



# BANGKO SENTRAL NG PILIPINAS

OFFICE OF THE DEPUTY GOVERNOR  
FINANCIAL SUPERVISION SECTOR

## MEMORANDUM NO. M-2022-042

To : **ALL BANKS**

Subject : **Guidance on the Implementation of the Environmental and Social Risk Management (ESRM) System**

The Bangko Sentral ng Pilipinas (BSP) recognizes the ongoing efforts of banks to develop or enhance policies and strategies in line with the expectations set out under Circular No. 1085 dated 19 April 2020 on the Sustainable Finance Framework, Circular No. 1128 dated 26 October 2021 on the Environmental and Social Risk Management (ESRM) Framework and Circular No. 1149 dated 23 August 2022 on the Guidelines on the Integration of Sustainability Principles in Investment Activities of Banks.

In this regard, the Guidance aims to inform banks on the initial steps or approaches that may be considered in developing an ESRM System. It describes the BSP's minimum expectations as embodied in the issued Circulars and provides information and reference to publications of the Network for Greening the Financial System (NGFS) and the Basel Committee on Banking Supervision (BCBS), among others, to support the development of an ESRM System.

Consistent with the principle of proportionality, banks should adopt an ESRM System commensurate to their size, risk profile, and complexity of operations. Banks may employ other approaches which are considered more feasible considering their business model, risk appetite, and operational capacity, provided that these are consistent with the BSP regulations and international standards. Banks are also encouraged to keep abreast with the local and global developments in the sustainability front and strengthen their awareness and capacity in response to the evolving climate and E&S risks.

For information and guidance.

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**CHUCHI G. FONACIER**  
Deputy Governor

29 September 2022

# **GUIDANCE ON THE IMPLEMENTATION OF THE ENVIRONMENTAL AND SOCIAL RISK MANAGEMENT SYSTEM**

## **I. INTRODUCTION**

The Bangko Sentral ng Pilipinas (BSP) recognizes that climate change and environmental hazards could pose significant risks to the safety and soundness of individual financial institutions and the entire financial system.

In line with the mandate of the BSP to promote financial stability, the BSP issued the Sustainable Finance Framework (Circular No. 1085 dated 29 April 2020)<sup>1</sup>, Environmental and Social Risk Management (ESRM) Framework (Circular No. 1128 dated 26 October 2021)<sup>2</sup>, and the Guidelines on the Integration of Sustainability Principles in Investment Activities of Banks (Circular No. 1149 dated 23 August 2022)<sup>3</sup> to promote effective management of risks arising from climate change and environmental hazards as well as promote financing to green or sustainable projects.

Circular No. 1085 sets out broad expectations on the integration of sustainability principles in the corporate governance and risk management frameworks as well as in the business strategies and operations of banks. One of the major expectations under the Sustainable Finance Framework is the development and implementation of Environmental and Social Risk Management (ESRM) System.

This guide describes the BSP's minimum expectations as embodied in the issued Circulars and provides information and reference to publications of the Central Banks and Supervisors Network for Greening the Financial System (NGFS),<sup>4</sup> and the Basel Committee on Banking Supervision (BCBS), among others, to support the development of ESRM System. Consistent with the principle of proportionality, banks should adopt ESRMS that is suited to their size, risk profile, and complexity of operations.

## **II. RELEVANT BSP GUIDELINES**

The sustainable finance-related issuances of the BSP are anchored on the corporate<sup>5</sup> and risk management<sup>6</sup> standards earlier issued by the BSP. These issuances emphasize the tone from the top and set out the duties and responsibilities of the board of directors, senior management, and the control functions in shaping the strategic thrust and embedding risk consciousness within the organization. The BSP issuances highlight that effective management of risks is a result of collective actions of all personnel in the organization.

Banks' management of risks is guided by its risk appetite with the end goal of achieving its business objectives. Thus, they should identify and assess all material risks including new and emerging risks (e.g., E&S risks), on a group-wide

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<sup>1</sup> <https://www.bsp.gov.ph/Regulations/Issuances/2020/c1085.pdf>

<sup>2</sup> [https://www.bsp.gov.ph/Regulations/Issuances/2021/1128\(Corrected%20Copy\).pdf](https://www.bsp.gov.ph/Regulations/Issuances/2021/1128(Corrected%20Copy).pdf)

<sup>3</sup> <https://www.bsp.gov.ph/Regulations/Issuances/2022/1149.pdf>

<sup>4</sup> The NGFS was launched at the Paris One Planet Summit on 12 December 2017. It is a group of Central Banks and Supervisors willing, on a voluntary basis, to share best practices and contribute to the development of environment and climate risk management in the financial sector and to mobilize mainstream finance to support the transition toward a sustainable economy. <https://www.ngfs.net/en>

<sup>5</sup> Part D. Corporate Governance, Manual of Regulations for Banks (MORB) <https://www.bsp.gov.ph/Regulations/MORB/2020MORB.pdf>

<sup>6</sup> Section 142 on Risk Governance Framework, Section 143 on Credit Risk Management, Section 146 on Operational Risk Management, and Section 614 on Investment Activities of Banks of the MORB.

and entity specific levels. Banks should use accurate internal and external data and consider the external operating environment in the risk assessment process to inform strategic business decisions and risk management approaches.

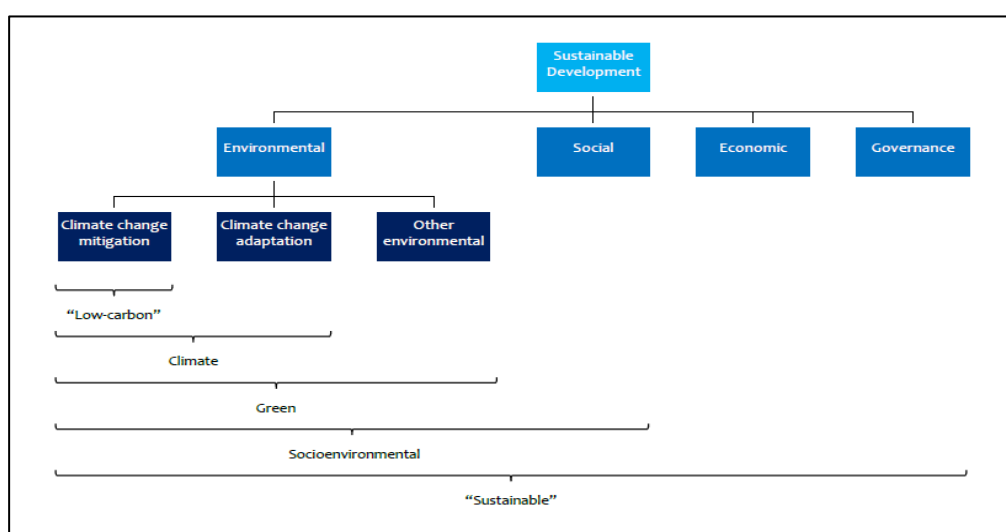
### III. MANAGING ENVIRONMENTAL AND SOCIAL (E&S) RISKS

#### A. Scope of Sustainable Finance

Circular No. 1085 defines *sustainable finance* as any form of financial product or service which integrates ESG criteria into business decisions that supports economic growth and provides lasting benefit for both clients and society while reducing pressures on the environment. This also covers green finance which is designed to facilitate the flow of funds towards green economic activities and climate change mitigation and adaptation projects.

Sustainable finance aims to address various overlapping issues including environmental, social, economic and governance issues. The BSP adopted the broad concept of *sustainable development*<sup>7</sup>.

Figure 1. A simplified schema for understanding broad terms, UNEP (2016)



The United Nations Environment Programme<sup>8</sup> (UNEP) (2016) defines the following four broad issues as shown in Figure 1:<sup>9</sup>

- *Environmental issues* relate to the quality and functioning of the natural environment and natural systems including biodiversity loss; greenhouse gas emissions, renewable energy, energy efficiency, natural resource depletion or pollution; waste management; ozone depletion; changes in land use; ocean acidification and changes to the nitrogen and phosphorus cycles.

<sup>7</sup> <https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf>

The concept of sustainable development provides a framework for the integration of environment policies and development strategies - the term 'development' being used in its broadest sense, is often taken to refer to the processes of economic and social change. Development involves a progressive transformation of economy and society.

<sup>8</sup> United Nations Environment Programme (2016) "Inquiry into the Design of a Sustainable Financial System", Definitions and Concepts Background Note. Inquiry Working Paper 16/3. Retrieved at [https://wedocs.unep.org/bitstream/handle/20.500.11822/10603/definitions\\_concept.pdf?sequence=1&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/10603/definitions_concept.pdf?sequence=1&isAllowed=y)

<sup>9</sup> Ibid

- *Social issues* relate to rights, well-being and interests of people and communities including human rights, labor standards, health and safety, relations with local communities, activities in conflict zones, health and access to medicine, consumer protection, and controversial weapons.
- *Economic issues* relate to investee impacts on economic conditions at local, national, and global levels. Performance areas include direct financial performance and risk, and indirect impacts such as through employment, supply chains, and provision of infrastructure.
- *Governance issues* relate to the management of investee entities. Issues include board structure, size, diversity, skills and independence, executive pay; shareholder rights, stakeholder interaction; disclosure of information; business ethics; bribery and corruption; internal controls and risk management; and in general; issues dealing with the relationship between a company's management, its board, its shareholders and its other stakeholders.

The Sustainable Finance Framework covers the full spectrum of sustainability issues or scope. Hence, it is not limited to addressing environmental issues including climate change, but also encompasses governance and socioeconomic aspects which are both integral parts of the said Framework. Governance is a key element in the BSP's supervisory framework while socioeconomics is one of the factors that underpin its financial inclusion advocacy.

For purposes of implementing the ESRM System, the BSP focuses on the environmental and social aspects considering that governance aspects are inherent in the supervisory expectations from banks. The Board may set or align its objectives, operations, governance and risk management approach in relation to any or all of the above sustainability areas or issues cognizant of the value it creates and culture it fosters in the banking business.

## **B. E&S Risk Definition**

Circular No. 1085 defines *E&S risk* as potential financial, legal, and/or reputational negative effect of environmental and social issues on the bank. E&S issues may include climate risk (both physical and transition risks), environmental pollution, hazards to human health, safety and security, and threats to community, biodiversity, and cultural heritage, among others.<sup>10</sup> These risks are inherent and can directly or indirectly affect banks. Circular No. 1085 requires banks to identify, assess, and effectively manage E&S risks and their impact on the bank's operations and financial condition.

## **C. ESRM System**

Pursuant to Circular No. 1085, *ESRM System* refers to policies, procedures, and tools to identify, assess, monitor, and mitigate exposures to E&S risks.

The said issuance provides that climate-related risks comprise of physical and transition risks:

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<sup>10</sup> <https://www.bsp.gov.ph/Regulations/Issuances/2020/c1085.pdf>

- *Physical risk* refers to the potential loss or damage to tangible assets arising from climate change and/or other weather-related conditions such as floods, typhoons, droughts, extreme weather variability, and rising sea levels.

These events can disrupt businesses and individuals' income cycle or cash flows affecting their capability to pay their borrowings from banks. This will, in turn, result in deterioration of the quality of the loan portfolio.

Physical risks may directly affect the operations of banks, such as disruption in the delivery of services, damages to bank premises, and physical resources, among others.

- *Transition risk* refers to the potential economic adjustment cost resulting from policy, legal, technology, and market changes to meet climate change mitigation and adaptation requirements.

For instance, policies that aim to regulate carbon emissions or implement carbon taxes or pricing mechanisms can affect the profitability and growth of carbon-intensive industries. Companies that fail to meet the carbon emission limits or those with operations that have an adverse impact on climate, environment, and society may face legal risks. Moreover, businesses and industries that need to replace current technologies with climate-friendly and sustainable technologies could face technology risks. The significant shifts in the demand and the replacement of carbon-heavy technologies can give rise to “*stranded assets*”. These are assets that, at some time before the end of their economic life, are no longer able to meet the company's internal rate of return due to changes in the market and regulatory environment associated with the transition to a low-carbon economy.<sup>11</sup> Banks, as financial intermediaries, ultimately bear the potential negative impacts of transition risks to businesses and individuals.

Transition risks can likewise directly affect banks. As policies and market preferences evolve toward meeting climate goals (e.g., Paris Climate Agreement, Nationally Determined Contributions) by limiting exposures to sectors with high carbon emissions and adverse E&S impact, these will likewise shape and shift the bank's lending and investment portfolio.

#### **D. Transmission of E&S risks to financial risks**

Prior to developing tools and strategies to identify, assess, monitor, and mitigate E&S risks, banks must first comprehensively understand how E&S risks translate to financial risks.

On 10 September 2020, the NGFS published a report<sup>12</sup> entitled “*Overview of Environmental Risk Analysis*” that provides wide-ranging examples of how environmental risks translate into financial risks. The report also includes an in-depth review of the tools and methodologies used by financial institutions for measuring exposures to environmental risk.

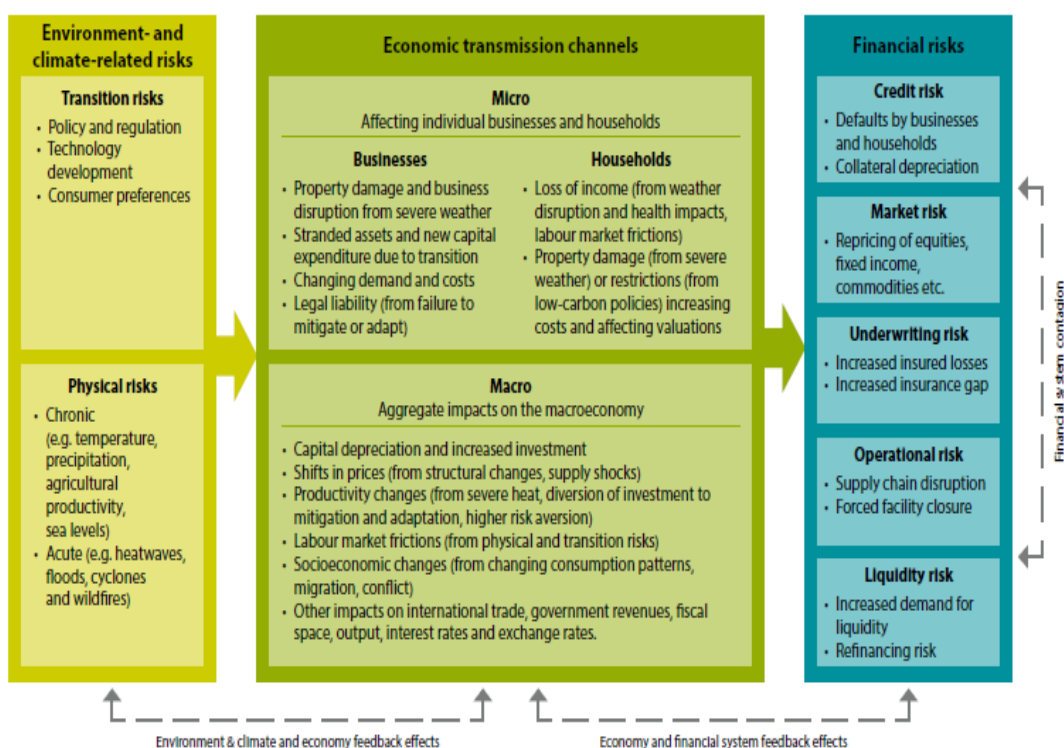
Figure 2 shows the NGFS' schematic illustration of the transmission of environmental risks to financial risks. Both transition and physical risks affect

<sup>11</sup> Definition by the Carbon Tracker Initiative. Retrieved at <https://carbontracker.org/terms/stranded-assets/>

<sup>12</sup> [https://www.ngfs.net/sites/default/files/medias/documents/overview\\_of\\_environmental\\_risk\\_analysis\\_by\\_financial\\_institutions.pdf](https://www.ngfs.net/sites/default/files/medias/documents/overview_of_environmental_risk_analysis_by_financial_institutions.pdf)

the individual businesses and households and the macroeconomy, which ultimately affect the financial risk exposure of banks.

Figure 2. Transmission from environmental risks to financial risks



Source: Adapted from NGFS (2020c).

The credit risks that may arise from environment and climate-related risks include the borrowers' increased chances to default and depreciation of the value of collaterals. For market risk, such environmental risks may lead to the repricing of investments in securities. In the case of operational risks, destructions of physical assets and resources may lead to closure of banking facilities. These events may also have an impact on banks' liquidity risks due to increased demand for funds in times of disasters or calamities.

Understanding this transmission mechanism is the key to finding the approach towards embedding the ESRM System in bank's existing risk management frameworks, including stress testing exercises.

Table 1: Sources of Physical and Transition Risks<sup>13</sup>

| Physical Risks                | Sub-categories/examples  |
|-------------------------------|--|
| Extreme weather events        | Tropical cyclones/typhoons, floods, winter storms, heat waves, droughts, wildfires, hailstorms   |
| Ecosystem pollution           | Soil pollution and degradation, air pollution, water pollution, marine pollution, environmental accidents  |
| Sea-level rise                | Chronic sea-level rise or sea surges   |
| Water scarcity                | Drought or insufficient supply of water  |
| Deforestation/desertification | Deforestation caused extinction of species, changes to climatic conditions, desertification, and displacement of populations   |
| Transition Risks              | Sub-categories/examples  |
| Public policy change          | Energy transition policies, pollution control regulations, resource conservation regulations   |
| Technological changes         | Clean energy technologies, energy saving technologies, clean transportation, and other green technologies  |
| Shifting sentiment            | Changes in consumer preference for certain products, changes in investor sentiment on certain asset classes  |
| Disruptive business models    | New ways to run businesses that can rapidly gain market shares from traditional businesses (e.g., virtual meetings that significantly reduce business travels; vertical farming that challenges traditional farming) |

Source: Caldecott et al. (2013); CICERO (2017); G20 Green Finance Study Group (2017); Ma et al. (2018); NGFS (2019a).

Table 2: Examples of Environmental Risks Transmitted to Financial Risks<sup>14</sup>

| Financial Risks for FIs   |                                  | Market Risk | Credit Risk | Liquidity Risk | Other risks |
|---------------------------|----------------------------------|-------------|-------------|----------------|-------------|
| Environmental risks       |                                  |             |             |                |             |
| <b>Physical Risks</b>     | <b>Sub-categories</b>            |             |             |                |             |
| Extreme weather events    | Tropical cyclones/Typhoons       | 1           | 1           |                | 1           |
|                           | Floods                           |             | 2           | 2              | 2           |
|                           | Winter storms                    |             |             |                |             |
|                           | Heat waves                       |             | 3           |                | 3           |
|                           | Droughts                         |             | 4           |                |             |
|                           | Wildfires                        |             | 5           |                |             |
|                           | Hailstorms                       |             |             |                |             |
| Ecosystems pollutions     | Soil degradation and pollution   |             | 6           |                |             |
|                           | Water pollution                  |             |             |                |             |
|                           | Marine pollution                 |             |             |                |             |
|                           | Environmental accidents          | 7           | 7           |                | 7           |
| Sea-level rise            |                                  |             |             |                |             |
| Water scarcity            |                                  |             |             |                |             |
| Deforestation             |                                  |             |             |                |             |
| Desertification           |                                  |             |             |                |             |
| <b>Transition Risks</b>   | <b>Sub-categories</b>            |             |             |                |             |
| Public policy change      | Energy transition policies       | 8           | 8           |                |             |
|                           | Pollution control regulation     |             |             |                |             |
|                           | Polices on resource conservation |             |             |                |             |
| Technological changes     | Clean energy technologies        | 9           | 9           |                |             |
|                           | Energy saving technologies       |             |             |                |             |
|                           | Clean transportation             |             |             |                |             |
|                           | Other green technologies         |             |             |                |             |
| Shifting sentiment        |                                  | 10          | 10          | 10             |             |
| Disruptive business model |                                  |             |             |                |             |

Sources: adapted from G20 Green Finance Study Group (2017); NGFS (2019a); Ma et al (2018); CICERO (2017); Caldecott et al. (2013); EIOPA (2019).

Note: Examples of other risks include operational risk, legal risk, underwriting risk and liability risk.<sup>6</sup>

<sup>13</sup> Source: <https://www.ngfs.net/en/overview-environmental-risk-analysis-financial-institutions>

<sup>14</sup> Source: <https://www.ngfs.net/en/overview-environmental-risk-analysis-financial-institutions>



### Case 1: Transmission from tropical cyclone/typhoon risk to market risk, credit risk and underwriting risk

- 1) Climate change exacerbates the intensity and frequency of tropical cyclones/typhoons (physical risk);
- 2) Higher intensity and frequency of tropical cyclones/typhoons lead to more severe damages to real estate assets located in coastal areas, reducing the value of properties (market risk);
- 3) Lower property values reduce collateral values of mortgage loans, and increase Loss Given Default (LGD);
- 4) Lower collateral values of mortgage loans and disruption to economic activities (e.g., income) due to extreme weather events increase mortgage default rates, and higher default rates and LGD increase expected losses of banks (credit risk) (Sun & Ma, 2020);
- 5) For insurers that provide property insurance for real estate assets in coastal areas, larger than expected damage losses of property could result in unexpectedly high claims (underwriting risk).<sup>7</sup>

### Case 2: Transmission from floods risk to operational risk, credit risk and liquidity risk

- 1) Climate change will result in more severe and frequent floods (physical risk) (Blöschl et al., 2019);
- 2) Floods disrupt supply chains and plant operations of some non-financial firms (e.g., due to power and transportation disruption) that are banks' clients, or threaten banks' business continuity by damaging their buildings (operational risk);
- 3) Business disruptions reduce revenue and increase repair/maintenance cost, thus reduces profit of the affected non-financial firms;
- 4) Reduced revenue and profit of these firms weaken their ability to repay bank loans and increase loan default rates and LGD (credit risk).
- 5) Insurers that provide flood insurance may be under pressure to liquidate assets at a loss in order to cover claims due to major flooding (liquidity risk).

### Case 3: Transmission from high temperatures/heat waves to credit risk and operational risk

- 1) Climate change results in longer, more frequent and more dangerous heatwaves (physical risk) (Pierre-Louis, 2019);
- 2) Heatwaves decrease labor productivity (Deryugina & Hsiang, 2014), and may disrupt transportation, power generation (e.g. due to lack of cooling water) of non-financial firms that are banks' clients;
- 3) Decline in productivity and business disruption reduce revenues and increase facility maintenance and repair costs of these non-financial firms;
- 4) The decline in profitability of these firms will increase default rates and LGD for banks (credit risk);
- 5) Damages to transportation and power facilities may cause disruption of banking services (operational risk) (Euronews, 2019).

### Case 4: Transmission from drought to credit risk

- 1) Climate change causes more severe drought conditions and water shortages (physical risk) (Calanca, 2007; Loukas et al., 2008);
- 2) Water scarcity may lead to power shortages;
- 3) Water scarcity and power shortages reduce revenues and increase operating costs of non-financial firms that depend heavily on water (such as those in agriculture, food manufacturing, textile & dyeing, and other water intensive industries) and power;
- 4) These changes in revenue and cost of non-financial firms may result in higher default rates of loans to the companies (credit risk).

### Case 5: Transmission from wildfire to legal risk and credit risk

- 1) Climate change leads to global warming and more frequent and intensive droughts (Herrera et al., 2017);
- 2) Exacerbated droughts increase the probability of wildfires (physical risk);

Source: NGFS Technical document: *Overview of Environmental Risk Analysis*, September 2020



- 3) Wildfires destroy infrastructure and equipment, thus lowering productivity and decreasing revenues of some non-financial firms. Wildfires may also increase their repairment costs.
- 4) Losses incurred from more wildfires could also be in the form government penalties or legal claims to liable companies that caused or exacerbated the wildfires;
- 5) From a lender's perspective, higher cost, lower revenue and impairment of collaterals could reduce the affected non-financial firms' ability to repay bank loans and increase default rates and LGD (credit risk).

#### Case 6: Transmission from soil degradation to credit risk

- 1) Land degradation (physical risk) lowers agricultural yields (UNDP, 2019; Young, 1994);
- 2) Expenditure for remediation measures lead to lower profitability of agricultural firms;
- 3) For banks lending to these agricultural firms, lower firm profitability may result in higher default rates and LGD (credit risk) (Ascui & Cojoianu, 2019; UNEP FI, 2018).

#### Case 7: Transmission from environmental accidents to legal risk and market risk

- 1) Environmental accidents by non-financial firms (e.g. BP's oil spill) may result in serious water and land pollution (physical risk);
- 2) Litigation may result in heavy penalties for these companies and associated reputation risk;
- 3) Lawsuits and penalties lead to extra costs and tarnish these companies' reputation and reduce their future sales;
- 4) From an investor/lender's perspective, the above-mentioned changes in revenue and cost as well as reputational losses of the non-financial firms could lead to a fall in their valuation (market risk) and an increase in their probability of loan default and LGD (credit risk).
- 5) From an insurer's perspective, these could result in an increase in environment-related claims under liability policies (liability risk).<sup>8</sup>

#### Case 8: Transmission from energy transition policies to market and credit risks

- 1) Energy transition policies may include measures (e.g. carbon tax/pricing scheme) to limit utilization of fossil fuels (transition risk);
- 2) These measures may result in higher costs for oil & gas companies, coal mining companies, and coal-fired power producers, meanwhile reducing market demand for their products;
- 3) Higher costs and reduced revenues cut profits and reduce the future cash flows of these companies;
- 4) From a FI perspective, these result in lower asset valuation (market risk) and/or higher loan default rates and LGD of carbon-intensive companies (credit risk).

#### Case 9: Transmission from technological changes to market risk and credit risk

- 1) Technological innovation that results in a decline in renewable energy costs (transition risk) reduces the market share and pricing power of "brown" companies such as oil & gas companies, coal mining companies, and coal-fired power producers;
- 2) From a FI perspective, the reduced sales and profits of "brown" companies lead to decreased asset value (market risk) and/or higher default rates and LGD (credit risk).

#### Case 10: Transmission from shift in market sentiment to market, credit and liquidity risks

- 1) Market sentiment towards carbon-intensive assets could change suddenly (transition risk) due to the introduction of new climate policies such as carbon taxes, carbon trading mechanisms, reduction in quota for fossil fuel energy, and regulatory restrictions on fossil fuel financing, and new technology developments in the form of a sharp decline in renewable energy costs and energy saving technologies.
- 2) For FIs, such sentiment shifts could lead to a sudden decline in price/valuation of carbon-intensive assets they hold (market risk); for banks, such a decline in price/valuation could increase the default risk and LGD if these assets are held as loan collaterals (credit risk); it may also result in difficulties in selling such assets by FIs (liquidity risk).

Source: NGFS Technical document: *Overview of Environmental Risk Analysis*, September 2020

Box Article 1<sup>15</sup> provides a summary of a study conducted by the BSP that shows how E&S risks, with focus on extreme rainfall events, affected the banks' performance.

#### Box Article 1

##### **Impact of Extreme Weather Episodes on the Philippine Banking Sector: Evidence Using Branch-Level Supervisory Data** (A BSP Working Paper Series)

In June 2020, the BSP published a relevant study on physical climate risks which adds empirical literatures on the impact of natural disasters on banking sector performance. Using data gathered from the BSP's Branch Regional Information System (BRIS), the BSP confirmed that extreme weather conditions adversely impact the banks, as shown by the negative effect on the growth of deposits and loans, loan quality, and profitability. The results found that savings and time deposit liabilities dropped while non-performing loans surged following the country's extreme rainfall events from 2014 to 2018. These results are particularly evident in regions most vulnerable to extreme rainfall episodes.

The study also revealed that almost all regions were granted regulatory relief packages during the period covered, except SOCCSARGEN and ARMM regions. The BSP provides temporary regulatory reliefs to banks located in areas affected by calamities. This was institutionalized through the issuance of Circular No. 1017 dated 10 October 2018. The regulatory relief aims to assist affected banks in their recovery and allow them to resume normal operations.

What is interesting, however, is that the National Capital Region, CALABARZON, and Central Luzon regions have the most significant number of regulatory reliefs availed compared to Eastern Visayas and Bicol Regions, which are along the typhoon gateway. This observation indicates the differences of branches per region in terms of vulnerabilities to typhoons.

*Source: Bayangos, V., Cachuela, R., and Del Prado, F. (June 2020) "Impact of Extreme Weather Episodes on the Philippines Banking Sector: Evidence Using Branch-Level Supervisory Data. BSP Working Paper Series No. 2020-03*

#### **IV. MINIMUM SUPERVISORY EXPECTATIONS ON ESRM System**

##### **Expectation 1:**

The Board of Directors and Senior Management shall institutionalize and oversee the adoption and implementation of sustainability principles, including those covering E&S risk areas, in the corporate governance and risk management frameworks as well as in the strategic objectives and operations of the bank.

<sup>15</sup> [https://www.bsp.gov.ph/Media\\_And\\_Research/WPS/WPS202003.pdf](https://www.bsp.gov.ph/Media_And_Research/WPS/WPS202003.pdf)

In line with the board's responsibility to promote the long-term financial interest of the bank and ensure that it has beneficial influence on the economy, it is crucial for the board to be able to identify and understand the factors that may have potential impact on the banks' performance, viability, and business objectives. The various E&S risks and the movements happening in both the local and international scenes in response to climate change highlight the significance of having a governance and risk management approach that goes beyond mere compliance.

The board and senior management are expected to understand the linkage between E&S risks and the bank's operations. This initial step will guide the board in shaping the tone from the top with regard to adopting and approving an ESRM System. It will also support the development and implementation of appropriate measures and approaches in line with the expectations under Circular Nos. 1085, 1128 and 1149.

Under said issuances, the board is expected to institutionalize the adoption of sustainability principles in the bank.

The BSP expects the board to set strategic E&S objectives covering short, medium and long-term time horizons as well as approve the risk appetite that the bank is willing and capable to manage through which the E&S risks may materialize.

The board is also expected to set out clear criteria involving decisions to finance or invest in high E&S risk sectors during the said term horizons. The criteria shall consider the long-term financial interest of the bank and its role in contributing to the sustainable goals and growth of the economy. With these set criteria, banks are expected to review the composition of their loan and investment portfolios and start aligning their exposures with the overall E&S objectives.

### **Expectation 2:**

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Define the level of E&S risk appetite of the bank on E&S risk.  
The scope and complexity of the ESRMS shall be commensurate with the level of E&S risk associated with the bank's portfolio.

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The BSP's Sustainable Finance and ESRM Frameworks are governed by the overarching principle of proportionality. In establishing and implementing ESRM System, a bank's approach should be commensurate to its size, complexity of operations and risk profile. In this case, the scope and complexity of a bank's ESRM System should be commensurate to the level of E&S risks it is willing to take to achieve its strategic objectives.

The ESRM System should define the level of risk appetite on E&S risk considering the bank's capability to manage the risk. Banks are expected to conduct an assessment of its existing and potential exposures and the quality and effectiveness of its risk management system to support the determination of the risk appetite. This step is crucial in establishing the banks' E&S risk thresholds and limits, which will serve as guide in its risk-taking activities and day-to-day operations.

### **Expectation 3:**

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Provide clear guidance in assessing E&S risks in the bank's operations, products and services, transaction, activities, and operating environment. The ESRMS shall also identify which sectors or activities have elevated or emerging E&S risks or are considered to have harmful effects to the environment or society.

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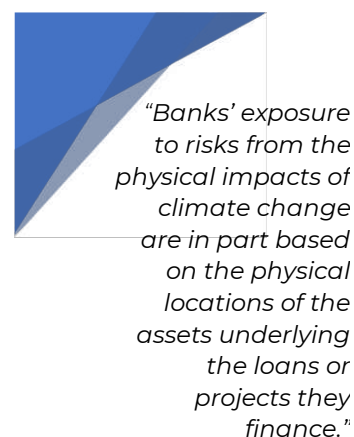
Consistent with the set strategic objectives and risk appetite, banks need to assess the E&S risks arising from their operations, products, services, transactions, activities, and operating environment and to determine whether such risks pose significant threats to their safety and soundness. Banks must also evaluate their exposures to sectors and activities with elevated or emerging ESG risks or those found to have harmful effects on the environment or society.

Banks may initially consider identifying their E&S risk exposure by looking at the geographical location of their touchpoints and by analyzing their portfolios.

a. **The geographical location of the bank and its assets may disclose exposures to environmental risks and related financial risks.**

Identifying the **location of the bank and its assets** is important in the assessment of E&S risk exposures of banks. Banks' premises and other real properties situated in areas prone to extreme weather events, natural disasters, or environmental hazards are more likely to experience disruptions in business operations or activities. A similar assessment on the location of the clients' business or sources of income, collaterals, or projects being financed may indicate potential increases in default probabilities and depreciation of the value of collateral.




Understanding the climate and environmental risks in the areas where banks operate, and in their assets or loan portfolios can help in the assessment and management of physical risks. For instance, a bank located in a typhoon-prone area will likely experience business disruptions and incur losses due to damages in its physical structures or touchpoints. This may then drive an increase in its operational risk exposures. Meanwhile, banks with significant amount of loan exposures to sectors vulnerable to extreme weather events (e.g., agriculture,) or have assets/collateral located in flood-prone areas, are likely to post higher levels of non-performing loans due to payment difficulties of borrowers or impairment of properties used as collaterals. In this case, the banks face elevated credit risk exposures.



Four Twenty Seven, a Moody's affiliate (2020)

For physical risk assessments to work, banks should strive to find and understand, relevant and science-based climate-related data, projections, and studies, to the extent practicable, to support the development of an effective risk management approach.

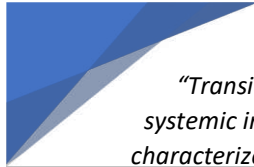
There are **hazard assessment tools** which are available online that banks can use to support their physical risk assessments and risk mapping exercises:

- The **HazardHunterPH**<sup>16</sup> is a tool that can generate hazard assessment reports on critical facilities and areas in the Philippines prone to different hazards such as earthquakes, floods, drought, severe wind, and sea-level rise, among others. This tool was developed by GeoRisk Philippines, which is a multi-agency initiative by the Philippine Institute of Volcanology and Seismology (PHIVOLCS), Department of Science and Technology (DOST), and the Philippine Council for Industry, Energy and Emerging Technology Research and Development (PCIEERD). 
- The **LiDAR Portal for Archiving and Distribution, or LiPAD**,<sup>17</sup> developed under the DOST initiative in partnership with the University of the Philippines and 15 other Higher Education Institutions, can produce detailed flood hazard maps and resource maps using LiDAR technology. 
- The Coastal Risk Screening Tool,<sup>18</sup> referred to as **Coastal Digital Elevation Model or CoastalDEM** developed by Climate Central provides elevation data for assessing coastal flood risks and shows areas vulnerable to permanent submergence from sea level rise or flooding caused by storm surges, tides, and tsunamis. 

Banks should conduct risk assessments based on geographical data to help inform its enterprise risk management, which includes resource allocation and business continuity planning.

**b. The analysis of portfolios vis-à-vis the developments in the national government's policies and business environment provides indicators of the level of transition risk exposures of banks.**

Policies, regulations, technology, and market sentiments can impact the quality or performance of various loans and investments. For instance, energy policies that prohibit the establishment of new coal power plants sends a signal to the market, investors, and financial institutions on the long-term viability prospects of coal-based investments. The same goes for sectors and industries that heavily rely on coal as an input. It may also affect the supply chain.



*"Transitions are systemic in nature, characterized by co-evolution between different actors, institutions, supply and distribution chains,"*

Markard, et. al. (2012)

<sup>16</sup> <https://hazardhunter.georisk.gov.ph/>

<sup>17</sup> <https://lipad.dream.upd.edu.ph/>

<sup>18</sup> <https://sealevel.climatecentral.org/maps/>



Banks with significant exposures to coal-powered industries may have to reassess their financial position, strategy, and long-term growth considering their exposures to transition risk. This assessment should strike a delicate balance between achieving the organization's ESG objectives and continuously supporting the financing needs of households and businesses for economic growth.

In this respect, banks may first classify their assets and portfolios based on their potential impact on the environment. This step would enable banks to make crude assessments on the total value of the portfolios that may be affected by changes in policies, litigations, technological developments and shifts in market sentiment in line with global and national climate objectives and SDGs. This will also inform the development of appropriate and sound risk management and portfolio reallocation strategies in response to potential transition risks.

### Taxonomy

Classifying assets as green, non-green, or brown will be challenging without an established national taxonomy. 'Taxonomy'<sup>19</sup> is the systematic classification and definition of green assets and projects. It aims to create a uniform and harmonized classification system that can be used to assess companies' greenness and basis for further policy actions such as development of standards, labels, and incentives, among others.

In a survey conducted by the NGFS (2020) on the financial institutions' experience from working with green, non-green, and brown financial assets, the most common approaches utilized by the respondent banks, given the lack of an official taxonomy, are as follows<sup>20</sup>:

1. Adoption of an international or national classification in the form of a voluntary classification or principle such as the Green Bond Principles<sup>21</sup>, Green Loan Principles<sup>22</sup>, Equator Principles, UNEP Financial Institutions (UNEP FI), etc., and
2. Implementation of an internally developed classification, which is inspired in whole or in part by international classification or principles.

The following issuances may be used by banks as reference for the conduct of preliminary E&S risk assessment and in the evaluation of potential financing of green or sustainable projects or priority sectors:

1. Securities and Exchange Commission (SEC) Guidelines on the issuance of sustainable bonds
2. Philippine Nationally Determined Contributions
3. Philippine Sustainable Finance Guiding Principles

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<sup>19</sup> Climate Bonds Initiative (March 2019). "Growing green bond markets: The development of taxonomies to identify green assets".

[https://www.climatebonds.net/files/reports/policy\\_taxonomy\\_briefing\\_conference.pdf](https://www.climatebonds.net/files/reports/policy_taxonomy_briefing_conference.pdf)

<sup>20</sup> NGFS (May 2020) "A Status Report on Financial Institutions' Experiences from working with green, non-green and brown financial assets and a potential risk differential" NGFS Technical Document. Retrieved at [https://www.ngfs.net/sites/default/files/medias/documents/ngfs\\_status\\_report.pdf](https://www.ngfs.net/sites/default/files/medias/documents/ngfs_status_report.pdf)

<sup>21</sup> <https://www.icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf>

<sup>22</sup> [https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/LMA\\_Green\\_Loan\\_Principles\\_Booklet-220318.pdf](https://www.icmagroup.org/assets/documents/Regulatory/Green-Bonds/LMA_Green_Loan_Principles_Booklet-220318.pdf)

### Broad Categories of Eligible Projects under SEC Guidelines

One of the existing principles or standards adopted by green/social/sustainability bond issuers in the country is the ASEAN Green/Social/Sustainability Bond Standards as adopted by the SEC. In particular, the SEC issued Guidelines on the Issuance of Green/Social/Sustainability Bonds under the ASEAN Green/Social/Sustainability Bonds Standards in the Philippines.<sup>23</sup> The SEC guidelines enumerate the broad categories of eligible and ineligible projects.

### Philippines' Nationally Determined Contributions (NDC)

The country's NDCs was communicated to the United Nations Framework Convention on Climate Change (UNFCCC) on 15 April 2021.<sup>24</sup> This serves as a guide for the "country's long-term development plan towards a climate-resilient and low-carbon future". Likewise, this "promotes the country's economic development and industrialization goals while contributing to the global efforts to stabilize the earth's climate".<sup>25</sup>

The Philippines commits to a projected greenhouse gas (GHG) emissions reduction and avoidance of 75 percent representing the country's ambition for GHG mitigation for the period 2020 to 2030 for the sectors of **agriculture, wastes, industry, transport, and energy**.

In terms of climate adaptation, there are seven (7) thematic areas under the National Climate Change Action Plan (2011-2028), namely **food security, water sufficiency, ecological and environmental stability, human security, climate-smart industries and services, sustainable energy, and knowledge and capacity development**.

### Philippine Sustainable Finance Guiding Principles<sup>26</sup>

The Inter-agency Technical Working Group on Sustainable Finance or the Green Force released in October 2021 the Philippine Sustainable Finance Guiding Principles (Guiding Principles).

The development of the Guiding Principles is consistent with the practices of countries in the region where a principles-based approach was pursued. This approach considers the unique needs and developmental stages of the member states and promotes the financing flows for sustainable activities without being compelled to adopt a framework or taxonomy designed for different economic and social structures that may be detrimental to its members within the region.

The Guiding Principles provides broad guidance in identifying economic activities that support sustainable development, with special focus on addressing the impacts of climate change, as well as encourages the flow of funds to such activities.

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<sup>23</sup> <https://www.sec.gov.ph/wp-content/uploads/2019/11/2018MCNo12.pdf>  
<https://www.sec.gov.ph/wp-content/uploads/2019/10/2019MCNo09.pdf>  
<https://www.sec.gov.ph/wp-content/uploads/2019/10/2019MCNo08.pdf>

<sup>24</sup> <https://unfccc.int/sites/default/files/NDC/2022-06/Philippines%20-%20NDC.pdf>

<sup>25</sup> <https://niccdies.climate.gov.ph/files/documents/Philippines%20NDC%20Quick%20Facts.pdf>

<sup>26</sup> <https://www.bsp.gov.ph/Regulations/Issuances/2022/CL-2022-011.pdf>

The Guiding Principles (GP) are as follows:

- ✓ GP 1: Climate Change Mitigation and Adaptation
- ✓ GP 2: Promoting Transition to a Low Carbon Economy
- ✓ GP 3: Resilient Food Systems
- ✓ GP 4: Sustainable Cities
- ✓ GP 5: Sustainable and Resilient Infrastructure for Inclusive Growth and Poverty Reduction
- ✓ GP 6: Environmental Management and Conservation
- ✓ GP 7: Prohibited Activities

Sample economic activities are provided in each principle.

The BSP issued Circular Letter<sup>27</sup> No. CL-2022-011 on 8 February 2022 to encourage all banks to explore and consider, where applicable, the strategies, priorities and principles outlined in the Guiding Principles and the Philippine Sustainable Finance Roadmap in developing their approach or actions towards adopting sustainable finance.

#### ASEAN Taxonomy for Sustainable Finance<sup>28</sup>

Meanwhile, at the regional level, Version 1 of the ASEAN Taxonomy was published in November 2021 by the ASEAN Taxonomy Board<sup>29</sup>. It consists of two main elements, namely: (i) the Foundation Framework which is applicable to all ASEAN Member States (AMS) and allows a qualitative assessment of activities; and (ii) the Plus Standard with metrics and thresholds to further qualify and benchmark eligible green activities and investments. The ASEAN Taxonomy recognizes the differences in the sustainable finance policies and systems adopted by each AMS as well as the unique circumstances or developmental stages of each state.

The ASEAN Taxonomy was developed focusing on climate change before covering other aspects of sustainability. It will be periodically reviewed to keep pace with the developments in global sustainability goals and technology to remain relevant and effective.

### **Expectation 4**

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Provide the tools for monitoring E&S risks as well as the compliance of the bank and its counterparties with sustainability-related standards, laws and regulations.

Provide tools for assessing identified E&S risks and for considering the same in the aggregate exposures of the bank.

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<sup>27</sup> <https://www.bsp.gov.ph/Regulations/Issuances/2022/CL-2022-011.pdf>

<sup>28</sup> ASEAN Taxonomy for Sustainable Finance, Version 1 (November 2021). Retrieved at <https://asean.org/wp-content/uploads/2021/11/ASEAN-Taxonomy.pdf>

<sup>29</sup> In March 2021, the ASEAN Capital Markets Forum (ACMF), the ASEAN Insurance Regulators Meeting (AIRM), the ASEAN Senior Level Committee on Financial Integration (SLC), and the ASEAN Working Committee on Capital Market Development (WC-CMD), with the endorsement of the ASEAN Finance Ministers' and Central Bank Governors' Meeting (AFMGM), agreed to establish the ASEAN Taxonomy Board.

Banks should have the necessary and appropriate tools for identifying, measuring, and monitoring E&S risks. These tools will facilitate and help inform the banks' decision-making based on their defined level of E&S risk appetite. Decision-making and risk-taking are inherent in almost all phases of the banks' operations. Hence, tools should be in place, as appropriate, from the start to the end of a financial transaction or activity.

In credit-granting, for instance, banks are expected to consider E&S risks in all relevant stages of the credit cycle (e.g., underwriting, pricing, provisioning). Banks should assess how E&S risks may affect a borrower's repayment capacity considering various factors like the borrower's source of income, location of collateral provided or projects financed, and degree of dependence on E&S risk-sensitive sectors. Banks are expected to engage in constructive dialogues with their borrowers, particularly if such have significant exposures to E&S risks. The dialogues provide opportunities to gather information on the risk mitigation measures of the borrowers. Moreover, building on the tools earlier mentioned in this document, the results of the vulnerability assessment may inform the terms and conditions of loans of borrowers.

The ESRM System should include tools that will enable banks to monitor their compliance with sustainability-related standards, laws, and regulations or their potential impact on climate, environment, and society. These should help ensure that banks operate safely and soundly with minimal exposure to compliance or legal risks. In addition to constructive dialogues with borrowers, banks may conduct site visits or validation review on the actual use of loan proceeds to ensure that the credit granted was used for purposes applied for.

Government policies are updated from time to time due to the rapid developments on sustainability related areas. In this regard, the banks' ESRM System should likewise provide a mechanism that will keep the banks informed and updated with the developments in the relevant E&S-related policies, standards, and best practices. Banks should institutionalize capacity building program for the board, all levels of management, and personnel to equip them in E&S risk management.

ESRM tools may be developed separately by banks for this purpose or incorporated into the existing tools for managing other specific risk areas.

## **Expectation 5**

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Provide the measures that should be taken in case of breaches in limits or thresholds or non-compliance with sustainability-related standards, laws and regulations.

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An effective ESRM System should have measures in handling cases of breaches in limits or thresholds or non-compliance with sustainability-related standards, laws, or regulations. Reporting lines to the board and/or senior management must be properly implemented to ensure that they are aware of the breaches as well as emerging issues and complex or controversial cases. In this way, control mechanisms will be immediately implemented to ensure that such concerns remain manageable and will not significantly affect the banks' overall risk exposures.

Breaches or related concerns may not entirely be avoided as E&S risks may arise at any point of the banks' value chain. However, banks should ensure that E&S policies and procedures are regularly monitored and updated to consider the findings and fill the gaps identified during such breaches and similar events. Deleveraging strategies may be adopted for lending to activities or projects with high E&S risks, but this should be carefully implemented so as not to result in unintended consequences on the borrowers, the economic sectors concerned, and on the safety and soundness of the bank.

### **Expectation 6**

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Integrate E&S risks in stress testing exercises covering both short-term and long-term horizons following the principles and requirements provided under Sec. 151. The results of the stress testing shall feed into banks' capital and liquidity planning and management exercises as well as in the business continuity and disaster recovery plans.

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Models for assessing E&S risks and for conducting stress testing exercises are still in the nascent stage of adoption. Nonetheless, there are existing methodologies that are being used by financial institutions in other jurisdictions, on a pilot basis. These models and methodologies have been compiled and reviewed by the NGFS in its Occasional Paper<sup>30</sup> published in September 2020. Banks may use these as a reference in exploring tools and methodologies that may be used for their risk assessments.

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<sup>30</sup> NGFS (September 2020). "Case Studies of Environmental Risk Analysis Methodologies. An Occasional Paper. Retrieved at [https://www.ngfs.net/sites/default/files/medias/documents/case\\_studies\\_of\\_environmental\\_risk\\_analysis\\_methodologies.pdf](https://www.ngfs.net/sites/default/files/medias/documents/case_studies_of_environmental_risk_analysis_methodologies.pdf)



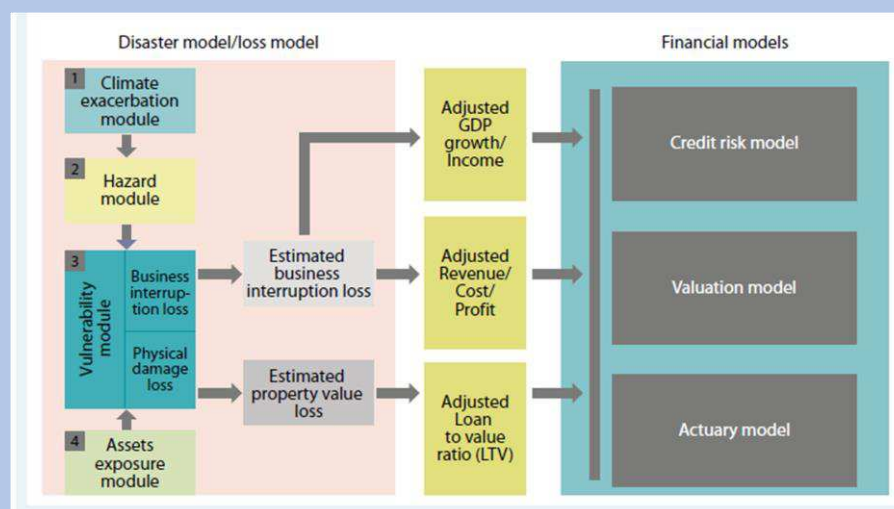
## Quantifying the Impact of Physical Risks on Probabilities of Bank Loan Defaults

By  
Tsinghua University

In assessing physical risk, Tsinghua University developed a climate physical risk assessment framework for banks to analyze credit risks from typhoons' impact on the Probability of Default of mortgage loans in Chinese coastal cities under various climate scenarios. The framework has two layers.

The first one is the disaster loss model, which estimates the decline or loss in value of physical assets due to damages or the losses incurred due to disruption in business operations.

This estimation will feed into the financial models as an input to adjust the estimates in the financial statements such as assets, liabilities, revenues, costs, and profits/losses. These adjusted variables will then be used to estimate the financial ratios such as the loan-to-value ratio (LTV), return on equity (ROE), asset/liability ratio, and interest coverage ratio.



Source: NGFS Case Studies of Environmental Risk Analysis Methodologies (2020)

## An Approach to Measuring Physical Climate Risk in Bank Loan Portfolios

By  
Four Twenty Seven (A Moody's Affiliate)

Another approach to assessing climate risk was developed by Four Twenty Seven, a California-based climate risk data firm and a Moody's affiliate. This methodology uses climate data to understand and mitigate climate risks in lending portfolios.

It starts with obtaining the specific location and features of assets underlying the lending portfolios, including the asset type, to factor in the asset's sensitivity to climate-related hazards. It then obtains a thorough review of the climate risk exposure in the value chain to understand the underlying geographic locations that underpins an asset's value chain.

Using this, Four Twenty Seven recommends using climate risk assessment models based on best-available, peer-reviewed science to develop projections and risk indicators. Such indicators are based on six hazards, including heat stress, wildfires, floods, hurricanes, typhoons, sea-level rise, and water stress. Afterwards, financial institutions obtain a score for each climate hazard and assign a risk rating.



Source: NGFS Case Studies of Environmental Risk Analysis Methodologies (2020)

### Conduct of stress testing exercise or scenario analysis

Methodologies developed for the assessment of transition risks include those that utilize stress-testing or scenario analyses. The existing guidelines<sup>31</sup> on stress testing exercises already set out the governance expectations or general principles that banks can refer to when integrating stress-testing in assessing climate-related risks.

<sup>31</sup> Section 151 of the MORB on Guidelines on the Conduct of Stress Testing Exercises

Cognizant of the risks posed by climate change to financial stability, banks and supervisors expanded the coverage of stress tests to include climate-related financial risks.

In June 2020, the NGFS published the “*Guide to climate scenario analysis for central banks and supervisors*” to help in conducting scenario analysis to assess impacts of climate risks on the economy and financial system.<sup>32</sup> It provides a four-step process, as follows:

- Step 1: Identify objectives and exposures
- Step 2: Choose climate scenarios
- Step 3: Assess economic and financial impacts
- Step 4: Communicate and use the results

Using traditional stress test to climate risk raises multiple challenges related, among others, to the (i) objectives, (ii) scenarios design, and (iii) availability of data. Addressing these challenges would require fundamental improvements in the stress test techniques being used by banks.

In conducting the climate risk stress test, the board is expected to ensure that the exercise is linked to the risk appetite and business strategies of the bank. The results should aid in enhancing risk management systems, capital and liquidity plans, and business continuity and recovery plans. In particular, banks should assess the impact of climate risks on solvency or net cash outflows or depletion of liquidity buffers. As climate risks can cause severe disruption to banks’ operations, adversely impacting business continuity, banks’ Business Continuity Plans (BCPs) may be enhanced to consider the impact of such risks and ensure operational resilience.

The Bank for International Settlements<sup>33</sup> (July 2021) recognizes that the outcomes of climate stress test exercises may inform banks’ decisions regarding their business models and their day-to-day risk management. In turn, this will help facilitate a smooth transition to a lower carbon economy, thus contributing to the safety and soundness of the financial system.

Banks may also perform quantitative and qualitative analysis of how both physical and transition risks scenarios would affect their financial statements. Considering the business model, exposure profile and business strategy, the scenarios may incorporate a range of plausible climate pathways as well as a range of time horizons, from short- to long-term. Such scenarios may cover only one or two key financial risks (e.g., credit and/or liquidity). A hypothetical typhoon scenario resulting in a severe flood similar to that of Typhoon Haiyan, locally known as super typhoon Yolanda, one of the strongest typhoons ever recorded<sup>34</sup>, may be designed. If the typhoon and flood stress scenarios materialize, banks might suffer significant losses through their exposure to flood-prone areas. As

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<sup>32</sup> NGFS (June 2020). “Guide to climate scenario analysis for central banks and supervisors.” Technical Document. Retrieved at:

[https://www.ngfs.net/sites/default/files/medias/documents/ngfs\\_guide\\_scenario\\_analysis\\_final.pdf](https://www.ngfs.net/sites/default/files/medias/documents/ngfs_guide_scenario_analysis_final.pdf)

<sup>33</sup> Baudino, P. and Svoronos, P. (July 2021). “Stress-testing banks for climate change-a comparison of practices.” FSI Insights on policy implementation No. 34. Retrieved at:

<https://www.bis.org/fsi/publ/insights34.pdf>

<sup>34</sup> According to UN estimates, it killed over 6,201 people in the Philippines, with 1,785 missing, and displaced 4.1 million people. led to USD 13 billion (about 5 percent of GDP) in damages and losses, including income forgone. 90 percent of this was borne by the private sector, and largely uninsured. The storm had significant financial consequence for rural and cooperative banks operating in affected area, the region of Eastern Visayas, where NPL rose to 22.7 percent in September 2014, and dampened investor sentiment across all financial markets in the Philippines. For more info see World Bank Group, Financial Sector Assessment Program, Technical Note, [Climate Change and Environmental Risk and Opportunities](#), June 2019

the main transmission channel works through changes in the value of the underlying collateral, the stress test exercise may initially focus on mortgage exposures and those secured by real estate. Banks should then project the expected credit losses on such portfolios under a typhoon followed by a flood scenario.

Following the publication of the *“Guide to climate scenario analysis for central banks and supervisors”*, the NGFS released a report<sup>35</sup> describing how 31 of its members are using climate scenarios to identify, assess and understand climate risks in their economies and financial systems. The exercises surveyed in the report cover the banking sector and half of the exercises also covered insurers and other financial institutions. The exercises covered mostly focus on how climate risks affect the banks’ credit portfolios. The approaches adopted by the members surveyed are split evenly between the bottom-up (those that involve financial institutions directly) and top-down approaches (those conducted entirely by the financial authority).

The NGFS materials serves as reference materials for banks to be familiar with the design and process in conducting initial exercises. The field of climate scenario analysis or stress testing is highly dynamic, and methodologies or practices are expected to evolve rapidly. Banks should explore existing or available methodologies and determine which is best suited to their specific needs, capacities, and exposures.

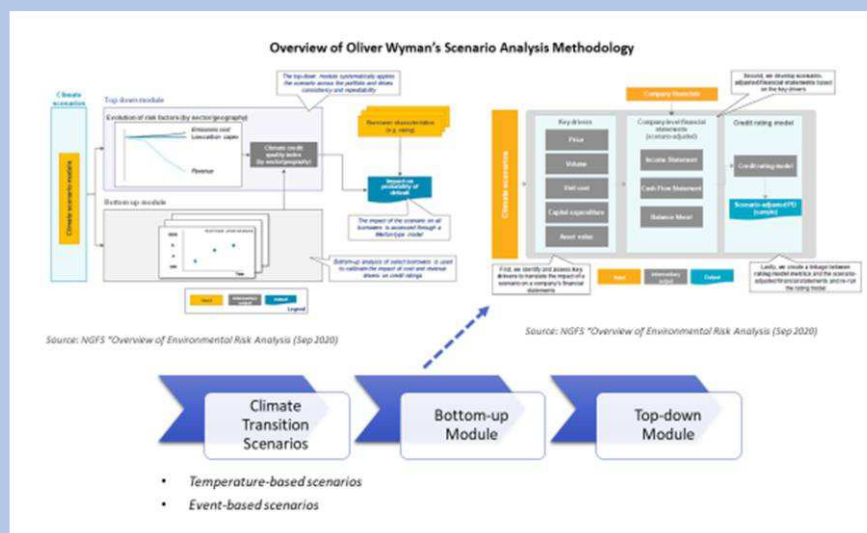
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<sup>35</sup> NGFS (October 2021). “Scenarios in action: A progress report on global supervisory and central bank climate scenario exercises” Technical Document. Retrieved at: <https://www.ngfs.net/sites/default/files/medias/documents/scenarios-in-action-a-progress-report-on-global-supervisory-and-central-bank-climate-scenario-exercises.pdf>

## Assessing Credit Risk in a Changing Climate: Transition-Related Risks in Corporate Lending Portfolios

By  
Oliver Wyman

This slide provides a general description of the methodology developed by Oliver Wyman, an American management consulting firm, to assess the impact of climate transition scenarios on the creditworthiness of corporate counterparties.



This methodology utilizes climate scenario analysis, which provides a plausible "hypothetical construct" under different scenarios. Climate scenario analysis is a crucial tool to help financial institutions understand and integrate climate risks into their broader risk management framework and explore their potential climate-related exposures.

The scenario analysis performed under this methodology is composed of three modules.

- The first one involves testing two climate transition scenarios – the temperature-based scenarios and the event-based scenarios.
  - Researchers, policymakers mostly use **temperature-based scenarios** and corporations to analyze how the economy could evolve with per change in average global temperature. These scenarios are more in line with the recommendations of the Financial Stability Board's Task Force on Climate-Related Financial Disclosures as well as in the 2 Degree Celsius Framework.
  - Another approach is the **event-based scenarios** which are focused on the potential short-term impact of one trigger event, such as the sudden implementation of a major carbon price regulation.



## Continued...

- The second is a **“bottom-up” module** that aims to assess the impact of climate scenarios on a sample companies' creditworthiness. It begins by assessing how key business drivers such as price, volume, unit cost, and capital expenditure and asset value evolve under a transition scenario. When the key drivers have been estimated, these will be linked to a company's financial statements, including the income statement, cash flow statement, and balance sheet. This will result in scenario-adjusted financial statements that can then be re-run through the credit rating models to get scenario-adjusted ratings and probability of default for each counterparty.
- The third is the **“top-down” module**, which enables institutions to perform a portfolio-wide climate stress test, even when data or time and resources are insufficient to run a bottom-up analysis for all counterparties. In practice, institutions that use this model extrapolate the bottom-up analysis results based on relevant customer characteristics to cover the rest of the portfolio.

*Source: NGFS Case Studies of Environmental Risk Analysis Methodologies (2020)*

## **Expectation 7**

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Identify the unit or personnel responsible for overseeing the management of E&S risks. The bank may establish a new unit to perform such function or integrate the same in the functions of existing risk management units. The ESRMS shall set out the duties and responsibilities of all personnel in the organization in managing E&S risks.

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Consistent with their size and complexity of operations, banks may create an appropriate organizational structure that will oversee the adoption of sustainability principles and implementation of the ESRM System. Banks may also integrate the same function in their existing risk management units. The policies and procedures under the ESRM System may be embedded in existing risk management manuals or documentations to present a more comprehensive guide in managing risk exposures. Alternatively, the bank may also articulate its ESRM System in a separate document to provide a more detailed and focused approach in the management of E&S risks.

It is expected that said unit or senior-level officer has the necessary background or experience and has sufficient authority to ensure that bank's sustainability principles are adopted and ESRM System is adequately implemented. Adequate resources should be made available to facilitate the banks' development and implementation of the ESRM System. Banks must implement training and capacity-building activities to increase the knowledge of the relevant units and its personnel and equip them with the skills to manage the bank's E&S risk exposures.

It should likewise be noted that managing E&S risks is not limited to those overseeing the implementation of the ESRM System. All personnel should be aware of their duties and responsibilities with regard to the implementation of the ESRM System in relation to the risk management frameworks covering the areas of credit, operational, liquidity, or market risks, among others.

The senior management is expected to assess the alignment of operations and performance of personnel with the bank's sustainability objectives. Scorecards may be adopted to facilitate the assessment.