PROSPECTS FOR ESTABLISHING AN ASSET ACCOUNT FOR NON-TIMBER FOREST RESOURCES IN INDONESIA

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ABSTRACT

Our study applies an SEEA-based methodology to reflect on the challenges and prospects of establishing an asset account for non-timber forest resources in Indonesia. Concerning data needs, we discuss the current state of the measurement scopes and physical valuations applied by four government institutions (*i.e.*, Statistics Indonesia, the Ministry of Agriculture, the Ministry of Trade, and *Perum Perhutani*). Our results suggest the following solutions to address the challenges: using a singular definition across institutions, implementing standardized conversion factors, and establishing a clear measurement scope for products (*e.g.*, excluding derivative products).

Keywords: System of Environmental-Economic Accounting (SEEA); natural capital accounting; non-timber forest products.

CONTEXT

Non-timber forest products (NTFPs) provide multiple benefits to **improve forest communities' livelihood,** to **increase regional and national economies,** and to **promote biodiversity conservation.**

Indonesia is **the third-largest producer of rattan** (Myers, 2014), **the largest producer of eight essential oils** (UNEP & UNORCID, 2015), and the producer of **34% of the world's supply of gambier** (MOT, 2017).

NTFPs are the source of income for **76% of rural households dependent on forests** in Indonesia (UNEP & UNORCID, 2015).

Indonesia possesses more than **558 species of non-timber forest resources** (MOEF, 2007).

OBJECTIVES

1) To assess the current challenges in enhancing environmental asset accounts in Indonesia;
2) To explore the prospects for establishing an asset account for non-timber forest resources in Indonesia.

METHODS

Resources Selection Criteria

1) Resources were sorted based on the Ministry of Forestry Regulation on NTFPs;
2) Resources were published in at least one official statistic and/or report; and
3) Resources were well-documented.

Data Collection

We drew on various official publications of NTFP statistics and relevant national-level legislation that specifically references forest resources valuation. We also collected secondary data from academic papers in the fields of the SEEA and non-timber forest resources, as well as frameworks and guidelines that fall under the SEEA.

RESULTS

Table 1. Valuation of NTFPs in Official Indonesian Statistics and Reports

NO.	PRODUCT NAME	MEASUREMENT SCOPE	PHYSICAL VALUATION UNIT	MONETARY VALUATION METRIC
1.	Jungle rubber	sap[a]	in tons[a]	Farm gate price[a]; Reference price[d]
2.	Merkus pine	sap[a,c], turpentine[a,c], gum resin[a,c]	in tons[a,c]	Reference price[d]
3.	Candlenut	nuts[a]	in tons[a]	Farm gate price[a]; Consumer price[a]
4.	Bamboo	sticks[a,c], sprouts[a]	in tons[a,c], sprouts in tons[a]	Reference price[d]
5.	Cajuput	oil[a,c], leaves[a,c]	oil in litres[a] and in tons[c], leaves in tons[a,c]	Reference price[d]
6.	Rattan	cane[a,c]	in sticks[a,c], in tons[a]	Reference price[d]
7.	Areca palm	nuts[a], dried seeds[b]	in tons[a,b]	Farm gate price[a]; Consumer price[a]
8.	Nutmeg	dried seeds[b]	in tons[b]	Farm gate price[a]
9.	Gambier	unspecified[a] (sap/leaves/fruits)	in tons[a,b]	Consumer price[a]
10.	Agarwood	unspecified[a] (sap/leaves/oil/trunk)	in tons[a]	Reference price[d]
11.	Tamarind	fruits[a]	in tons[a,b]	Consumer price[a]
12.	Sago	starch[a]	in tons[a]	Spot price*
13.	Sugar palm	flour[a], sugar[a]	in tons[a]	Spot price*
14.	Cinnamon	dried barks[b]	in tons[a,b]	Spot price*
15.	Walnut	nuts[a]	in tons[a]	Spot price*

[a] = BPS (Statistics Indonesia); [b] = Ministry of Agriculture; [c] = *Perum Perhutani* (a state-owned company which trades forest products); [d] = Ministry of Trade.
* = Data are not available as time-series.

DISCUSSION

THREE CHALLENGES IN ESTABLISHING AN ASSET ACCOUNT FOR NON-TIMBER FOREST RESOURCES IN INDONESIA

1. Institutional interests in non-timber forest resources

Our study establishes that a product can be categorized both as an estate crop product and as an NTFP in official Indonesian statistics. This is due to a lack of clarity regarding the definition of NTFPs that is used by different institutions in Indonesia. To align with the SEEA framework, Indonesian institutions should agree upon a singular definition across all data sources.

2. Measurement scope

Official Indonesian statistics publish both derivative products and cultivated products, which implies a different accounting treatment for an asset account. Further, official statistics do not clearly state the geographical boundaries in which products are harvested. This is essential for determining whether the products are within the scope of a monetary asset account, given that Indonesia acknowledges three forest functions that are attributed to different forest rights (i.e., the right to extract). We suggest that cultivated resources and products should be accounted as additions in stock, whereas derivative products should remain exclusive from the asset account.

3. Physical valuation

We found an inconsistency in the units used by: 1) the same product with different forms; 2) the same product within a report; 3) the same form of a product within an institution's reports, and; 4) the same product published by different institutions. We argue the most possible approaches to overcoming such challenges, including: 1) agreement upon a singular unit to count all resources and products (*e.g.*, tonnage), and 2) using the existing various units, provided that there are conversion factors to facilitate inter-unit (*e.g.*, from sticks to tonnage) and reverse form transformations (*e.g.*, from oil to leaves).

Note:

Non-timber forest resources are defined as all biological materials, other than timber, that are still standing in the forest, whereas NTFPs are those extracted from the forest (De Beer & McDermott, 1989). The use of the terms 'non-timber forest product' (NTFP) and 'non-timber forest resource' has different implications for its accounting treatment; therefore, such terms cannot be used interchangeably.

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