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# Green GDP – Forestry Satellite Accounts for Measuring Economic Performance



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FORCLIME collection, Cover: Landcape of Papua forest.—Georg Buchholz

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Rawa Biru, Taman Nasional Wasur.—Courtesy Taman Nasional Wasur

## Introduction

Forests provide a wealth of goods and services that help our economies and societies prosper. However, the monetary valuation of these services and their contribution to the national Gross Domestic Product (GDP) is difficult. This is because, besides the use of timber, forests provide a range of non-timber forest products (NTFP) and ecosystem services, that are currently not fully accounted for or traded in markets. Consequently, the relative contribution of the Indonesian forestry sector to the country's GDP is rather small. In the past, the forest sector, based on considerable exploitation of forest resources, sustained a larger share of the economy. Later, the forestry sector was more regulated, and the secondary and tertiary sector (industry and services) gained relative importance. While in 1993 the forestry sector still contributed 4.3% to the national GDP, in 2002 it was only 2.3% and in 2020 it declined to 0,7%. The low contribution of the forestry sector to the national GDP also triggered some national discussions about the causes for this situation, despite Indonesia's

vast forest resources<sup>1</sup>. This is especially important for the funding of the MoEF, because one of the variables for the ministry's budget allocation is calculated based on its contribution to the national GDP. In 2021, FORCLIME supported the Ministry of Environment and Forestry (MoEF) of Indonesia in developing a new methodology based on *satellite accounts* to better reflect the forest's contribution to the national economy. *Satellite accounts* are supplementary statistics linked to the *system of national accounts* (SNA) that allow the analysis of a particular aspect of the economy such as tourism, culture, or the environment. They are used to examine the economic importance of different subsectors of the economy and often also their spatial distribution. For their calculation all economic transactions connected to the topic are made explicitly visible in accordance with the accounting and definition standards of the SNA. Therefore, they provide greater detail than the SNA statistics, which, according to internationally agree rules, compile measures of economic activity like the GDP. In Indonesia satellite accounts have also been compiled for tourism GDP, maritime GDP, and the creative economy.

1 [Sri Mulyani: Indonesia Contains Forests and Fisheries, but The Contribution Is Almost Non-Existent - Kompas.com](#)

# Methodology

In Indonesia, the Central Bureau of Statistics (BPS) is responsible for national GDP calculation, using the so-called “value-added approach”. The added value created by the forestry sector is the difference between the value of outputs and intermediate forest goods or services. Further, Indonesia’s economy is divided into nine business sectors of which forestry is included in “Agriculture, livestock, forestry & fisheries”. However, in the current GDP figures, the forest subsector only includes economic activities directly related to the production of timber and NTFPs. This means that the current system does not fully account for all activities under the MoEF that create added value.

The collaboration between MoEF and BPS supported by FORCLIME aimed at complementing the calculation of the forestry subsector’s contribution to the national GDP to better account for all up- and downstream activities of the sector. To that goal, the *Forestry Satellite GDP* (2015-2020) was calculated from 89 activities included in the Indonesian Industrial Classification Standard (KBLI). The *Forestry Satellite GDP* accounts for more activities registered in the KBLI, including those relating to timber and NTFPs, forest product processing industries, trade in forest products, and ecotourism (see **Figure 1**). The preparation of the *Forestry Satellite GDP* uses a methodology, which

resembles the conventional GDP calculation. It is only complemented by subcategories of economic activities that were previously not considered in the forestry subsector GDP. The *Forestry Satellite GDP* is solely based on data that can be collected by BPS on a yearly basis. The workflow for generating the forestry subsector GDP (see **Figure 2**) starts with collecting production data, prices, and costs per forest commodity. Later, three calculation processes are carried out: (1) Gross value added of forestry subsector (2) Gross value added of forestry-based industry, and (3) Gross value added of forest product trade. As a final step, the *Forestry Satellite GDP* from MoEF is checked for consistency with the data compiled by BPS.



**Figure 1: Alignment of Forestry GDP with National GDP**

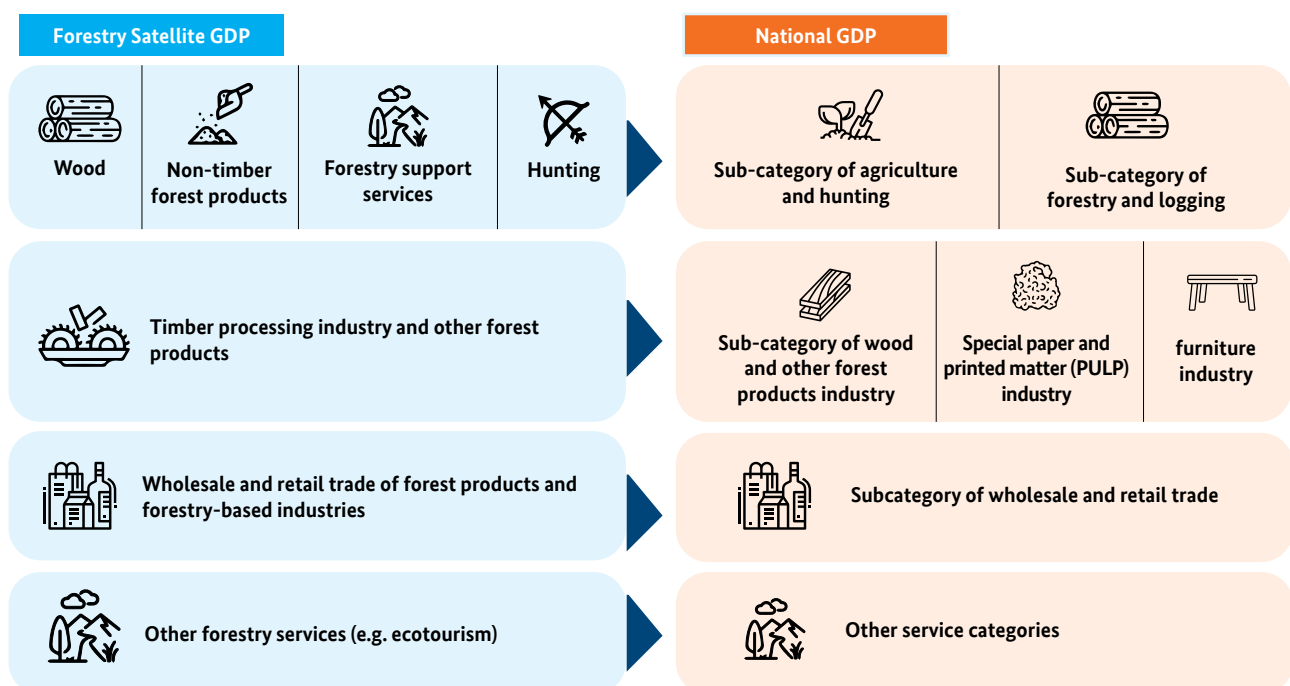
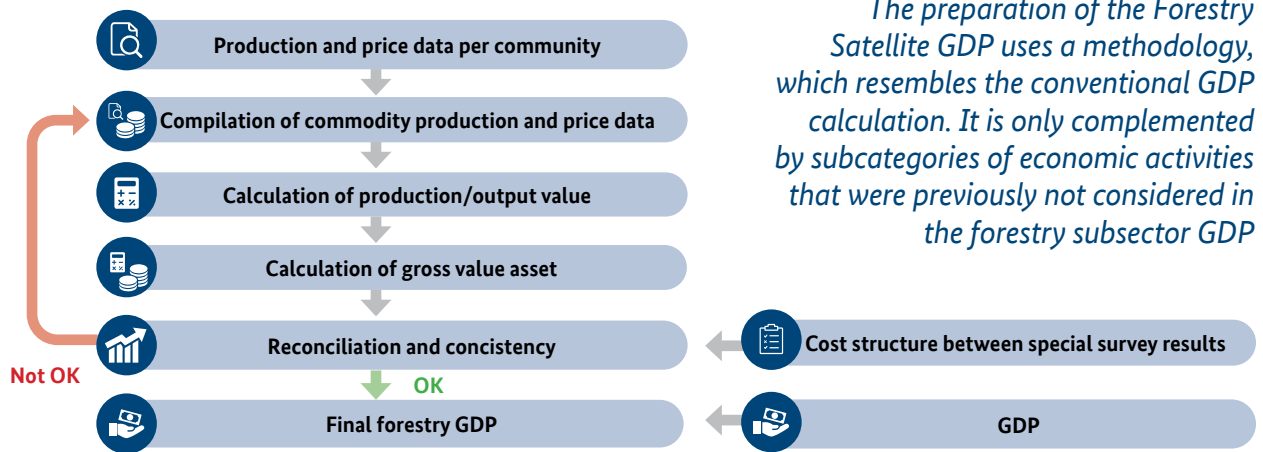


Figure 2: Workflow of forestry subsector GDP calculation



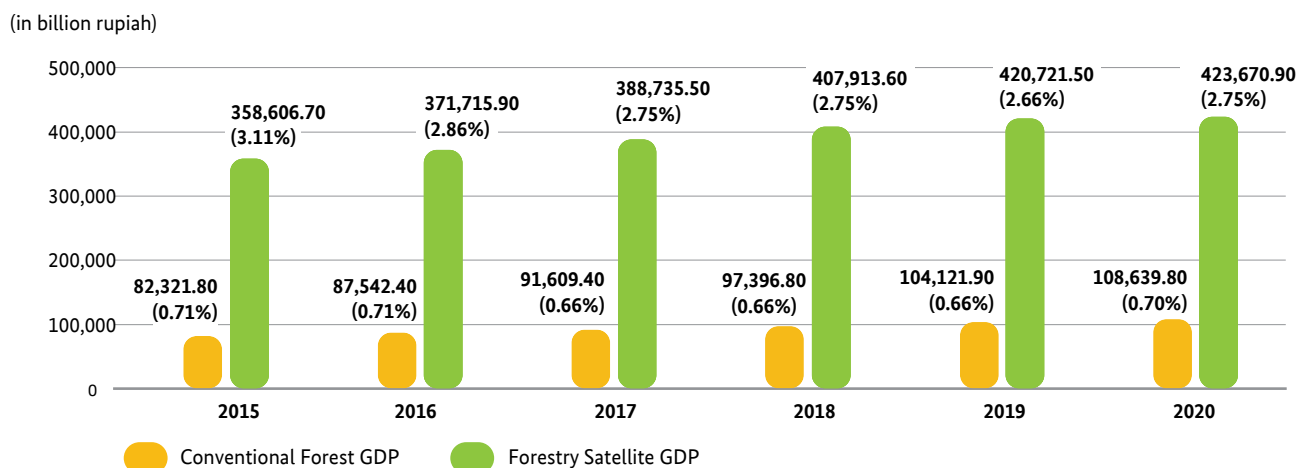
## Results and Discussion

The more comprehensive *Forestry Satellite GDP 2015-2020* revealed that the contribution of the forest sector to the national economy at current prices was around four times higher than previously assumed by the conventional calculation methodology. In relative numbers, the forestry sector contributed on average 2,85% to national GDP between 2015 and 2020. This means that the conventional method underestimated the sector’s role for the national economy on average by more than 2%. Provinces that most contributed to national forestry GDP in 2019 and 2020 were Riau and East Java.

According to the *Forestry Satellite GDP 2015-2020*, in 2020 the forest subsector contributed 2,75% to Indonesia’s GDP (see **Table 1**). However, it should be noted that this number still underestimates the

real contribution of forests to the national welfare of the country, as (1) the methodology only includes conventional forest activities such as log production, forest-based industries and trade in forest products in its calculations and (2) only economic activities (i.e. flow of transactions of goods and services) are included, as the accounting methodology follows the SNA rules. This excludes a broad range of ecosystem services like climate and water regulation but also the use of other natural resources that sustains millions of rural livelihoods. All these services are currently not fully accounted for as an economic activity in national accounts. As an example, carbon sequestration was not included because it is not registered as an economic activity under the KBLI. The *Forestry Satellite GDP 2015-2020* has been formalised by the Secretary General of MoEF through decision SK.28/SETJEN/DATIN/DTN.0/4/2022.

Figure 3: Comparison between Conventional Forest GDP and Forestry Satellite GDP between 2015 and 2020 in Indonesia.





# Conclusion

The new methodology developed by MoEF supported by FORCLIME in collaboration with BPS revealed that the role of forests for the national economy has been underestimated in the past. Through the elaboration of the national methodology by complementing it with the *Forestry Satellite GDP*, a fourfold increase in the contribution of the forestry subsector could be observed. If forest activities are accounted for more comprehensively, the contribution of the forestry subsector increased from 0.70% to 2.75% in 2020. This was due to the integration of additional contributions

from forestry-based industries (1.37%), trade in forestry products (0.64%), and net tax on forestry products and forestry-based businesses (0.03%) to the national GDP.

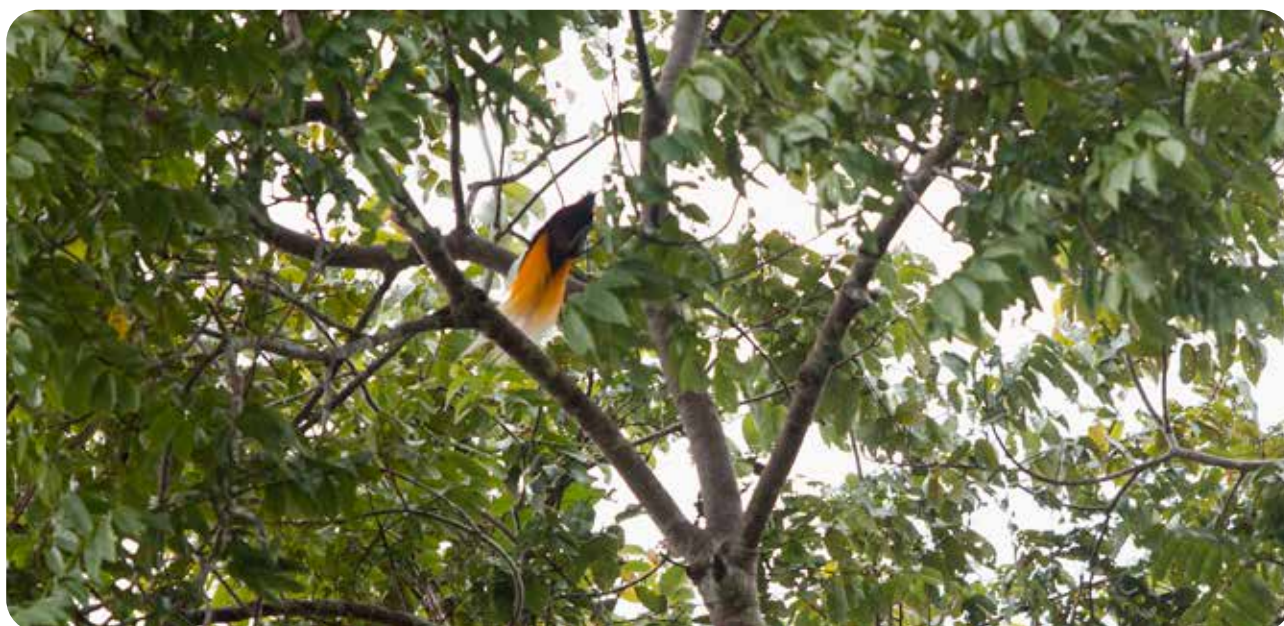
The inclusion of a broader set of ecosystem services remains difficult and there's no definitive method for national accounting of these. The calculation of the *Forestry Satellite GDP* is a conducive approach to better reflect the true contribution of forests to the national GDP and can serve as an additional reference for the MoEF to highlight the economic relevance of the forestry sector. MoEF supported by FORCLIME will continue their efforts for improved forestry GDP accounting in Indonesia.



**Top left:** Loto Waterfall in Donggala Regency, Central Sulawesi Province - an ecotourism attraction that creates local income opportunities.—Fikty Apriliani.

**Top right:** Processing sago (*Metroxylon sago*) in Papua - the staple food from eastern Indonesia—Zulkifli, NGI.

**Bottom:** Birdwatching at Rhepang Muaif village, Papua.—Zulkifli-NGI.





# Policy Recommendations

To facilitate a higher contribution of the forestry sector to the welfare of the nation, reflected by the GDP, it is important to implement the multi-business forestry outlined in the Government Regulation No. 23 of 2021 about forestry implementation. This regulation enables holders of Forest Utilization Business Licences (Perizinan Berusaha Pemanfaatan Hutan; PBPH) to also use other forest resources than timber within the borders of their concession, hence creating more added-value. However, it should be noted that permit holders are required to involve local forest dependent communities which may reside within the area in the development of multi-business forestry. It is hoped that this new approach will facilitate market access for local communities regarding forest products and not their exclusion from the use of these natural resources.

The issuance of social forestry licences needs to be accelerated, local communities assisted, and their capacities strengthened under the supervision of the responsible Forest Management Units (FMU). There are six different social forestry licences (village forest, community forest, community plantation forest, forestry partnership, conservation partnership and customary forest), which entitle local communities to commercialize non-timber forest products or to promote ecotourism within the borders of their permit. The encouragement of such forest-based activities will add to the contribution of the forestry subsector to the national GDP.

Even the *Forestry Satellite GDP* still does not account for all ecosystem services provided by forests. It is therefore recommended to use and constantly improve the calculation of the *Forestry Satellite GDP* in addition to national GDP accounting to better reflect the real contribution of forests to the national economy. The *Forestry Satellite GDP* needs to expand its coverage in accordance with applicable regulations, especially regarding ecosystem services and non-timber forest

products. This can be achieved both through more comprehensive accounting for activities already registered in the KBLI and through the establishment of new KBLI categories for forest related activities currently not registered in the KBLI.

To institutionalise the new methodology, the preparation of the satellite account of *Forestry Satellite GDP* under the guidance of MoEF needs to be strengthened and formalised in the form of a presidential decree. As the forestry sector has many linkages to adjacent economic sectors, the *Forestry Satellite GDP* should be calculated every year to assess the real contribution of the sector to the national GDP.



Craft products from the utilization of forest products in the Creative Gallery of KPH Papua.

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