

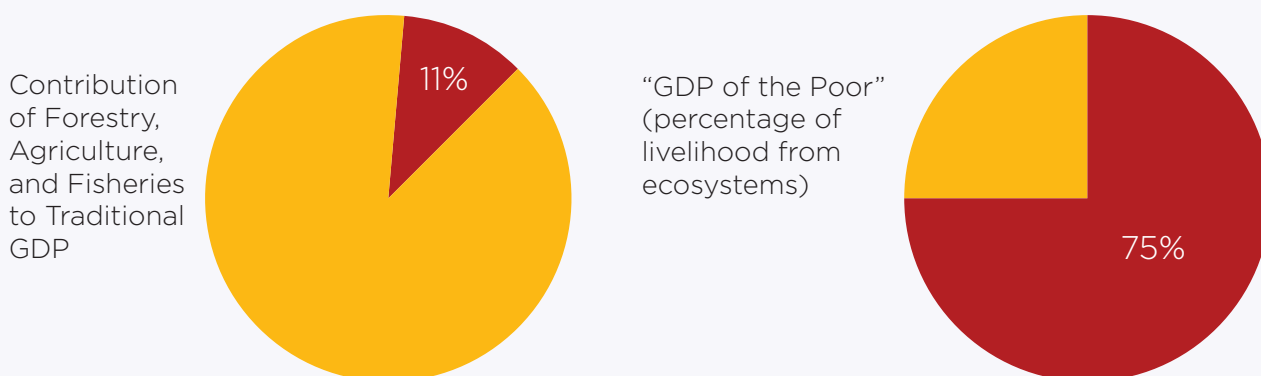
Natural Capital Accounting and Policy Indonesia

Why Is Natural Capital Important?

Natural resources have long played a significant role in Indonesia's economy. While the country has been keeping track of its energy, mineral, and forest resources since 1997, using the System for Integrated Environmental and Economic Accounting (SISNERLING), it is working to strengthen the system and develop more robust indicators to measure sustainability. Careful attention to how natural resources are used, depleted, and replenished is of paramount importance for national planning.

- Disruption of basic ecosystem functions affects water quality and quantity, nutrient recycling, and climate, with direct impacts on energy, food security, and greenhouse gas commitments.
- This disruption directly affects the economy. For example, the 2015 forest fires in Indonesia caused more than US\$16 billion in economic losses.¹
- Local communities, indigenous groups, and the poor and vulnerable are hardest hit. Continuous accounting is important to understand and monitor the impact of this disruption on the environment and the economy. Figure 1 shows the extent to which low-income communities rely on natural resources.

Figure 1. "GDP of the Poor": Dependence of the Poor on Ecosystems



Source: TEEB 2009. Chapter 3.5. "Building a Fuller Picture: The Need for 'GDP of the Poor.'" In: *The Economics of Ecosystems and Biodiversity: TEEB for National and International Policy Makers*.

Note: Calculation is based on the share of income from ecosystem services and non-market goods among rural and forest-dwelling poor households in Indonesia ("population holding less than 4 hectares of agricultural land, people dependent on forests and the small fishing community").

What Do the Accounts Show?

Good data are essential for evidence-based policy. Improved information is a legal mandate in Indonesia (Law No. 32/2009 on Environmental Protection and Management). All government departments must develop an inventory of all natural resources, and use instruments such as environmental-economic accounting.

Long-term indicators provided information to design 3 of the 14 national priority objectives, focused on the following areas:²

- *Food security*: land, area development and agricultural spatial plan, infrastructure, adaptation to climate change
- *Energy*: energy capacity, alternative energy, oil and gas production, gas conversion
- *Environment and disaster management*: climate change, environmental degradation control, capacity building related to disaster mitigation and forest fires

Natural capital accounts also support specific laws and regulations. For example, land accounts could contribute to the implementation of Law No. 26/2006 on

Spatial Planning, by helping to institutionalize classification standards for land cover and use.

A pilot land account in West Sumatra, West Kalimantan, and East Kalimantan revealed the extent of previous data gaps and showed the benefits of stronger accounting—providing better information, for example, on previously “unclassified” areas (amounting to as much as 55 percent of land between 2009 and 2012). The new set of land accounts shows fast changes in land use over this three-year period. For instance, “dryland seasonal crop” was the main land use in 2009 but showed a reduction of nearly 40 percent by 2012.³

Natural capital accounts track commitments to climate change.

Fulfillment of Indonesia’s Nationally Determined Contribution (NDC) requires clear knowledge of the impact of different policies on economic sectors (for example, energy, land use, waste, and industry); effects on productivity and consumption; impact on poverty; and the policies’ contributions to carbon dioxide target reductions. This assessment requires information on natural resources and on human and physical capital stocks and

Table 1. Partial Forest Accounts—Forest Cover in Hectares

	2009 (%)	2012 (%)	Hectares Lost
South Sumatra	26	22	374,298
Riau	37	34	277,776
Jambi	33	31	101,410
West Sumatra	49	47	76,494
North Sumatra	25	24	72,357
Aceh	57	56	71,784
Bengkulu	37	35	42,089
Bangka Belitung	20	19	19,055
Kepulauan Riau	37	37	5,535
Lampung	15	15	2,824
Total	34	32	1,043,623

flows. The information to design, monitor, and evaluate this policy combines local statistics with SISNERLING data, land accounts (agriculture, peatlands, and the forest sector), and pilot water accounts.

Forest and land accounts inform Indonesia's commitments to Reducing Emissions from Deforestation and Forest Degradation (REDD+). These accounts, developed by the Ministry of National Development Planning (BAPPENAS), represent an important change in Indonesian law, which traditionally recognized only the financial value of extractive ecosystem services (timber and minerals).

The partial forest accounts available for Indonesia⁴ show that between 2009 and 2012 the country lost 1 million hectares of forest cover, a loss of 2.2 percent. The rate differed by region, with South Sumatra alone accounting for the largest loss (more than 374,000 hectares—see Table 1). But the loss of associated ecosystem services can be greatest in areas with already small proportions of forest cover, closer to human settlements, such as Lampung. Timber physical accounts show a steady reduction in the timber stock across the region between 2011 and 2015. The value of these resources throughout the period fluctuated slightly but closed at about US\$60 billion.

Accounts can be useful in tracking the impacts of policies. In 2016, the government of Indonesia announced that beginning in 2017 it will relax its ban on partially processed mineral exports, including copper, nickel, zinc, and bauxite ore.⁵ A combination of minerals, land, and ecosystem accounts can help monitor how this change affects the environment and the economy.

Data can be used to support fiscal planning. The Indonesian government has historically determined the reference price for timber. This value has direct fiscal impacts as it affects taxation. Forest accounts can contribute to a more accurate valuation of timber and its changes over

time. The private sector needs to understand this valuation process, based on the United Nations System of Environmental-Economic Accounting (SEEA), and incorporate it into its decision-making. Meanwhile, better information on the base value of clean water can be used to estimate pollution taxes, according to a BAPPENAS official.⁶

Information from accounts has been used to determine environmental damages.

For example, economic valuation was applied in a ruling against PT Kallista Alam for illegally burning peatland forest in Aceh province; the company was held financially responsible for damaged ecosystems. BAPPENAS is planning to use the SEEA accounts as the valuation approach to assess environmental damages.⁷

Transparency in these cases will increase because the information is clear, comparable, and publicly available. The accounts can also be helpful in updating the values the government uses for compensation—such as the default values for a number of ecosystem services under the 13/2011 Ministry of Environment Decree on Compensation of Pollution and Environmental Damages.

How Accounts Factor into Government Initiatives

Natural capital accounting can provide valuable information in these types of cases:

- **Land accounts supporting community empowerment and rural development.** These include pilot programs with land-use accounts for West Sumatra and land-cover accounts for West Sumatra, West Kalimantan, and East Kalimantan.
- **Water and mineral accounts supporting the energy agenda.** Energy—either from hydroelectricity, coal, or natural gas—is big on the government's agenda. The short- and long-term viability of these

projects is closely connected to the continuous supply of natural capital.

- **Water accounts supporting water management and sanitation initiatives.**

The accounts are linked to domestic, agricultural, and industrial users, so this information can help shape policy.

- **Land, forests, minerals, and water accounts supporting the governance agenda,** especially with regard to fiscal

reform. Even if not directly acknowledged, many governance issues in Indonesia—decentralization and fiscal reform, for example—are linked to natural capital. The forestry sector contributes more than US\$20 million per year in government revenues. A recent study showed that fiscal reform, including better accounting, could more than triple these revenues.⁸

Notes

¹ World Bank. 2016. *The Cost of Fire: An Economic Analysis of Indonesia's 2015 Fire Crisis*. 1st edition [ebook]. Washington, DC. Available at: pubdocs.worldbank.org/en/643781465442350600/Indonesia-forest-fire-notes.pdf (accessed March 3, 2017).

² Virgiyanti, TD. 2013. *Valuing and Accounting for the Environment: National Policy Consideration in Indonesia*. Valuing and Accounting for the Environment in the Asia-Pacific Region Workshop. UNEP, SANDEE, UN ESCAP, Bangkok, Thailand.

³ WAVES. 2016. *Indonesia Country Report 2016*. Washington DC.

⁴ Tasriah, E. 2016. *SEEA implementation in Indonesia, BPS-Statistics Indonesia*. Sub-Regional Workshop on Environment Statistics for South-East Asian Countries, November 2-4, 2016, Bangkok, Thailand.

⁵ Reuters. "Indonesia to review rules banning metal concentrate exports from 2017." Available at: www.reuters.com/article/indonesia-mining-exports-idUSL3N15V2D3 (accessed March 3, 2017).

⁶ WAVES. 2016. *Indonesia Country Report 2016*.

⁷ Phelps, J, Hariyanti, B, Sinaga, AC and Demawan, A. 2014. *Environmental Valuation in Indonesia: Implication for forest policy, legal liability and state losses estimates*. CIFOR, Bogor, Indonesia.

⁸ ITS. 2011. *The Economic Contribution of Indonesia's Forest-Based Industries*. ITS Global.

Wealth Accounting and the Valuation of Ecosystem Services

WAVES is a World Bank-led global partnership that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts.



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