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# Building a Climate Data Catalogue - Malaysia's Experience

Saiful Anuar Bin Mohd Husin, Bank Negara Malaysia

**Abstract:**

Joint Committee on Climate Change (JC3), co-chaired by Bank Negara Malaysia (BNM) and Securities Commission (SC) Malaysia, issued and maintained a Climate Data Catalogue ("data catalogue") in December 2022, to serve as a source of reference on climate and environmental data for the financial sector and to enable informed decision-making by providing access to climate and environmental data. It also represents a call for action for stakeholders to collectively improve the availability and accessibility of climate data. The data catalogue is reviewed annually and published on BNM microsite on Climate Change.

This paper provides the basis for the establishment of the data catalogue by JC3 including motivation and objective, and benchmarking with other countries' data catalogue and practices, explaining the approach and the method adopted in the stocktake of relevant data items, metrics, and applicable use cases for the data catalogue, highlighting the data gaps and finally suggests and recommends areas for improvement and addressing climate and environmental data gaps.

The author is part of the Secretariat team of JC3 Sub-Committee on Bridging Data Gaps (SC5) which was responsible in contributing content to the data catalogue and coordinating the production of the data catalogue, through collaboration with SC5 members and other external stakeholders. He has been actively involved in the climate data works including data advocacy areas for the financial sector under JC3 SC5 since its inception in 2021.

**Keywords:**

Climate Data Catalogue; data catalogue; climate change; bridging data gaps; Joint Committee on Climate Change (JC3)

## 1. Introduction:

The JC3 climate data catalogue serves as a reference source for climate and environmental data relevant to the Malaysian financial sector and intended to help financial institutions access and use data related to climate and environmental factors. The data catalogue includes a wide range of data types, such as data that are readily available, partially

available, and completely unavailable. It seeks to encompass the full spectrum of data related to climate and environmental factors. The data catalogue provides observations on data gaps, which are areas where relevant data are missing or insufficient. This serves to highlight deficiencies in the available data, making users and data providers aware of where improvements are needed. By highlighting data gaps and challenges in availability, the data catalogue promotes broader awareness within the financial sector about the importance of these missing pieces of information. Subsequently, the awareness is hoped to inspire actions by the data providers, encouraging them to improve the availability and accessibility of the data. It signals to data providers that there is a demand for this information in the financial sector.

The data catalogue is compiled by the Sub-Committee on Bridging Data Gaps (SC5), which operates under JC3. A structured and collaborative effort are involved in collecting and organising the data for the financial sector's benefit where the compilation of the catalogue is based on the data needs of the financial sector and the available data sources at the time of publication which the data catalogue is tailored to the specific requirements of financial institutions and the data landscape at a given point in time.

In summary, the data catalogue is a valuable resource for the financial sector, providing access to climate and environmental data sources, highlighting data gaps, and encouraging data providers to enhance the availability and accessibility of this critical information. It is a collaborative effort under JC3, aligning with the sector's needs and the data landscape.

**2. Methodology:**

The JC3's approach to identifying data needs for climate and environmental data in the financial sector is based on user-centric data need identification approach. The breakdown of the key elements of this approach for the purpose of the data catalogue as below:

1. **Adoption of NGFS' Approach:** The JC3 has adopted the NGFS (Network for Greening the Financial System) user-centric data need identification approach. NGFS is an international organisation of central banks and supervisory authorities, focusing on green finance and sustainability. This approach emphasises the importance of user perspectives when identifying data needs.

2. **Stakeholder Involvement:** In this approach, stakeholders from the financial sector, are actively involved in the process. They are responsible for identifying use cases that require climate and environmental data. (5 main stakeholders: Regulators (e.g., central bank), Banking institutions, Insurers and takaful operators, Asset managers, and Pension funds

3. **Stepwise Identification based on Uses Cases:** The identification process follows a structured sequence, starting with the identification of applicable use cases. Once the use cases are established, stakeholders proceed to identify the specific types of metrics required for these use cases. (8 main use cases: Exposure quantification, Investment and lending decisions, Macroeconomic modelling, Financial stability monitoring, Climate-related disclosures, Scenario analysis, Stress testing, and Product development)

4. **Metric Types to Identification of Data Items:** After determining the metric types, stakeholders proceed to identify the specific data items needed. Data items refer to the specific pieces of information or variables required to measure and analyse

climate and environmental factors. (6 metric types: Footprint, Transition sensitivity, Physical vulnerability, Alignment, Mobilisation (i.e., scaling up green finance), and Combined metrics).

5. **Standardised Template or Data Catalogue:** The mapping exercise, including the identified data items, is captured in a standardised template or Data Catalogue. This catalogue serves as a repository for the data needs and associated information.
6. **Information in the Data Catalogue:** The Data Catalogue contains detailed information about the data items, including their characteristics (such as unit of measurement or data format), information on data availability (whether the data is readily accessible or partially available), and sources (where the data can be obtained).
7. **Observations on Data Gaps:** The Data Catalogue also includes observations on data gaps, highlighting areas where the required data is missing or insufficient. This provides transparency and clarity on the limitations of the available data.
8. **Prioritisation:** An important aspect of this approach is the prioritisation of data needs. This is based on the criticality of each data item, which is assessed as a "must-have." Additionally, the number of times a data item is profiled contributes to its priority. This prioritisation ensures that efforts are directed toward addressing the most critical data gaps first.
9. **Validation and credibility assessment:** The data catalogue finalisation includes process of validating the relevant data items based on applicable use cases. Credible parties and stakeholders for example data users, public and private agencies, and international organisations were engaged to ensure comprehensiveness and address any glaring missing data items as well availability and accessibility of the sources.

In summary, the JC3's approach involves stakeholders in a systematic process of identifying climate and environmental data needs in the financial sector. This user-centric approach uses a structured template or Data Catalogue to document these needs, along with information on availability, sources, and observations on data gaps. Prioritisation ensures that the most critical data needs are addressed with greater urgency.

**3. Result:**

**A. The outcome of the Data Catalogue exercise and key points as below:**

1. **Total Data Items:** A total of 143 granular data items have been identified. These data items are related to climate and environmental factors and are categorised by various dimensions.
2. **Unique Data Items:** Among the 143 granular data items, there are 82 unique data items where some data items may have multiple dimensions or are used in various contexts.
3. **Prioritisation:** Out of the identified data items, 103 granular data items are prioritised. These prioritised data items are the most important and are categorised into eight data groups (Top 8 Data Groups).
4. **Top 8 Data Groups:** The prioritised data items are organised into the following top eight data groups:
    a. GHG emissions and forward-looking targets

b. Green/Sustainable lending/financing and bonds/Sukuk investments
c. Non-renewable & renewable energy
d. Exposure to physical risks
e. Asset VaR (Value at Risk)
f. ESG (Environmental, Social, and Governance) score/rating
g. Water consumption and waste management
h. Biodiversity and forestry indicators

5. **Criteria for Prioritisation:** The prioritisation of data items is based on specific criteria. These criteria include whether a data item is profiled as a 'must-have' data item, as well as the number of times a data item is profiled across different stakeholders and use cases. In other words, the importance of a data item is determined by its criticality classification by stakeholders and how frequently it is needed across various use cases within the financial sector. The prioritisation process helps focus efforts on collecting and making available the most critical data items for addressing climate and environmental risks and opportunities in the financial sector. It allows stakeholders to concentrate on obtaining data that is deemed most essential for decision-making and risk assessment in the context of sustainability and environmental concerns.

**B. The summary of key findings as below:**

**49% of climate-related data needed by the financial sector is available**. However, of the available data, most of them still lack sufficient detail, are not easy to access; or are not comparable. Details based on the availability categories as below:

1. **Availability Categories:**

    - **Readily Available (18%):** This category includes data items that are readily accessible without significant barriers. Examples provided include the Green Building Index and litigation claims/cases.

    - **Limited Granularity (18%):** These data items are available but may lack granularity, such as detailed location data for green/sustainable bond/sukuk issuance, energy data by sector not classified according to the Malaysia Standard Industrial Classification (MSIC) 2008, and forest-related data like deforestation and tree cover loss.

    - **Proprietary (Sensitive Data) (11%):** This category consists of data items that are proprietary and require a subscription to access. Examples include ESG (Environmental, Social, and Governance) scores and United Nations Global Compact (UNGC) scores.

    - **Limited Time Horizon (1%):** Data in this category is available but has a limited time horizon because it's published on a one-off basis. An example provided is past flood events data.

    - **Lacks Accessibility (1%):** Some data items are available but are not easily accessible, such as GHG emission targets often found in the sustainability reports of companies. Extracting and consolidating this data requires additional effort.

2. **Data with Confidentiality Restrictions (11%):** This portion of the data is available but not disclosed due to confidentiality restrictions. Examples include entity-level data

of electricity consumption and insured and uninsured losses related to natural catastrophes.

3. **Not Compiled or Reported (40%):** The majority (40%) of the data items are not compiled or reported by any party. An example provided is circular economy indicators, which are used to measure resource efficiency by minimizing resource consumption and waste generation.

These findings demonstrate the diverse nature of data availability in the DC and the challenges in accessing certain types of data, such as proprietary or confidential information. It also highlights the gaps in data reporting and the need for greater transparency and reporting efforts in areas like circular economy indicators. Addressing these data availability issues can be crucial for informed decision-making in the financial sector regarding climate and environmental risks and opportunities.

## 4. Discussion and Conclusion:

**Challenges faced in building Climate Data Catalogue**

1. Identification of Use Cases and Data Items
    a. Data needs are not specific, hence difficult in mapping these to the use cases and ascertaining the availability of data sources (for e.g., initial request for GHG emissions data was at high-level before further identification such as by scope 1, 2, 3 and GHG Inventory)
    b. Require rounds of engagement with users to ensure that the data sources are applicable for their use cases.

2. Deciding what sources to be included
    a. Eliminate non-credible data sources, particularly from private data providers (for e.g., unverified list of companies with ISO14000 certifications)
    b. Decide on which commercial data providers to be included (e.g., ESG Book, Refinitiv, etc)
    c. Maintain independence and explicit about not endorsing any data providers.

3. Evolving Climate Data Requirements and Availability
    a. Various frameworks and requirements, challenges arise in identifying the methodologies of the published data due to lack of metadata.
    b. Many standards were issued last year – ISSB (ED on sustainability and climate disclosures), BIS (Principles for Effective Management and Supervision of Climate-related Financial risks, IAIS (Application paper on Supervision of Climate Risks in the Insurance Sector), TNFD & etc.
    c. Links to data frequently changed depending on time of publication – no programmatic access (e.g., updated link for information on flood by national data provider available after publication of report)

4. Lack of Incentives to Publish the Data
    a. Private data providers: Certain data is proprietary in nature, and the content is not shared for us to establish the extent of relevance to our data needs.
    b. Public data providers: Data is published to meet certain mandates/publication commitment. As example, Compilation of GHG National Inventory is based on the IPCC Guidelines to fulfil commitments under UNFCCC, while financial

sector requires GHG emission inventory data based on the GHG Protocol Corporate Accounting and Reporting Standard (i.e., Scope 1, Scope 2, and Scope 3)

Based on the stocktake exercise in building the JC3 climate data catalogue, there are few significant challenges related to the availability, accessibility, and quality of climate-related data which reflect several common issues:

1. **Limited Availability:** Scarcity of climate-related data and certain data is not accessible or has very limited access. This limitation is often attributed to inadequate data infrastructure, suggesting that the necessary systems and resources for collecting and maintaining climate-related data are still lacking.
2. **Accessibility Issues:** Even in cases where climate-related data exists, it is often not easily accessible for example due to data confidentiality. This hinders the ability of stakeholders, including financial institutions, to access and use this data for decision-making.
3. **Sparse Data:** Climate-related data that is available tends to be sparse and focused mainly on environmental or meteorological factors like precipitation and temperature. While these data types are important, they may not provide the comprehensive insights required by the financial sector to assess climate risks and opportunities effectively.
4. **Data Quality Concerns:** Data quality issues, including a lack of granularity. Granularity refers to the level of detail and specificity in the data. Incomplete or insufficiently detailed data can limit its usefulness for financial analysis.
5. **Lack of Comparability:** The absence of consistent reporting standards and internationally recognised audit mechanisms creates challenges in comparing data among different firms or entities. This lack of comparability can hinder the ability to benchmark and assess performance accurately.
6. **Need for Standards:** The reported issues related to data quality and comparability underscore the need for internationally consistent audit mechanisms and reporting standards. Standardised reporting can help improve the reliability and consistency of climate-related data, making it more useful for various stakeholders, including financial institutions.

Addressing these challenges is critical for enabling effective climate risk assessment and sustainable investment decisions. This will require collaborative efforts at national and international levels to improve data infrastructure, availability, accessibility, and data quality standards in the context of climate-related financial data.

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