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Natural Capital Accounting and the Measurement of Green GDP in Indonesia

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National wealth comprises all non-financial assets and net claims on the rest of the world, including natural resources. As a resource rich country, natural resources play an important role in the Indonesian economy, primarily as a form of capital that supplies materials for production processes. However, some types of environmental assets cannot be used continuously. Therefore, it is necessary to measure the stock of natural capital in Indonesia so that the government can formulate policies to maintain the sustainability of such natural capital.

The production processes of extractive industries, such as logging, fishing, and mining, depend entirely on the availability of environmental assets. Such industries extract natural resources from the environment in generating their income and added value. However, the use of materials extracted from environmental assets in the production process is not reflected in Gross Domestic Product (GDP) as such materials are not produced by other institutional units, but provided directly by the environment. Therefore, it is also necessary to take into accounts the measurement of resource rent as a gross measure of the return to environmental assets. In addition, it is important to calculate the value of depletion, which reflects the change in the value of environmental assets due to extraction in excess of regeneration. Green GDP is measured by deducting depletion from GDP.

The compilation of natural capital accounts and the measurement of Green GDP is conducted based on the 2012 System of Environmental-Economic Accounting (SEEA). The process starts with the compilation of physical asset accounts for some natural resources, such as timber resources, mineral and energy accounts, and aquatic resources. The data on stock and extraction of such resources are obtained from various ministries, including the Ministry of Environment and Forestry, the Ministry of Energy and Mineral Resources, and the Ministry of Marine Affairs and Fisheries.

The monetary asset accounts are compiled based on the physical asset accounts. The valuation of natural capital and depletion of natural resources uses the net present value (NPV) method, which presents consistent flow measures of depletion, income, and revaluation, as recommended

by the 2012 SEEA. This approach requires the estimation of resource rent and discount rates. The estimation of resource rent for each environmental asset uses data from establishment surveys conducted by BPS-Statistics Indonesia and information from Supply and Use Tables (SUT). Meanwhile, the government bond rate is chosen as the discount rate used for discounting the expected future income. The value of depletion is then derived from monetary asset accounts to calculate Green GDP.