Climate Change Adaptation Metrics in National Development Planning

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As a tropical country with more than 16,000 islands, Indonesia has short rivers that are vulnerable to flood and drought due to the impact of climate change. Not only physical loss, but Indonesia will also experience a livelihood loss from the negative impact of climate change.

Why Indonesia should adapt?
The increase of temperature

Potential Hazard of Climate Change

Extreme Weather (Changes in temperature and rainfall) & Extreme Wave

Changes in rainfall RCP4.5 2020-2035

Water Sector

Agriculture Sector

Coastal Sector

Health Sector

Scientific Evidences for Climate Hazard

<table>
<thead>
<tr>
<th>Affected Sector</th>
<th>Affected Province</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water</strong></td>
<td>Aceh, Bali, Banten, Yogyakarta, Jakarta, Gorontalo, Jawa Barat, Jawa Tengah, Jawa Timur, Maluku Utara, Nusa Tenggara Barat, Nusa Tenggara Timur, dan Sumatera Utara</td>
</tr>
<tr>
<td><strong>Agriculture</strong></td>
<td>Sumatera Selatan, Sulawesi Utara, Sulawesi Tengah, Kalimantan Utara, Kalimantan Tengah, Nusa Tenggara Barat, Papua, dan Papua Barat</td>
</tr>
<tr>
<td><strong>Marine</strong></td>
<td>Aceh, Bali, Bengkulu, Jawa Barat, Jawa Tengah, Jawa Timur, Maluku, Nusa Tenggara Barat, Nusa Tenggara Timur, Papua, dan Papua Barat</td>
</tr>
<tr>
<td><strong>Coastal</strong></td>
<td>Sulsel (573,2 km); Aceh (251,9 km); NTB (270,3 km); Sulut (223,8 km); Sumut (108,3 km); Sulbar (82,9 km); Sulteng (53,9 km); Sultra (53,5 km); Jawa Tengah (49,8 km); Bengkulu (36,6 km); Jawa Timur (19,3); Bali (18,9 km); Yogyakarta (9,9 km); NTT (8,7 km); Lampung (7,6 km); Banten (1,2 km);</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td>Denpasar, Kota Bengkulu dan Kab. Kepahiang, Semarang, Banjarbaru dan Banjarmasin, Palangkaraya, Samarinda, Tarakan, Ambon, Kupang, Pekanbaru, Kolaka, Manado, Palembang, dan Medan</td>
</tr>
</tbody>
</table>
National Priority (PN) 6: Improving the Environment, Increasing Disaster and Climate Change Resilience

Improving the Quality of the Environment

Low Carbon Development

Priority Activity 1: Disaster Management

Priority Activity 2: Increasing Climate Resilience

PN6

IMPROVING THE ENVIRONMENT, INCREASING DISASTER AND CLIMATE CHANGE RESILIENCE

All scientific evidences are the base for climate resilience effort in Indonesia. It is used in the national mid-term development planning document 2020-2024. The climate change adaptation together with disaster risk reduction are converged and consider as one of the National Priority.

Pro-PN:
1. Protecting Marine and Coastal Vulnerability
2. Increasing Water Security
3. Increasing Food Security
4. Protecting Health from Climate Change Impact
### Policy Direction, Objective, Target and Outcome Indicator

<table>
<thead>
<tr>
<th>Policy Direction</th>
<th>Objective</th>
<th>Outcome Indicator (unit)</th>
<th>Baseline</th>
<th>Target 2020</th>
<th>Target 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decreased Disaster and Climate Loss</td>
<td>The reduction of the potential GDP loss due to the impact of disaster and climate hazard on total GDP (%)</td>
<td>N/A</td>
<td>0.44</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. The reduction of the potential GDP loss due to the impact of disaster (%)</td>
<td>0.08</td>
<td>0.10</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. The reduction of the potential GDP loss in climate hazard affected sectors (%)</td>
<td>N/A</td>
<td>0.34</td>
<td>1.15</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. The speed of the early warning information delivery to the community (minute)</td>
<td>&gt;5</td>
<td>5.0</td>
<td>3.0</td>
<td></td>
</tr>
</tbody>
</table>

The main objective of this plan is to avoid the potential loss of disaster and climate hazard. To measure the climate resilience, it requires a specific indicator. Indonesia choose to avoid the GDP potential loss of development priority sectors and set the target of 2020 is 0.34% and 2024 is 1.15%.
To measure how well Indonesia is adapting to the impacts of climate change is not an easy task.

Indonesia sees the opportunity to measure adaptation by assessing the potential economic losses in four priority sectors.

Adaptation efforts can avoid potential economic loss from IDR 115 trillion (without adaptation actions) to IDR 57 trillion (with adaptation actions) in 2024.
Program Priority 2: Increasing Disaster and Climate Resilience

Goal 2: Zero Hunger

Goal 3: Good Health – Well Being

Goal 6: Clean Water & Sanitation

Goal 11: Sustainable Cities & Communities

Goal 13: Climate Action

Sectoral Climate Resilience Strategies

- Improvement of shipping safety
- Anticipation of increased inundation of coastal areas and small islands
- Water resources management for the fulfillment of clean water supplies due to potential climate disasters
- Climate Smart Agriculture to increase food productivity
- Improvement of environmental and community health due to climate change
Adaptation is a planned or spontaneous anticipatory action to reduce the value of potential losses due to hazards, vulnerability, impacts, and risks of climate change on people's lives in an area.

Defining:
- Climate Hazard Profile
- Vulnerability Profile (and adaptive capacity)
- Risk Profile

Valuate the potential economic loss of a region – High category (list of location)

LOCATION AFFECTED BY THE CLIMATE CHANGE
List of District/City in 34 Province
### Defining the Adaptation Location

<table>
<thead>
<tr>
<th>Potential Climate Hazard</th>
<th>SIDIK</th>
<th>IRBI</th>
<th>Potential Economic Loss</th>
<th>K/L Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marine and Coastal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Potential wave height affecting marine safety</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Coastal vulnerability class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Water</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Potential drought</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Potential of the decrease in water availability</td>
<td></td>
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<tr>
<td><strong>Agriculture</strong></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>• Potential decrease in rice production</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
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</tr>
<tr>
<td>• Potential increase in dengue fever case</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

- **Social-Economic Vulnerability Data SIDIK 2018**
  - **Exercise:**
    - District/City categorized as **Vulnerable** if >5% of the villages has SIDIK 4 dan 5, others are **Not Vulnerable**

- **Disaster Risk Index in District/City Level 2018**
  - According to IRBI classes (High dan Medium)

- **Potential Economic Loss in Province Level 2020-2024**
  - Additional information in defining the location as it is the Climate Resilience target in RPJMN 2020-2024

- **Litbang K/L Climate-related Assessment**
  - To be considered as adds-on criteria in defining the location

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The location is defined by specific criteria such as Potential Climate Hazard, SIDIK, IRBI, Potential Economic Loss and K/L inputs (which are differ between sectors).
Where should we intervene our adaptation action?

**AGRICULTURE**

- 168 Kab/Kota (Super Priority)
- 160 Kab/Kota (Top Priority)
- 39 Kab/Kota (Priority)

The intervention location for Agriculture Sector covers 71% of all District/City.

**MARINE & COASTAL**

- 61 Kab/Kota (Super Priority)
- 115 Kab/Kota (Top Priority)
- 40 Kab/Kota (Priority)

The intervention location for Marine & Coastal Sector covers 42% of all District/City.
Where should we intervene our adaptation action?

**Water Sector**
- Super Priority: 10 Kab/Kota
- Top Priority: 79 Kab/Kota
- Priority: 75 Kab/Kota

The intervention location for Water Sector covers 32% of all District/City.

**Health Sector**
- Super Priority: 0 Kab/Kota
- Top Priority: 2 Kab/Kota
- Priority: 15 Kab/Kota

The intervention location for Health Sector covers less than 1% of all District/City.
**Filtering Process for Adaptation Activity**

**List of CCA Location**

1. **Program dan Activity**
   - Checking the CCA implementation location

2. **Is it in the list of CCA Location?**
   - **(yes); check the impact of the activity**
     - Reduce the vulnerability
     - Reduce the sectoral hazard and risk
     - Increase the capacity
   - **(no); is not categorized as adaptation activity**
     - Decrease the economic loss

**Source:**
- RKP
- Renja KL
- RKA KL
  (Kementan, KKP, PUPR, Kemenkes, KLHK, Kemenhub, BMKG, BPPT, BNPB)
## National Budget Tagging

<table>
<thead>
<tr>
<th>No</th>
<th>Type of Tagging</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Nawacita</td>
<td>Output tagging related to the points mentioned in President’s Nawacita (9 points)</td>
</tr>
<tr>
<td>2</td>
<td>100 President Promises</td>
<td>Output tagging related to the 100 President promises</td>
</tr>
<tr>
<td>3</td>
<td>National Priority</td>
<td>Output tagging of the National Priority, Program Priority, Activity Priority, and Project Priority RKP 2021</td>
</tr>
<tr>
<td>4</td>
<td>APBN Thematic</td>
<td>State Budget Thematic Tagging (Education, Health, Infrastructure, Gender, KSST, <strong>Climate Change Adaptation (CCA)</strong>, <strong>Climate Change Mitigation (CCM)</strong>, Stunting)</td>
</tr>
</tbody>
</table>

Since adaptation and mitigation accommodated in the National Priority 6, climate actions are funded by under the National Priority and Thematic Tagging.
Stakeholders in Budget Tagging

Ministry/Institution
Biroren/ Unit
Input and tag the budget in output level in KRISNA

KemPPN/Bappenas
Dit. Mitra K/L
Examine the accuracy of K/L’s tagging and approve it in KRISNA.

Kemenkeu - DJA
Dit. Mitra K/L
Examine the accuracy of K/L’s tagging and approve it in KRISNA.

Tagging Coordinator
Coordinate the budget tagging process from outreach, implementation, to evaluation.

Budget Tagging Process:
Ministry/Institution tag the activities related to Climate Resilience in output level (State Budget Thematic & PN-PP-KP-ProPN)

The Ministry of National Development Planning/BAPPENAS and the Ministry of Finance verify the tagging accuracy as part of the Renja K/L examination (KRISNA)
Thank You