



SUSTAINABLE LANDSCAPES BRIEF

How Can Green Growth Help Indonesia Manage Sustainable Landscapes?

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Government of Indonesia – GGGI Green Growth Program

The Government of Indonesia and Global Green Growth Institute (GGGI) have developed a program of activity that is aligned and wholly supportive of achieving Indonesia's existing vision for economic development planning.

The aim is to show, using real examples of Indonesia's development and investment plans at national, provincial and district levels, how economic growth can be maintained while reducing poverty and social inequality, maximizing the value of ecosystem services, reducing GHG emissions, and making communities, economies, and the environment resilient to economic and climate shocks.

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How Can Green Growth Help Indonesia Manage Sustainable Landscapes?



Indonesia has enjoyed strong and consistent economic growth of around 6% per annum over the past 15 years. The nation aims to become a high-income country in the 2030s. This will require continued rapid economic growth. As President Joko Widodo has said, growth needs to be people-centered to provide a high standard of living to all citizens, in all parts of the country.

It will be a challenge for Indonesia to deliver rapid yet inclusive economic growth in support of the ambitious social and economic goals expressed in the National Medium-term Development Plan (RPJMN 2015-2019). The five-year plan sets ambitious priorities for economic growth, food and energy security, poverty reduction, and natural resource management. These priorities reflect the nation's urgent development needs as well as Indonesia's international commitments to contribute to sustainable development goals and climate change actions.



This brief tells how green growth can help Indonesia achieve the development priorities in managing forests and land use within **sustainable landscapes**. Other briefs in this series focus on the role of green growth in energy, infrastructure in special economic zones, and climate change resilience. For a comprehensive guide, see *Delivering Green Growth for a Prosperous Indonesia: A Roadmap for Policy, Planning, and Investment*.

The first part of the brief provides an overview of the government's current development priorities for forestry, agriculture, and other sectors related to land-use. The second part examines how a green growth approach can help achieve those priorities, by capitalizing on the value of ecosystems and developing innovative business models based on non-consumptive uses of natural capital as well as by making the use of natural resources more sustainable.

Priorities for Sustainable Landscapes



The National Medium-term Development Plan aims to achieve food, water, and energy security within an integrated 'landscape approach' grounded in sound ecosystem management. The landscape approach emphasizes the interconnections among ecosystems over large areas, such as whole watersheds, along with the linkages among land uses, users, and the institutions that govern them. This is inherently a green growth approach.

The government's emphasis on the security of basic human needs addresses key sustainable development goals (SDGs) related to poverty reduction and social inclusion. Millions of Indonesians in rural areas depend directly for their livelihood security on natural forests and fisheries and the ecosystem services they provide. Protecting these landscapes (and seascapes) is key to achieving sustainable development.

Indonesia also recognizes the imperative to mitigate and adapt to climate change. Indonesia's international commitment under the Paris Agreement, as expressed in its 'Nationally

WHAT IS GREEN GROWTH

Green growth is designed to deliver a sustainable and equitable rise in GDP and living standards while, at the same time, curbing pollution, making infrastructure clean and resilient, using resources more efficiently, and valuing the often economically invisible natural assets that have underpinned economic success over the centuries and on which human wellbeing ultimately depends.

Green growth focuses on the quality of economic growth, providing economic prosperity with better social outcomes and less stress on Indonesia's environment and natural capital. While there will be short-term costs in making the transition to green growth, overall these will be more than balanced by benefits. Green growth will require new technologies, capable institutions, and effective government policies to protect the environment, and consistent involvement by private business in the shift to cleaner, more socially inclusive growth.

The Government of Indonesia and the Global Green Growth Institute (GGGI) jointly implement the Green Growth Program, now in its second phase from 2016 until 2019.

THE VALUE OF HEALTHY AND PRODUCTIVE ECOSYSTEMS

Green growth sustains natural capital, that is, the stocks of natural resources that supply a continuous flow of benefits in the form of ecosystem services.

These services, such as the provision of clean water and productive soil that facilitates food security, make essential contributions to economic growth and human well-being but are often not valued as inputs to economic production and thus omitted from decision-making.

Green growth seeks to redress these market failures by fully and explicitly valuing ecosystem services in plans, policies, business models, and investments.

Determined Contribution' (NDC), is also based on the landscape approach, recognizing that actions to mitigate and adapt to climate changes will not be effective if undertaken in piecemeal fashion. The NDC calls for improved management of natural resources to enhance climate resilience by protecting and restoring key terrestrial, coastal and marine ecosystems. It also directs scaling up of climate mitigation and adaptation efforts by government, the private sector, and communities.

Two economic sectors most directly tied to the landscape approach are forestry and agriculture. The forest sector, together with agriculture, fisheries, and other land-use and marine activities, accounts for about 14% of Indonesia's current GDP, and is responsible for much of the country's employment. Forestry and land use are also key sectors for Indonesia's climate change mitigation efforts. Deforestation and forest degradation, especially in carbon-rich peat swamp forests, contribute more than 60% of Indonesia's overall GHG emissions.



Indonesia's economic strength relies on renewable natural resources, yet decades of poor forest and land use management have damaged ecological functions that provide valuable ecosystem services. For example, large areas of peat swamp forest, which regulate water flow and store vast stocks of below-ground carbon in the form of peat, have been cleared of forest and drained to make way for plantations or, in some cases, unproductive degraded lands. Many of these areas are prone to fire in the dry season, and during severe droughts, such as occurred in 2015, the burning peat produces toxic, choking haze that affects millions of Indonesians and impacts neighboring countries. Fire and decomposition of peat also contributes the largest share of Indonesian greenhouse gas (GHG) emissions.

Measures are urgently needed to reverse the degradation of renewable natural resources, mitigate further environmental damage, including climate change, and rehabilitate or restore degraded ecosystems. Forest management units (FMUs, or *Kesatuan Pengelolaan Hutan*, KPH) are seen by the government as key instruments of this policy by bringing management decision-making and supervision closer to ground level within the nation's forest estate.

Agriculture is a key development sector, critical for food and energy security as well as rural livelihoods. Decreasing land availability is a problem because of land degradation, soil erosion, and land conversion. Food production is increasingly coming into competition for land to produce biofuels.

Food security is a strategic priority for Indonesia. Despite being the world's third-largest rice producer, Indonesia remains a net importer of rice, the staple food for many millions of Indonesians. Measures to increase the efficiency of rice production, along with the diversification of other key food products and estate crops, can boost social and economic resilience. However, it is important that environmental impacts are taken into consideration to avoid incurring unnecessary costs that could damage human welfare and in the long run undermine the goals of food security and sustainability of the natural resource base on which food production depends.



INDONESIA'S NATIONAL PRIORITIES FOR FORESTRY AND AGRICULTURE

The National Medium-term Development Plan (RPJMN 2015-2019) sets out five priority targets for forestry and two for agriculture:

- Reducing illegal logging through more effective law enforcement and improved forest management, including the establishment of many new forest management units (FMU)
- Ensuring legal certainty of land rights through the provision of a basic land map, land certification, forest boundary-setting, and more effective recognition of customary laws
- Acceleration of national economic growth through improved forest governance and increased timber production
- Increasing marginal social welfare with regard to land redistribution and asset legalization
- Improving forest conservation by protecting natural resources and ecosystem services, forest fire prevention and control, and implementation of FMUs and community forests
- Increased agro-industry with emphasis on palm oil, rubber, cocoa, tea, and coffee as well as increased raw materials for bio-industry and bio-energy (linked to the energy sector priority to increase the share of renewable energy sources)
- Increased food security, which a focus on local food product availability, food distribution and accessibility, increased food consumption, improved irrigation systems, and land rehabilitation

How Green Growth Can Help Manage Sustainable Landscapes

Recognizing and capitalizing on the value inherent in ecosystems—known as ‘natural capital’—can unleash a variety of new opportunities for sustainable economic growth. Indonesia has great natural wealth, including the world’s most biologically diverse forests and coral reef ecosystems, fertile volcanic soils, and highly productive freshwater ecosystems.

Business models based on the non-consumptive use of this natural capital offer a spectrum of cutting-edge opportunities, including some—such as pharmaceutical biotechnology—that are still in their infancy and so may require incentives that reduce risk and reward the public benefits of such projects. Valuing and caring for natural capital also underpins the sustainability of more traditional forestry and agricultural businesses. The interconnectedness of ecosystems and spill-over effects of different land uses—exemplified by such impacts as downstream water pollution caused by upstream economic activities—means that an integrated landscape approach is needed to address these issues.



Six examples of enabling and implementing a green growth approach in the context of sustainable landscapes are discussed below:

1. Investing in new business models for forest and peatland management
2. Building sustainable supply chains
3. Creating new markets for natural capital and ecosystems services
4. Bringing forest management closer to the forest and forest-dependent communities
5. Restoring the vitality of ecosystems at a landscape scale
6. Mobilizing forest carbon finance



SUSTAINABLE LANDSCAPES FOR A RESILIENT ECONOMY

Forestry and land use are key sectors for Indonesia’s climate change mitigation and adaptation efforts as well as for economic growth and the welfare of rural communities. This approach includes—but is not limited to—reducing GHG emissions from deforestation and forest degradation (REDD+). Indonesia’s REDD+ policy is termed a “national approach with sub-national implementation.”

This means that each province and district is accountable for, and can reap economic benefits from, the policies and actions undertaken to mitigate and adapt to climate change within their jurisdictions. Forest management units, communities, and projects within those jurisdictions will also share in the responsibilities and benefits.

Key actions for Indonesia’s forest provinces are improved forest management—including community-based forestry and agroforestry—investment in sustainable forestry and other land-based business models based on innovative and efficient technologies, certification, and incentives to value and protect ecosystem services. The Gol-GGGI Green Growth Program supports the development of green growth strategies, at district and provincial levels, that identify, prioritize, and enable investments to boost economic growth in ways that contribute to SDGs and the NDC.

Investing in new business models for forest and peatland management. The majority of forests in Indonesia have been logged for their valuable timber and, in many areas, cleared for agriculture, plantations and other development—or, in some cases, left as unproductive, degraded lands. These degraded areas are extremely prone to fires that cause monumental economic losses and have knock-on public health impacts. However, it is possible to rehabilitate or even restore many degraded areas through the proper combination of technical innovation, green public and private investment, and local participation and support. Commercially viable business models in forestry and other land-based sectors can be designed to attract both private investment in productive activities, supplemented by climate finance from public sources where

interventions help to mitigate forest loss and restore ecosystem services.

The national Peatland Restoration Agency (BRG) coordinates peatland management, protection and restoration efforts in response to Indonesia’s long-running fires and haze crisis. BRG restoration activities target areas based clarity in legal status, topographical and hydrological conditions, local customs and socio-cultural aspects. The aim is to channel both public and private investment, including from international climate funds, to specific peatland rehabilitation activities with environmental, social, and economic benefits. Commercially viable investments could include sustainable forestry, agroforestry, and agriculture—including paludiculture, or wetland farming—that do not require deep drainage or the use of fire for land-clearing.





Building sustainable supply chains. Unsustainable models of production, by definition, impose excessive environmental and social costs and ultimately fail to feed growing populations. The development of sustainable supply chains can therefore play a key role in promoting food security, while reducing pressures on Indonesia’s forest stocks. Beyond food security, developing sustainable supply chains for timber and non-timber forest products as well as food and fiber from plantations will ensure that Indonesia’s industrial activities have a healthy asset base from which to derive raw materials over the long term. Independent certification of sustainably produced timber and other products has taken off in recent years, and some Indonesian producers are already well advanced in this area. Certification can help ensure that Indonesian products can compete domestically and internationally, given increased scrutiny from consumers.

Focusing on increasing productivity, rather than merely production, can help ensure that production increases do not incur unnecessary environmental costs, for example, from expansion into valuable forest and peatland areas. It can also help to boost food security by increasing resilience to imported food price fluctuations. However, care must be taken to couple investments in productivity—which tends to boost the value of land—with policy measures to restrict land expansion that could encroach into protected forests and peatlands.

Creating new markets for natural capital and ecosystems services. The relative novelty of economically valuing natural capital, combined with Indonesia’s ecological riches, means that this area has numerous untapped opportunities in the so-called bioeconomy, that is, innovative applications of technology involving renewable biological resources. If investors can be reassured of this potential, in tandem with government efforts to provide stability in these markets, they could generate significant economic growth. The industries that have developed around Indonesia’s rich biodiversity of palm species (such as sagua, aren and siwalan) provide powerful examples of the economic benefits that can be enjoyed if natural capital-based markets are identified for the numerous medicinal plants and root crops throughout the country.

Watersheds, timber production, carbon sequestration, peat lands and mangroves provide important services in need of protection. Payments for ecosystem services (PES) represent a particularly effective way of doing so. Examples include a scheme in West Kalimantan that focuses on sustainable utilization of timber, non-timber forest products, and ecosystem services, and one in Lombok that focuses on community-based agroforestry for upper watershed rehabilitation. These programs could be scaled up, and their number expanded, as well as being brought into a framework that guarantees fairness and consistency.

Bringing forest management closer to the forest—and people. Forest management units (FMUs) will play a critical role in all aspects of forest management and supervision as they are established and scaled up across the country. FMUs can help create an enabling environment for investment in sustainable forest and land-use management—including management of ecosystem services—leading to reduced GHG emissions, improved ecological productivity, reduced conflicts, and improved livelihoods opportunities for tens of millions of Indonesians that depend on forests for their prosperity and wellbeing. They also provide key, on-the-ground capacity for monitoring, reporting, and verifying changes in GHG emissions from forests, which is a key requirement for international finance linked to reducing emissions from deforestation and forest degradation (REDD+).

FMUs enable better forest management through more localized monitoring of forest inventories and help to manage and monitor remaining forest resources and fight illegal logging. Currently only about 59% of the national forest estate is actively managed. Introducing FMUs is a critical step in actively managing forests and involving communities in forest planning and management. Local, forest-dependent communities have until recently largely been left out of decision-making, but their engagement helps to improve the quality of forest management and governance. Improved management will in turn help in efforts to restore the ecological productivity of the natural capital on which an estimated 80 to 95 million Indonesians directly depend on for their economic prosperity and wellbeing.

BUSINESS MODELS FOR FMUS

Many FMUs have a business orientation, as they aim to attract investment from private license holders, community groups, and state-owned enterprises. These FMUs take the form of quasi-public organizations based on a financial management model called sub-national public service agencies (BLUD). This status, once achieved, enables FMUs “to apply sound business practices like private organizations and at the same time carry out their mandate as public institutions to provide service to the public and promote public welfare.”

FMUs may achieve the status of BLUD based on their capacity, performance, and the needs of local stakeholders. FMUs with production or limited production as their primary functions may offer a wider range of investment opportunities, but FMUs devoted primarily to forest protection can seek investment in ecosystem services and limited extraction of non-timber forest products.

Source: Financial Management Pattern for Sub-National Public Service Agencies: Towards Independent Forest Management Units (FMU). Ministry of Forestry, Jakarta, 2013.





COMMUNITY-BASED FOREST MANAGEMENT IN SETULANG

The North Kalimantan government has collaborated with international donors on a five-year program to develop FMUs. The program aims to improve the institutional and regulatory framework for sustainable forest management, nature conservation and greenhouse gas reduction.

As a pilot, the government granted three villages licenses to manage local forests as village forest (*hutan desa*) for a period of 25 years. More than 500 farmers and local staff in 15 established demonstration cocoa plots have been intensively trained in successional agroforestry. The NGO

partners have helped to construct the forest inventory in Manua Sadap village. All parties involved in the inventory received training on data collection. The NGO partners have also supported the implementation of community-based forest management in both villages.

These actions have improved the land rights of local communities, while ensuring greater transparency, stronger participation in planning processes, and more efficient action. In the longer term, these interventions should help to reduce GHG emissions in the forestry sector and improve livelihoods in poor rural communities.

Restoring the vitality of ecosystems at a landscape scale. Ecosystem restoration concessions (ERCs) provide an innovative, commercially viable model to tap private investment to help rehabilitate the ecological productivity of degraded forests. ERCs encourage a shift away from the over-exploitation of timber to a more balanced, ecosystem-based approach to forest management with benefits for biodiversity and local communities. They have been the preferred model for private investment in carbon-trading REDD+ projects, particularly in peat swamp forests because of the very large, below-ground carbon stocks in those ecosystems. New government regulations and policies to protect and sustainably management peatlands—implemented after the disastrous peat fires and haze episode of 2015—will encourage new investment in restoration efforts based on new business models that protect fragile peatlands while providing sustainable benefits for local communities.

The area currently under ERCs, roughly 480,000 ha, is in fragmented and isolated patches. ERCs need to be scaled up to cover larger, contiguous areas corresponding to whole ecosystems or landscapes. Incentives to firms and local governments to expand will have a multiplier effect as isolated areas are connected to establish protected corridors. The box illustrates the potential of ERCs to provide additional revenue streams for communities as well as to restore valuable ecosystem services such as those from peat swamp forests.

ECOSYSTEM RESTORATION CONCESSIONS

Most of Indonesia's forests are production forests, and are thus open to economic activities. Efforts to restore and maintain natural capital need to be economically competitive in order to succeed.

According to project proponents and investors, carbon credits (purchased by either domestic or international buyers) are so far the most viable source of revenue to justify investment in ecosystem restoration concessions (ERCs). However, ERC development faces significant regulatory uncertainties and business risks. As a result, ERCs cannot currently compete with alternative land uses for production forests such as palm oil and timber.

Analysis undertaken as part of the Gol-GGGI Green Growth Program suggests that with a carbon price of USD 2.57/tonne of Carbon, ERC investment would break even. With a price of around USD 9.3/tonne, it could even outweigh the business-as-usual scenario. This represents a major opportunity to secure forest ecosystems if a carbon price can be established and widely accepted.

Mobilizing forest carbon finance. Indonesia is well placed to attract public and private investment in activities that mitigate climate change in the forest sector. The government is working with, among others, the World Bank's Forest Carbon Partnership Facility (FCPF) and the Forest Investment Program (FIP) to develop such activities. Furthermore Norway pledged US\$1bn for reducing emissions from deforestation and forest degradation (REDD+) in 2010. Forest carbon thus provides a major opportunity to channel finances to projects if Indonesia can prepare and utilize one or more effective mechanisms, where appropriate on a "contribution for verified emission reduction" basis.

Such large-scale, publically financed schemes combined with contributions of sub-national jurisdictions and projects can and should be designed to leverage additional private investment and community participation by creating the right enabling conditions and incentives. A robust national system for emissions monitoring, verification, and reporting (MRV) is another key ingredient in making REDD+ work.

THE GREEN GROWTH PROGRAM SUPPORTS INVESTMENT IN SUSTAINABLE LANDSCAPES

The GoI-GGGI Green Growth Program offers both financial and technical assistance for project development to reduce project risks and help the projects reach a bankable stage to attract green investment.

Projects designed within the context of sustainable landscapes will demonstrate commercially viable business models in forestry or forest-related sectors with strong involvement of local stakeholders including indigenous communities, small holder farmers, and private enterprises.

These projects will be designed to attract both private and public investment, including climate finance. They are expected to capitalize on valuable products and services, including timber and non-timber forest products. The Green Growth Program works with the districts and provinces where these projects are situated to help shape the necessary enabling policies and encourage access to finance and markets.





Conclusion: How Green Growth Can Help Indonesia Manage Sustainable Landscapes

The Indonesian government advocates an integrated landscape approach, based on sound ecosystem management, in order to achieve the goals of food, water, and energy security, meeting basic human needs and strengthening climate change resilience.

A green growth approach to economic development, which values natural capital and ecosystem services, can help the government achieve its development priorities, including sustainable development goals (SDGs) and climate change commitments under the NDC.

New business models built on the value of natural capital and ecosystem services require the right enabling conditions and incentives, but many initiatives already underway in Indonesia are beginning to demonstrate what can be achieved. These include government initiatives to improve natural resource management and governance through Forest Management Units and co-

management with local communities. Ecosystem restoration concessions represent a business model that can attract private investment and—with the right policies and incentives—could be scaled up to whole landscapes. Traditional forestry and agricultural business models will also benefit from greater valuation of ecosystem services along with improvements in productivity and more sustainable supply chains. A well governed landscape approach to forest management within appropriate national and sub-national jurisdictions provides a natural framework for these green growth interventions, including actions to reduce deforestation and forest degradation supported by a robust MRV system and a REDD+ financing mechanism.

Investments in sustainable landscapes will yield ample returns in the long-run in terms of cleaner water, a more reliable supply of food and materials, and better resilience in the face of climate change. Improvements in efficiency and sustainability can also reduce costs and increase benefits in the short-term. Sustainable landscapes will play an important role in building a cleaner, healthier, and more sustainable future based on people-centered growth that offers a high standard of living to all Indonesians.





For more information, contact:

Joint Secretariat Gol-GGGI Green Growth Program

Wisma Bakrie 2 Fl. 5

Jalan H.R. Rasuna Said Kav. B-2, Jakarta 12920

Indonesia