

Climate Scenario Analysis (Part 1 - Qualitative): Mapping Physical & Transition Risks

*By KC Teo | National Quality Expert (Corporate Sustainability & ESG Frameworks - IQM)
Principal Consultant & Lead Auditor, VeriSustain MyESG Solutions PLT*

Under **IFRS S2 (paragraph 22)**, reporting entities are required to disclose the resilience of their strategy and business model to climate-related changes, explicitly mandating the use of **climate scenario analysis**. For many CFOs, Controllers, and Risk Officers in Malaysia, this requirement presents an intimidating operational hurdle.

A common misconception among finance teams is that scenario analysis requires immediate, complex financial stress-testing models with intricate balance-sheet algorithms. In reality, quantitative modeling without a clear narrative foundation is useless.

Before numbers can be plugged into a valuation model, entities must execute **Qualitative Climate Scenario Analysis**. This exercise establishes structured, plausible "what-if" narratives that map how physical and transition climate risks intersect with company assets, operating models, and supply chains.

1. What Is Qualitative Scenario Analysis (and What It Is Not)

Climate scenario analysis is not financial forecasting, nor is it a sensitivity analysis of past trends. Financial forecasts predict the most likely future using historical data; climate scenario analysis tests strategic resilience against multiple plausible, non-linear futures.

Qualitative scenario analysis serves as the foundational directional map. It allows corporate boards and management to:

- **Define Strategic Boundaries:** Identify key operational sites, critical supply chain nodes, and core revenue streams vulnerable to climate shocks.
- **Establish Cause-and-Effect Logic:** Track how macro climate drivers (e.g., carbon taxes, severe flooding) translate into microeconomic impacts (e.g., asset impairment, supply delays, cost spikes).
- **Satisfy IFRS S2 Core Requirements:** Provide the qualitative narrative required by IFRS S2 while preparing data pipelines for future quantitative modeling.

2. Selecting Reference Scenarios: NGFS & IPCC Models

Companies should not invent climate scenarios from scratch. IFRS S2 emphasizes anchoring qualitative narratives on internationally recognized reference scenario frameworks. For Malaysian PLCs, two primary frameworks provide the baseline:

A. Network for Greening the Financial System (NGFS) — Transition Risk Focus

Favored by central banks (including Bank Negara Malaysia) and financial institutions, NGFS scenarios evaluate policy, technology, and market transition pathways:

- **Orderly Transition (1.5°C Net Zero 2050):** Ambitious, immediate climate policy adoption and carbon pricing. High transition risk (carbon cost, regulatory compliance) but low physical risk.
- **Disorderly Transition (2°C Delayed Transition):** Late, abrupt policy enforcement after 2030. High, sudden transition risk causing market volatility and stranded assets.

B. Intergovernmental Panel on Climate Change (IPCC) — Physical Risk Focus

IPCC Shared Socioeconomic Pathways (SSPs) evaluate global temperature trajectories and physical impacts:

- **SSP1-2.6 (Low Warming / ~1.8°C):** Aggressive global mitigation; physical impacts remain manageable.
- **SSP5-8.5 (High Warming / 3.0°C+):** "Business-as-usual" high-emissions path. Extreme physical risk, including severe sea-level rise, catastrophic flooding in Peninsular Malaysia/Borneo, and extreme heat stress.

3. Mapping Risks to Company Assets & Supply Chains

Once reference scenarios are selected, the core exercise involves mapping climate risk drivers to specific business elements across short (1–3 years), medium (3–10 years), and long-term (10–30 years) horizons:

Climate Risk Category	Primary Risk Driver	Value Chain Impact (Assets & Operations)	Qualitative Financial Effect (IFRS S2)
Transition Risk (1.5°C Orderly / NGFS)	• Carbon Pricing & CBAM Tariffs • Mandated Energy Efficiency	• Higher operating costs for energy-intensive manufacturing. • Premature retirement of	• Compression of gross margins. • Accelerated depreciation & asset write-downs.

Climate Risk Category	Primary Risk Driver	Value Chain Impact (Assets & Operations)	Qualitative Financial Effect (IFRS S2)
	• Customer Preference Shifts	- high-carbon machinery. • Reduced demand for non-certified export goods.	• Lower revenue from legacy product lines.
Physical Risk - Acute (3.0°C+ / IPCC SSP5-8.5)	• Severe Flash Floods in Klang Valley & East Coast • Monsoon Storm Surges	• Structural damage to manufacturing plants & warehouses. • Logistics disruption & delayed raw material delivery. • Operational downtime across key supplier hubs.	• Direct capital expenditure for site repair. • Inventory write-offs & lost revenue. • Insurance premium spikes & higher deductibles.
Physical Risk - Chronic (3.0°C+ / IPCC SSP5-8.5)	• Sustained Temperature Rise • Water Stress & Droughts	• Reduced cooling efficiency in data centers / plants. • Reduced outdoor labor productivity (OSHA compliance). • Water rationing for agricultural & industrial processes.	• Increased utility bills (HVAC energy use). • Lower yield in agricultural/plantation sectors. • Supply chain component cost inflation.

4. A 4-Step Execution Guide for Risk & Finance Committees

To build a robust, auditable qualitative scenario narrative that satisfies IFRS S2 and external auditors, follow this structured execution plan:

1. **Establish Organizational Boundaries:** Select key operating subsidiaries, critical manufacturing facilities, and tier-1 supplier locations to include in the narrative assessment.
2. **Convene Cross-Functional Scenario Workshops:** Bring together Finance, Enterprise Risk Management (ERM), Operations, Procurement, and Legal teams to systematically stress-test business model assumptions against 1.5°C and 3.0°C narratives.
3. **Draft Entity-Specific Cause-and-Effect Pathways:** Document explicit qualitative causal chains linking climate events directly to potential financial impacts (e.g., *"Flooding at Klang facility → 10-day shutdown → RM X estimated revenue delay"*).
4. **Log Governance & Audit Evidence Trails:** Maintain clear documentation of scenario choices, reference sources (NGFS/IPCC version), workshop attendance, and board sign-offs to support future external assurance audits under ISSA 5000.

Moving Forward

Qualitative climate scenario analysis is not a mere compliance exercise—it is the strategic bridge that transforms climate risk from an abstract ESG concept into an integrated risk management discipline. By mastering qualitative story-building today, finance teams establish the necessary framework for quantitative financial modeling in Part 2.

About the Author:

KC Teo is a National Quality Expert (Corporate Sustainability & ESG Frameworks) conferred by the Institute of Quality Malaysia (IQM). As Principal Consultant and Founder of VeriSustain MyESG Solutions PLT, he specializes in ESG advisory, IFRS S1/S2 readiness, GHG accounting, and sustainability assurance.

Website: verisustain.my | Email: consultant@verisustain.my | Mobile: +60 13-699 6033