WAVES
Country Report
Indonesia
May 2016

Wealth Accounting and Valuation of Ecosystem Services (WAVES)

Indonesia Country Report 2016

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WAVES

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WAVES – Global Partnership for Wealth Accounting and Valuation of Ecosystem Services

www.wavespartnership.org

Wealth Accounting and the Valuation of Ecosystem Services (WAVES) is a global partnership led by the World Bank that aims to support partner countries to achieve sustainable development by integrating natural capital in their development planning and national economic accounting system. The partnership brings together a broad coalition of governments, UN agencies, NGOs, and academics to support this purpose. The WAVES core implementing countries include Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, the Philippines and Rwanda; all the developing countries are working to establish natural capital accounts, which is based on the System of Environmental-Economic Accounting (SEEA). It is funded by a multi-donor trust fund and overseen by a steering committee. The WAVES donors include Denmark, the European Commission, France, Germany, Japan, The Netherland, Norway, Switzerland, and the United Kingdom.

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Photo 1. Tesso Nilo National Park, Riau, 2012

1. Background and Rationale

Indonesia is facing concerning trends of increasing inequality, severe environmental degradation and risk of natural resources scarcity; all are of which are being exacerbated by the challenges of climate change. A recent World Bank study estimated the 2015 forest fires alone has cost the country more than US$16 billion in losses due to economic disruption. The figure is more than double the damage and losses caused by the 2004 tsunami and equal to 1.8 percent of Indonesia's Gross Domestic Products (GDP).

The Government of Indonesia (GOI) has made a series of efforts to establish a strong foundation for a strategic and green development agenda. Indonesia's National Mid-Term Development Plan (RPJMN) for 2015-2019 is focused on three major themes: food, water and energy security. The new RPJMN is recognized as a national development plan that is moving Indonesia towards a greener and more inclusive growth.

Through the "greener" RPJMN, the GOI is expanding options for altering its investment policies and growth trajectory to result in more sustainable and resilient growth. The aim is to reverse the trend of rapid natural resource exploitation and environmental degradation; improve reinvestment of income generated from exploitation of various natural resource assets to sustain future revenue flow; maintain the function of ecosystem services; and transform natural resource based income-generating capacity more systematically.

The current administration's *Nawacita*, or ninepoint development agenda, includes a goal to "strengthen rural areas within the framework of the Unitary State of the Republic of Indonesia". This will lead to, among other things, improving the land governance and administration system and increasing coverage of formal land right recognition, including of households and communities living in rural areas. In Indonesia, less than ten percent of land is titled, the land issues are high on GOI's agenda, as signaled by the formation of the Ministry of Agrarian and Spatial Planning (MASP) and the Ministry of Environment and Forestry (MoEF). Improvements in land governance and administration are expected to rationalize land-use choices; ensure

sufficient and efficient land use for agriculture production and food security; and maintain land-based ecosystem services and water security for the overall economic productivity. The benefits of improved land governance will also enable Indonesia to deliver on its Intended Nationally Determined Contribution (INDC) of reducing greenhouse gases by 29 percent from business as usual, or up to 41 percent with international support by 2030.

The crucial factor to the achievement of the *Nawacita* and the 2015-2019 RPJMN will be evidenced base policy formulation that draws on economic, biophysical and spatial data on natural resources. Currently, the natural resource data supplied to the decision makers are often unreliable, outdated, limited in scope. There are often also variances in data sets for the same parameters used by different ministries/agencies. This results in ministries setting inconsistent and sometimes contradictory policy directions.

The GOI is committed to strengthen its fiscal and development planning with better information on natural capital. Such information is critical to inform decision making related to the utilization of Indonesia's significant natural asset base, such as minerals, energy sources, forests, land, and water. The Ministry of Planning (BAPPENAS) recognizes that a well-established and officially used natural capital accounting system is necessary to assess the sustainability and resilience of the country's economic growth. They appreciate that Natural Capital Accounting (NCA) and valuation of ecosystem services are the basis and essential parts to build this understanding.

1.1. Project Context and Rationale

Indonesia has been carrying out Natural Capital Accounting (NCA) for more than 30 years. Since 1997, Indonesia's Central Statistic Agency (BPS) has been using the System for Environmental and Economic Accounts (SEEA) 1993 framework to develop annual asset accounts for forest resources, minerals, and energy in the System for Integrated Environmental and Economic Accounting (known as SISNERLING). In addition to this, in 2000, the agency begins to adopt the Adjusted Net Savings (ANS) statistic to assess macroeconomic sustainability based on the concept of natural capital accounting. In addition to the series of environmental and sustainable development indicators produced by BPS, other institutions, such as the Ministry of Environment and Forestry produces the Environmental Quality Index. Similarly, the former administration's Presidential Working Unit for Supervision and Management of Development (UKP4) — which advocated for One Map and One Data —produced their own statistics and data.

Indonesia needs to adopt harmonized data for NCA (the premise that underpins One Data) and also needs to upgrade their current SISNERLING to be in compliance with the UN Statistical Commission for the SEEA 2012 Central Framework (CF 2012). Adoption of the internationally agreed method to develop accounts for natural resource materials, such as minerals, timber and fisheries, would ensure the establishment of databases that can directly inform the System of National Accounts (SNA) and also would ensure that data are consistently collected and useful to line ministries and other key users.

GOI also has range of priorities and policy entry points that would benefit from a more systematic NCA. For example, Law No. 32/2009 on Environmental Protection and Management (UUPPLH 32/2009) requires an inventory of all natural resources and calls on all departments to develop economic instruments, including appropriate environmental economic accounting. Similarly, SEEA land accounts could assist the implementation of Law No. 26/2006 on Spatial Planning (UUPR 26/2007) by helping to institutionalize classification standards for land cover and utilization. The *One Map Program* aims to develop an agreed land cover, use and ownership data system, while the *One Data Program* aims to improve data governance by promoting a

single standard for data and metadata and establishing a single data port.

In October 2013, GOI, led by the National Development Planning Agency (Bappenas), officially expressed interest in joining the WAVES Global Partnership to assist them to improve their NCA and develop much needed land and water accounts. Shortly afterwards, Indonesia was included as one of WAVES's global partner countries.

2.1. Key Considerations for WAVES in Indonesia

Following Indonesia's inclusion in WAVES, the first year of the program consisted of scoping studies and stakeholder consultations to ensure the essential national buy-in among the different line agencies and ministries on the importance of natural capital and ecosystem accounts, its linkage with GOI's policy priorities, and the linkage between WAVES activities and ongoing activities in various ministries. A feasibility assessment was conducted to confirm potential policy entry points; determine Indonesia's readiness for program implementation; assess the quality of data compiled as part of SISNERLING, and define an institutional arrangement, work plan and resource need for program implementation through 2019.

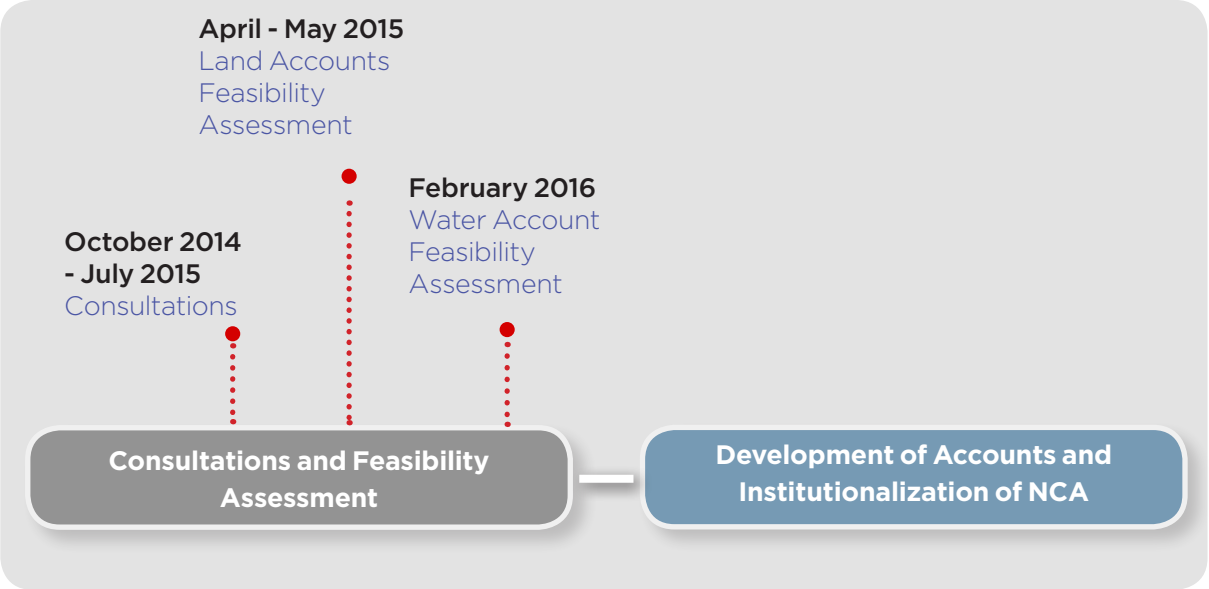

Figure 1. Consultations and Feasibility assessments done to date

Using a Strengths, Weaknesses, Opportunities and Threats Analysis, the feasibility assessment generated the following findings:

Strengths

- GOI has clear policy entry points for using the NCA and macroeconomic sustainability indicators to develop environmental policies, including policies on sustainable utilization of natural resources.
- Data needed to strengthen and improve the NCA is available in Indonesia.
- BPS has a strong national team experienced in compiling the NCAs in a SEEA format (SISNERLING) and some in-house expertise in geographic information systems (GIS) used among others for spatial analysis of demographics.
- BPS is a trusted custodian and producer of statistical data for Indonesia; it also has excellent

contact with various ministries that would supply data for the NCAs.

Weaknesses

- BPS staffs have constraints as they have commitment to produce national accounts and have limited time to devote to the development of the SISNERLING and NCAs.
- The SISNERLING has shortcomings; based on 2015 assessment, it is neither comprehensive nor reliable.
- BPS has limited experience with spatial analysis.
- Communication and collaboration between ministries/agencies supplying the data and those that potentially use the information from the NCS are inconsistent.

Opportunities

- BPS will establish a dedicated SEEA 'desk' as a separate entity within the National Accounts Directorate to facilitate works on the NCAs and sustainability indicators.
- GOI has committed to a comprehensive program to improve data quality and governance under the One Data Program led by the Presidential Office.

Challenges

- An incremental approach to developing natural capital accounts is required. This will require adoption of an extensive and long-term approach both from the NCA compilers and institutional users of the NCAs and sustainability indicators.
- Many stakeholders involve in providing and managing data required for the NCAs and sustainability indicators. It will be challenging to secure agreement and cooperation on data sharing arrangement among the key stakeholders.
- Staff turnover in BPS and Bappenas, as it is in many other government agencies, are high.

The feasibility assessment also included the application of the IMF data quality assessment framework and generated the findings presented below on the data quality of SISNERLING.

	Natural Resource Accounting - Quality Assessment Elements	Assessment[1]
0	**Prerequisites of Quality**	
0.1	Legal and institutional environment	
0.1.1	The responsibility for collecting, processing and disseminating the statistics is clearly specified	O
0.1.2	Data sharing and coordination among data-producing agencies are adequate	LO
0.1.3	Individual reporters' data are to be kept confidential and used for statistical purposes only	O
0.1.4	Statistical reporting is ensured through legal mandate and/or measures to encourage response	LO

	Natural Resource Accounting - Quality Assessment Elements	Assessment[1]
0	**Prerequisites of Quality**	
0.2	Resources are commensurate with needs of statistical programs	
0.2.1	Staff, facilities, computing resources and financing are commensurate with statistical programs	LO
0.2.2	Measures to ensure efficient use of resources are implemented	NA
0.3	Statistics cover relevant information on the subject field	
0.3.1	The relevance and practical utility of existing statistics in meeting users' needs are monitored	LNO
0.4	Quality is a cornerstone of statistical work	
0.4.1	Processes are in place to focus on quality	LNO
0.4.2	Processes are in place to deal with quality considerations in planning	LNO
0.4.3	the statistical program	LNO
1	**Assurances of Integrity**	**Assessment**
1.1	Policies and practices are guided by professional principles	
1.1.1	Statistics are compiled on an impartial basis	O
1.1.2	Choices of sources and statistical techniques are informed solely by statistical considerations	NA
1.2	Statistical Policies and practices are transparent	
1.2.1	The terms and conditions under which statistics are collected, processed and disseminated are available to the public	LO
1.2.2	Internal government access to statistics prior to their release is publicly identified	NA
1.2.3	Products of statistical agencies/units are clearly identified as such	O
1.2.4	Advance notice is given of major changes in methodology, source data and statistical techniques	NA
1.3	Policies and practices are guided by ethical standards	
1.3.1	Guidelines for staff behavior are in place and are well known to staff	O
2	**Methodological soundness**	**Assessment**
2.1	Concepts and definitions follow international frameworks	LO
2.2	Scope is in accord with international standards, guidelines or good practice	NO
2.3	Classification/sectorisation systems are in accord with international standards, Guidelines or good practices	NA

	Natural Resource Accounting - Quality Assessment Elements	Assessment[1]
2.4	Flows and stocks are valued in accord with international standards, guidelines or good practice	
2.4.1	Net present values are used to value flows and stocks	O
2.4.3	Grossing/netting procedures are broadly consistent with internationally accepted standards, guidelines or good practices	NA

Comments/recommendations: Capacity building for economic valuation of natural resources is needed both for BPS and resource account users

3	Accuracy and reliability	Assessment
3.1	Source data are adequate to compile the series	
3.1.1	Source data are obtained from comprehensive data collection programs that take into account country-specific conditions	NO
3.1.2	Source data reasonable approximate the definitions, scope, classifications, calculation and time of recording required	NO
3.1.3	Source data are timely	NO
3.2	Source data are regularly assessed	
3.2.1	Source are routinely assessed, e.g. for coverage and response error, the results of the assessment are monitored and made available to guide good statistical practices	NO
3.3	Statistical techniques confirm to sound practice	
3.3.1	Data compilation employs sound statistical techniques to deal with data sources	NO
3.3.2	Other statistical procedures (e.g. data adjustments and transformations and statistical analysis) employ sound statistical techniques	NA
3.4	Intermediate results and outputs are assessed and validated	
3.4.1	Intermediate data are validated against other information where applicable	NO
3.4.2	Statistical discrepancies in intermediate data are assessed and investigated	NO
3.4.3	Statistical discrepancies and other potential indicators or problems in statistical outputs are investigated	NO

3	Accuracy and reliability	Assessment
3.5	Revisions as a gauge of reliability are tracked	
	Studies and analyses of revisions are carried out routinely and used to inform statistical processes (see also 4.3.3)	NO

Comments/recommendations: Source data and quality assurance by BPS work need to improve substantially

	Natural Resource Accounting - Quality Assessment Elements	Assessment[1]
4	**Serviceability**	**Assessment**
4.1	Periodicity and timeliness follow dissemination standards	LO
4.2	Statistics are consistent within the data set and over time and with other major datasets	
4.2.1	Statistics are consistent within a dataset	NO
4.2.2	Statistics are consistent or reconcilable over a reasonable period of time	NO
4.2.3	Statistics are consistent or reconcilable with those obtained through other data sources and/or statistical frameworks	NO
4.3.	Data revisions follow regular, publicized procedures	
4.3.1.	Revisions follow a regular and transparent schedule	NA
4.3.2.	Preliminary and/ or revised data are clearly identified	O
4.3.3	Studies and analysis of revisions are made public (see also 3.5.1)	NA
5	**Accessibility**	**Assessment**
5.1	Data accessibility	
5.1.1	Statistics are presented in a way that facilitates proper interpretation and meaningful comparisons (layout, clarity of text, tables and charts)	NO
5.1.2	Dissemination media and formats are adequate	O
5.1.3	Statistics are released on a pre-announced schedule	O
5.1.4	Statistics are made available to all users at the same time	O
5.1.5	Statistics not routinely disseminated are made available upon request	NA
5.2	Up-to-date pertinent metadata are available	
5.2.1	Documentation on methodology, sources and statistical techniques is available and differences from internationally accepted standards, guidelines or good practices are annotated	NO
5.2.2	Levels of detail are adapted to the needs of the intended audience	NA
5.3	Prompt and knowledgeable support is available	
5.3.1	Contact person for each subject field is publicized	O
5.3.2	Catalogues of publications, documents and other services, including information on any charges, are widely available	O

1/ Key: O = observed; LO = practice largely observed; LNO = practice largely not observed; NO = not observed; U = work under progress; NA = information not available

These findings underscored the importance of the Indonesia WAVES program capitalizing on the policy pull for NCA and supporting capacity building, strengthening coordination across key ministries over data and improving data quality and utility.

2. Project Development Objectives

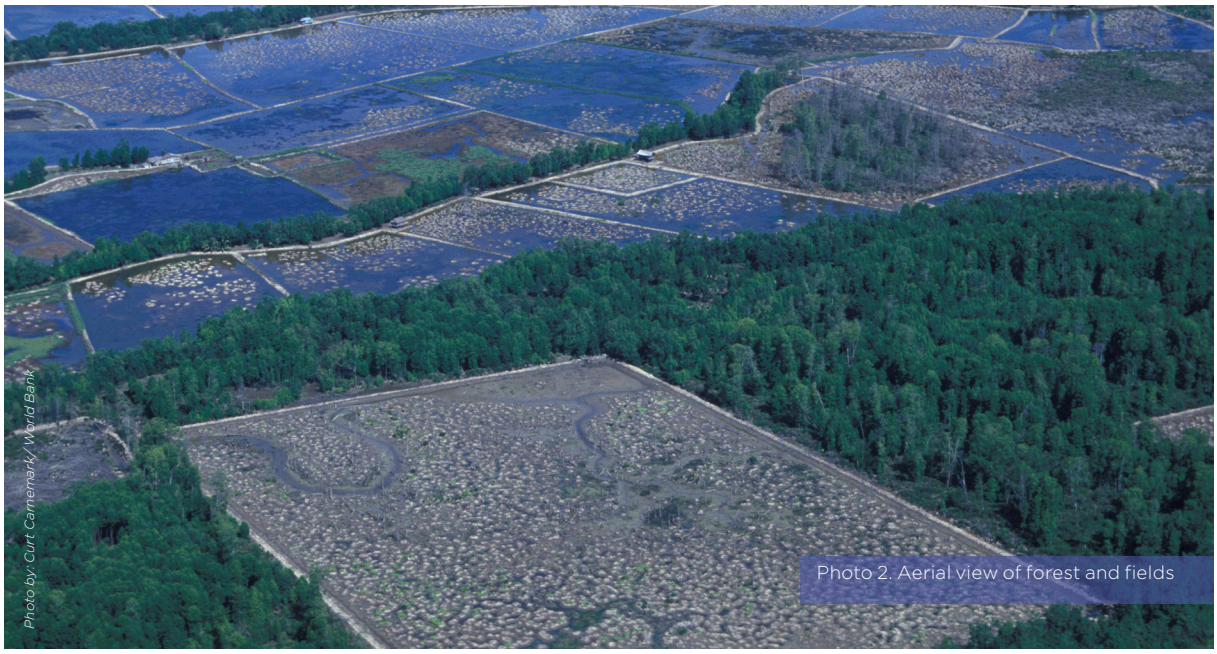

Photo 2. Aerial view of forest and fields

The Indonesia WAVES program will support the GOI to strengthen and expand existing systems of natural capital and environmental accounting and institutionalize its use to inform development planning and policy analysis. The Program Development Objective (PDO) is to enable GOI to regularly and systematically:

1. Implement natural capital accounting
2. Use the developed accounts in policy analysis and development planning.

The WAVES program also aims to provide tools for development planning (such as spatial and resource utilization) and to support implementation of the national development priorities as reflected in the 2015-2019 RPJMN under Bappenas' coordination. In order to achieve the objective, the program will be built on the government's existing efforts to improve and institutionalize SISNERLING, which currently focuses on minerals, energy and forest sectors and is implemented by the BPS largely on a project basis.

The work also aims to leverage and link with ongoing efforts to improve natural resource asset use and management. It, therefore, is linked to the World Bank's Landscape Program, that aims to identify and help GoI address the key drivers of land degradation and deforestation, with priority attention on preventing and managing forest fires and promoting sustainable land management in lowlands. The Landscape Program will improve the evidence for making decisions and policies regarding natural resources management, and help build the capacity within government for improved management of natural resources. The Program is organized around three components which include: 1) Sustainable Lowlands (including peatlands) Management, Conservation and Restoration; 2) an Improved Land Information System (e.g., implementation of the One Map Policy); and 3) Fire Prevention and Reduction of Fire Impact Risk. All three components will be able to directly benefit from improved NCA and development of land and water accounts, augmenting the impact of WAVES.

2.1. Key components

Drawing on the findings of the feasibility assessment and country context, Indonesia WAVES program focuses on three main areas:

i) Improvement of SEEA-based SISNERLING and development of macroeconomic sustainability indicator
ii) Establishment of land accounts
iii) Development of pilot water account for Citarum river basin

In order to ensure the achievement of three components, WAVES program will provide support in six areas of work, which are three main components of WAVES and three cross-cutting components (Capacity Building, Policy Analysis, and Communications). The program will, through the cross-cutting areas ensure that the development of accounts are well linked to policy applications and that the needs of data users, data constraints, and potential applications

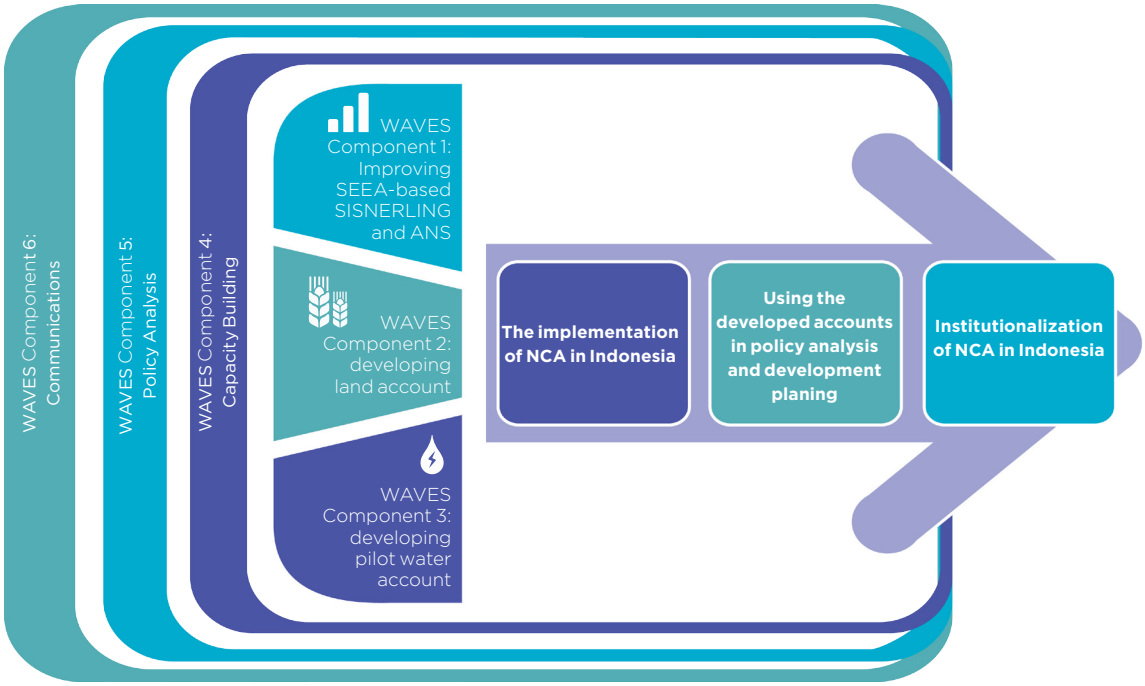

Figure 2. WAVES supports in achieving the institutionalization of NCA in Indonesia

Component 1: Improvement of SEEA-based SISNERLING and Macroeconomic Sustainability Indicators

This component will strengthen Indonesia's SEEA-based SISNERLING into a user-friendly data system that generates values for a more comprehensive set of natural assets as well as supports the development of a macroeconomic sustainability indicator, namely the Adjusted Net Saving (ANS). The ANS would be critical for policy analysis on the sustainability of the current and predicted growth patterns and would help inform sector development strategies.

This component would augment the understanding, use and quality of the current asset accounts through the following activities:

- Improving SEEA: agreeing and defining NCA Account Output Design, establishing and supporting data processing, data collection data analysis and quality assurance

- Data gap assessment: For developing the SEEA (CF 2012), land accounts, water accounts – what data parameters are needed, sources of data; what is missing
- Data coordination and exchange
- Quality of data: Technical documentation of data: improving understanding of how available data are collected (survey, administrative – and how do line ministries collect data
- Building understanding about use of NCA in development planning
- Gap analysis between users' data needs and BPS' data availability
- Developing and conducting the provincial NCA

Component 2: Support the development of Land Accounts to inform land use and planning policy

In order to contribute to the improvement of overall land and forestry governance, land use licensing and administration, which includes development of land cover and use accounts at national level, the WAVES program will support the development of Land Accounts. Land Accounts can help identify trends in land use changes and predict the development impacts of potential future land use changes.

The focus of this component would be to support the development of land accounts – as a new natural capital account - that follow the 2012 SEEA standard as close as possible from the very beginning of its construction as this will be a new addition to the existing SISNERLING. Based on identification process and consultations with the government counterparts, activities under the component 2 will focus on:

- Identify key policy questions and what is currently being done to address these questions
- Preparation for the implementation of land account, which include scoping exercise and data availability assessment for pilot province
- Focus group discussion on land accounts
- Development of experimental land accounts for Sumatera, Kalimantan, Java, Bali, Nusa Tenggara, Sulawesi, Maluku Papua
- Focus group discussions (FGD) on Land Accounts for West Sumatra, East and West Kalimantan

Component 3: Support on the development of Framework for the construction of Water Account to address water security

This component aims to adopt the standardized SEEA Water Account framework and develop it into a tailor-made framework that will serve as a basis for developing Indonesia's Water Account. The latter will be developed by the GOI, and is beyond the scope of the current WAVES program. The program will support the development of a pilot account for a selected region in Java Island to test the application of the framework in Indonesia.

This work aims to provide a platform for addressing the Water Security issues, which is one of three thematic National Priorities defined in the 20015-2019 RPJMN. It will cover two key dimensions related to water: quantity and quality. The Citarum River Basin has been selected for the pilot water accounts. The aim is to use the information generated used for policy related questions on improving water use efficiency and the development of policy instruments to reduce water pollution.

The approach of the water account construction will subsequently be replicated in prioritized watersheds and by sub-national entities. Under the RPJMN framework, the GOI would benefit from a national water account that can help link water security issues with the contribution of renewable energy in the future energy mix. Within the World Bank's Landscape Program efforts, water accounts information will be useful in examining options for forest land and agriculture sector management.

The activities in this component will focus on:

- Determining the key policy questions and how they are currently being handled
- Users' needs in terms of data
- Preparing for implementing water accounts – determine data availability and identifying options for handling data constraints
- Implementing the pilot water account in Citarum Basin
- Developing technical guidance for replication

Component 4: (Crosscutting component) Capacity Building

The WAVES program will provide capacity building program to support the adoption process of the SEEA at national level. Technical capacity building for statistical works and analysis supports the institutionalization of sustainability measures and indicators.

The capacity building will be provided for relevant government officials in participating government agencies. The capacity building will target two groups of participants: (i) capacity building for policy makers through series of policy roundtables; and (ii) capacity building for technical staff through a series of technical trainings. The program will provide considerable technical assistance from international and local experts as well as selected training activities.

The capacity building cross-cutting component will cover:

- Capacity needs assessment for policy – accounts linkages (by looking at capacity in BPS, Bappenas, MoF, and other key SC members)
- Training for land accounts and water accounts
- Training on the use of GIS
- Training in Environmental and Ecosystem Accounting
- Training for economic valuation methods
- Training of SEEA for sub-national governments and provincial BPS
- Development of training materials for SEEA development, land accounts, water accounts

Component 5: (Crosscutting component) Policy Analysis

The impact of WAVES will depend on its use in policy making and development decisions. This crosscutting component on policy analysis aims to augment the understanding of how accounts can be used for policy analysis and should inform decision making. It also aims to assist the key ministries involved in using NCA to conduct relevant analysis.

The activities associated with this crosscutting component will focus on:

- Good practice on using ANS for tracking development and mainstream use of macro level sustainability indicator
- Reviewing and raising awareness about the latest methods and frameworks for conducting economic valuation

- Using NCA to conduct analysis on policy questions related to:
  - > Energy security and strategic reserves
  - > Land conversion
  - > Water security
  - > Optimizing natural capital extraction to improve the revenue
  - > Strategies to transition productive capital from non-renewable natural resources capital
  - > Income derived from natural resources

Component 6: (Crosscutting component) Communication for Institutionalization of NCA

The WAVES program will support the development of communications strategy for the implementation of the WAVES Indonesia. Activities associated with the cross-cutting communication component include:

- Developing a communication strategy
- Developing basic communication materials
- Assisting in fostering inter-ministries and agencies collaboration
- Increasing awareness and understanding by disseminating relevant material on why NCA is important and findings from policy analysis
- Conducting outreach and building community of practice
- Media monitoring

3. Progress

The extensive consultations that were carried out on WAVES built a robust ownership of the WAVES program within GOI. Following this and since July 2015, the program has also been supporting specific activities. This section summarizes the key achievements between July 2015 and May 2016.

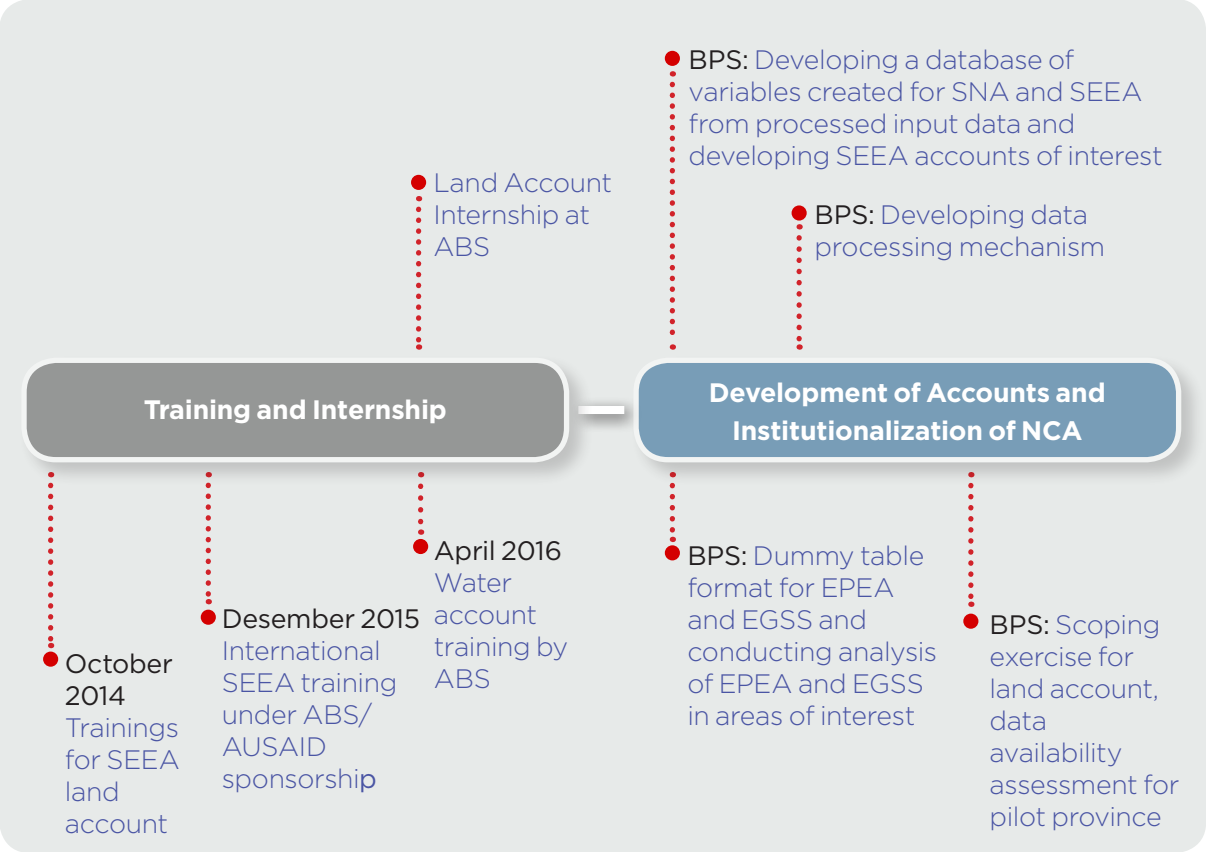

Figure 3. Trainings and Internship and Development of Accounts (July 2015-May 2016)

3.1. Institutionalization of the WAVES program

GOI recently formed a coordination body for the SISNERLING - a Coordination Team for the Indonesia's System for Integrated Environmental and Economic Accounting (SISNERLING) based on a formal decision of the Deputy of Maritime and Natural Resources of Ministry of National Development Planning / Bappenas (Decision Number KEP. 41/DEP.V/03/2016).

The coordination body is composed of person in charges in select ministries, two technical working groups, and a small team. The persons in charge for the SISNERLING Coordination Team, includes (i) Deputy of Maritime and Natural Resources from Bappenas; (ii) Deputy of Accounts and Statistical Analysis of BPS; and (iii) Director General of Asset Management of Ministry of Finance.

The implementation team consist of:

i) TWG 1: SISNERLING working group, that consists of 64 directors (echelon 2) from 16 ministries and agencies

ii) TWG 2: Policy Analysis, Spatial and Dissemination working group, which comprises of 50 directors (echelon 2) from 13 institutions
iii) A small team, that consist of 13 deputy directors from 4 ministries

This formal body creates a unique platform that brings together key ministries to work on a common agenda of data, valuation of natural assets and institutionalizing the use of NCA.

The Coordination Team, together with the World Bank, have formed the Indonesia WAVES program Steering Committee (SC). The SC is responsible for (a) confirming the overall activity priorities of the Indonesia WAVES program and providing policy recommendations; (b) formally endorsing the annual work plan and activities; (c) assisting in overcoming constraints to implementation of the Indonesia WAVEs program; (d) reviewing and mainstreaming findings from the Indonesia WAVES program; (e) approving, updating and amending the Operational Guidelines.

The WAVES SC is supported by the two TWG associated with the Coordination Team and the Bank. These two TWGs, along with the Bank, provide: (a) regular technical oversight of the activities supported by the Indonesia WAVES program that are relevant to the working group; (b) review the program of support of relevance to the working group, including a rolling identification of priority areas of support for the next twelve months, and discussion of work being done; and (c) discuss and agree on additional activities deemed necessary to support the program implementation in the area of relevance to the working group; (d) discuss any urgent administrative or managerial issues; (e) agree to the establishment of small time-bound thematic working groups (ThWG) with a specific scope of work and agreed set of activities; and (f) report to and advise the SC on key decisions.

3.2. Trainings and Internships

National training

A series of technical trainings have been conducted with the support of experts from the Australia Bureau of Statistics (ABS). In Bandung, from 12-16 October 2015, over 40 participants from seven ministries and agencies received training on the SEEA and land accounts. In April

Photo 3. SEEA Water account training in Bandung, April 13-15, 2016

2016, training on SEEA water was held to support the preparation of a pilot water account for the Citarum watershed. The training was attended by 34 participants from 9 different ministries / agencies.

International training

The WAVES promoted the participation of ministries officials in a short course on Introduction to Environmental Accounting led by the Australia National University (ANU) in December 2015 as well as an internship program with the Australia Bureau of Statistics (ABS) in March 2016. Over the course of two weeks with the ABS, three interns produced a set of 'preliminary' land accounts, putting into practice their new knowledge (see Box 1: A "Mini" Land Account)

Box 1: A "Pilot" Land Account

BPS team, composed of Etjih Tasriah, Budi Budiman and Yunofri, participated in an internship on land accounts at ABS in March. During this time and following it, they learned the ins and outs of developing land accounts. Using data they had obtained from the Indonesian Geospatial Agency (BIG), they assembled an pilot experimental land accounts – land use account for West Sumatra and land cover accounts for West Sumatra, West Kalimantan and East Kalimantan.

Figure 4. Three provinces as preliminary sample for Land Account

Using data at the scale of 1:100000, the team developed, for West Sumatra, a physical account table for land use for 2009-12 (in ha), and a table for land use net change matrix for 2009-12 (ha). There were gaps in the data where no land use information was available. The team added a custom 'Not Classified' class to the land use classification to capture land within the West Sumatra province where no spatial data (polygons) were available.

The land use map for2009 and 2012 for West Sumatra are below

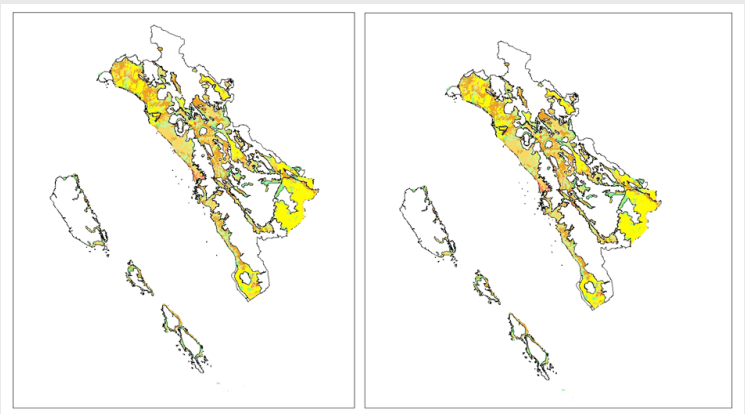

Figure 5: Land use map for 2009 and 2012 for West Sumatera

Using data in the tables that were created the team highlighted the following findings:

- Over 55% of land was "Unclassified" in both 2009 and 2012. This represented areas not covered by the BIG Land use dataset.
- In 2009 'Dry Land Seasonal Crop' was the most prominent land use type. However this land use underwent a considerable net decrease in area by 37.28% which included 13.45% of additions and 50.73% of reductions between 2009 and 2012.
- The 'Crop Farm' land use increased considerably from 128,357 ha in 2009 to 376,625 ha in 2012. Around 232,650 ha of 'Dry Land Seasonal Crop' was reclassified to 'Crop Farm'.
- 'Forests' also showed a 11.69% decrease in area. This was driven by net losses to 'Plantation' (-7%) and 'Crop Farm' (-3.18%).

The data was converted into visual representations shown in (Figure 6 and 7)

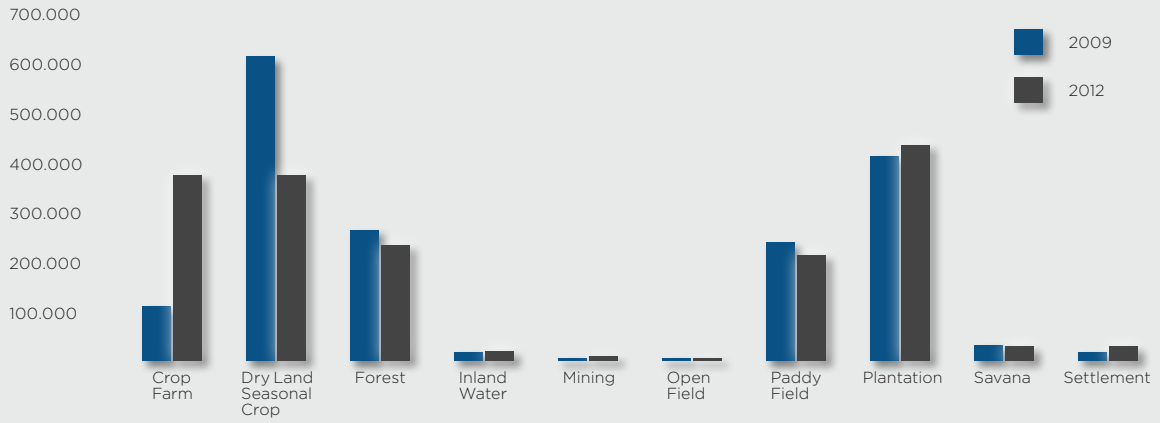

Figure 6: Open and Closing stocks for land use classes in West Sumatra (2009 and 2012)

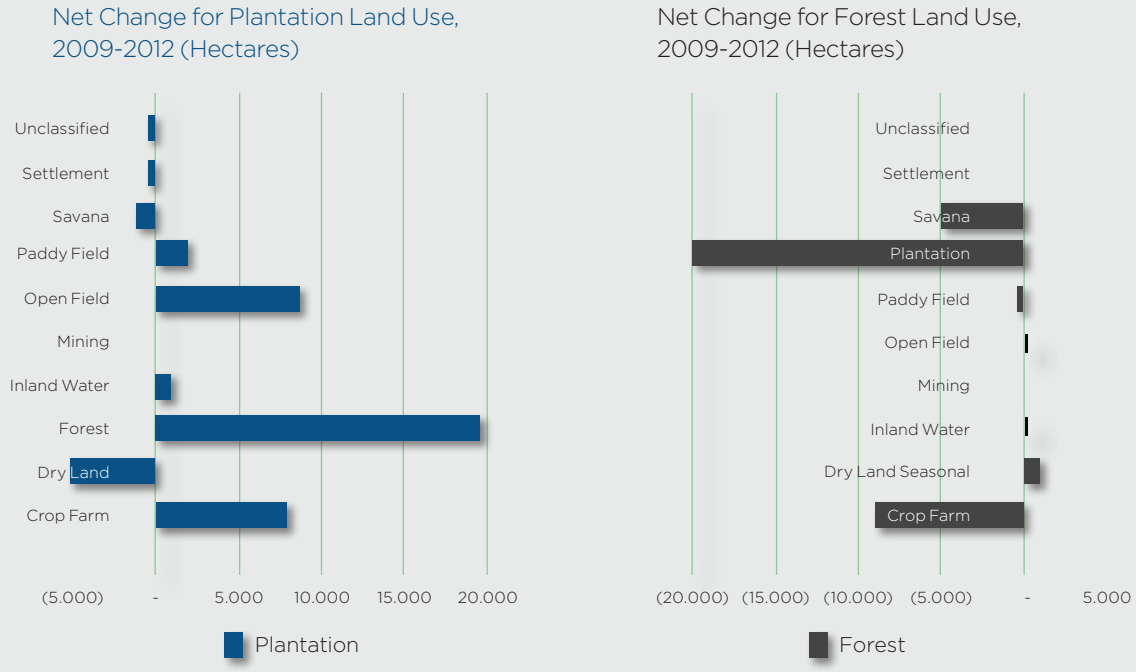

Figure 7: Net change for plantation land and forest land use

While there remains some questions regarding data and land use classifications, this is a tangible illustration of the capacity built in land accounts and the type of information that can be generated if necessary data are available.

3.3. Improving the SEEA-based SISNERLING

- BPS has started strengthening the SISNERLING with the 2015 version already include modules that incorporate the latest SEEA methodology, such as applying Net Present Value (NPV) in the asset accounts module. The 2015 SISNERLING includes, in their featured example on East Kalimantan, additional indicators related to the land accounts. This is viewed as an improvement to the earlier SISNERLING reports.
- BPS is also laying the foundation for producing land and water accounts by bringing together representatives from different ministries and agencies to form technical working groups for each account by April 2015. A preliminary process has been conducted to identify which data are required to construct the accounts and what data are already available. Using the available data, the BPS has prepared a mini land account for one province (see box above), highlighting areas where greater coordination will be needed to establish land accounts. Despite the challenges of cross-agency coordination, there is substantial interest and support for converting all agencies to the same valuation methodology and creating one database for each account.
- Indonesia WAVES partnership has also foster greater collaboration between BPS and Directorate General of Asset Management in the Ministry of Finance (MOF) to formulate the natural resource fiscal potential report for tin commodity in 2016-2017.

3.4. Communication

Photo: Nissa Cita / WAVES Indonesia

Photo 4. Stakeholders consultation in Jakarta, 12 October 2015

- From 12 to 15 October 2015, the WAVES led a communication mission and stakeholders consultancy in Jakarta, laying the ground for a comprehensive communication and engagement strategy.
- Meetings were held with external parties to introduce the WAVES initiatives and opportunities for collaboration, including with Switzerland's State Secretariat for Economic Affairs (SECO), academics, economists and environment activists in Bandung.

- The International Institute for Environment and Development (IIED) has supported the preparation of a communication strategy which was endorsed by the Indonesia WAVES Steering Committee in April 2016.
- The first bimonthly electronic newsletter on Indonesia WAVES has also been disseminated to a broad-ranging set of stakeholders.

4. Monitoring and Evaluation

The World Bank will monitor and track the implementation of activities with the progress will be monitored against the result-based framework and implementation timeframe. In order to make any necessary adjustments, performance and implementation challenges will be discussed at SC meetings. The results framework has been kept simple to maintain flexibility to respond to client needs throughout the process. Results of monitoring and evaluation activities and lessons learned from the experience will be used as feedback for improving the Program activities.

5. Annex

Interviews

A Vision for Natural Capital Accounting in Indonesia

Indonesia, is the world's largest archipelago with 17,000 islands spanning the Indo Malayan and Australasian biogeographic regions. The country's rainforest, coastal and marine areas hold rich biodiversity and abundant mineral resource. Natural resources and the environment play significant roles in Indonesia's development and failure to address sustainability issues could threaten the country's economic growth.

The Government of Indonesia (GOI) has made a strong commitment in its National Mid-Term Development Plan (RPJMN) for the period 2015-2019, to establish strong foundation for a strategic and green development agenda. GOI has also pledged to implement Sustainable Development Goals. Crucial to the achievement of both targets is an evidence based policy formulation that draws on economic, biophysical, and spatial data on natural resources.

Indonesia has been implementing the 1993 UN System of Environmental Economic Accounting (SEEA) through Indonesia's Statistical Agency or Badan Pusat Statistik (BPS), and annually publishing the System of Integrated Environmental and Economic Accounting (SISNERLING). With the commitment towards a green economy, GOI is ready to strengthen SISNERLING as part of a broader effort to produce more robust sustainability indicators.

The WAVES initiatives aims to contribute to more robust natural capital accounting in Indonesia and the implementation of 2012 SEEA based land accounts and pilot water accounts. GOI recognizes it is necessary to have a natural capital accounting system that meets international standards and is reliable in order to assess the sustainability and resilience of the country's economic growth.

Endah Murniningtyas, the Deputy of Maritime and Natural Resources of Bappenas, the chair of Indonesia WAVES Steering Committee (SC); and **Kecuk Suhariyanto**, the Deputy of Accounts and Statistical Analysis from BPS, shared their vision for the WAVES initiatives and how it can lead to a stronger natural capital accounting in Indonesia. The following is Nissa Cita and Bastian Zaini's interviews with these senior officials, conducted in March 2016.

Endah Murniningtyas,
Deputy of Maritime and Natural Resources, Bappenas

What does Bappenas wish to achieve from a stronger SINERLING?

Report wise, we would like to standardize data from the [SISNERLING] report itself. Although BPS has released SISNERLING reports, it was possible that BPS did not use the most updated data, or data systems in each ministry and agency. Therefore, a stronger SISNERLING is needed to later fix and share the data-making process within ministries and agencies and achieve one-base data for counting purpose. Further, Ministry of Finance [is] valuing existing state assets; including increasing and decreasing changes of our natural resources wealth, for example by estimating the number of mineral explorations, and where depletion has taken place, how much it has declined, and so on.

With more robust and uniform data, we can produce a database for such valuations. With WAVES we aim to achieve this database – with BPS at its core. Bappenas' role, will be on how the different ministries (e.g., Ministry of Finance) would use the data for monetary accounting purposes. So in the end, it becomes one close loop.

According to you, what kind of policies could credible natural capital accounts?

In the future, for example, from mineral side point of view, we can actually count the total amount of resources we have. We can know exactly how much and where these resources are, and then,

and confirm that the resources lie under our possession.

What we know now is largely based on using technology to determine and value what we have. We actually need to start differentiating which natural resource assets should be exploited and which should be reserved. This would enable us to say "Okay, we will export these resources, or exploit them for the time being to get benefits, while these other resources will be reserved." Those are the policies. So it relates to sustainable development.

In the sense of wealth valuation that would be done by the MoF; there is a broad range of policies. We would become more credible when we give granted licenses. We can avoid private sectors-business investors from cheating the government. With natural capital accounting knowledge, we can inform policies such as those about the right pricing for the permits we are going to issue.

Qualitatively we know that we need to calculate the cost of deterioration of our natural assets. But in practice, for example, for water, can we estimate the cost to clean the polluted area? And whether it makes sense to bear the cost will be influenced by the value of water itself. But what is the base value to clean water? With such information, we can estimate pollution tax for instance. So, getting the quantitative information is the first priority, followed by analysis of the information.

WAVES foster a colaborative approach across-sector. What does Bappenas perceive to be challenges with across-sector cooperation?

"Well, it is never an easy job, but we need to start somewhere."

Well, it is never an easy job, but we need to start somewhere. Bappenas does not provide data solely for Bappenas' use, but for GOI's purpose. We will remind this to everyone involved. A credible system is what we need to make sure collaboration can truly happen.

I realize there is always issues in transparency. Some information may not be meant for the public, because of concerns regarding national security. But put it this way, if we are not transparent with our children other persons can reveal what we have. Nowadays, many non-government institutions release their data; the public might not be aware of this. Isn't it strange? Our children do not know our wealth, but other people do.

In the next five years, what should natural capital accounting initiative like WAVES have contributed toward brought give contribution toward Indonesia's development policies and planning?

WAVES Initiatives will contribute to our data and knowledge about what we already have. Together with stronger valuation by BPS and Ministry of Finance, and a single base data system we will inform more robust policies on natural resource. We need to build the same understanding with wider stakeholders, to move forward to a single system of base data (One-Data).

Kecuk Suhariyanto,
Deputy of Accounts and Statistical Analysis, BPS

What does BPS think about the WAVES initiative to strengthen natural capital accounting?

BPS highly welcomes WAVES because WAVES initiative will bring many benefits both to BPS as well as to Indonesia. As we all know, [Indonesia] has already developed SISNERLING since 1997. But we must remember that we still apply the old methodology, SEEA 1997, with its very limited coverage. Therefore, from my point of view WAVES should at least bring three benefits to BPS:

First, help upgrade the old methodology to the new methodology - SEEA 2012 - especially for asset account valuation. This is extremely important. Should this be adopted not only in BPS, but also in other ministries, it would mean that we all apply a uniform concept. Second, the coverage of the accounts would be expanded.

For the time being SISNERLING only covers nine assets, and with WAVES we can increase the number of assets, not all at once, but gradually. We would add them gradually until the set of assets is complete. The third benefit, is the increase in human resource capacity because WAVES is not only theoretical, but also about capacity building. These are at least three benefits we hope to achieve in long term.

Will there be a unit specifically dedicated to natural capital accounting at BPS?

Actually, at BPS we have already developed a shadow team. I refer to it as a 'shadow team' since it is not yet formal. Mr. Buyung, Production Account Director, handles the SEEA under his department. But in the future, we have already planned to develop a special division handling SEEA. The bottom-line is, we are aware that in the future to achieve and track the SDGs, environmental accounting will become very important. Therefore we have already suggested there be a new division development, with one sub-directorate Head and three section head. This, however, will take time, because we must ask the State Apparatus Ministry for permission to do this. But yes, one day a dedicated division for SEEA would exist.

Besides SISNERLING, we will develop other credible accounts such as land account and pilot water accounts. What has been done to prepare for these accounts?

BPS understands, that we must develop these accounts, it is part of our tasks. BPS cannot, however, work alone. Therefore starting from the beginning, we are already working on building a strong cooperation with other Ministries and Agencies such as Bappenas, Ministry of Environment and Forest, Ministry of Finance, Geological Information Agency, and so on. This must be done to be able to work collaboratively. In order to develop the accounts, several steps have been taken. First we have carried out a focus group discussion with them, we committed that there would be steering committee with working groups associated with the committee. Therefore, there will be a working group for land account, water account and other accounts later on. That is the first step.

The second step we have taken is an identification step. This concerns the types of data that are needed for the accounts. We have already accomplished that. The third step, we have agreed to not start from zero. This is because we actually have many of the relevant data spread across ministries and agencies. Consequently, in third step, we have compiled an inventory from other ministries and agencies which could function as data resources for the land account and water account. *[Note: BPS has conducted pilot land accounts for West Sumatera as a result from an internship for their staff at the Australian Bureau of Statistics in March 2016]*

According to you, how long will it take to reach this ideal point? Is the ideal point the implementation of natural capital accounting or a strong SISNERLING in Indonesia?

I cannot predict for how long the process will take. It is clear, however, that the first target is to adopt the new SEEA methodology and increase the coverage. We need to make an effort to increase the coverage from 9 assets to 20 assets. Mr. Buyung would like to have 52 assets, which needs tremendous effort. But one important aspect to note is that when we adopt a new methodology and definition it is not only used by BPS but also by the State Assets General Directorate in MoF. This point is very important because it ensures that we use uniform valuation methods. If the same valuation method is applied by all Ministries and Agencies, it definitely becomes a uniform set of base data. Development of the land accounts may be quick. For water accounts, it depends on the data available. I might not be able to give you a complete picture if you ask about the target for the next 3 to 5 years. The stages to get there, however, are very clear.

How would Indonesia's statistics overall be strengthened by natural capital accounting with its newest SEEA or with a strong SISNERLING?

For the time being BPS is establishing Full Sequence Accounts. This Full Sequence Accounts is a cooperation between BPS and Bank of Indonesia, Ministry of Finance, Financial Authorities and others. There are many accounts, about 13-14 series of them. One missing component is the capital account. This is missing because we don't have it. Natural capital accounting will help fill in this gap, specifically for non-produced capital. Hence, the results from natural capital accounts will fill in the empty slot in the Full Sequence Accounts. Consequently, the entire Full Sequence Account's quality would improve. Second, natural capital accounting will produce many derivative indicators, for instance on environmental asset depletion. It can be used as the adjusted factor to estimate the environmentally adjusted net domestic product (EDP). It can also inform Adjusted Net Saving (ANS). Therefore, in addition to contributing to Full Sequence Accounts, information on depletion can inform EDP and ANS.

Another point to consider, this natural capital accounting will be highly advantageous for the State Asset's General Directorate at the Ministry of Finance, to help determine the nation's wealth including natural assets. Therefore we put high hope that this NCA will be mainstreamed because it can have a profound impact in strengthening Indonesia's statistics in the future. []

Wealth Accounting and the Valuation of Ecosystem Services

Wealth Accounting and the Valuation of Ecosystem Services (WAVES) is a global partnership led by the World Bank that aims to promote sustainable development by ensuring that natural resources are mainstreamed in development planning and national economic accounts.

www.wavespartnership.org

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