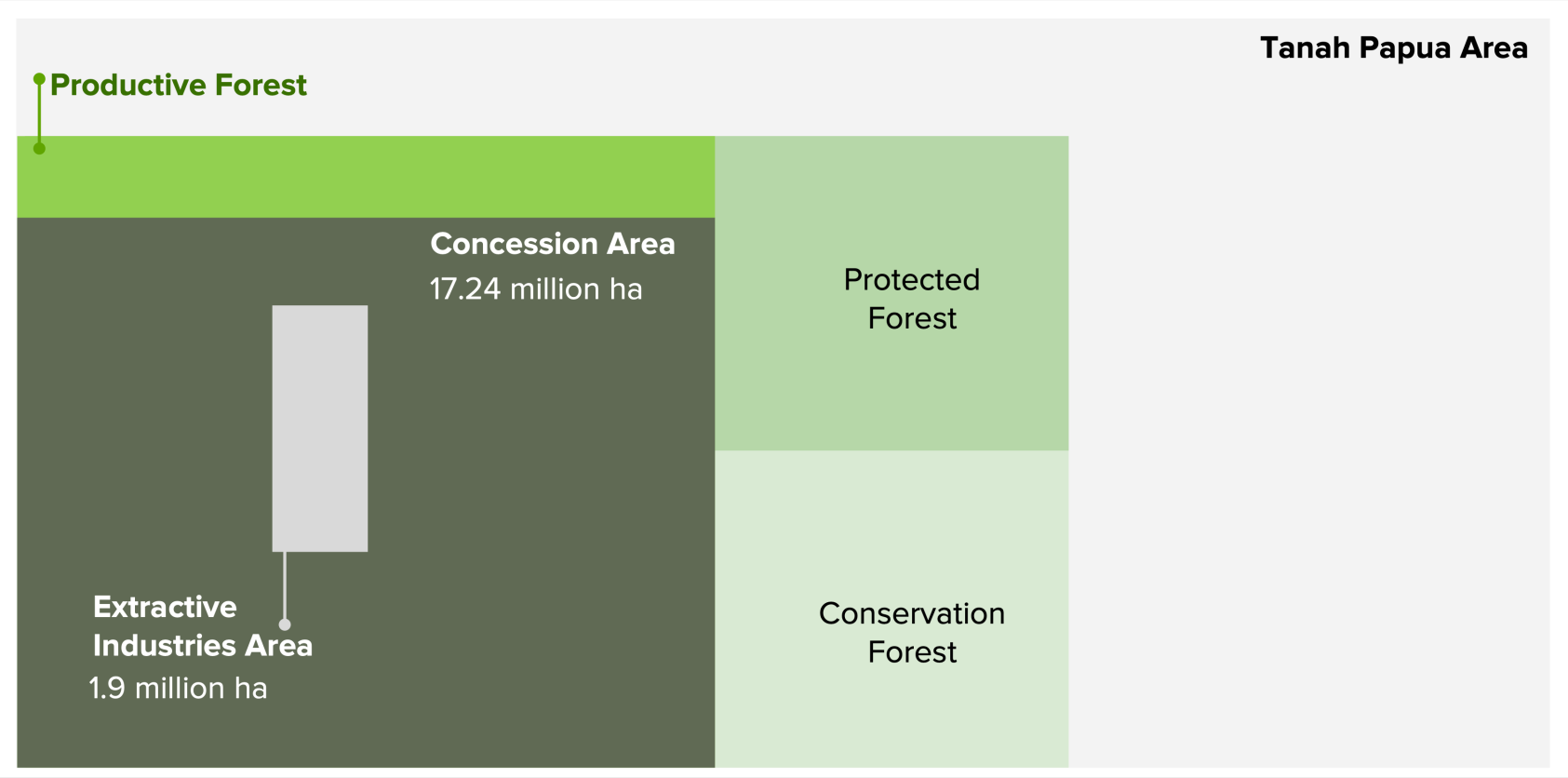

Source: Forest Watch Indonesia

Environment Dimension: Customary land in Tanah Papua covers 13.8 million ha, with 2.96 million hectares of productive forest outside extractive concessions.

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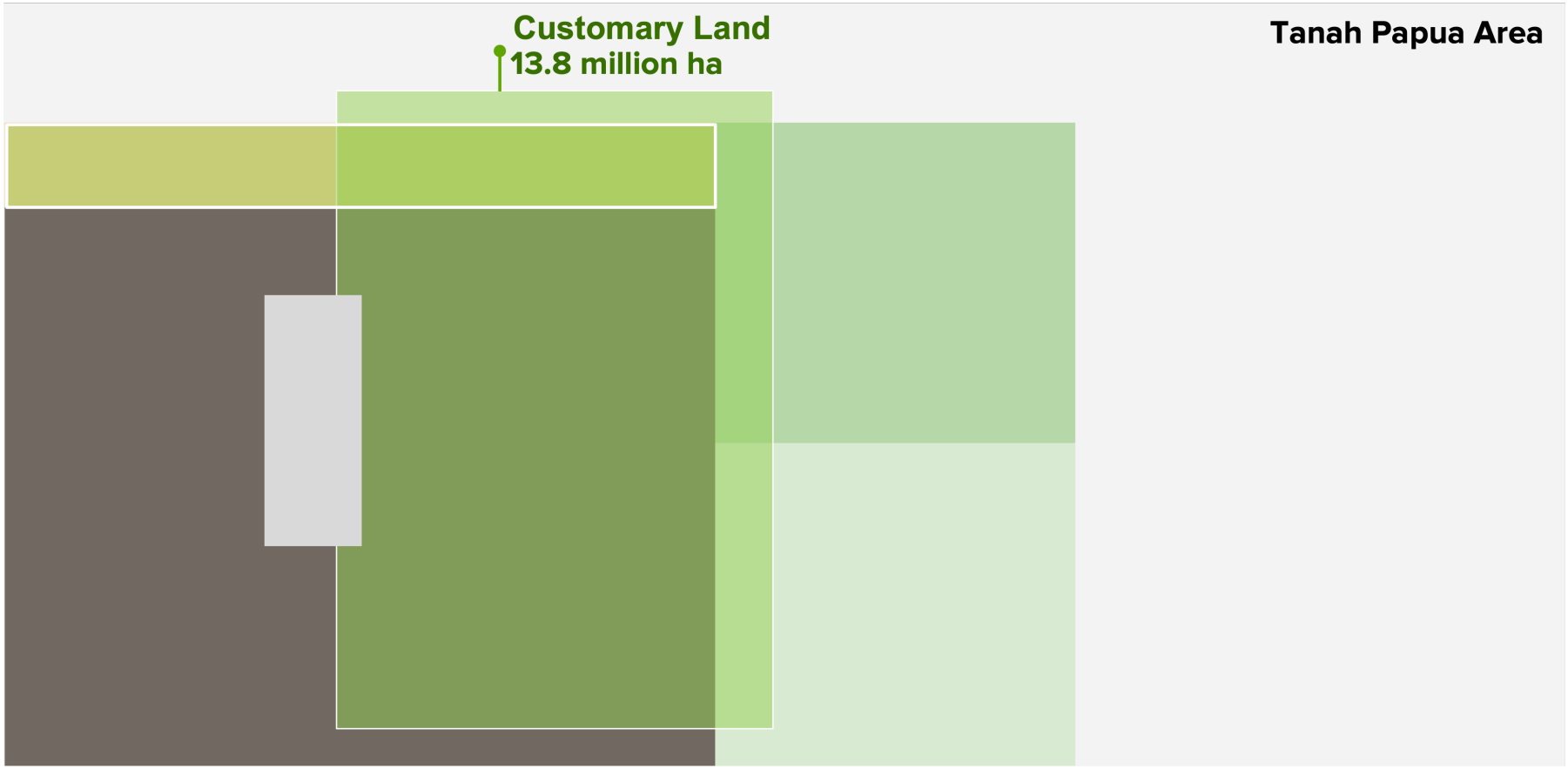

Environment Dimension: So far, 39,000 hectares of land have been mapped as part of restorative economy efforts.

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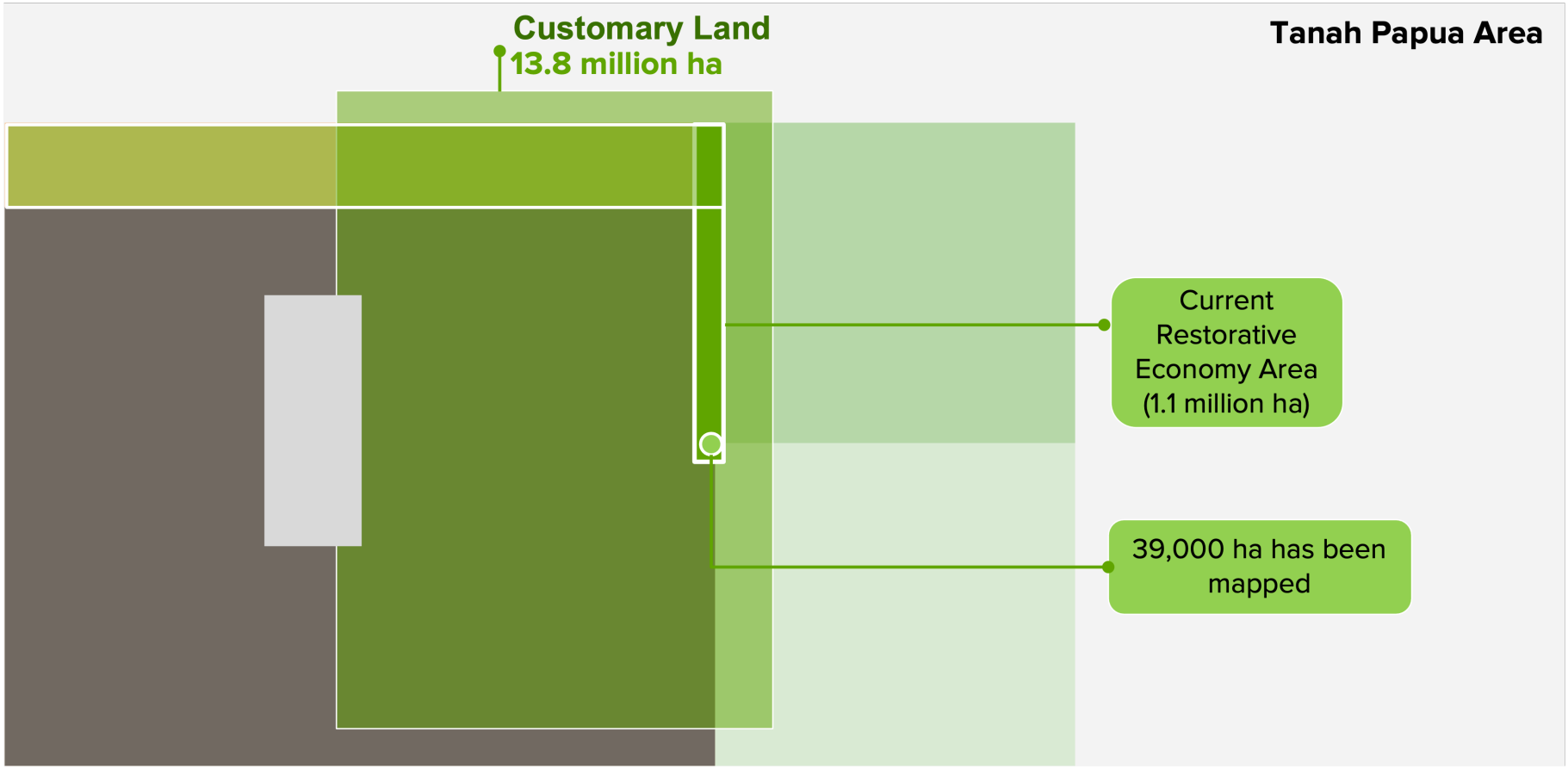

Environment Dimension: Potential 1 assumes that 2.96 million ha of productive forest outside of the extractive concession area can be used for restorative activities.

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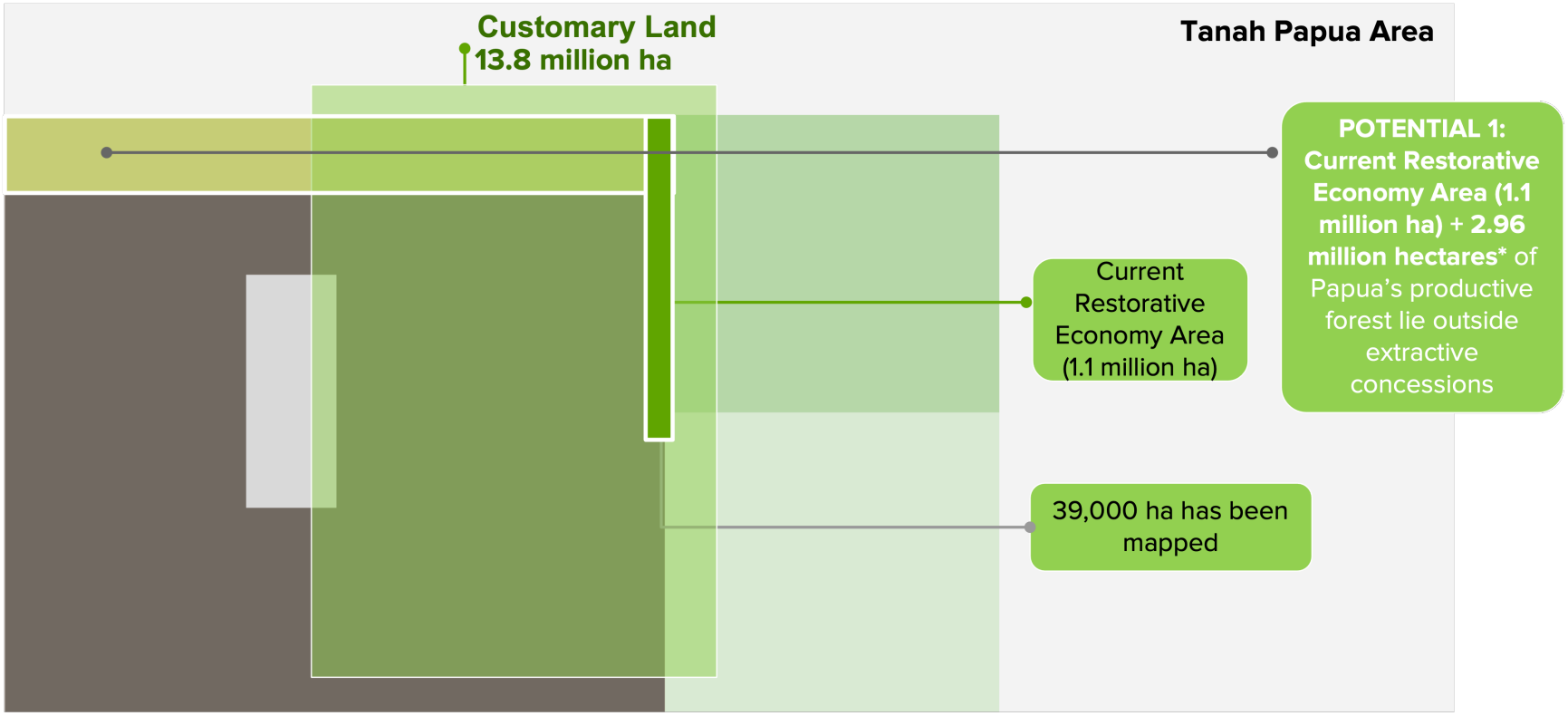

**Part of the 2.96 million ha may have already been covered by the current restorative initiatives, but the extent is not known. We therefore simply add the current 1.1 million ha and the total productive area that is not been assigned to concession (2.96 million ha).*

Environment Dimension: Potential 2 assumes recovery of 15% of the underutilized concession lands to restorative use, on top of the 2.96 million ha.

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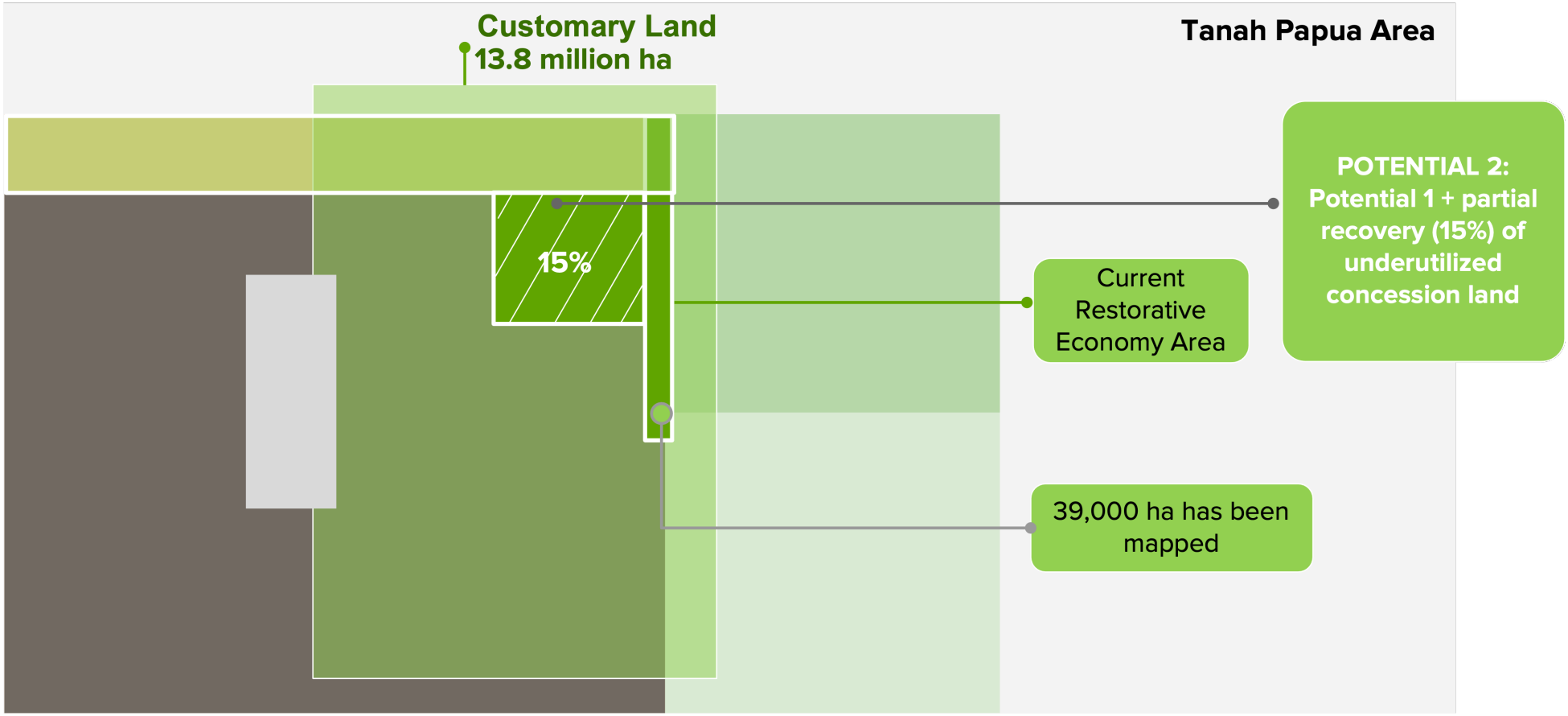

Environment Dimension: Potential 3 assumes recovery of 30% of the underutilized concession lands to restorative use, on top of the 2.96 million ha.

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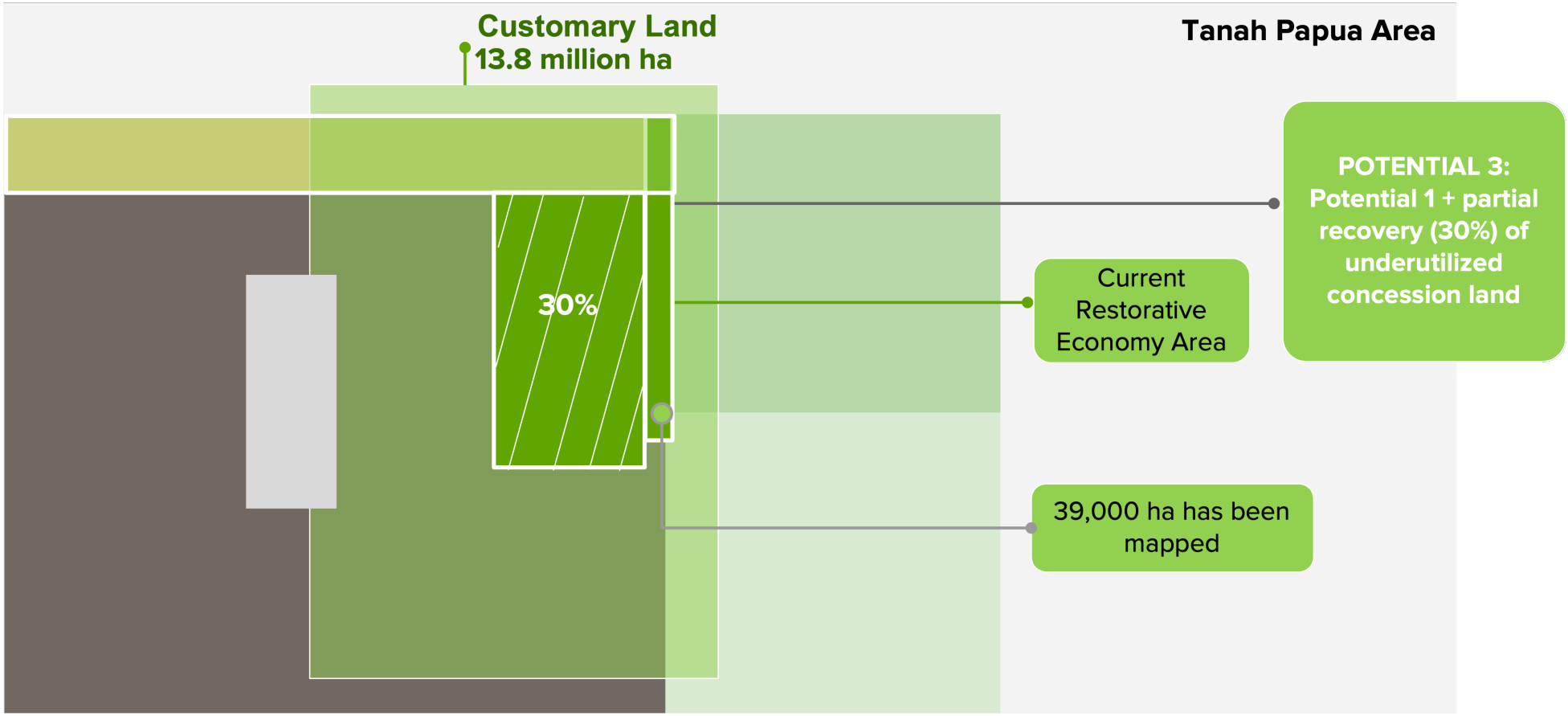

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