TECHNICAL ASSISTANCE REPORT

INDONESIA

Report of the Diagnostic Mission on Macro-relevant Climate Change Statistics (July 10–13, 2023)

NOVEMBER 2024
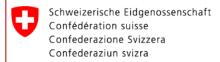
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**State Secretariat for Economic Affairs
SECO
Economic Cooperation and Development**

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Acronyms and Abbreviations

Bappenas	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)
BI	Bank Indonesia (Bank of Indonesia)
BKF	Badan Kebijakan Fiskal (Fiscal Policy Agency), MoF
BPS	Badan Pusat Statistik (Statistics Indonesia)
DGI	Data Gaps Initiative
DJKN	Direktorat Jenderal Kekayaan Negara (Directorate General of State Asset), MoF
Kemenko Marves	Kementeriaan Koordinator Bidang Maritim dan Investasi (Coordinating Ministry for Maritime Affairs and Investments)
KESDM	Kementerian Energi dan Sumber Daya Mineral (Ministry of Energy and Mineral Resources)
KLHK	Kementerian Lingkungan Hidup dan Kehutanan (Ministry of Environment and Forestry)
MoF	Ministry of Finance
OJK	Otoritas Jasa Keuangan (Financial Services Authority)
NDC	Nationally Determined Contribution
LTS-LCCR	Long-Term Strategy for Low Carbon and Climate Resilience
RPJMN	Rencana Pembangunan Jangka Menengah Nasional (National Medium-Term Development Plan)

Summary of Mission Outcomes and Priority Recommendations

1. **Under the auspices of the Swiss State Secretariat for Economic Affairs (SECO) funded Environment and Climate Change Statistics Capacity Development Program, a diagnostic mission was conducted during July 10–13, 2023, to develop a workplan for enhancing the environmental and climate change statistics necessary for policy making**. The diagnostic mission is part of a two-year multi-country project, that will also include trainings and targeted hands-on technical assistance to support development of macro-relevant environmental and climate change indicators to inform policy and monitor the impact of their climate change mitigation and adaptation measures. The mission met with key national stakeholders representing data compilers and users to take stock of work already undertaken on climate change related statistics for Indonesia, ongoing capacity development initiatives with other international organizations, policy needs and data gaps, and data sources.

2. **The key climate change policy related-data needs stem from well-defined domestic policy priorities and international commitments.** The domestic policy priorities are set in the long-term strategy for low-carbon and climate resilience (LTS-LCRT), as well as in the medium-term national plan that among others seeks to strengthen the environment condition and improving resilience against natural disasters and climate change. Indonesia's commitments to reduce GHG emissions under the Paris agreement by 2030 are expected to be achieved through reduction of emissions from forestry, land use and land use changes and from transition of the energy sector away from coal and fossil fuels toward renewable energy sources. Moreover, the authorities are interested in better understanding the carbon retention potential of Indonesia's vast natural resources, in particular its vast forest ecosystems, and embarking on developing ecosystem accounts to assess the value of these services. Improving statistics in these areas will help authorities to develop adequate climate-related policies and meet international commitments.

3. **Indonesia has been producing a wide-range of environmental and climate change related statistics since early 1980's, but further enhancements are needed**. The authorities are publishing several reports related to environmental statistics and environmental accounts (physical air emission accounts; physical energy flow accounts; physical and monetary assets account for land, timber, minerals and energy resources). The authorities are also publishing experimental ecosystem extent accounts, including land and peatland ecosystems and ocean accounts for some islands. While Indonesia is quite advanced in producing the environmental statistics, there is a scope for improvement, in particular to improve the coverage and compilation methodology of environmental accounts, as also in regard to the communication of the accounts.

4. **Beside Statistics Indonesia (BPS), a number of ministries and agencies is involved in production of the environmental and climate change statistics and reporting.** Given the large number of stakeholders and different approaches to collecting data for various purposes, there are differences in key environmental indicators (notably the national energy balance) produced by BPS and various ministries. There is scope to improve coordination among various data produces and reconcile statistics produced by various ministries and agencies, beyond the existing coordination mechanism in the context of the Data Gaps Initiative 3 (DGI-3).

5. **There was broad agreement on the need to further improve the environmental and climate change statistics and reporting in particular physical energy flows and air emission accounts, as**

well as selected accounts for forest ecosystems. The authorities highlighted a need to improve the physical energy flows accounts, in particular to resolve discrepancy between national energy balance produced by BPS and Ministry of Energy and Minerals. Based on preliminary discussions during the mission, these discrepancies appear due to basic energy data sources, though further discussions will be required to pinpoint the exact issues. Furthermore, given its limited scope, the air emissions account' coverage could be expanded to include greenhouse gases[1] other than carbon dioxide and emission sources other than fossil fuels combustion, and possibly to include particulate matter. Finally, the authorities requested support to expand accounts related to forest ecosystems to include carbon storage.

6.   **To support progress in the development of macro-relevant climate change statistics, the mission made the following workplan:**

TABLE 1. Priority Recommendations

Target Date	Priority Recommendation	Responsible Institutions
September 2023	*Establish Environmental and Climate Change Statistics Coordination Mechanism at a decision-making level across various ministries and institutions*	Coordinating Ministry for Maritime and Investment, Ministry of Finance, BPS as a compiler agency
June 2024	*Analyze the source of differences between the data compiled by BPS and that compiled by MOEF; Develop a strategy for reconciliation.*	BPS, Ministry of Energy and Minerals
September 2024	*Improve the coverage and consistency of energy flow accounts*	BPS, Ministry of Energy and Minerals
September 2024	*Improve the coverage and consistency of air emission accounts*	BPS, Ministry of Environment and Forestry
September 2024	*Disseminate data in a user-friendly format (dataset/database)*	BPS, MoEF, MoEM
March 2025	*Develop a workplan to expand natural capital accounts to cover the potential of forest ecosystems as carbon sinks and potential other accounts*	BPS and all natural resources data providers and policy users from line ministries

Further details on the priority recommendations and the related actions/milestones can be found in the action plan under Detailed Technical Assessment and Recommendations.

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[1] BPS has data on emissions of nitrous oxide (N_2O) and methane (CH_4), but it is not publishing them yet.

Detailed Technical Assessment and Recommendations

A. INTRODUCTION AND OBJECTIVES OF THE PROJECT

7.   Under the auspices of the Swiss State Secretariat for Economic Affairs (SECO) funded Environment and Climate Change Statistics Capacity Development Program, a diagnostic mission was conducted during July 10–14, 2023, to develop a workplan for enhancing the environmental and climate change statistics necessary for policy making. The diagnostic mission is part of a two-year multi-country project, that will also include trainings and targeted hands-on technical assistance to support development and mainstreaming of macro-relevant environmental and climate change indicators to inform policy and monitor the impact of their climate change mitigation and adaptation measures.

8.   The main objective of the project is to support Indonesia in designing and implementing macro-relevant climate change statistics program to address its climate change mitigation and adaptation policy data needs. The project will build on IMF's existing capacity development efforts in the areas of macroeconomic statistics and seek to provide Indonesia with the tools, resources, and technical capacity to develop a range of environmental and climate change statistics that can inform financial and macroeconomic policies. The project will complement the work being undertaken by other international organizations in this area. Moreover, the project will also facilitate reporting of Indonesia's climate change-statistics for NDC, SDGs and the DGI 3.

9.   The mission met with key national stakeholders, with data producers and users, to identify policy priorities and related climate change and environmental statistics data needs. The mission also took stock of the existing climate change and environmental statistics for Indonesia and ongoing capacity development initiatives with other international organizations. The mission met with officials from BPS, BKF and DJKN, Bappenas, KESDM), and Kemenko Marves. The mission also held a hybrid workshop where, in addition to officials from the previously mentioned institutions, representatives from KLHK and OJK participated.[2] The mission also met with the representatives of the World Bank in Indonesia.

B. INDONESIA'S CLIMATE CHANGE RELATED POLICY PRIORITIES AND INTERNATIONAL COMMITMENTS

10.   Indonesia's national development plan reflects a strong commitment to address key climate change-related challenges. In its Long-Term Strategy for Low Carbon and Climate Resilience (LTS-LCRT), the government has set a long-term vision and a roadmap for achieving net-zero emissions by 2060 and phasing-out the coal power plants by 2050. Moreover, strengthening the environment and improving resilience against natural disasters and climate change is one of six development priorities of the medium-term development plan (RPJMN 2020–24).[3]

11.   Under the Framework of the Paris Agreement, Indonesia has committed to unconditional and conditional enhanced NDC targets for its emissions through 2030. The unconditional enhanced

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[2] The mission also had subsequent meetings with official from KLKH and OJK.

[3] Indonesia has a wide range of initiatives to support the implementation of its LTC-LCRT, including plans for Green Growth and National Blue Economy Roadmap.

NDC pledges a 31.3 percent reduction in GHG emissions under the business-as-usual scenario, while the conditional NDC pledges a reduction of 43.2 percent relative to the baseline. About two-thirds of the unconditional emission reductions would come from forestry and land use (FOLU) measures—including lower rates of deforestation, reforestation efforts, and land management regulations—with the remaining third coming mainly from the energy sector. The authorities also enacted presidential regulation (Perpres 98/2021) that stipulates carbon taxation, but it has not been implemented yet.

12.   **Indonesia is also participating in the DGI-3 and committed to deliver on a number of climate change recommendations.** This will help further advance the already impressive set of Indonesia's environmental and climate change related statistics and provide data for policy design and monitoring to support the implementation of the national development plan.

13.   **During discussions with the authorities**, **three policy priorities requiring enhanced or new environmental and climate change statistics were identified**. First, there was an agreement on a need to better understand issues related with the energy transition toward renewable energy sources including the mix of energy products used by industries and households and hence a need to improve the existing energy flow accounts, including the breakdown of economic activities. Second, there is a need to expand the coverage and compilation methodology of Indonesia's air emission accounts; in particular, to expand them to cover all emissions of greenhouse gases and not just carbon dioxide (CO_2) emissions. Finally, the authorities are also interested in understanding the carbon retention capacity of Indonesia's vast ecosystems (starting from forest and eventually covering other accounts).

14.   **The authorities also expressed a need for support in the other areas, including through peer-learning events.** As Indonesia has been issuing green bonds, sustainability-linked bonds and green sukuks in the domestic market, the authorities are interested in better understanding issues related to sustainable finance and how to access international funds. Given that is an area where methodological guidance is still being developed, discussions in the context of the DGI-3 Rec. 4 would provide the best guidance at this stage. As the authorities are exploring options for developing carbon footprint estimates related to foreign direct investments (FDI) to support their efforts in delivering on the DGI-3, they were not ready to discuss options for supporting these efforts. The authorities agreed that as methodological issues related to forward-looking physical and transition risks are still being developed, discussions in the context of the DGI-3 Rec 5 would provide the best guidance at this stage.

C. RELEVANT ENVIROMENTAL AND CLIMATE CHANGE-RELATED STATISTICS ACTIVITIES AND STAKEHOLDERS

Key Environmental and Climate Change Statistics

15.   The following agencies are compiling statistics on the different aspects of environment and climate change:

   a. **Statistics Indonesia (BPS)** has a substantial and long-standing program of environmental statistics and accounts. It has published an annual compendium of basic environmental statistics since 1982. This compendium adheres to the United Nations' Framework for the Development of Environment Statistics (FDES). In addition, BPS has a well-established program to produce environmental-economic accounts. BPS' environmental-economic accounts adhere to the international statistical standard System of Environmental-Economic Accounting. The environmental accounts currently cover:

- physical air emissions accounts;

- physical energy flow accounts, and

- asset accounts (physical and monetary) for land, timber, minerals, and energy resources.

Additionally, experimental ecosystem accounts have been produced as a one-off exercise for the islands of Sumatra and Kalimantan covering land cover/extent and peatlands. BPS is working on experimental ocean accounts for several marine protected areas (MPAs) with Ministry of Marine Affairs and Fisheries (KKP), Information Geospatial Agency (BIG), and DG State Assets-Ministry of Finance (DJKN) and Maritime GDP with Coordinating Ministry for Maritime and Investment (Kemenko Marves).

Under state law i.e. Government Regulation No. 46/2017 (PP 46/2017), BPS is the officially mandated agency for the production of environmental accounts in Indonesia. However, no such law exists specifically mandating BPS as the official agency for basic environmental statistics. As a result, BPS seems to be acknowledged by other ministries as the agency in charge of environmental accounts but not necessarily as the agency in charge of basic environmental statistics, which, as noted earlier, are produced by a variety of other agencies.

In addition to its environmental statistics and accounts, BPS produces a range of energy and agricultural statistics relevant to climate change. Its energy statistics program includes a full national energy balance. This balance, it should be noted, differs from the Indonesia's official national energy balance compiled by the Ministry of Energy and Mineral Resources (KESDM) (see below).

A complete list of the environmental statistics and environmental accounts produced by BPS is included in Appendix B and the details of their environmental accounting efforts are spelled out more fully below.

b. **Ministry of Environment and Forestry** (KLHK) is the official producer of Indonesia's national greenhouse gas emissions inventory, which is submitted annually to the UNFCCC. KLHK also publishes a range of other data related to the environment and forests, including an annual environmental quality index that measures the quality of air, water and land in each province of the country.

c. **Ministry of Energy and Mineral Resources** (KESDM) is responsible for the compilation of Indonesia's official national energy balance and its submission to the International Energy Agency (IEA). As noted above, the KESDM's energy balance differs from the balance published by BPS. This difference represents a major weakness in the data available to address climate change in Indonesia, a point that is dealt with further below.

d. **Ministry of Finance (MoF)** compiles, among others, data related to the greening of the financial system in Indonesia. This includes data on the sales of green bonds and sukuks (Islamic bonds), an area in which Indonesia has been active since 2018 and in which it is a recognized global leader.

e. There is a number of the other agencies and ministries involved in producing and using climate change and environmental data. Among others these include Kemenko Marves, Ministry of Agriculture, OJK, National Disaster Management Authority, Environment Fund

Management Agency, Peat and Mangrove Restoration Agency. The mission met with key agencies involved in the DGI-3.

Coordination among Data Producers

16.   While there is coordination at a technical level through the DGI-3 Steering Committee, it would be beneficial to have a formal coordination mechanism for producing environmental and climate change statistics. No formal mechanism exists for the coordination of environment and climate change statistics in Indonesia. The closest thing to such a body would be the DGI-3 steering committee, though it has no formal mandate to coordinate environment and climate change statistics. The stakeholders, including BPS, indicated that the lack of a steering mechanism hinders the production of quality statistics in this domain. Such a formal coordination mechanism (at a level of deputy minister/deputy chief statistician) would help ensure continuity in case of staff turnover as well as exchange of confidential data. It should be noted that even within BPS there is a lack of coordination, as its environmental statistics and environmental accounts are produced in different department of the agency. Thus, any formal mechanism for coordination should include both internal and external ministries/agencies.

Support from International Organizations

17.   Various international institutions are supporting Indonesia to deliver on its goals and commitments to address key climate change-related challenges, including production of statistics. The following paragraphs describe selected activities of international organizations related to environmental and climate change statistics. As the mission was of limited duration and held during the vacation period in many international institutions, it held meetings only with the World Bank. Additional information on support for international organizations was obtained from Indonesian authorities or from the Internet.

18.   The Asian Development Bank is active in supporting Indonesia's climate change goals, having signed a memorandum of understanding in November 2022 to assist Indonesia in the early retirement of coal-fired power plants under the country's [Energy Transition Mechanism platform](#).

19.   The UN is also supporting activities on natural capital accounting and in particular on the implementation in Indonesia. The UN helped set up a national development plan for [Advancing Natural Capital Accounting Project | System of Environmental Economic Accounting](#) in 2015 as part of the Norwegian funded Advancing Natural Capital Accounting (ANCA) and more recently is supporting the development of [the National Blue Economy Roadmap 2045](#). In addition, the UN provides capacity building support to many countries, including Indonesia, for the development of natural capital accounts. In Indonesia, the UN has implemented a [National Plan for Advancing Environmental-Economic Accounting](#) and the project [Supporting Member States in developing and strengthening environment statistics and integrated environmental-economic accounting for improved monitoring of sustainable development](#). Both these projects took place during the period 2015 to 2017. These projects resulted in the development of a national strategy for natural capital accounts and supported BPS in the development of pilot energy, air emissions and material flow accounts.

20.   The World Bank provides Indonesia with considerable support for the development of natural capital accounts. In recent years, Indonesia was a partner in the (now completed) [Wealth Accounting and Valuation of Ecosystem Services project](#), through which it obtained capacity-building for the development of [pilot ecosystem accounts](#).

D. ACTIVITIES IN SELECTED AREAS AND OUTPUTS

21.   The mission discussed with the authorities, both during the bilateral meetings and the workshop, the key environmental and climate change statistics to be covered under the SECO program, the status of such statistics in Indonesia and provided general suggestions how to address related issues. The discussions were largely focused on the selected DGI-3 recommendations.

Air Emissions Account

22.   BPS produces a basic air emissions account following the SEEA framework that covers the period 2016-2021. The account is limited in scope, covering only emissions of one greenhouse gas (carbon dioxide) and only emissions due to the combustion of fossil fuels. The accounts are quite aggregated across industries and would benefit with further disaggregation. They thus fail to cover non-fuel sources of carbon dioxide and all sources of emissions of all other greenhouse gases, not to mention pollutants related to other air quality issues such as urban smog. Currently, the air emissions accounts are available at the national level only, but the BPS is interested in eventually develop them at the sub-national level as well. Considering that BPS is a federated statistical system with a lot of the data being generated at the sub-national level, it could be relevant to produce the air emission accounts by province. Its sectoral breakdown is limited, covering just six industrial groupings[4] plus households. The data from the account are published in the form of a PDF report only; database version (e.g., Excel spreadsheet) of the results is available for internal used.

23.   As discussed with the authorities, given their limited scope, the air emissions accounts offer considerable possibilities for improvement. There are two possible pathways to their improvement.

- The most obvious pathway would be to expand coverage of the accounts to include all greenhouse gases (rather than just carbon dioxide) and add emission sources other than fossil fuel combustion. Such an expansion would enhance the accounts' policy relevance at relatively little cost, as many of the data required for the expansion would be available from Indonesia's national greenhouse gas inventory.
- Another pathway to improve the air emissions accounts would be to include emissions of fine particulate matter ($PM_{2.5}$). Indonesia's continued reliance on coal and fossil fuels power and the high density of vehicle traffic in its cities – notably, the prevalence of small motorcycles – means that urban $PM_{2.5}$ concentrations are routinely at levels considered dangerously high by the World Health Organisation (at least, based on casual observation during the mission). While compiling an air emission account for PM2.5 would not be straightforward, the data that feed the environmental quality index published by the KLHK (see above) could be a useful starting point.
- Additionally, disaggregating the industrial classification used in the accounts to provide greater detail on the sources of air emissions would be desirable. The current classification includes, as noted, only six industry groups plus households, limiting the analytical utility of the accounts for designing and evaluating industrial emissions mitigation policies.

Carbon Footprint

24.   BPS has not started producing carbon footprint accounts. However, a rudimentary one covering carbon dioxide emissions from fuel combustion could be prepared for the year 2016 by

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[4] Agriculture, forestry and fishing; mining and quarrying; manufacturing; electricity and gas supply; transportation; and other.

combining the basic 2016 air emissions account described above with BPS' most recent SUT or input-output table (which refers to 2016).

25.   **While some agencies were interested in compiling a carbon footprint for Indonesia, it did not emerge as one of the top priorities at this stage.** The quality of Indonesia's air emissions accounts for greenhouse gases is not yet high enough to warrant its use to compile a carbon footprint. Before compiling carbon footprint accounts, Indonesia should first invest in compiling more robust and complete greenhouse gas emission accounts, as noted above. Given its relatively strong human capital, BPS could develop carbon footprint accounts once air emission accounts are improved.

Energy Flow Accounts

26.   **The situation with respect to Indonesia's energy flow accounts is similar to that for the air emissions accounts**. A basic SEEA-consistent physical energy flow accounts at the national level covering the period 2016–2021 is available. The accounts cover the same six industrial groupings as the air emissions accounts[5] plus households and provides supply and use data for six energy commodity groupings.[6] The results are presented in a PDF report only; no downloadable database of the data is provided.

27.   **As with the air emissions accounts, considerable scope exists for improving the energy flow account.** The above-noted differences between the national energy balances published by BPS and KESDM were highlighted as a source of particular concern during bilateral meetings and the workshop. Moreover, KESDM's energy balance publication emphasizes uncertainties about energy data[7] and suggests that the main "*problem related to energy data in Indonesia is the unavailability of demand-side data.*" Given these concerns about the quality of Indonesia's basic energy statistics, their improvement would seem to warrant being given priority. There was insufficient time during this inception mission to identify the causes of these weaknesses. Further investigation prior to undertaking technical assistance missions would be needed to identify where investments are most needed to assure their improvement.

Natural Capital Stock Accounts

28.   **BPS produces a SEEA-consistent set of asset accounts covering timber, energy, minerals and land.** The land accounts are available in physical units only, while those for timber, energy and minerals are available in both physical and monetary terms. The accounts are quite detailed, providing breakdowns of asset stocks accounts into several sub-categories. The mineral accounts, for example, provide details on the size and value of Indonesia's stocks of gold, silver, tin, nickel, copper and bauxite. The accounts are available annually for the period 2017–2021 and, with the exception of the land accounts, provide national level estimates (land accounts provide data at the national level and for the seven island groups of Indonesia). As with BPS' other environmental accounts, the results are presented in a PDF report only. BPS does not compile stock or flow accounts for natural resources other than those listed above. Notably, no water accounts are available. Nor is any account for marine resources, though BPS is working on pilot accounts for ocean resources in collaboration with the KKP, BIG, DJKN and

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[5] Agriculture, forestry and fishing; mining and quarrying; manufacturing; electricity and gas supply; transportation; and other.

[6] Electricity and heat; biofuels; oil; natural gas; coal and peat; and other energy products.

[7] *"Energy and economic data and information are kept by various sources, at many locations, and generally in a variety of formats unready for energy analysis. In addition, the data and information are generally not provided with sufficient explanation or clarification. The standardization of energy and economic data is a critical problem. Currently, researchers at various institutions, do not have common terminology on energy economy. In some cases, disagreement may arise over a different use of terminology. This subsequently leads to inaccurate energy analysis."*

measuring maritime GDP with Kemenko Marves. BPS' natural capital stock accounts appear to be of good quality, though a thorough review of the underlying data sources and methods was not possible during the mission.

29. **The authorities expressed interest to expand the coverage of the existing natural capital asset accounts**. Their interest stems from the realization that Indonesia's forests – and the role they will play in achieving both Indonesia's and the world's climate goals – are key, but poorly understood, natural resources for the country. For this reason, DJKN and BKF of the Ministry of Finance have a strong interest in improving the statistical basis for managing Indonesia's forests in the context of climate and broader fiscal policy. Given what was heard during the mission – particularly during formal discussions with the Ministry of Finance (DJKN) and informal discussions with World Bank's country office – the most obvious pathway for expansion would appear to be the extension of the existing land cover and timber accounts to cover ecosystem extent accounts and ecosystem services provided by forest ecosystems. DJKN has already agreed to cooperate with the World Bank in this regard and they expressed a strong interest during the mission to cooperate with the IMF as well. DJKN is aware of and supports the work of BPS on natural capital accounts and was receptive to our recommendations that any work on land and forest ecosystem accounting should be led by BPS as well.

Dissemination of Statistics

30. **As of now, most of environmental and climate statistics are published in a pdf format in various reports.** While BPS publishes machine-readable online data sets (Excel files) for its economic statistics, it only publishes pdf versions of its environmental accounts' publications. This is partly due to the concerns with data quality from sectoral data providers. Although BPS does not make the accounting data available to the public in machine-readable form, it does so when it submits the data to the UNSD. So, it should be a simple matter to make the same files available to the public via the BPS website, as it already done for the agency's basic environmental statistics. Following improvements in basic accounts, the mission recommended to the BPS and other ministries to publish datasets and related press releases, as the agency currently does not use press releases to promote either its environmental statistics or accounts.

E. RECOMMENDATIONS

31. To support Indonesia's efforts to enhance the existing and develop new environmental and climate change statistics, the mission proposed the following recommendations and CD project plan:

- *Establish Environment and Climate Change Statistics Coordination Mechanism at a decision-making level across various ministries and institutions.* Given the large number of stakeholders, a formal coordination mechanism will help avoid duplication of efforts and ensure complementarity of statistics produced by various stakeholders. While coordination exists at a technical level in the context of the DGI-3 taskforce, a coordination mechanism at a decision-making level (deputy minister/deputy chief statistician) would ensure coordination both horizontally and vertically across and within agencies. The authorities could establish such mechanism by September 2023. (This is a recommendation, and not a project deliverable).
- *Improve the coverage consistency and disaggregation of physical energy flow accounts, understand the differences between the energy balances produced by BPS and KESDM and strive for harmonization.* A follow-up technical assistance could be provided in this area.
- *Improve the coverage consistency and disaggregation of air emission accounts.* Indonesia published air emission data in line with SEEA, based on the fuel combustions data. However, the coverage should be expanded to include all greenhouse gases (rather than just carbon dioxide) and add emission sources other than fossil fuel combustion, as well as further disaggregated beyond 6

industries in Tier 1. Moreover, accounts could be expanded to include emissions of fine particulate matter (PM$_{2.5}$). A follow-up technical assistance could be provided in this area.

- *Improve the dissemination and communication of environment and climate change related statistics.* Data should be disseminated in a user-friendly format (i.e., datasets and not just pdfs) and overall communication of environment and climate change related statistics improved.
- *Support efforts to develop a strategy to expand natural capital accounts to cover the potential of forest ecosystems as carbon sinks and potentially other accounts.*

Target Date	Priority Recommendation	Responsible Institutions
September 2023	*Establish Environmental and Climate Change Statistics Coordination Mechanism at a decision-making level across various ministries and institutions*	Coordinating Ministry for Maritime and Investment, Ministry of Finance, BPS as a compiler
September 2024	*Improve the coverage, consistency and disaggregation of air emission accounts*	BPS, Ministry of Environment and Forestry
September 2024	*Improve the coverage, consistency and disaggregation of energy flow accounts*	BPS, Ministry of Energy and Minerals
September 2024	*Disseminate data in a user-friendly format (dataset/database)*	BPS, MoEF, MoEM
March 2025	*Expand natural capital accounts to cover the potential of forest ecosystems as carbon sinks*	BPS and all natural resources data providers and policy users from line ministries

A follow-up TA mission could support the authorities' efforts to improve the energy balances and air emission accounts.

32. Other deliverables to support development of climate change statistics, possibly outside scope of this project, include development of the other natural capital stock accounts beyond forest (i.e., oceans, peatland, etc.)

APPENDIX A. LIST OF ENVIRONMENTAL STATISTICS AND ENVIRONMENTAL ACCOUNTS

Publication	Description	Frequency of publication
Integrated System of Environmental-Economic Accounts of Indonesia	Asset accounts for land, timber, mineral and energy	Annual
Indonesia Energy Flow Accounts and Greenhouse Gas Emissions Accounts	Energy flow accounts, air emission accounts	Annual
Indonesian Environmental Statistics	Differs per theme (per year)	Annual
Energy Balances of Indonesia 2017-2021	Energy balances	Annual
Indicators for Housing and Health of Environment 2022	Various indicator related to housing and environmental health	2022
Environment Studies: Environmental Quality of Urban Area 2019	Environmental statistics generated by further analysis using SUSENAS and other secondary data from other ministry/institution	2019
Electricity Statistics 2017-2021	Installed Capacity, Electricity generated, number of electricity customers, etc.	Annual
Pilot Land and Extent Account Sumatera dan Kalimantan	Land and extent account for Sumatera and Kalimantan	2020
Pilot Ecosystem Account for Indonesian Peatlands Sumatera and Kalimantan Islands	Ecosystem Account for Indonesian Peatlands Sumatera and Kalimantan Islands	2019
Statistics of Marine and Coastal Resources 2022	Differs per theme (per year)	Annual

APPENDIX B. LIST OF OFFICAL MET DURING THE MISSION

Name	Institution	E-mail Address
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