INDONESIA’S GREEN BOND & GREEN SUKUK INITIATIVE
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Indonesia’s tropical and archipelagic landscape makes the country one of the world’s richest countries in regards to its biodiversity. At the same time, it allows the country to be vulnerable to the adverse impact of climate change.

Various studies have shown that climate change vulnerability has a direct economic impact. For example, flood and drought, as two key hazards in Indonesia, occur more frequently as a result of worsening climate change. Surface temperature in Indonesia is also expected to rise, with consequent rise in distribution of diseases and lower productivity of agriculture products.

For this reason, the government is committed to reducing Greenhouse Gas (GHG) emissions since 2009. In 2016, through the Paris Agreement and the scheme of National Determined Contributions (NDC), the commitment is revised to a reduction of 29% (business as usual scenario) or up to 41% (conditional to international supports).

A study by the Fiscal Policy Agency also shows that there is a huge financing need to combat climate change. At early stage, financial support from the government is hugely needed to encourage funding from the private sector. Especially to achieve our ambitious goal of GHG emissions reduction, the role of state budget becomes crucial.

The increasing role of state budget forces the government to review the role of state budget funding. Consequently, the government introduced the Budget Tagging Mechanism to see the effectivity and efficiency of current allocated budget of climate change spending. This mechanism results in recommendations in the form of performance-based budgeting system, that is output and outcome oriented, regulated under the Ministerial decree (PMK No. 214/2017).

The result of the Climate Budget Tagging has enabled the Government to better map the financing needs, and thus enabling them to initiate innovative financing instruments of Green Sukuk since 2018, mobilizing over USD 3.9 billion towards government’s green projects.
Green Sukuk

The Green Bond and Green Sukuk Initiative aims to support Indonesia's goal in its GHG emissions reduction. Green Sukuk is an innovative financing instrument adhering to the Islamic Law principles to support Indonesia’s climate actions. The issuance is guided by the Green Bond and Green Sukuk Framework, reviewed by international independent reviewer CICERO and awarded medium green shade. Indonesia’s Green Sukuk has received multiple international recognitions and awards.

Indonesia’s Green Sukuk has received 12 International Awards

Islamic Finance News  Finance Asia  Climate Bond Initiative  IFR Asia  Global Capital, Euromoney  Cambridge IFA
CLIMATE CHANGE
Indonesia is highly vulnerable to adverse impacts of climate change. Climate change (increase in sea level and surface temperature included) is very likely to exacerbate natural disasters, especially in low-lying areas throughout the archipelago.

Source: Yusuf and Fransisco, 2009

El-Nino exposes large regions to drought and fire

Flood threatens millions of Indonesians living in major urban centers

Sea level rise threatens 42 million Indonesians living less than 10 meters above sea level

Shifts in rainfall, evaporation, and run-off water pose considerable threat to food security

(Multiple Climate Hazard Index)

0.00 - 0.04
0.04 - 0.09
0.09 - 0.14
0.14 - 0.19
0.19 - 0.24
0.24 - 0.29
0.29 - 0.34
0.34 - 0.39
0.39 - 0.44
0.44 - 0.49
0.49 - 0.54

Climate Change has a direct impact to aspect of lives; health, agriculture sectors and to the economy.

### Key hazards in Indonesia

In early 2020, the Greater Jakarta Area and Banten experienced the **highest rainfall intensity since 1866**, causing **61 deaths** & **27,971 people displaced**.


### Impact to Agricultural Sector:

- **Maize**: -20%
- **Sugar**: -17.1%
- **Palm Oil**: -21.4%
- **Soy**: -65.2%
- **Rice**: -4.6%

Source: BMKG, 2020

### Disasters mostly affect the poor, leaving

**9.78%** of Indonesian population living below the national income poverty line.

Source: World Bank, 2020

### Projections of Increased Surface Temperature in Indonesia

<table>
<thead>
<tr>
<th>Period</th>
<th>Temperature Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020-2050</td>
<td>+1°C</td>
</tr>
<tr>
<td>2070-2100</td>
<td>+2-3°C</td>
</tr>
</tbody>
</table>

Source: BMKG, 2020

### Impact to Health Sector:

- **3-5%** increase of vector borne diseases and its distributions

Source: NDC, 2016
INDONESIA’S COMMITMENT TO COMBAT CLIMATE CHANGE

The Government of Indonesia (GoI) is strongly committed to combatting climate change, and this is shown through numerous actions that had been taken.

POLICY INSTRUMENTS

**Law (UU) No. 16/2016**
On the Ratification of Paris Agreement to the United Nations Framework Convention on Climate Change

Indonesia’s National Determined Contribution (NDC) to Paris Agreement, by 2030:

- **29%** unconditional emission reduction against BAU scenario
- **Up to 41%** conditional emission reduction subject to international support

Projected emission reduction from each sector category by 2030 (in Mton CO₂e):

- Forestry (including peat fire): 497
- Energy (including fugitive): 314
- Waste: 11
- Agriculture: 9
- IPPU (Industrial Processes and Product Use): 2.75

MITIGATION

RAN – GRK
(National Action Plan for Greenhouse Gas Reduction)

*Presidential regulation No. 61/2011

ADAPTATION

RAN – API
(National Action Plan for Climate Change Adaptation)

BIODIVERSITY

IBSAP (Indonesia Biodiversity Strategy and Action Plan) 2003-2020
In order to support the climate commitment, GoI requires huge financial support on both climate mitigation and adaptation activities, as it is clear that there is a huge financing gap between the funding needs and the currently available financial resources to afford the climate actions from 2018 to 2030. The financing gap is estimated to be around USD 247.2 billion, or around USD 17.55 million annually, as stated in the Second Biennial Update Report (BUR).

**Climate Change Budget Allocation and Realization**

(Trillion Rupiah)

<table>
<thead>
<tr>
<th>Year</th>
<th>Budget Allocation</th>
<th>Realization</th>
<th>Climate Change Budget Allocation per National Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>72.3</td>
<td>52.4</td>
<td>3.5%</td>
</tr>
<tr>
<td>2017</td>
<td>95.6</td>
<td>85.0</td>
<td>4.5%</td>
</tr>
<tr>
<td>2018</td>
<td>132</td>
<td>126</td>
<td>6%</td>
</tr>
<tr>
<td>2019*</td>
<td>97.6</td>
<td>83.5</td>
<td>4.0%</td>
</tr>
<tr>
<td>2020**</td>
<td>77.7</td>
<td></td>
<td>2.8%</td>
</tr>
</tbody>
</table>

Indonesia needs around **IDR 3,461 trillion** (USD 247 billion) for implementing climate action in 2018 to 2030.
INDONESIA’S BUDGETING SYSTEM FOR CLIMATE CHANGE
CLIMATE BUDGET TAGGING

Climate Budget Tagging process is the mechanism to identify government expenditures that deliver specified climate change benefits, in accordance with the Government of Indonesia’s climate objectives.

The Climate Budget Tagging (CBT) process has been developed and implemented since 2014 with the support from UN Development Programme and UN Environment Programme through the Sustainable Development Financing (SDF) program. It involves a detailed assessment of the climate benefits of projects undertaken by line ministries.

Initially, the CBT involves six line ministries related to the climate change mitigation action plans (RAN-GRK). Since 2018, CBT has expanded to include line ministries related to climate change adaptation action plans (RAN-API), reaching 17 ministries/institutions across adaptation and mitigation activities.

The Flow of Budget Tagging for Climate Change on Planning and Budgeting Cycles

- **Ministries/Institutions (M/I)**
  - Emission reduction & resilience target
- **National Development Planning Agency & M/I**
  - Work Plan of M/I (Renja K/L)
- **Ministry of Finance & M/I**
  - Budget Work Plan of M/I (RKA K/L)
- **M/I**
  - Implementation of Work Plan and Budget Work Plan
- **National Development Planning Agency, Ministry of Environment and Forestry & M/I**
  - Indication of Emission Reduction
- **Ministry of Environment and Finance of M/I**
  - Budget for Climate Change, emission status and resilience index
Regional Climate Budget Tagging

The Ministry of Finance, through the Center for Climate Change and Multilateral Policy with support from UNDP, has conducted a pilot project for climate budget tagging in several provinces and districts. During its first year of implementation in 2020, the piloting project involved 11 provinces and districts. The project further expanded to reach another 6 provinces and districts in 2021.

The result of the rapid assessment of the climate budget tagging in subnational level are as follows:
- Sharpening the role of local governments in contributing to tackling climate change
- Strengthening the coordination of central and local government
- Optimizing the benefits of budget tagging
- Developing the climate change awareness ecosystem.
The Climate Budget Tagging system also supports the tracking of line ministries’ activities and programme relating to the climate change mitigation and adaptation strategic plan.

**Budget Document (DIPA) — Making Process**

The climate change mitigation and adaptation projects are tagged by the line ministries at the level of ‘output’ and ‘outcome’ (as performance indicators) using the Climate Budget Tagging system.

**Programme**

- **PROGRAMME**
  - **OUTPUT**
  - **Outcome**
    - Performance Indicators

**Activity**

- **ACTIVITY**
  - **OUTPUT**
  - **Performance Indicators**

Tagging through KRISNA:
- Climate Change mitigation (code 004)
- Climate Change adaptation (code 003)

Sources: Directorate General of Budget, 2018
CLIMATE BUDGET TAGGING RESULTS

Comparison of Climate Change Budget* to State Budget in 2018-2020 (billion USD)

<table>
<thead>
<tr>
<th>Year</th>
<th>Climate Budget</th>
<th>Central Expenditure</th>
<th>Local Transfer</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>103.52</td>
<td>54.53</td>
<td>158.05</td>
<td>6.0%</td>
</tr>
<tr>
<td>2019</td>
<td>116.32</td>
<td>58.84</td>
<td>175.16</td>
<td>4.0%</td>
</tr>
<tr>
<td>2020</td>
<td>140.58</td>
<td>54.37</td>
<td>194.95</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

*including climate change mitigation, adaptation, and cobenefit.

Indonesia's Budgeting System for Climate Change

Mitigation and Co-Benefit Budget (2018-2019)

<table>
<thead>
<tr>
<th>Ministry</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Public Works and Housing</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Environment and Forestry</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Transportation</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Energy and Mineral Resources</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Industry</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Social Affairs</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Maritime Affairs and Fisheries</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Agrarian Affairs and Spatial Planning</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Ministry of Home Affairs</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Agency for the Assessment and Application of Technology/BPPT</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Indonesian National Board for Disaster Management/BNPB</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Meteorological, Climatological and Geophysical Agency</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Geospatial Information Agency's</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Statistics Indonesia</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>National Institute of Aeronautics and Space/LAPAN</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Indonesian Academy of Sciences/LIPR</td>
<td>0.01%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>

Adaptation Budget (2018-2019)

<table>
<thead>
<tr>
<th>Year</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>96.71%</td>
<td>96.71%</td>
</tr>
<tr>
<td>2019</td>
<td>96.71%</td>
<td>96.71%</td>
</tr>
</tbody>
</table>

2018 State Budget: 2018 State Budget: 9.43 billion USD
2019 State Budget: 6.95 billion USD
2020 State Budget: 5.53 billion USD

Percentage of Climate Fiscal Budget to State Budget

<table>
<thead>
<tr>
<th>Ministry</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministry of Agriculture</td>
<td>0.62%</td>
<td>0.44%</td>
</tr>
<tr>
<td>Ministry of Environment and Forestry</td>
<td>0.23%</td>
<td>0.22%</td>
</tr>
<tr>
<td>Ministry of Public Works and Housing</td>
<td>1.22%</td>
<td>2.22%</td>
</tr>
<tr>
<td>Ministry of Energy and Mineral Resources</td>
<td>0.10%</td>
<td>0.44%</td>
</tr>
<tr>
<td>Ministry of Industry</td>
<td>0.11%</td>
<td>0.44%</td>
</tr>
<tr>
<td>Ministry of Social Affairs</td>
<td>0.02%</td>
<td>0.22%</td>
</tr>
<tr>
<td>Ministry of Maritime Affairs and Fisheries</td>
<td>0.01%</td>
<td>0.22%</td>
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<tr>
<td>Ministry of Agrarian Affairs and Spatial Planning</td>
<td>0.01%</td>
<td>0.22%</td>
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<tr>
<td>Indonesian Academy of Sciences/LIPR</td>
<td>0.00%</td>
<td>0.00%</td>
</tr>
</tbody>
</table>
INDONESIA’S GREEN BOND/GREEN SUKUK FRAMEWORK
INDONESIA’S GREEN BOND & GREEN SUKUK INITIATIVE

The results of Climate Budget Tagging process are being used to initiate new financing instruments, which are the Green Bond and Green Sukuk, in order to combat climate change. This initiative is aligned with Indonesia’s aim to achieve the SDGs goals.

Green Sukuk is a shariah-compliant bond, where 100% of the proceeds exclusively finance or refinance green projects that contribute towards climate change mitigation and adaptation as well as biodiversity preservation.

The issuance of Green Bond/Sukuk is guided by the Green Bond and Green Sukuk Framework, reviewed by CICERO, an international independent reviewer and awarded medium green shade.

Results of budget tagging process is being used to develop and leverage new innovative financing instruments to combat climate change, in a form of Green Bond and Green Sukuk. This initiative is aligned with Indonesia’s aim to achieve the SDGs goals.
The Republic of Indonesia (ROI) has developed a Green Bond and Green Sukuk Framework (the “Framework”) under which it plans to finance and or refinance Eligible Green Projects via the issuance of Green Bonds and Green Sukuk.

The Framework has received a second opinion from the Centre for International Climate Research (CICERO) and is awarded medium green shading, which allows the possibility of light, medium and dark green project types. This shade also shows that eligible listed projects are representing the country efforts towards the long-term vision in carbon emission reduction, but not there yet.
According to the the ROI’s Green Bond and Green Sukuk Framework, there are nine eligible sectors to receive the proceeds of green sukuk/bond:

1. **Renewable Energy**
   - Generation and transmission of energy from renewable energy sources: include offshore and onshore wind, solar, tidal, hydropower, biomass and geothermal.
   - Research and development of products or technology (R&D) for renewable energy generation, include turbines and solar panels.
   - **(Dark green)**

2. **Sustainable Management of Natural Resource**
   - Sustainable management of natural resources, which substantially avoids or reduces carbon loss/increases carbon sequestration (through planting of new forest areas, and/or replanting of degraded areas, the use of drought/flood/temperature resistant species).
   - Habitat and biodiversity conservation (through sustainable management of land use change, sustainable management of agriculture/fisheries/forestry, protection of coastal, and marine environments, pest management.
   - **(Light to dark green)**

3. **Energy Efficiency**
   - Improvement of the energy efficiency of infrastructure, which results in an energy consumption of at least 10% below the average national energy consumption.
   - Research and development of products or technology (“R&D”) and their implementation that reduces energy consumption of underlying asset, technology, product or system(s); including LED lights, improved chillers, improved lighting technology, and reduced power usage in manufacturing operations.
   - **(Light to Medium green)**

4. **Green Tourism**
   - Developing new tourism areas in line with Green Tourism Principles.
   - Optimization of supporting infrastructure to support sustainable tourism (i.e. water treatment, energy efficiency).
   - Developing tourism resiliency against climate change risk.
   - **(Medium to dark green)**
**INDONESIA’S GREEN SUKUK**

5. **Resilience to Climate Change for Highly Vulnerable Areas and Sectors/Disaster Risk Reduction**
   - Research leading to technology innovation with sustainability benefits
   - Food security
   - Flood mitigation
   - Drought management
   - Public health management
   (Dark green)

6. **Green Buildings**
   - Developing green buildings in line with Greenship developed by Green Building Council Indonesia ("GBC Indonesia"), which contains six categories:
     - Appropriate Site Development
     - Energy Efficiency and Conservation
     - Water conservation
     - Material & resources cycle
     - Air quality & leisure air (water indoor health & comfort)
     - Building & environment management
   (Light green)

7. **Sustainable Transport**
   - Developing clean transportation systems
   - Transportation network upgrade to higher climate resilient design standards
   (Medium to dark green)

8. **Sustainable Agriculture**
   - Developing sustainable agriculture management and methods, such as organic farming, less pesticides, Research and Development ("R&D") on climate resilient seeds, and energy efficient on agriculture
   - Subsidy mechanism for agriculture insurance
   (Medium to dark green)

9. **Waste to Energy & Waste Management**
   - Improving waste management
   - Transforming waste to renewable energy source
   - Rehabilitation of landfill areas
   (Medium to dark green)
INDONESIA’S GREEN SUKUK ISSUANCE
Establishment of good coordination and communication functions amongst line ministries: Ministry of Finance, Ministry of National Development Planning, and Ministry of Environment and Forestry is crucial for the planning, implementation, monitoring, and evaluation of this initiative.

**GLOBAL GREEN SUKUK**

Global Green Sukuk has been issued three times, in 2018, 2019, and 2020. The total amount of Global Green Sukuk is USD 2.75 billion. Proceeds from the three issuance will exclusively go to the selected ‘eligible green projects’ based on the Green Bond and Green Sukuk Framework.

**RETAIL GREEN SUKUK**

To reach a more diverse market, the Government of Indonesia issued the Retail Green Sukuk in 2019 and 2020. The success of the first Retail Green Sukuk issuance totaling IDR 1.4 trillion leads the second issuance which amounts to IDR 5.4 trillion.

Attracting over 16,500 investors, the Millennials dominated the investors demography (44.5%). It is followed by Generation X (29.40%), Baby Boomers Generation (23.21%), Traditionalist Generation (2.19%) and Generation Z (0.34%).
**GLOBAL GREEN SUKUK**

<table>
<thead>
<tr>
<th></th>
<th>1st Issuance</th>
<th>2nd Issuance</th>
<th>3rd Issuance</th>
<th>4th Issuance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of issuance</td>
<td>March 2018</td>
<td>February 2019</td>
<td>June 2020</td>
<td>June 2021</td>
</tr>
<tr>
<td>Amount</td>
<td>USD 1.25 billion</td>
<td>USD 750 million</td>
<td>USD 750 million</td>
<td>USD 750 million</td>
</tr>
<tr>
<td>Tenor</td>
<td>5 years</td>
<td>5.5 years</td>
<td>5 years</td>
<td>30 years</td>
</tr>
<tr>
<td>Yield</td>
<td>3.75%</td>
<td>3.9%</td>
<td>2.3%</td>
<td>3.55%</td>
</tr>
</tbody>
</table>

**RETAIL GREEN SUKUK**

<table>
<thead>
<tr>
<th></th>
<th>1st Issuance (ST-006)</th>
<th>2nd Issuance (ST-007)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of issuance</td>
<td>November 2019</td>
<td>November 2020</td>
</tr>
<tr>
<td>Amount</td>
<td>IDR 1.4 trillion</td>
<td>IDR 5.4 trillion</td>
</tr>
<tr>
<td>Tenor</td>
<td>2 years</td>
<td>2 years</td>
</tr>
<tr>
<td>Yield</td>
<td>6.75% (floating with floor)</td>
<td>5.5% (floating with floor)</td>
</tr>
</tbody>
</table>
INDONESIA’S GREEN SUKUK 2018 ISSUANCE

GREEN SUKUK KEY MARKET STATISTICS

Global Green Sukuk Investor Spread by Geographical Area

1st Issuance
- Sharia-based investors (Middle East and Malaysia): 10%
- United States of America-based investors: 12%
- Europe-based investors: 22%
- Asia-based investors (except Indonesia): 32%
- Indonesia-based investors: 32%

2nd Issuance
- Sharia-based investors (Middle East and Malaysia): 10%
- United States of America-based investors: 16%
- Europe-based investors: 22%
- Asia-based investors (except Indonesia): 23%

3rd Issuance
- Asia-based investors (except Indonesia): 5%
- Sharia-based investors (Middle East and Malaysia): 11%
- United States of America-based investors: 12%
- Europe-based investors: 32%
- Indonesia-based investors: 40%

4th Issuance
- USA: 8%
- Europe: 25%
- Middle East and Malaysia: 25%
- Asia (excluding Indonesia and Malaysia): 27%
- Indonesia: 34%

Retail Green Sukuk Investor Spread by Age Group

1st Issuance
- Millennial generations: 48.66%
- Baby boomer & Gen X: 51.02%

2nd Issuance
- Millennial generations: 29.4%
- Baby boomer & Gen X: 23.21%
- Traditionalist: 44.51%
- Gen Z: 2.19%
USE OF PROCEEDS AND IMPACT

Green Sukuk Issuance only finance and/or re-financed mitigation and adaptation activities of climate change. Expansion for next issuance could consider inclusion of biodiversity preservation activities.

Projected Emission Reduction from Global Green Sukuk Issuance

- **1st issuance (2018)**: 5.7 Mt CO2e
- **2nd issuance (2019)**: 3.2 Mt CO2e
- **3rd issuance (2019)**: 1.4 Mt CO2e

Other measured contributions:
- Over **690 km** of railway track construction
- **7.3 million kWh** of electricity capacity generation
- Over **7 million households** benefitted from the improved waste management
Green Sukuk Allocation and Impact Report is published annually by Indonesia’s Ministry of Finance with support from the United Nations Development Programme, and audited by independent international auditors. The annual Allocation and Impact Report is set as a transparent, timely, and user-friendly presentation on information related to the use of the proceeds and the related impact.
GREEN SUKUK HIGHLIGHT PROJECTS

Green Sukuk issuance finances a number of projects dedicated to climate change mitigation and adaptation activities.

**Sustainable Transport**

**Double Track Railway Project in North Java Line**

*Double track railway from Jakarta to Surabaya (727 km)*

**Development and Management of Railway Transport Infrastructure and Supporting Facilities**

*Cipinang Locomotive Depot, East Jakarta, DKI Jakarta Province*

Source: Ministry of Transportation
Green Sukuk 2018 Issuance

<table>
<thead>
<tr>
<th>Project Description</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solar Power Plant Project</strong></td>
<td>Tambolaka Airport, Sumba, East Nusa Tenggara</td>
</tr>
<tr>
<td><strong>Management of Dam, Lake, and Other Water Retention Facilities</strong></td>
<td>Karas Island, Batam City, Riau Islands Province</td>
</tr>
</tbody>
</table>

Source: Ministry of Public Works and Housing