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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)

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Paris, November 28th 2018

Overview of the WAVES Program in Indonesia

Wealth Accounting and the Valuation of Ecosystem Services (WAVES)

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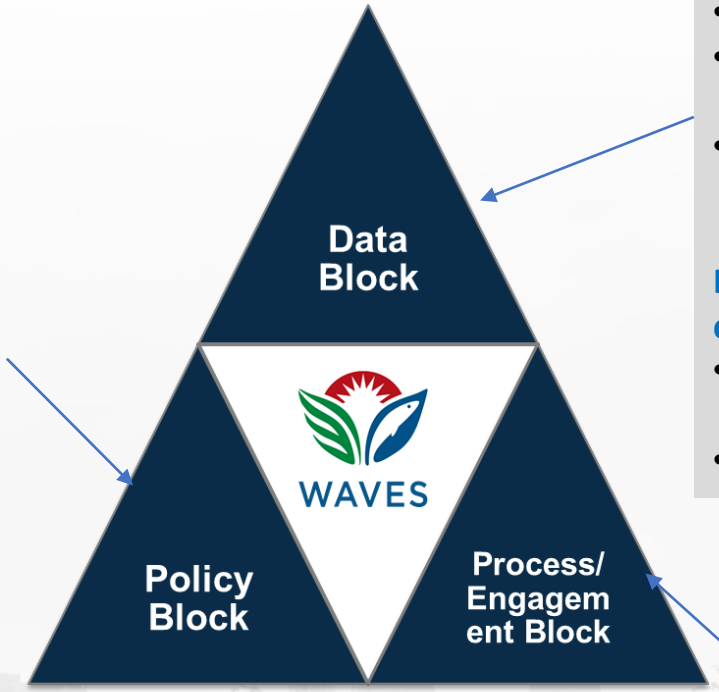
Three blocks of activities:



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

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)

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

WAVES ACTIVITY PROGRESS UPDATE: FINDINGS ON DATA BLOCK

To be linked into the system dynamic model exercise, including to provide its policy narrative

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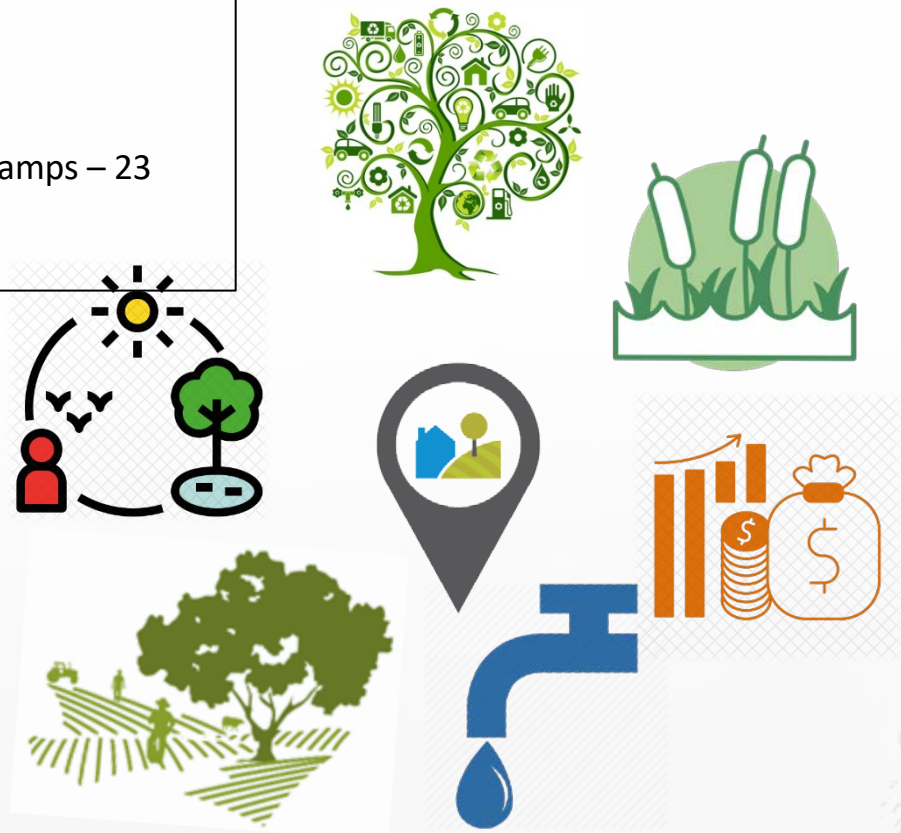
Land Cover Accounts

- ✓ 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

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

Water account

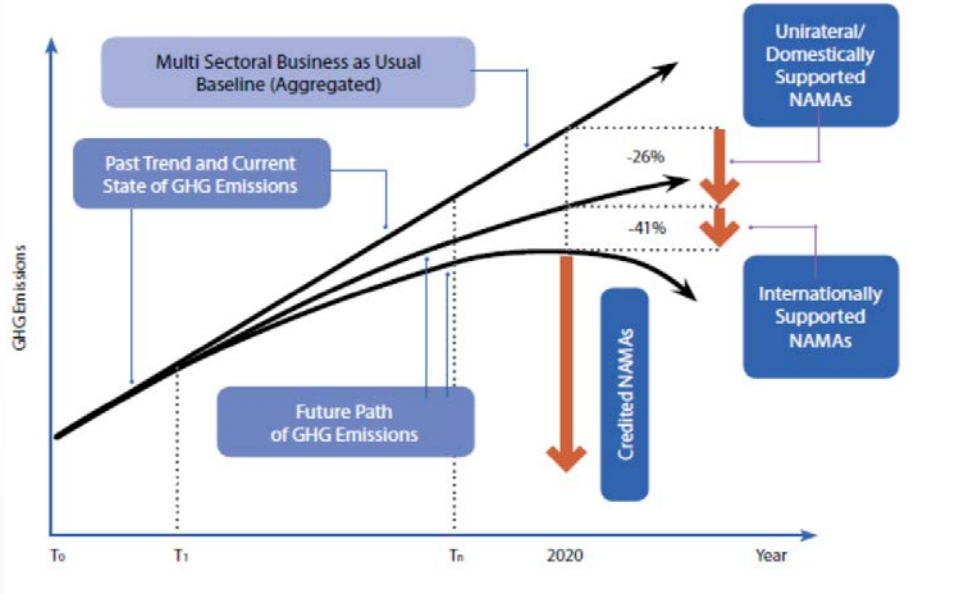
- ✓ 2014, 2016 SEEA standard using SWAT model
- ✓ Water supply and Water use
- ✓ Citarum Watershed

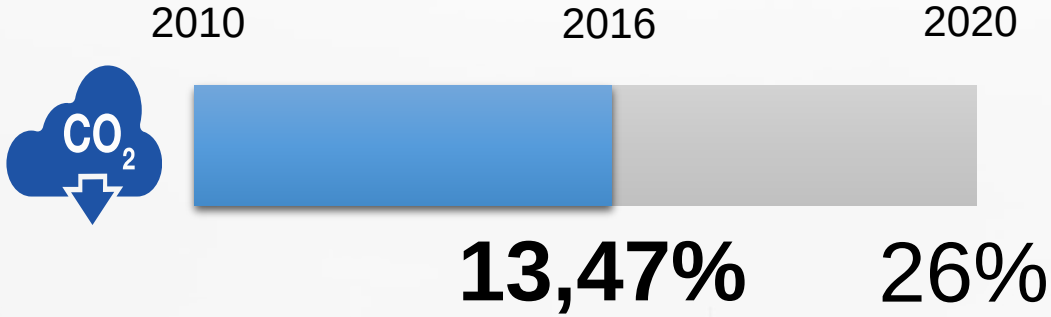
Indonesia's Commitment on Reducing GHG Emission

Land-based Agriculture Energy Transportation Industry Waste

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

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





*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

Atmosferik

Ocean

Climate Projection

Potential Hazard

Flood	Landslide	Health
Drought	*Fishing Ground Zone*	Sea Level Rise

Vulnerability

National Policy and Strategy (Spatial)

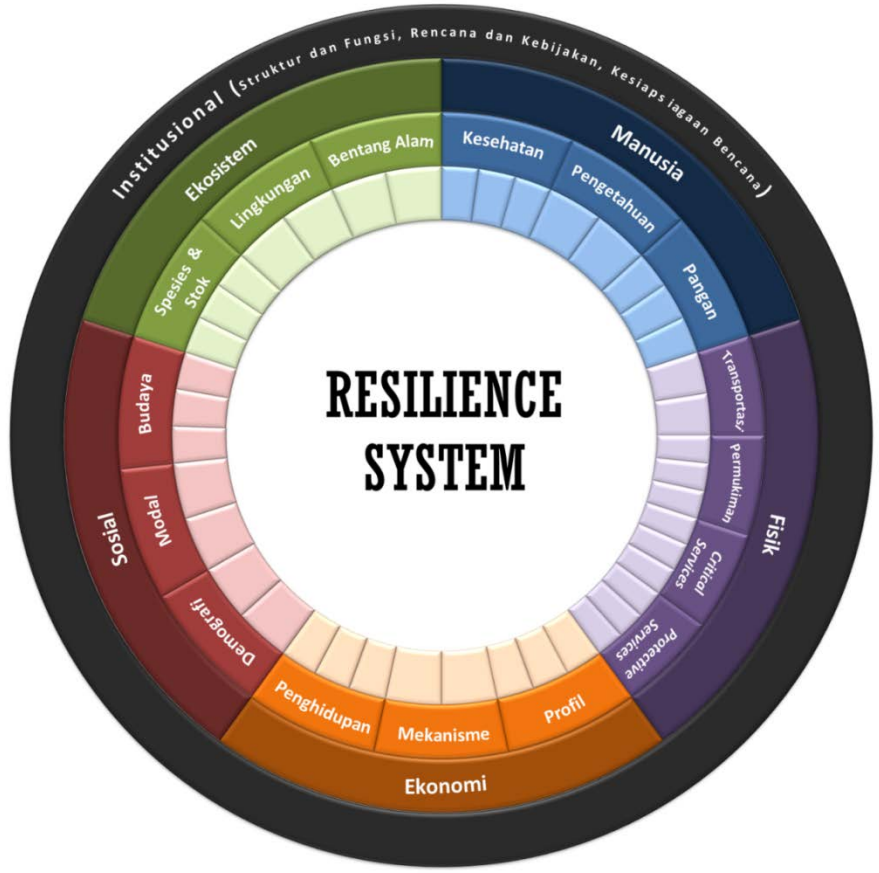
RAN-API

Sectoral Strategies

Action Plans → RPJMN 2020-2024

Budgeting

NAPs



LOW CARBON DEVELOPMENT INDONESIA

***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*

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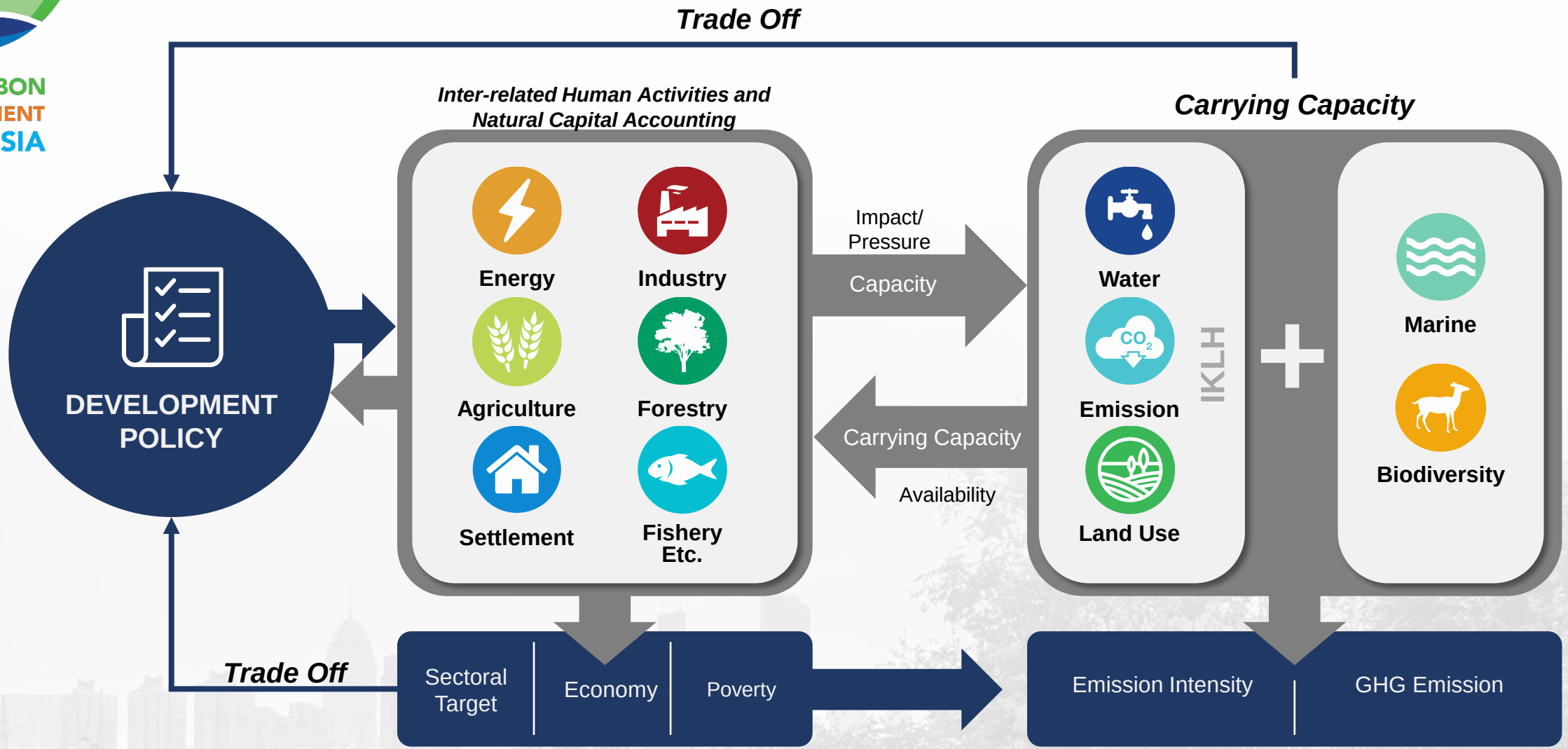

SYSTEM DYNAMICS MODELING

Reflecting Environment variables and externalities for Midterm Development Plan (RPJMN)

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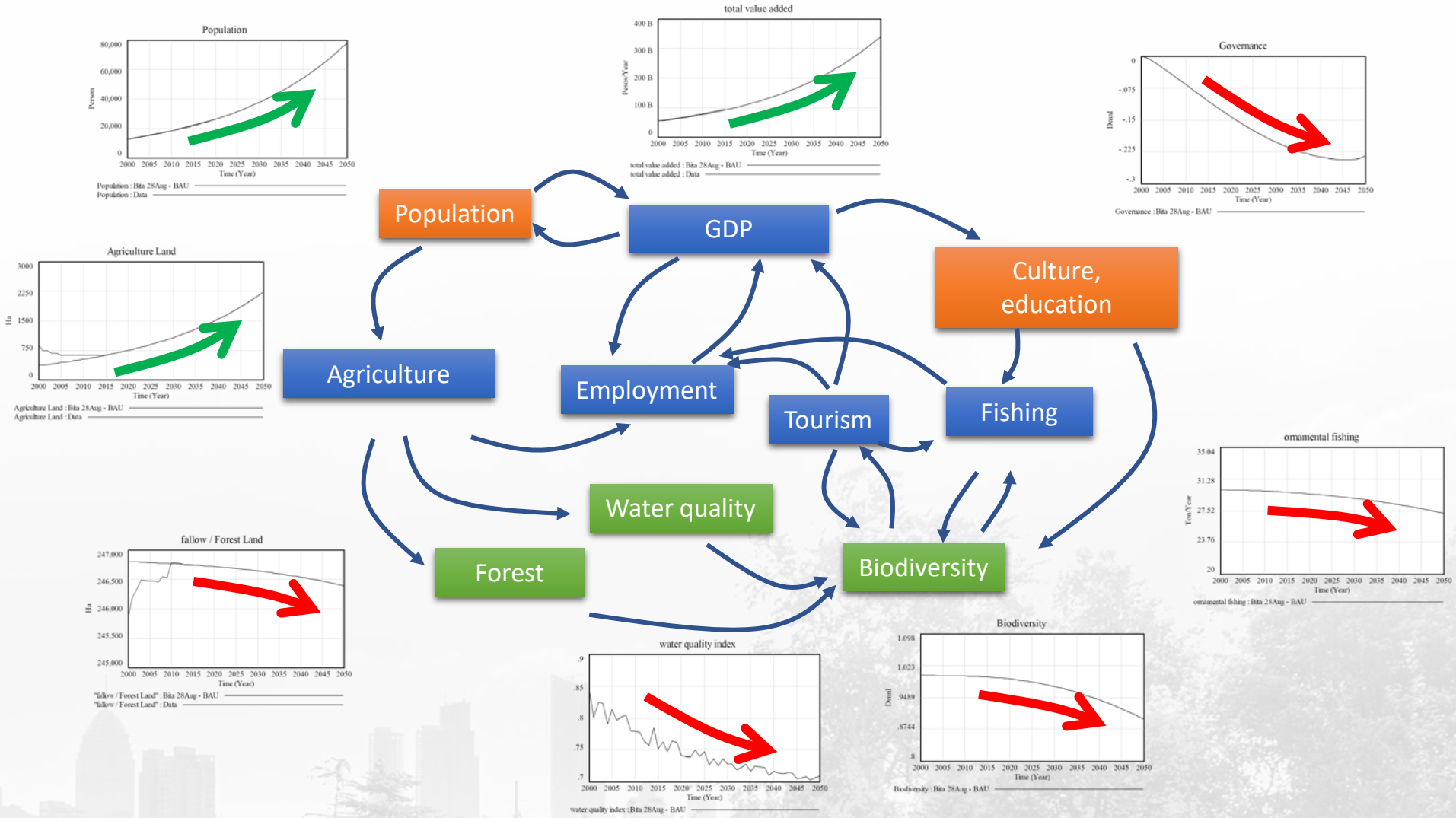
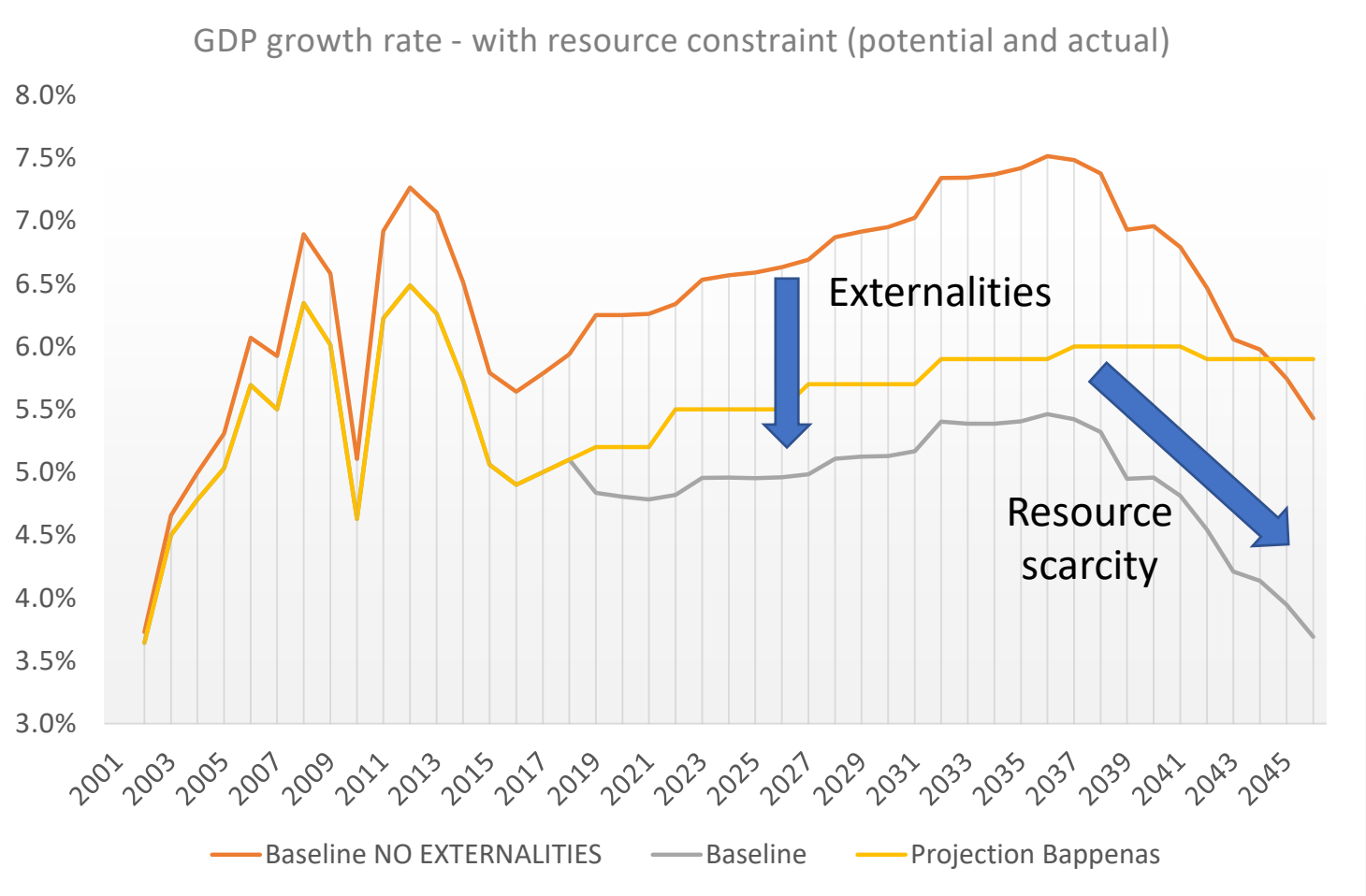
Accounting for Natural Capital in the Strategic Environmental Assessment of Indonesia: Carrying Capacity in the IV2045 Model



GDP Growth with Natural Resources Limitations



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**

Availability of Natural Resources → Real Level of GDP growth

Projection: Projection of Deputy of Economy Bappenas
Potential No Externality: Indonesian Simulation of IV2045 with unlimited resources
Baseline No Externality: 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

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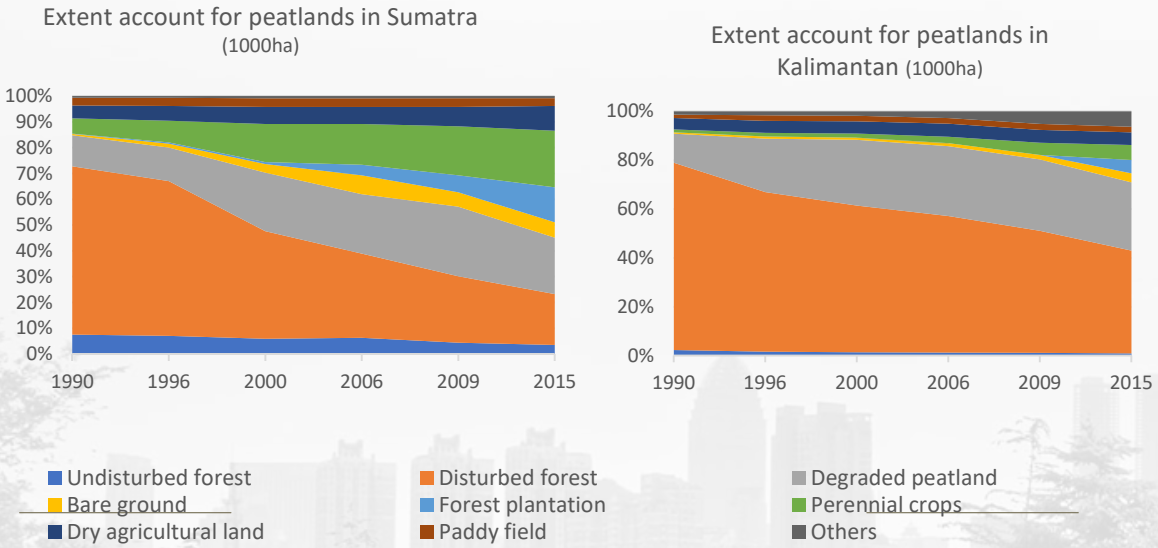
Carbon worth ~ $130M/ year
Carbon stock & Carbon emissions from peat oxidation

Biodiversity-protected habitat worth ~$1B/ year

Timber ~$65M/year
Biomass ~$126M/ year

Paddy ~$124M /year

Plantations ~$308M/ year



ES specification (unit)	Peatland	Physical value of ES				Trend	Monetary value of ES (IDR billion/year)				Trend
		2000	2005	2010	2015		2000	2005	2010	2015	
Timber production (1000 m^3/year)	Sumatra	1893	1482	1094	777		1278	1001	739	525	
	Kalimantan	794	741	666	576		536	500	450	389	
Biomass production for pulp (1000 t/year)	Sumatra	1011	5503	8833	18161		95	518	831	1709	
	Kalimantan	0	2	24	624		0	0	2	59	
Oil palm production (1000 t/year)	Sumatra	10389	17809	20777	23635		1764	3023	3527	4012	
	Kalimantan	14	703	4328	8022		1	28	175	324	
Paddy production (1000 t/year)	Sumatra	620	625	627	561		1510	1522	1526	1365	
	Kalimantan	192	196	214	214		338	344	375	376	
CO_2 sequestration (1000 t/year)	Sumatra	7175	7629	5337	4282		2498	2656	1858	1491	
	Kalimantan	1299	1182	1099	958		452	412	383	334	
Protected habitat (1000 ha)	Sumatra	442	451	423	416		5238	5351	5015	4929	
	Kalimantan	892	851	816	794		10581	10086	9676	9417	

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)

Kementerian PPN/ Bappenas

- 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.

Discussion on Natural Capital Accounting, Adjusted Macroeconomic Indicators, Comprehensive Wealth Fiscal Measures and Public Sector Balance Sheet on 29-30 October 2018

Technical Review for NCA Accounts Have been Conducted

The final report will be incorporated into the SISNERLING report

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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

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

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

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Thank You