Wealth Accounting and the Valuation of Ecosystem Services (WAVES)
Eighth Annual Partnership Meeting
Connection of NCA to Midterm Development Plan
(NDP-Low carbon development Plan)

Sudhiani Pratiwi
Deputy Director for Climate Change and Environmental Quality
Ministry of National Development Planning (Bappenas)
Paris, November 28th 2018
Overview of the WAVES Program in Indonesia
Wealth Accounting and the Valuation of Ecosystem Services (WAVES)

To provide support on data management and account compilation.
- Macro environmental-economic indicators
- Measure and patterns of land cover and land use
- Introduction of water in the macroeconomic context at watershed level
- Relevance of measuring ecosystem services and assets in peatlands

Further enhancement and expansion of the existing natural capital accounts built under the SISNERLING umbrella.
- SISNERLING assessment and recommendations for integration of standard approaches
- Long term roadmap for SISNERLING implementation

This block serves as a catalyst for the whole WAVES program. The aim will be to implement a strong communication and engagement strategy.

To guarantee proper insertion of natural capital concepts in the policy dialogue of the country (Bappenas)
- Integration of macroeconomic indicators in policy frameworks (In progress)
- Informing natural capital conceptual approach in the carrying capacity module, BAPPENAS Environmental Directorate (In progress)
- Developing data protocol to govern official data exchange mechanism among data custodian and key agencies to support SEEA based policy analysis (in progress)
WAVES ACTIVITY PROGRESS UPDATE: FINDINGS ON DATA BLOCK
To be linked into the system dynamic model exercise, including to provide its policy narrative

Land Cover Accounts
- Drafts published by BPS
- Time trend 1990-2015 per 5 years
- Forests, scrubs, plantations, shrubs, swamps – 23 classes
- All of Indonesia

Land Extent Accounts
- Snapshot 2017, 2015
- Beyond land cover maps extent in Ha (spatially explicit) of – perennial crops – acacia, oil palm, rubber, coffee, banana, eucalyptus, forests, water
- Sumatra (ready) and Kalimantan

Peat Accounts
- Time period cover: 1990-2015
- Cover, extent and Ecosystem Services monetized for – Forest products – timber and biomass, biodiversity, carbon sequestration, commodities – plantation and paddy
- Sumatra and Kalimantan

Water account
- 2014, 2016 SEEA standard using SWAT model
- Water supply and Water use
- Citarum Watershed

Wealth account
- 1995-2014
- Links to macroeconomic framework
- Natural capital – cropland, energy, forests and protected areas, metals, pasture land
- Feeds into wealth (human+produced+natural) capital
- All of Indonesia
Indonesia’s Commitment on Reducing GHG Emission

Presidential Regulation No. 61/2011, supported by 34 Provincial Governments

https://pep.pprk.bappenas.go.id

2010 2016 2020

13.47% 26%

*progress achievement of GHG emission reduction

Involve related ministries, local governments, and other institutions through coordination the implementation and reporting on activity to reduce the GHG emission
INTEGRATION OF THE NATIONAL ACTION PLAN ON CLIMATE CHANGE ADAPTATION INTO THE NATIONAL DEVELOPMENT PLANNING

- ClimateProjection
- PotentialHazard
  - Flood
  - Landslide
  - Health
  - Drought
  - FishingGroundZone
  - SeaLevelRise
- Vulnerability
- NationalPolicyandStrategy(Spatial)
- SectoralStrategies
- ActionPlans
- Budgeting
- RAN-API
- NAPs
- RPJMN 2020-2024

RESILIENCE SYSTEM
Low Carbon Development plan is a set of inclusive development planning policies and low-carbon investment strategies for the RPJMN 2020-2024 and the Roadmap of SDG 2030 that encourage Indonesia to reduce the intensity of emissions and GHG Emissions.
Accounting for Natural Capital in the Strategic Environmental Assessment of Indonesia: Carrying Capacity in the IV2045 Model
GDP Growth with Natural Resources Limitations

**GDP growth rate - with resource constraint (potential and actual)**

The limitations of natural resources (depletion of Water, Energy and Forests) are projected to hamper economic growth if there is no intervention in development policies that pro-carrying capacity.

**Projection:** Projection of Deputy of Economy Bappenas  
**Potential No Externalities:** Indonesian Simulation of IV2045 with unlimited resources  
**Baseline No Externalities:** Indonesian Simulation of IV2045 no externalities, with resource scarcity

Note: Temporary simulation results and validation will be carried out.
**WAVES ACTIVITY PROGRESS UPDATE: FINDINGS ON PEAT ACCOUNTS**

**Carbon**
- Biodiversity-protected habitat worth ~$1B/year
- Carbon stock & Carbon emissions from peat oxidation

**CO₂**
- Timber production (1000 m³/year)
  - Sumatra: 1893, 1482, 1094, 777
  - Kalimantan: 794, 741, 666, 576

**Biodiversity**
- Paddy production (1000 t/year)
  - Sumatra: 1011, 5503, 8833, 18161
  - Kalimantan: 0, 2, 24, 624

**Timber**
- Oil palm production (1000 t/year)
  - Sumatra: 10389, 17809, 20777, 23635
  - Kalimantan: 14, 703, 4328, 8022

**Biomass**
- Paddy production (1000 t/year)
  - Sumatra: 620, 625, 627, 561
  - Kalimantan: 192, 196, 214, 214

**Physical value of ES (IDR billion/year)**

<table>
<thead>
<tr>
<th>Peatland</th>
<th>Physical value of ES</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>---------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Timber</td>
<td>Sumatra</td>
<td>1893</td>
</tr>
<tr>
<td></td>
<td>Kalimantan</td>
<td>794</td>
</tr>
<tr>
<td>Biomass</td>
<td>Sumatra</td>
<td>1011</td>
</tr>
<tr>
<td></td>
<td>Kalimantan</td>
<td>0</td>
</tr>
<tr>
<td>Oil palm</td>
<td>Sumatra</td>
<td>10389</td>
</tr>
<tr>
<td></td>
<td>Kalimantan</td>
<td>14</td>
</tr>
<tr>
<td>Paddy</td>
<td>Sumatra</td>
<td>620</td>
</tr>
<tr>
<td></td>
<td>Kalimantan</td>
<td>192</td>
</tr>
<tr>
<td>CO₂ sequestration</td>
<td>Sumatra</td>
<td>7175</td>
</tr>
<tr>
<td></td>
<td>Kalimantan</td>
<td>1299</td>
</tr>
<tr>
<td>Protected habitat</td>
<td>Sumatra</td>
<td>442</td>
</tr>
<tr>
<td></td>
<td>Kalimantan</td>
<td>892</td>
</tr>
</tbody>
</table>

**Trend**
- Sumatra:
  - 1990 to 2009: 0%
  - 2015: 100%
- Kalimantan:
  - 1990 to 2009: 0%
  - 2015: 100%

**Draft preliminary accounts Peat in Sumatra and Kalimantan publication by BPS forthcoming**
Integration of macroeconomic indicators in policy frameworks
Reflecting Environment variables and externalities for Midterm Development Plan (RPJMN)

• There has been growing interest from Macroeconomic Directorate and Environmental Directorate in Bappenas to assess their sustainability macroeconomic-model for the Midterm Development Plan (RPJMN)

• A knowledge sharing had been conducted on how adjusted macroeconomic indicators, wealth indicators, adjusted fiscal measures and public sector balance sheet are calculated and used.

• Further discussions were initiated on how Environmental Accounts and Adjusted Net Savings could be integrated in ongoing modeling exercises in support of the preparation of the RPJMN.
Technical Review for NCA Accounts Have been Conducted
The final report will be incorporated into the SISNERLING report

Some findings for technical review were addressed:

Land Cover and Extent Accounts
✓ To incorporate the recent 2017 Ministry of Environment and Forestry land map
✓ This could provide additional elements to assess the trade-off between development and environmental objectives as the process of landscape transformation progresses as well as its economic connection.

Peat Account
✓ To include hydrological services to understand what it would take to restore ecosystems and valuation ecosystem of the natural forests/peatland includes natural disaster avoidance.
✓ To discuss how to move from potential to actual use so it can be used to to inform decision making at the national or sub-national level

Water account
✓ Several terminologies and methodologies were discussed and elaborated during the review, such as the measurement on water quality and its parameters, the context and approaches of the study, the hydrological model (SWAT), etc, which later will be refined according to the inputs.
✓ The SEEA offers a holistic approach, so all the economic activities should be included in the standard tables; such as by including ISIC 05-09 and 36-96

National Technical review on 4-5 September 2018. On the picture Mrs. Sri Soelistyawati, Deputy for Balance Sheet and Statistical Analysis, opening the event
Thank You