REPORTING TO RESILIENCE (R2R) FORUM

Wednesday, 12 August 2026
2:00pm - 5:00pm
Securities Commission Malaysia

Wifi: Event@SC
Password: SC@50490

Advisory Committee on Sustainability Reporting (ACSR)

Opening Remarks

Dato' Mohammad Faiz Azmi

Chairman
Securities Commission Malaysia
Advisory Committee on Sustainability Reporting (ACSR)

Malaysia's First Wave of NSRF: What the First Year Tells Us

Dr Ismet Yusoff

Chief Executive Officer
Minority Shareholders Watch Group (MSWG)

Reporting to Resilience (R2R) Forum
www.sc.com.my/nsrf

Q&A Session

Key Learnings and Challenges

Dato' Mohammad Faiz Azmi

Chairman
Securities Commission Malaysia
Chair, Advisory Committee on
Sustainability Rpeorting

Dr Ismet Yusoff

Chief Executive Officer
Minority Shareholders Watch Group
(MSWG)

Scan the QR code to access the Slido

Interpreting Flood Risk for Climate-Related Disclosures

Ts. Dr. Mohammad Fikry Abdullah

Research Officer for Water Resources and
Climate Change Research Centre, NAHRIM

INSTITUT PENYELIDIKAN AIR KEBANGSAAN MALAYSIA
KEMENTERIAN PERALIHAN TENAGA DAN TRANSFORMASI AIR

Suruhanjaya Sekuriti
Securities Commission
Malaysia

Reporting to Resilience (R2R) Forum

From Climate Projections to Flood Risk: Key Findings for Selangor, Kuala Lumpur and Johor

Translating NAHRIM Hydroclimate Projections into Decision-Relevant Physical Climate Risk

Date: 12th August 2026

Venue: Securities Commission Malaysia, Kuala Lumpur

Presented By: Ts. Dr. Mohammad Fikry bin Abdullah

INSTITUT PENYELIDIKAN AIR KEBANGSAAN MALAYSIA
KEMENTERIAN PERALIHAN TENAGA DAN TRANSFORMASI AIR

FLOOD RISK
ASSESSMENT REPORT

Selangor, Kuala Lumpur and Johor

Prepared for

SECURITIES COMMISSION MALAYSIA

By

National Water Research Institute of Malaysia (NAHRIM)
Ministry of Energy Transition & Water Transformation (PETRA)

Project Period:
3 months (April – Jun 2026)

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Dr. Amri Md. Shah

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Muhammad Hanafi Hamid

Ts. Naim Shauqi Mohd Noor

Muhd Farrizie Muhazeli

Flood & Climate Risk Assessment

A Strategic Guide for Malaysia

Corporate adaptation planning for inland and coastal flood risks

WHY IT MATTERS

Supporting Corporate Adaptation Planning

Understand potential flooding impacts on high-risk economic areas and sustainable development.

DATA & REGIONAL FOCUS

NAHRIM
Hydroclimate Projections

IPCC
AR5 RCP Scenarios

International Scientific Data

Selangor Coordinate Map

Selangor

Kuala Lumpur

Johor

ASSESSMENT & HORIZON

Inland Flooding
Extreme rainfall patterns and Northeast Monsoon trends

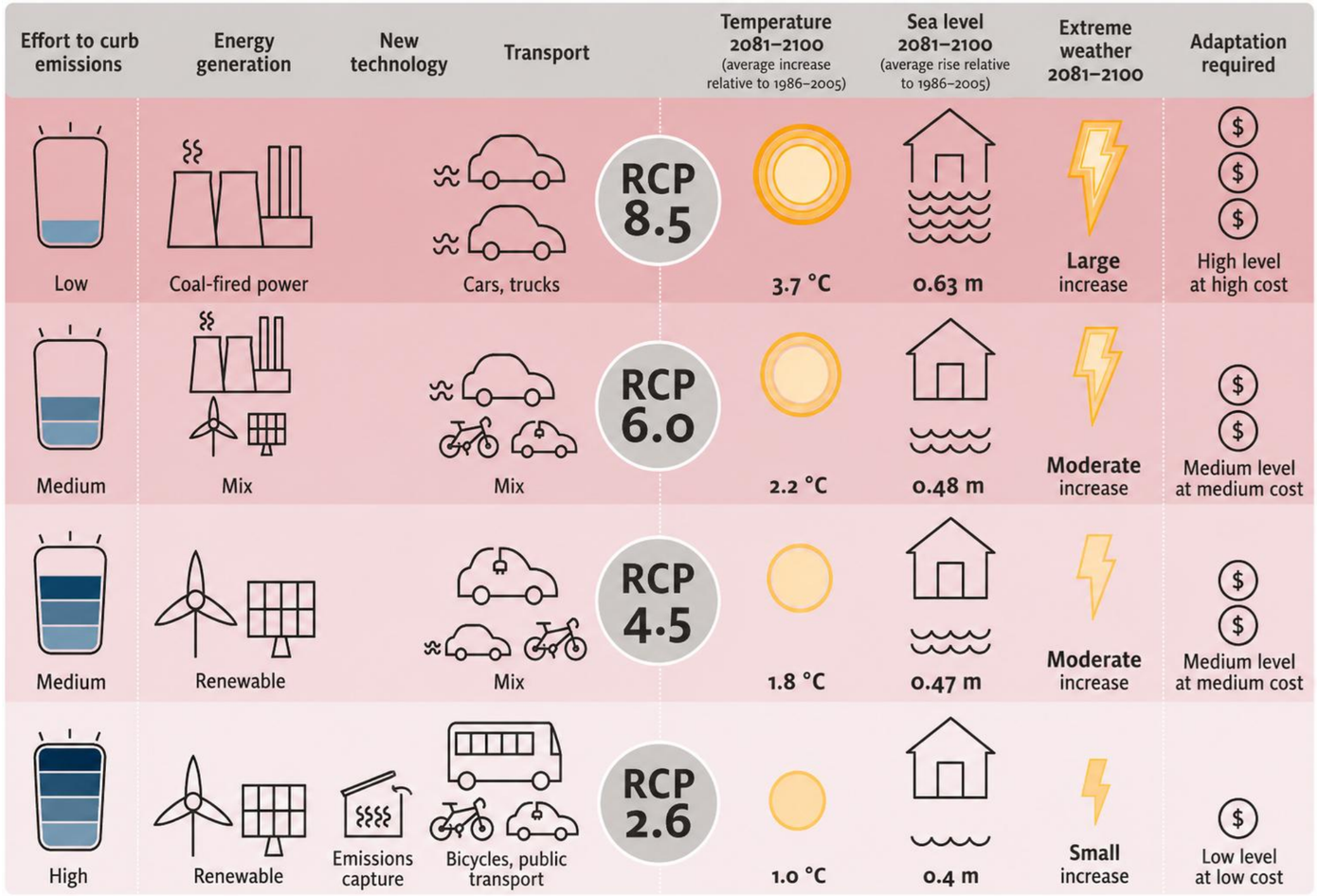
Coastal Flooding
Sea-level rise and coastal exposure

PROJECTION PERIOD

2026 – 2100

- Inland Flooding: 2010–2054
- Coastal Flooding: 2030, 2050, 2100
- Monsoon Rainfall Distribution: 2026, 2027, 2030, 2050

AR5: Representative Concentration Pathways (RCPs)



Comparison of Representative Concentration Pathways (RCPs) and their projected climate impacts for 2081–2100.
Source: Adapted from CoastAdapt (NCCARF), based on IPCC Fifth Assessment Report projections (2014).

Emissions pathways (RCP)

▼

Global warming

▼

Sea-level rise and extreme weather

▼

Increased flood risk

▼

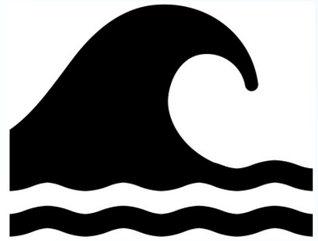
Greater adaptation needs

Inland flooding in Klang, Selangor, during the December 2021

Coastal flooding caused by high tides and wave overtopping, inundating low-lying areas along the shoreline.

Representative Concentration Pathways (RCPs)

Effort to curb emissions	Energy generation	New technology	Transport		Temperature 2081–2100 (average increase relative to 1986–2005)	Sea level 2081–2100 (average rise relative to 1986–2005)	Extreme weather 2081–2100	Adaptation required
Low	Coal-fired power		Cars, trucks	RCP 8.5	3.7 °C	0.63 m	Large increase	High level at high cost
Medium	Mix		Mix	RCP 6.0	2.2 °C	0.48 m	Moderate increase	Medium level at medium cost
Medium	Renewable		Mix	RCP 4.5	1.8 °C	0.47 m	Moderate increase	Medium level at medium cost
High	Renewable	Emissions capture	Bicycles, public transport	RCP 2.6	1.0 °C	0.4 m	Small increase	Low level at low cost



COASTAL FLOODING — RCP 8.5
Highest sea-level-rise-driven coastal flood risk

INLAND FLOODING — RCP 6.0
Highest rainfall-driven inland flood risk

INLAND FLOODING

Key Findings & Trends

RCP

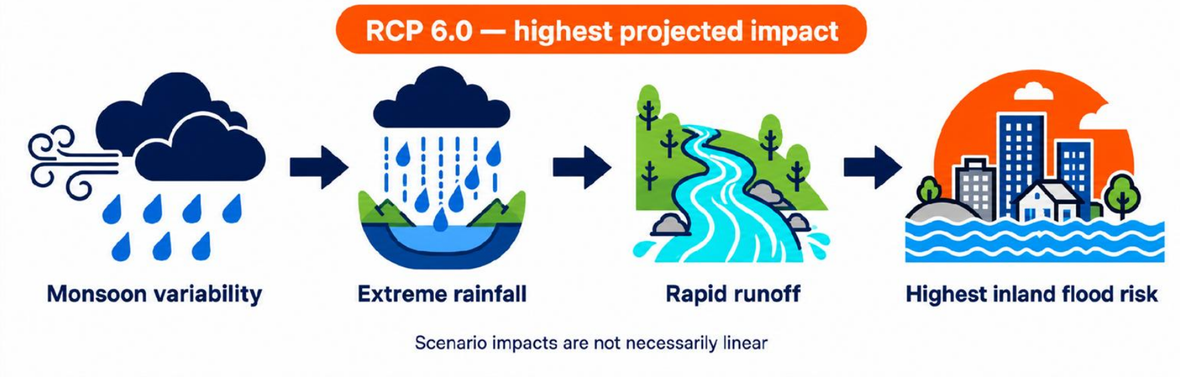
6.0

Highest Projected Risk

For Inland Flooding

Projected Rainfall Trends, 2010–2050

- Stronger monsoon variability may produce more extreme rainfall under RCP 6.0.
- Heavier rainfall generates rapid runoff, increasing flood risk in low-lying areas.



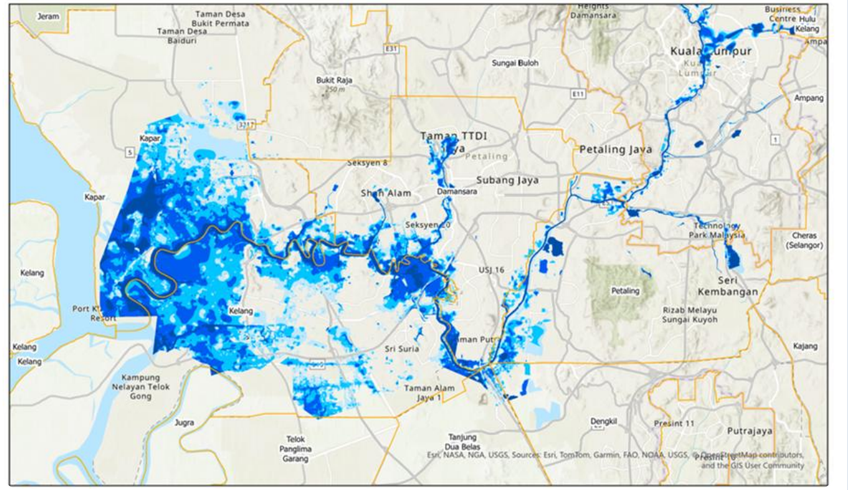
Why Is RCP 6.0 Worse Than RCP 8.5?

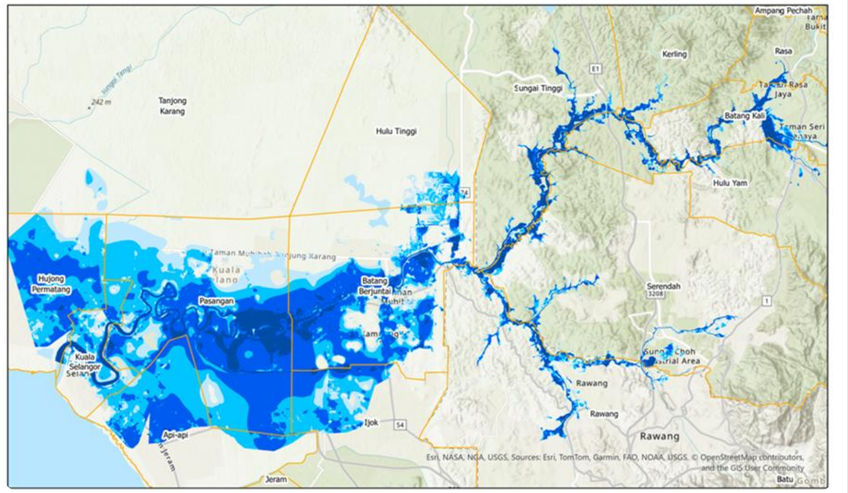
Flood risk does not increase linearly with emissions. Natural variability and downscaled atmospheric processes can make RCP 6.0 more critical for this period and location.

Hotspot: Selangor

River basin	Flood mechanism	Assets at risk	Exposed locations
Klang River Basin	Tidal backflow causing river overflow	Ports, roads, utilities and industrial facilities; potential disruption to maritime logistics 	Kapar, Klang, Shah Alam, Damansara and Subang Jaya
Selangor River Basin	Ponding floods across flat downstream areas	Roads, drainage systems, utilities, buildings and agricultural assets; potential disruption to local economic activity 	Kuala Selangor, Hujong Permatang, Pasangan, Batang Berjuntai, Rawang and Batang Kali

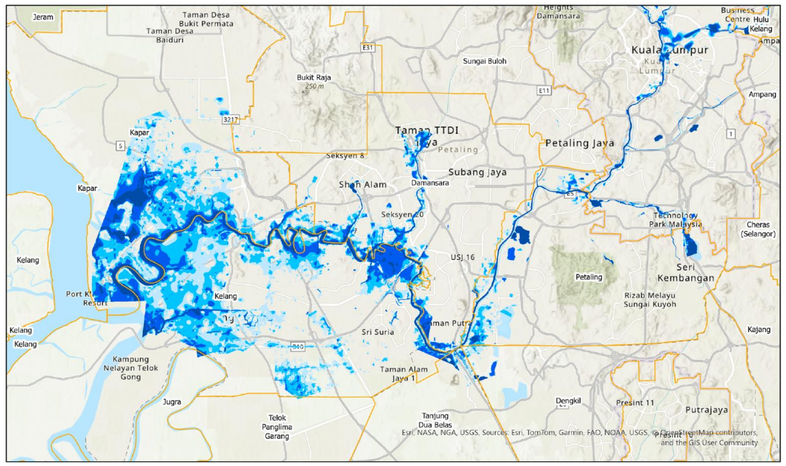
RCP6.0



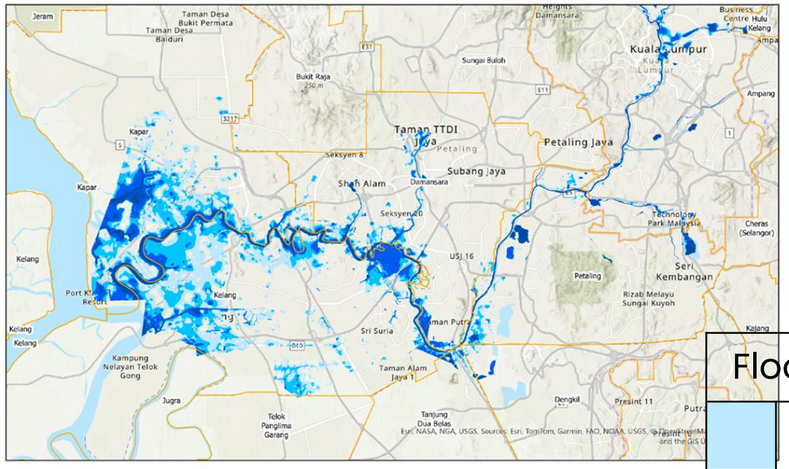


Hotspot: Selangor (Sg. Klang)

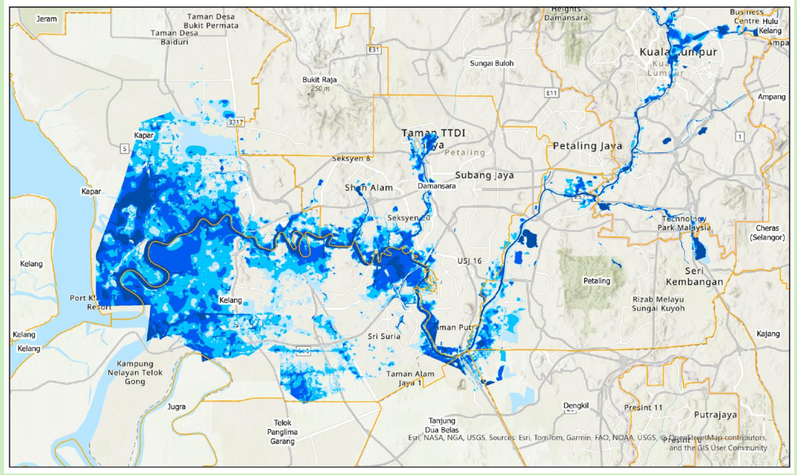
RCP2.6



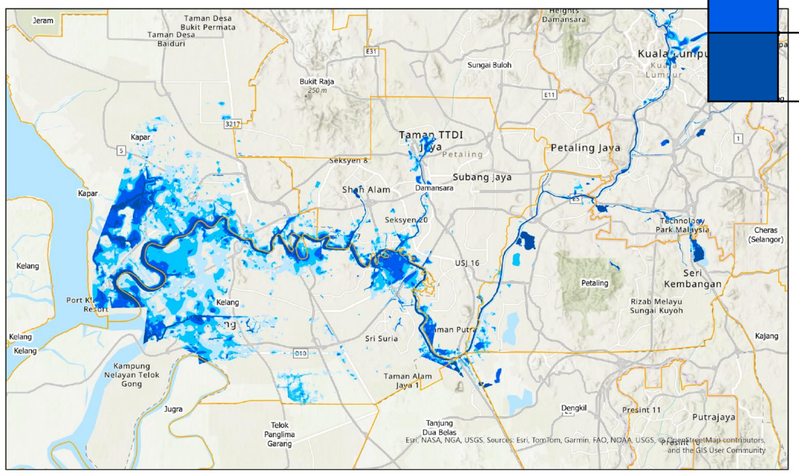
RCP4.5



RCP6.0

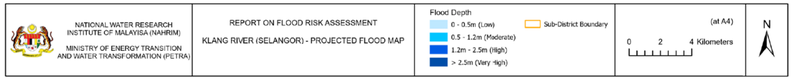


RCP8.5

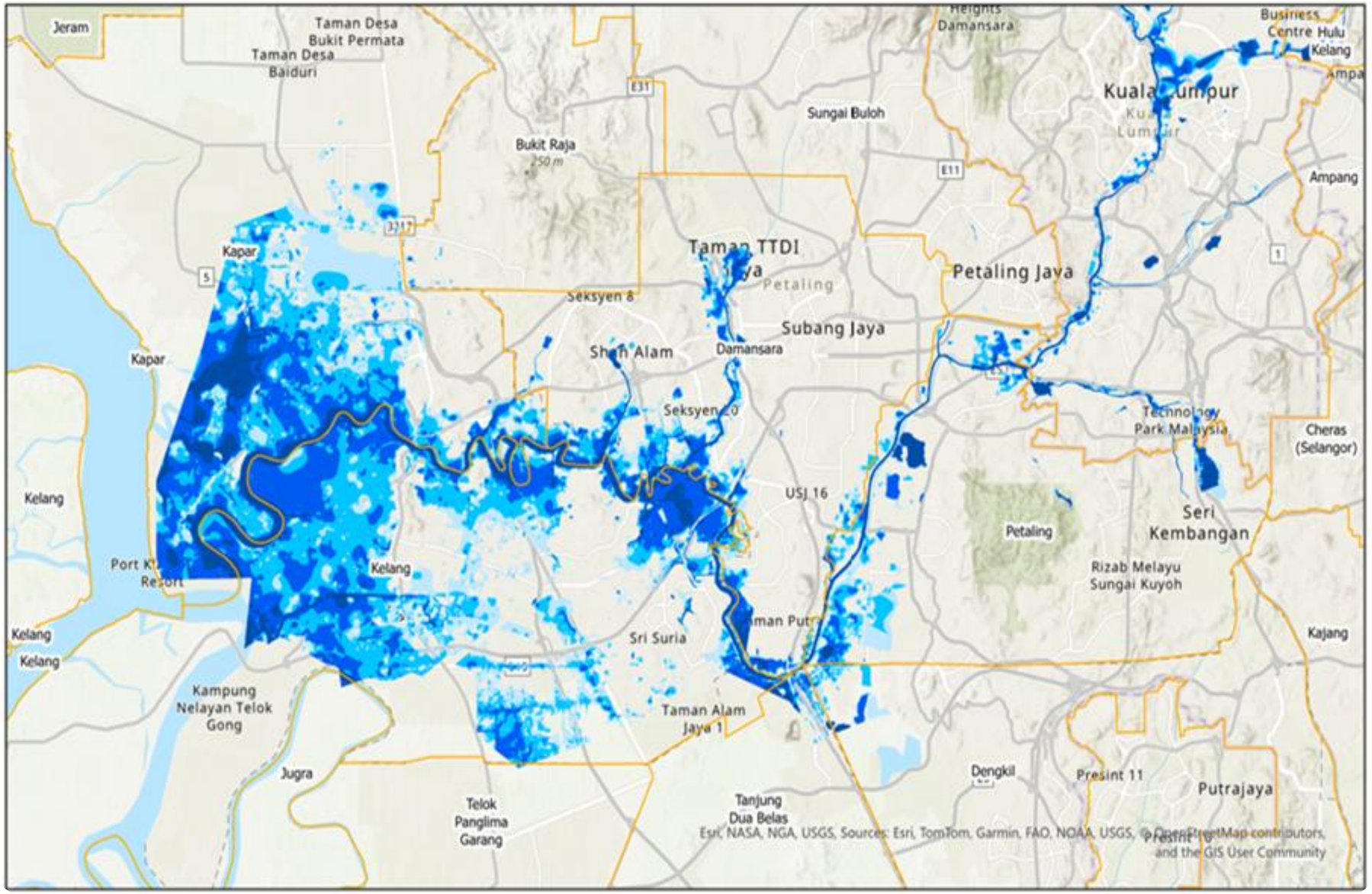


Flood Depth
0 – 0.5m (Low)
> 0.5 – 1.2m (Moderate)
> 1.2 – 2.5m (High)
> 2.5m (Very High)

Key finding: *Among the four scenarios, RCP6.0 shows the largest projected extent of inland flooding along the Klang River.*



Hotspot: Klang River Basin



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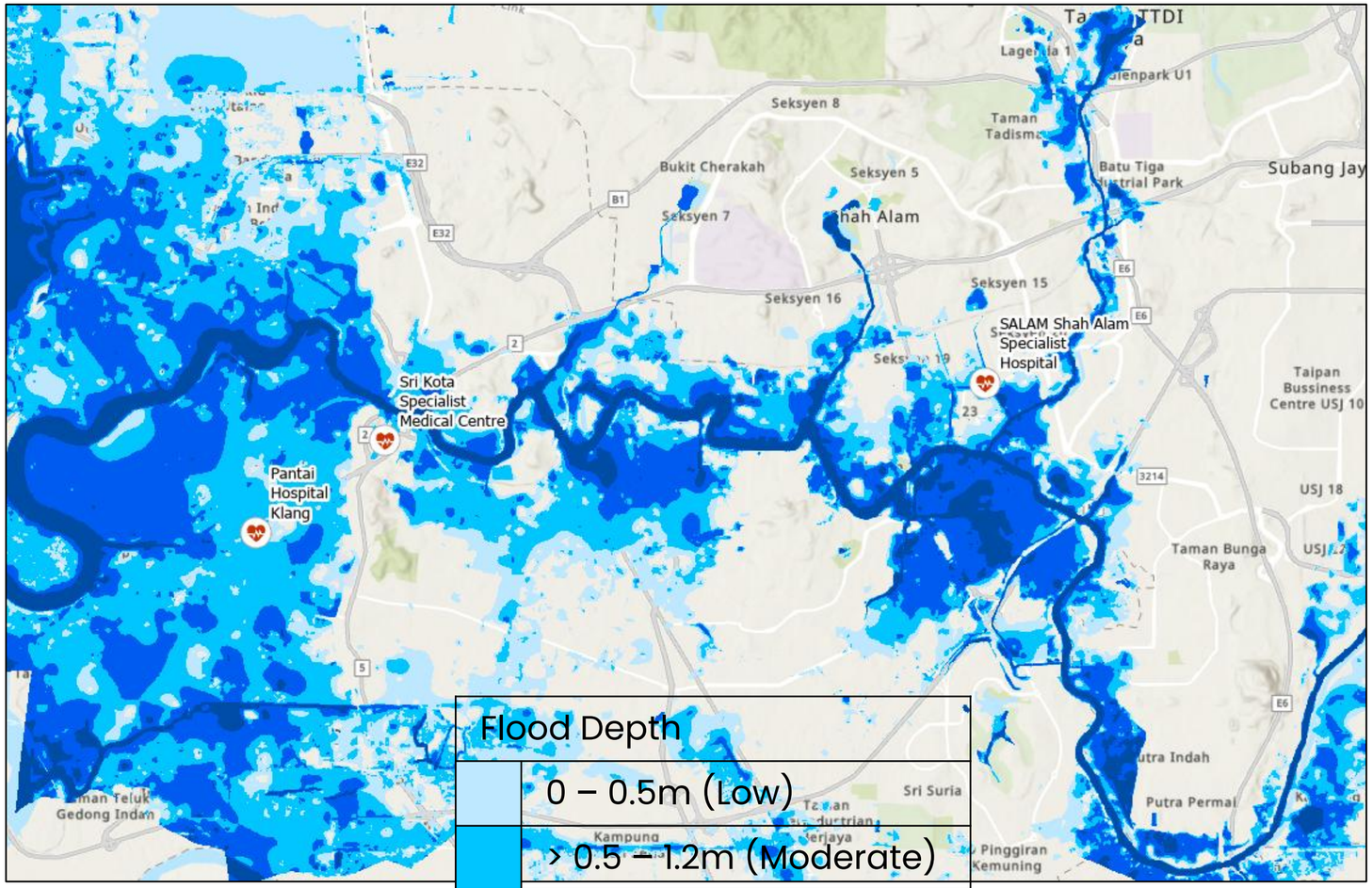
Case Study: Healthcare Facilities Exposed to Projected Flooding along Klang River

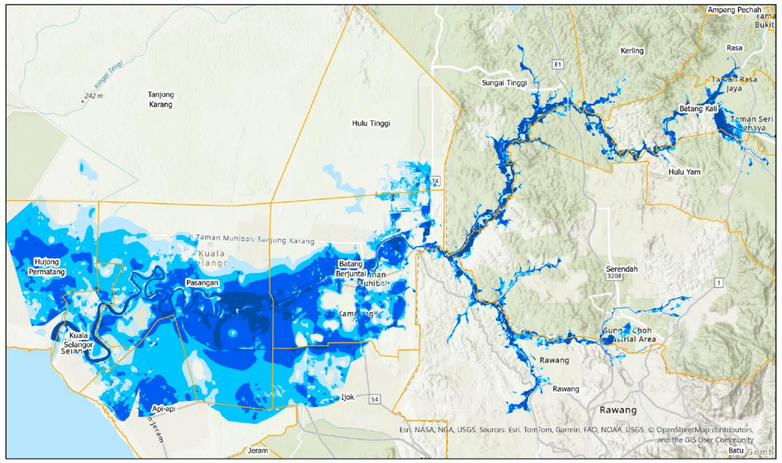


Healthcare facility	District	Projected exposure level	Flood Depth
Pantai Hospital Klang	Klang	Moderate	0.72 m
Sri Kota Specialist Medical Centre	Klang	Low	0.22 m
SALAM Shah Alam Specialist Hospital	Shah Alam	High	1.59 m

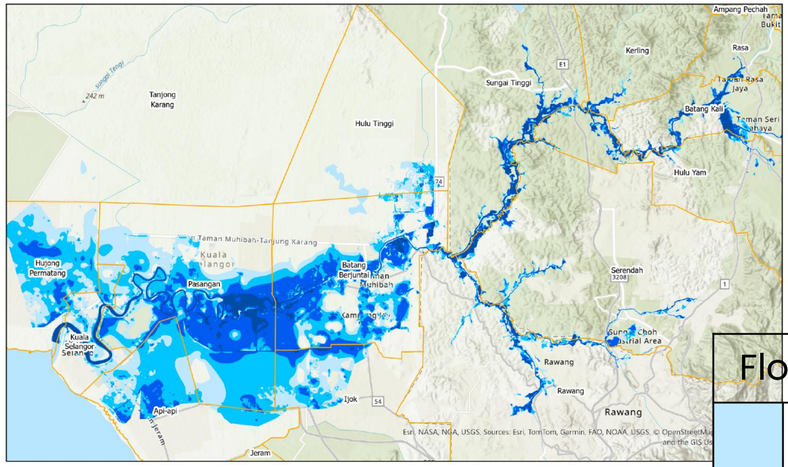
Projected inland flooding under the RCP 6.0 scenario

Hotspot: Selangor (Selangor River)

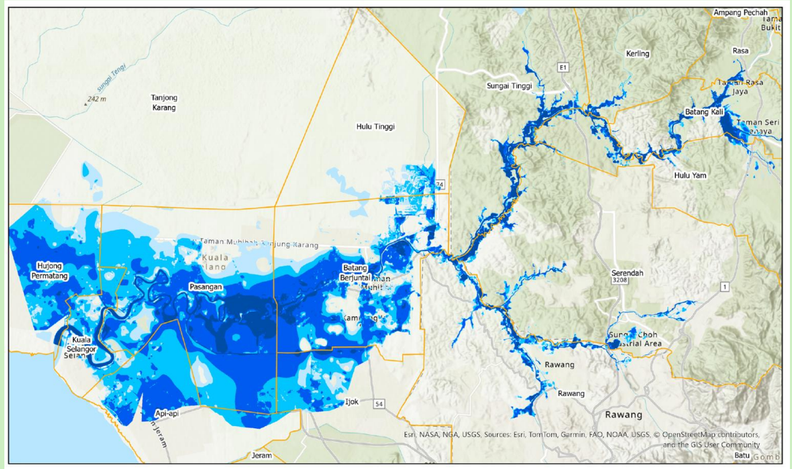
RCP2.6



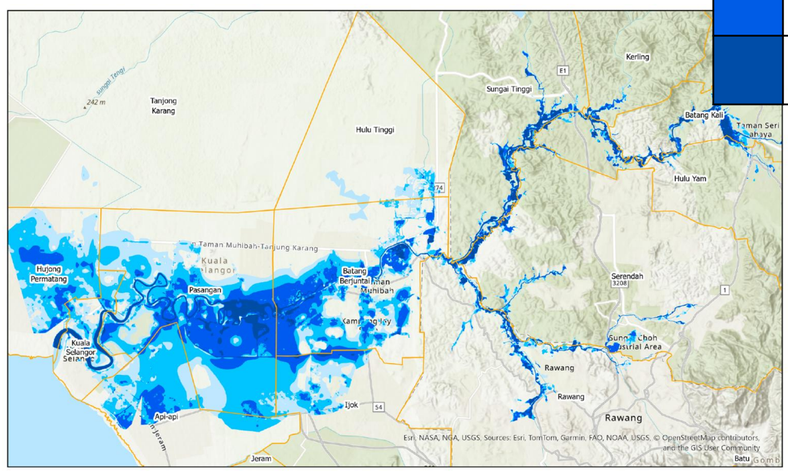
RCP4.5



RCP6.0



RCP8.5



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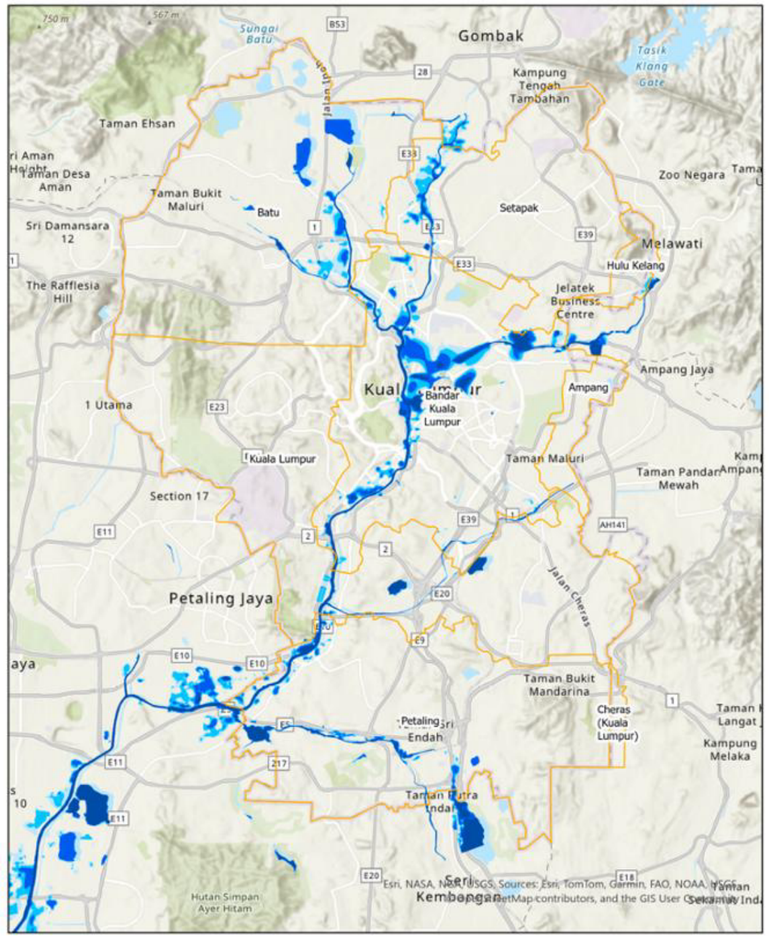
Key finding: *Among the four scenarios, RCP6.0 shows the largest projected extent of inland flooding along the Selangor River.*

Hotspot: Kuala Lumpur

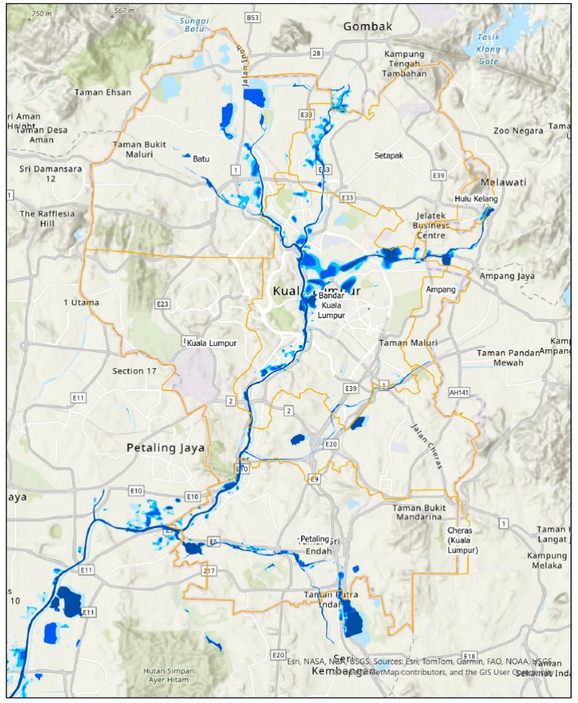
Flood system	Flood mechanism	Assets at risk	Exposed locations
Drainage System & Klang River Basin	Urban flooding caused by river overflow and backflow when heavy rainfall exceeds drainage capacity	Commercial districts: business premises and public facilities Underground infrastructure: car parks, stations and LRT/MRT lines Major roads: access disruption and severe traffic congestion	Kuala Lumpur, Petaling Jaya and low-lying areas along the Klang River

RCP6.0

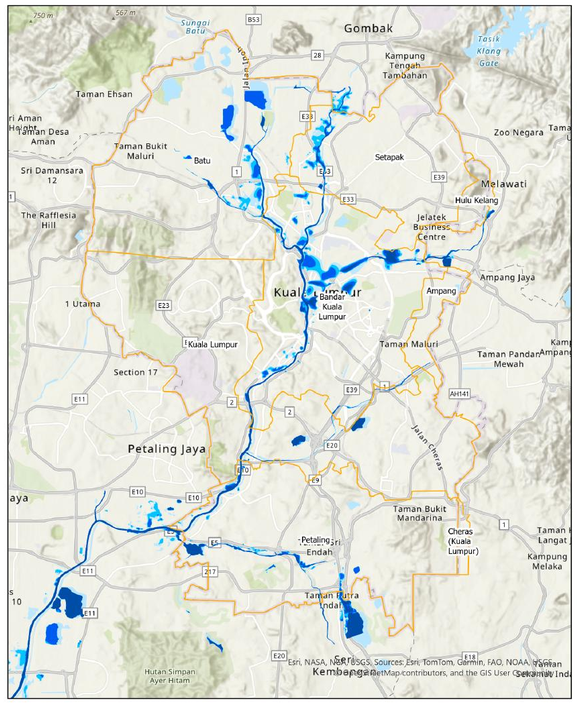


Hotspot: Kuala Lumpur (Klang River)

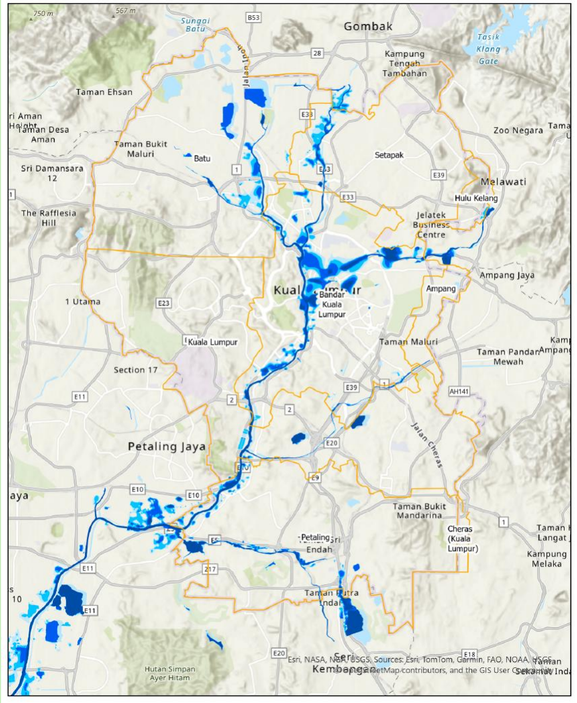
RCP2.6



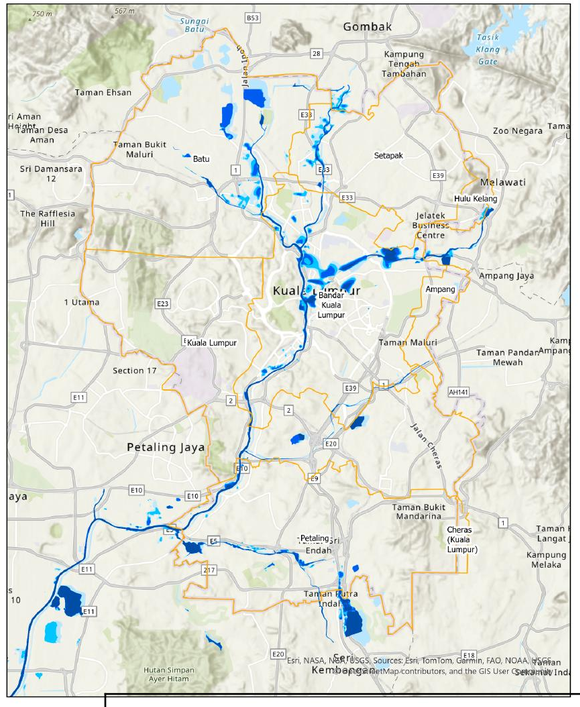
RCP4.5



RCP6.0



RCP8.5



Flood Depth	
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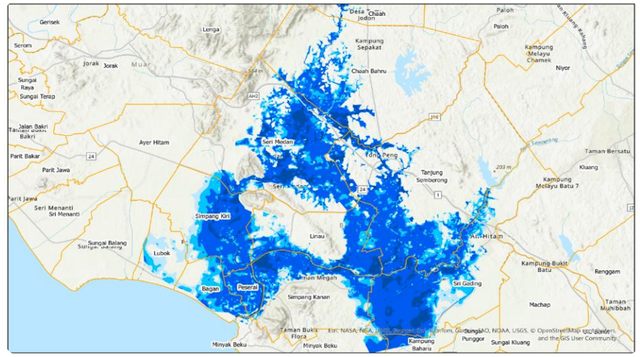
Key finding:

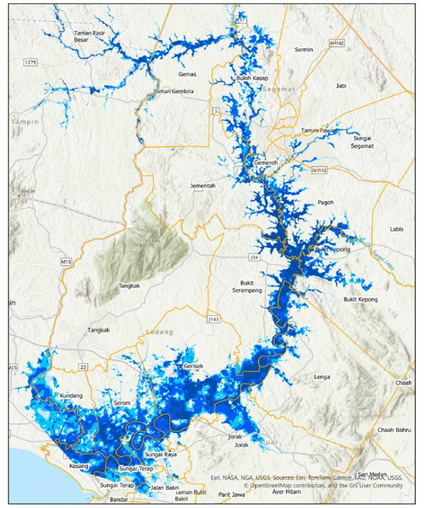
Among the four scenarios, RCP6.0 shows the largest projected extent of inland flooding along the Klang River.

Hotspot: Johor

River basin	Flood mechanism	Assets at risk	Exposed locations
Batu Pahat River Basin	Flat terrain restricts gravity drainage, causing widespread ponding floods	Agricultural land and soil, housing and urban infrastructure 	Seri Medan, Yong Peng, Sri Gading, Simpang Kiri, Peserai, Tanjung Semberong and Chaah Bahru
Johor River Basin	River morphology accelerates flood flows, producing high-velocity currents	Bridges, building foundations and water-treatment facilities 	Kota Tinggi, Sungai Tiram and the Upper Johor River
Muar River Basin	Upstream channel bottlenecks restrict flow and increase flood extent	Settlements, commercial property and wider economic assets 	Pagoh, Bukit Kepong, Kundang, Gerisek, Serom and Lenga

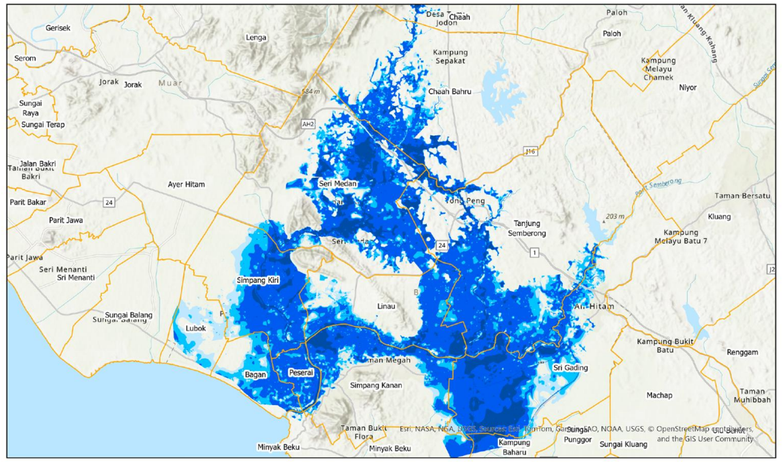
RCP6.0



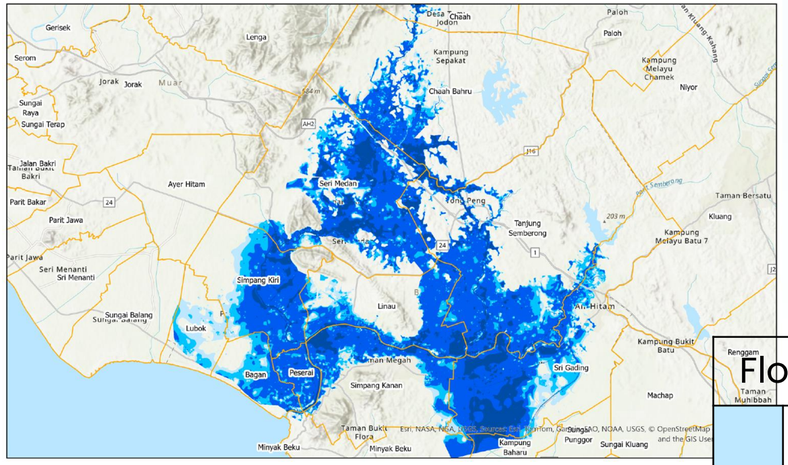


Hotspot: Johor (Batu Pahat River)

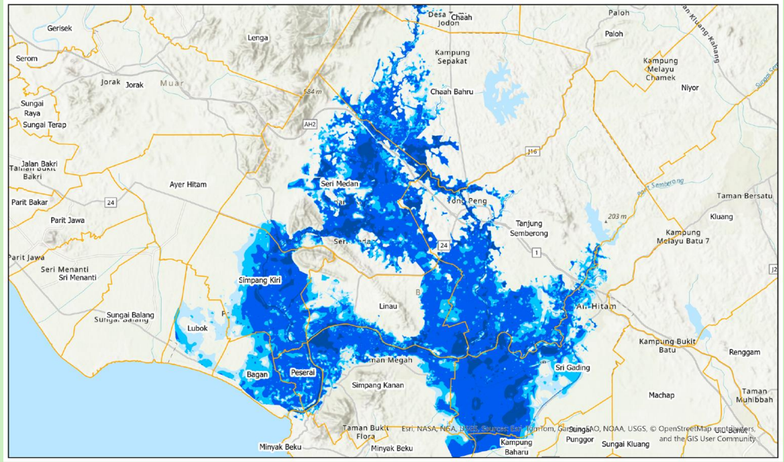
RCP2.6



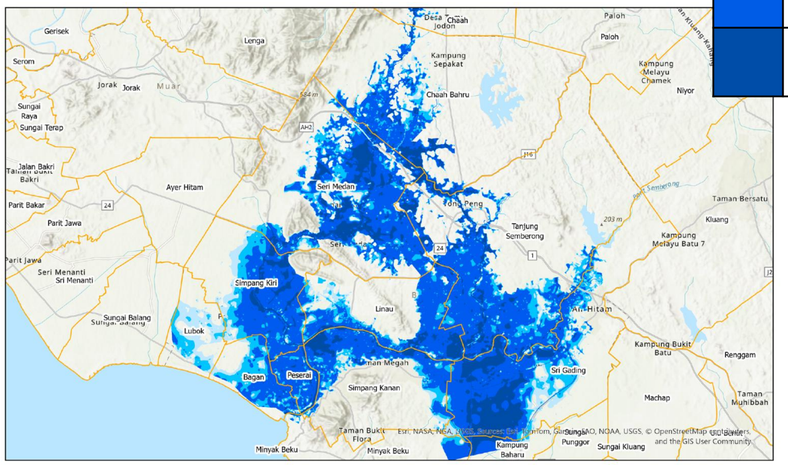
RCP4.5



RCP6.0



RCP8.5



Flood Depth
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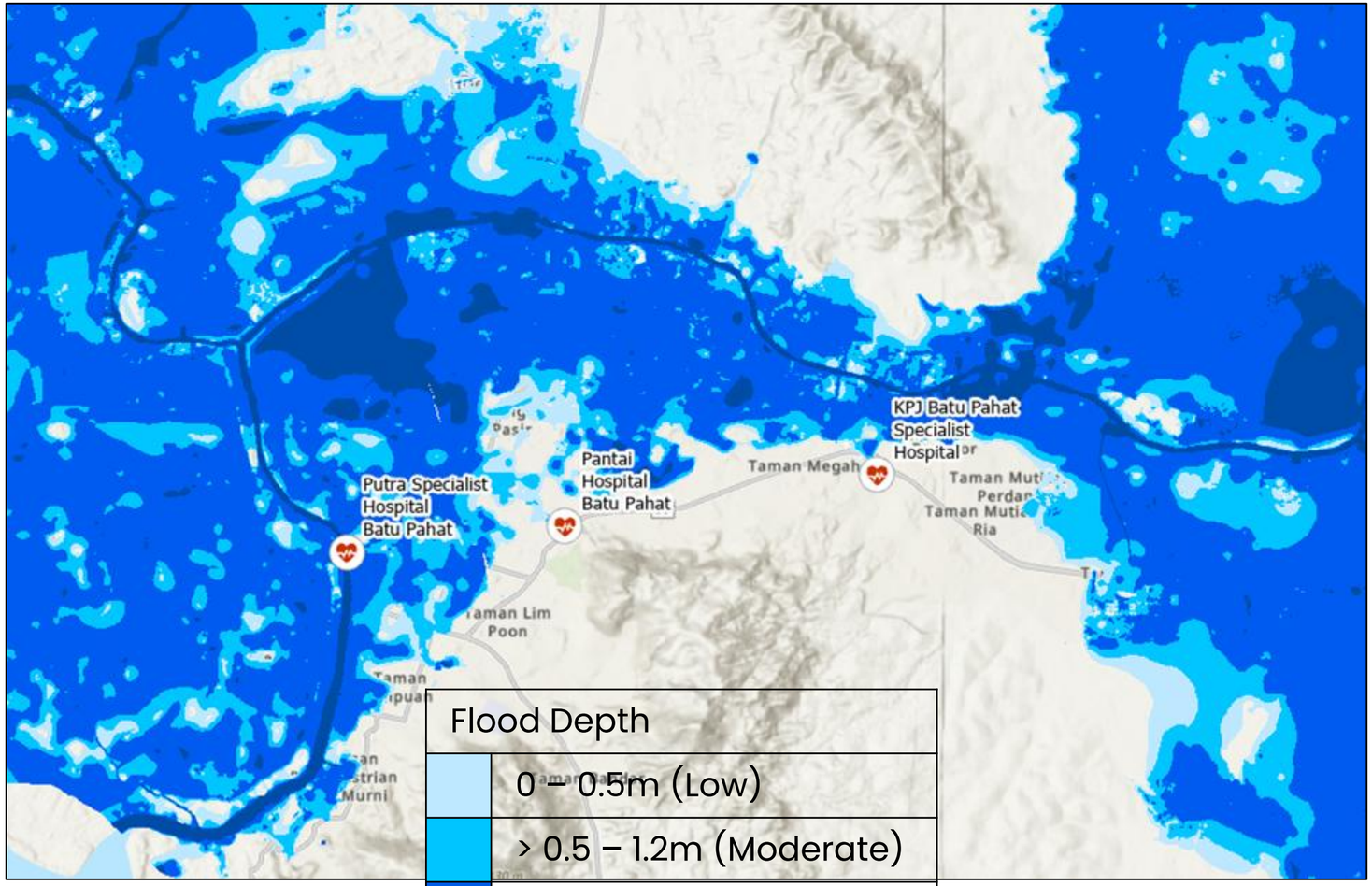
Key finding: *Among the four scenarios, RCP6.0 shows the largest projected extent of inland flooding along the Batu Pahat River.*

Case Study: Healthcare Facilities Exposed to Projected Flooding in Batu Pahat

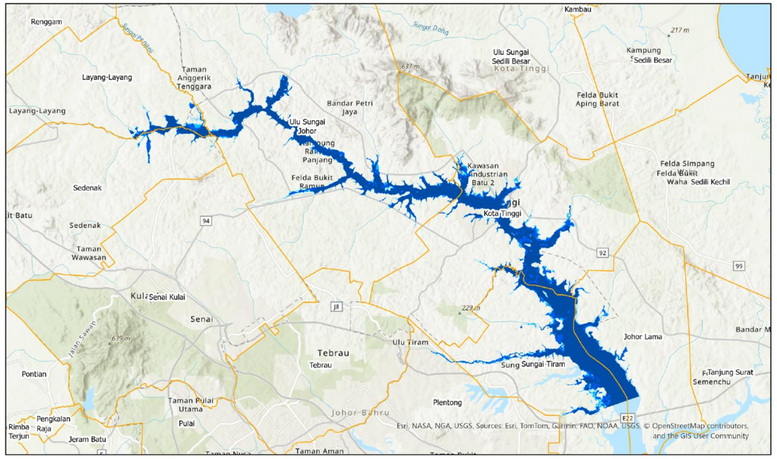


Healthcare Facility	District	Projected Exposure Level	Flood Depth
Putra Specialist Hospital Batu Pahat	Batu Pahat	High	1.71 m
Pantai Hospital Batu Pahat	Batu Pahat	Low	0.07 m
KPJ Batu Pahat Specialist Hospital	Batu Pahat	Low	0.05 m

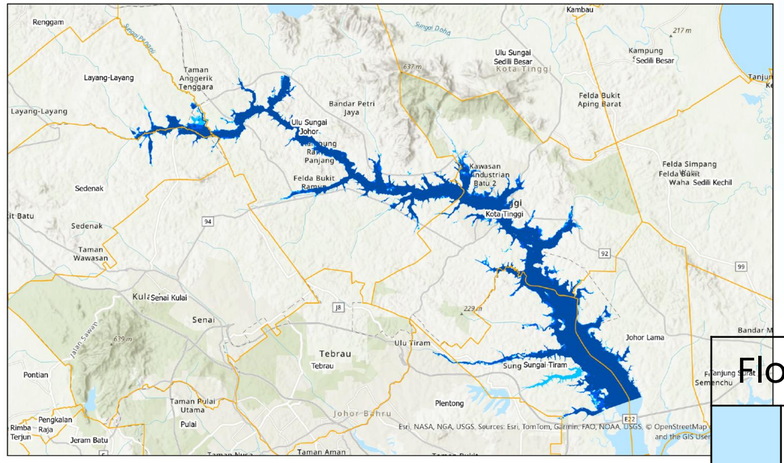
Projected inland flooding under the RCP 6.0 scenario

Hotspot: Johor (Johor River)

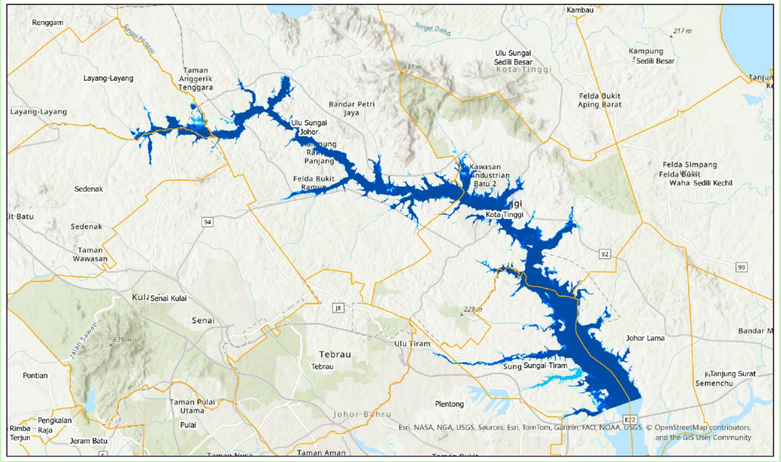
RCP2.6



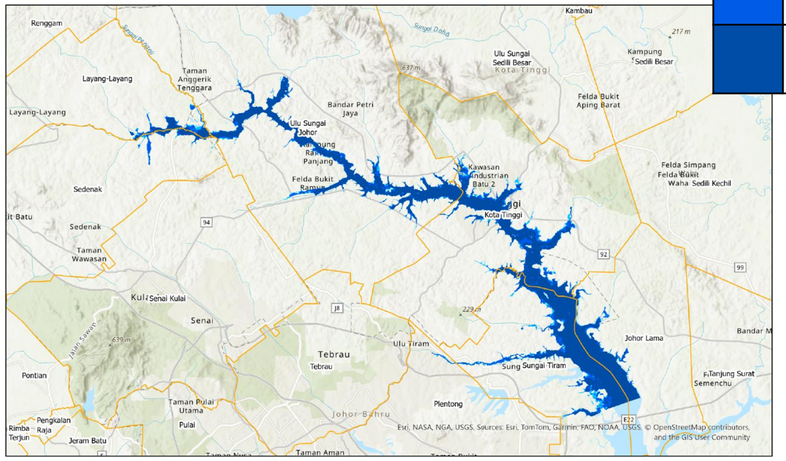
RCP4.5



RCP6.0



RCP8.5



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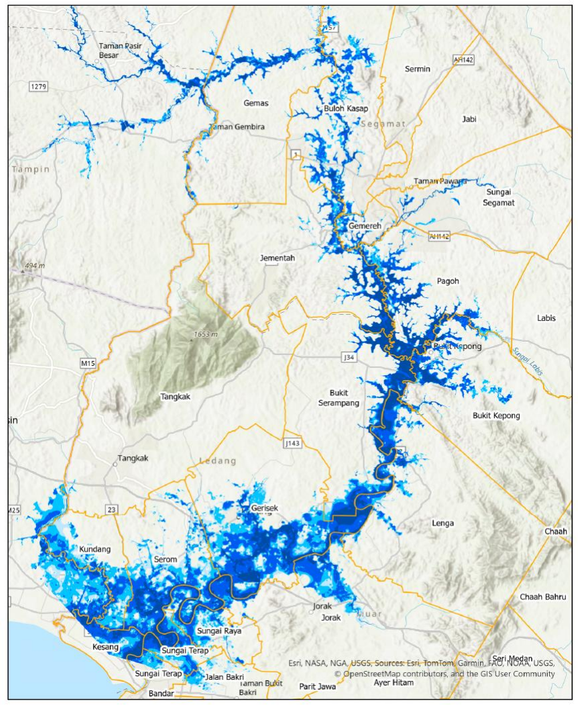
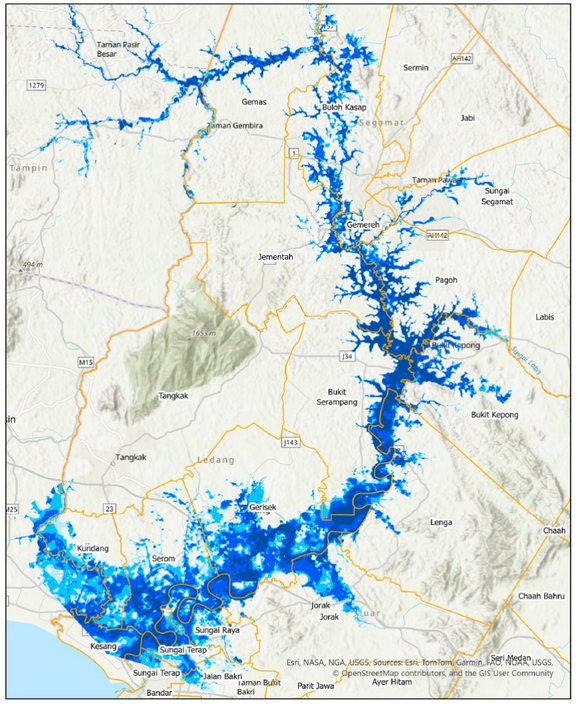
Key finding: *Among the four scenarios, RCP6.0 shows the largest projected extent of inland flooding along the Johor River.*

Hotspot: Johor (Muar River)

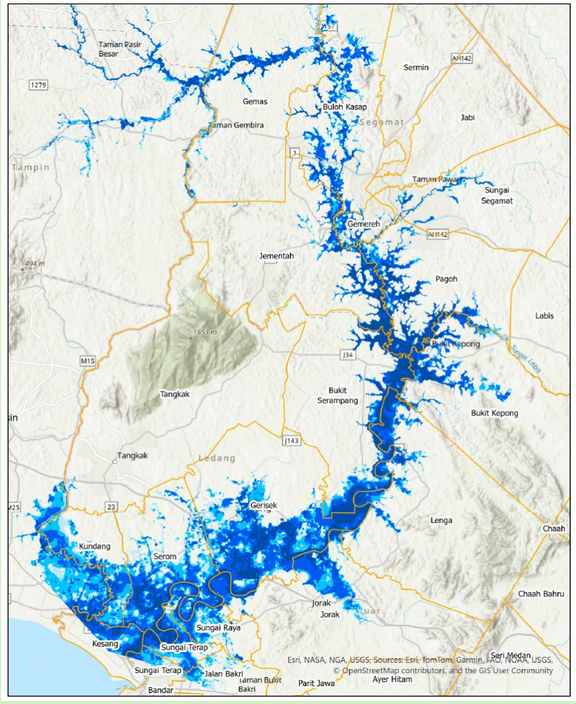
RCP2.6



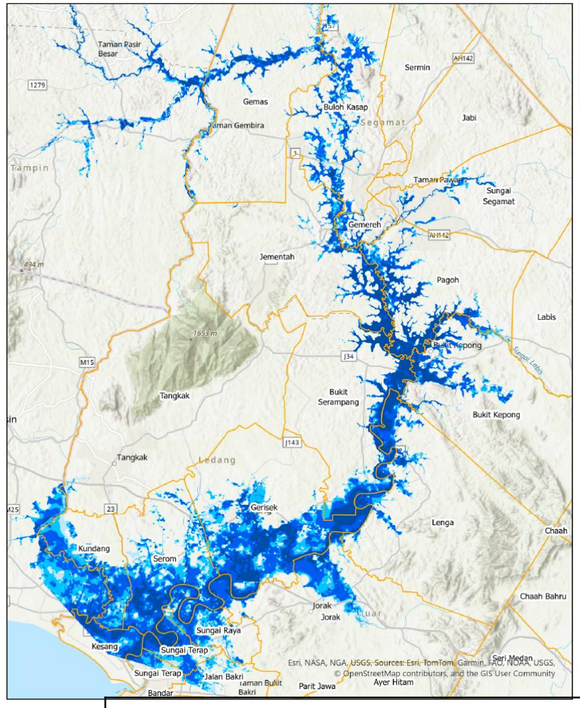
RCP4.5



RCP6.0



RCP8.5



Flood Depth	
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Key finding:

Among the four scenarios, RCP6.0 shows the largest projected extent of inland flooding along the Muar River

COASTAL FLOODING

Key Findings & Trends

RCP

8.5

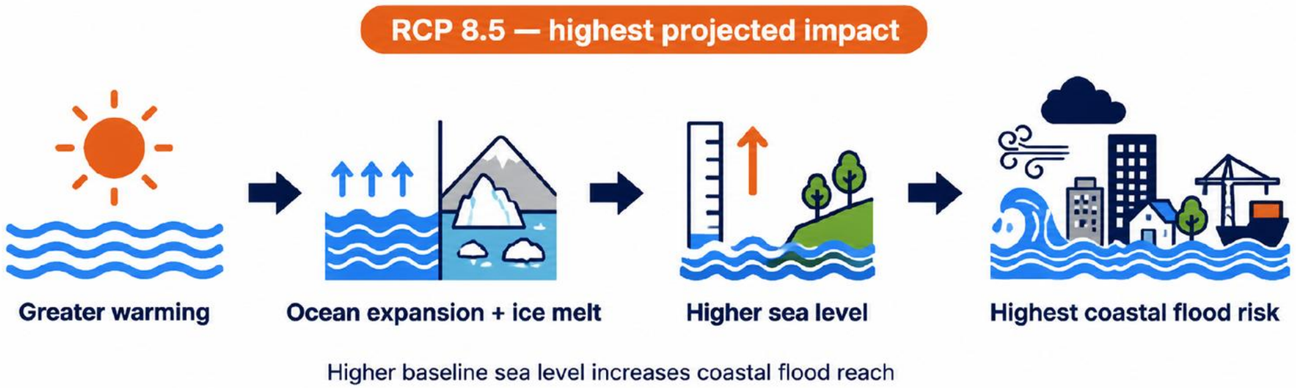
Highest Projected Risk for Coastal Flooding

Why Is RCP 8.5 Worse For Coastal Flooding?

Greater warming expands seawater and accelerates land-ice loss, raising mean sea level. This allows tides and storm surges to reach farther inland— increasing flood depth, extent and damage.

Projected Sea-Level Rise, 2030–2100

- RCP 8.5 produces **greater coastal flood exposure** across 2030, 2050 and 2100.
- Rising sea levels expand flood-prone areas across key economic zones in Selangor and Johor.



Selangor: Flood-risk Map & Exposed Areas

(Total Size Area – 8,104 km²)

2030 (RCP 8.5)
1,150 km²
14.2% of Selangor

2050 (RCP 8.5)
1,225 km²
15.1% of Selangor

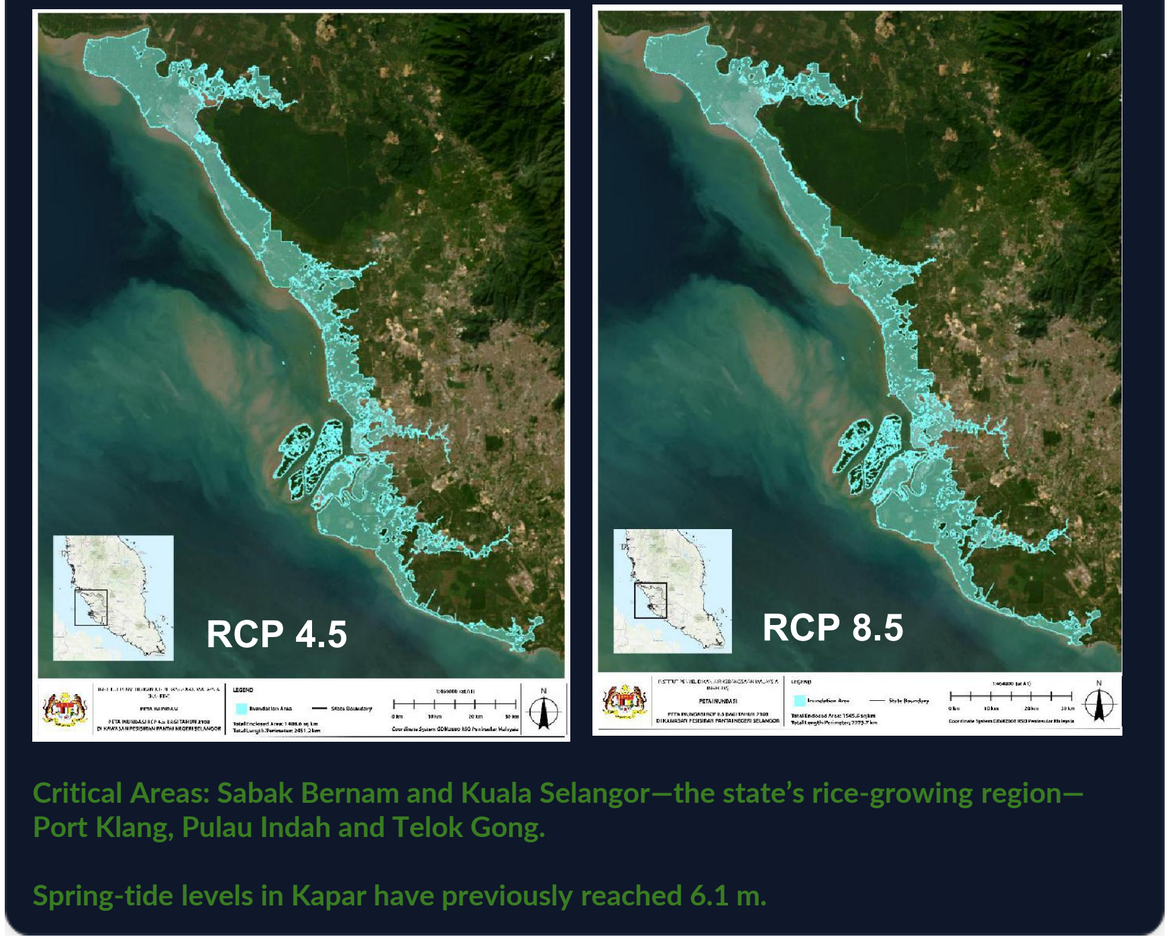
2100 (RCP 8.5)
1,546 km²
19.1% of Selangor

Projection Year	RCP 4.5 (km²)	RCP 8.5 (km²)	Difference (km²)
2030	1,143.60	1,150.30	+ 6.70
2050	1,206.40	1,225.20	+ 18.80
2100	**1,408.60**	**1,545.60**	**+ 137.00**

Accelerating Coastal Flood Risk

The increase in exposed area from 2050 to 2100 (320.4 km²) is 4.3 times greater than the increase from 2030 to 2050 (74.9 km²)

Selangor Coastal Inundation Map

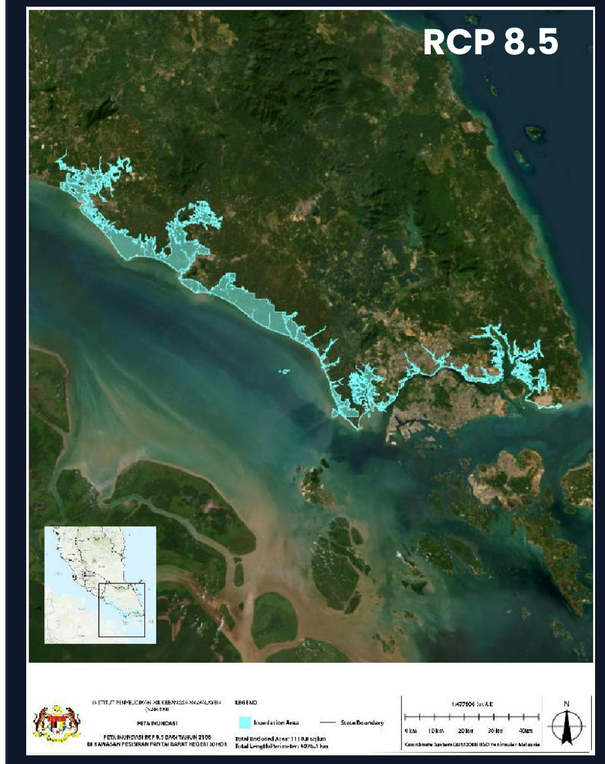


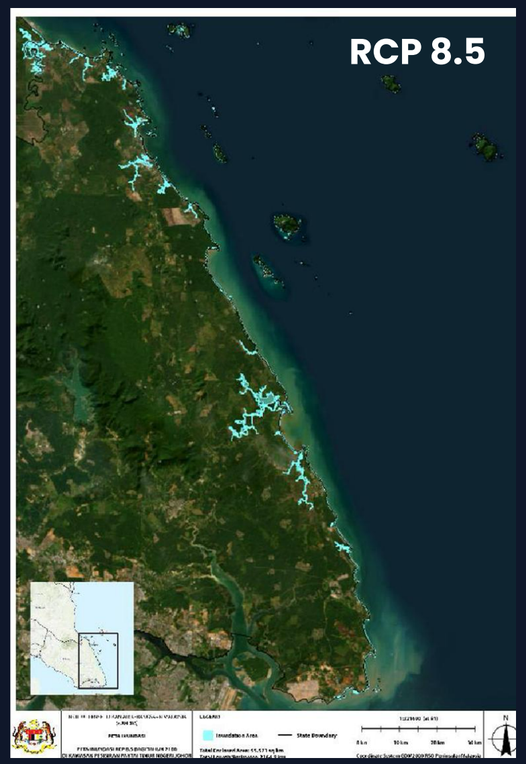
Critical Areas: Sabak Bernam and Kuala Selangor—the state's rice-growing region—Port Klang, Pulau Indah and Telok Gong.

Spring-tide levels in Kapar have previously reached 6.1 m.

Johor: Flood-risk Map & Exposed Areas

JOHOR COASTAL INUNDATION MAP
West, South and East Coasts





CRITICAL AREAS:
West Coast: Batu Pahat and Pontian—characterised by flat terrain and soft-clay soils.
East Coast: Mersing and Kota Tinggi—exposed to storm surges and waves exceeding 1.8 m.

JOHOR'S WEST AND SOUTH COASTS (Strait of Malacca / Tebrau Strait)

Year	RCP 4.5 (km²)	RCP 8.5 (km²)	Difference (km²)
2030	823.34	823.34	0.00 km²
2050	843.61	881.26	+ 37.65 km²
2100	**998.87**	**1,110.80**	**+ 111.93 km²**

JOHOR'S EAST COAST (South China Sea)

Year	RCP 4.5 (km²)	RCP 8.5 (km²)	Difference (km²)
2030	23.88	23.88	0.00 km²
2050	27.04	28.02	+ 0.98 km²
2100	**40.44**	**55.60**	**+ 15.16 km²**

REGIONAL IMPACT & VULNERABILITY ANALYSIS

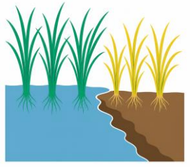
Agriculture

Sabak Bernam & Sekinchan

Saltwater intrusion could damage soil structure and threaten Selangor's principal rice-growing areas.

Batu Pahat & Pontian

A projected 1 m rise in sea level could result in the complete loss of vulnerable coastal areas in Batu Pahat.



Ports & Economic Hubs

Port Klang & Pulau Indah

Estimated losses could reach RM1.4 billion due to infrastructure damage and logistics disruption.

Johor–Singapore Special Economic Zone & Sungai Pulai

Rising sea levels threaten critical infrastructure within the Johor–Singapore Special Economic Zone.

Storm Surge

Mersing & Kota Tinggi

Northeast Monsoon winds can generate waves and storm surges exceeding 1.8 m.

Compound Flooding

Heavy upstream rainfall coinciding with spring tides can create severe backwater effects.

From Findings to Action

Using the report as a climate physical-risk assessment layer

SCREEN

Geocode assets, branches, warehouses, data centres and suppliers by district.

MAP

Overlay rainfall with river and coastal flooding, drainage, elevation, land use and critical assets.

MEASURE

Estimate damage, downtime, lost revenue, insurance, adaptation CAPEX and supply-chain impacts.

ACT

Set mitigation measures, BCPs, operational relocation, asset protection and monitoring triggers.

REPORT

Disclose material locations, time horizons, scenarios, assumptions, data gaps and adaptation progress.

15 Corporate Adaptation Recommendations

How NAHRIM Helps Corporations

Summary Infographic: NAHRIM for Corporate Flood Risk Adaptation

Overview of corporate needs, NAHRIM's role and strategic value for more resilient and better-informed adaptation decisions.

1. Corporate Needs

- Identify critical assets at highest flood risk
- Assess the value of new or existing site locations
- Prepare IFRS S2 / NSRF reporting
- Budget financial impact
- Develop business continuity plan
- Assess insurance value & long-term adaptation protection

2. NAHRIM's Role

- Flood, rainfall & rainfall projection mapping
- Flood risk analysis (current and future)
- Physical climate risk assessment
- Integrate hazards + corporate asset values
- Flood and extreme rainfall scenarios
- Rainfall change projections & hydroclimate risk

3. Strategic Value to Corporate

- Rank critical assets
- Reduce risk to stranded assets
- More evidence-based resilience decisions
- Optimize loss, OPEX & CAPEX for adaptation
- Better preparedness & faster recovery
- Support premium decisions, deductibles & adaptation roadmap for 5–10 years

4. Supported Adaptation Outcomes

- More resilient decisions under higher risk conditions
- More reliable climate reporting
- More structured adaptation planning
- More robust flood risk governance

> *"NAHRIM helps corporations move from uncertainty about flood risk to evidence-based, resilient and strategically valuable adaptation."*

ADAPTATION FOCUS

Risk Screening | Protection Planning | Operational Strengthening | Adaptation Implementation

“Climate scenario analysis is not about predicting which future will happen. It is about testing whether today's decisions remain robust under different plausible futures.”

TERIMA KASIH

National Water Research Institute Malaysia (NAHRIM)

INSTITUT PENYELIDIKAN AIR KEBANGSAAN MALAYSIA
KEMENTERIAN PERALIHAN TENAGA DAN TRANSFORMASI AIR

NAHRIM
INSTITUT PENYELIDIKAN AIR KEBANGSAAN MALAYSIA

REPORTING TO RESILIENCE (R2R) FORUM

Wednesday, 12 August 2026
2:00pm - 5:00pm
Securities Commission Malaysia

Wifi: Event@SC
Password: SC@50490

Advisory Committee on Sustainability Reporting (ACSR)

Understanding Climate Scenario Analysis

Farhana Jabir

Director, Sustainability & Climate Change, PwC Malaysia

Session 3: Understanding Climate Scenario Analysis

Presentation by **Farhana Jabir, PwC Malaysia**
August 2026

IFRS Sustainability Disclosure Standards requires reporters to conduct scenario analysis to evaluate its resilience to climate-related risks

IFRS S2[1] requires entities to use scenario analysis to assess resilience to climate-related risks, including:

- an assessment of climate resilience as at the reporting date; and
- the basis of that assessment, i.e., how and when the climate-related scenario analysis was carried out.

What is a climate scenario analysis?

A stress testing technique to **identify and assess the potential implications** of a range of events on a company's financial resilience

Objectives of a scenario analysis

1. To define a **range of climate-related scenarios** for both **short- and long-term horizons**
2. To help **identify the information needed** to assess and price climate-related risks and opportunities
3. To enable organisations to **examine business resilience** to climate-related risks

How does climate scenario analysis help in analysing risks and opportunities?

1. **Inform decision making for strategic planning and/ or enterprise risk management processes**

   Considering the material climate risks and opportunities that the entity is exposed to and taking necessary action steps to manage them

2. **Improve disclosures through documentation**

   Keeping stakeholders informed on how the entity builds climate resilience and tracking progress towards decarbonisation in light of these climate risks and opportunities

[1] International Sustainability Standards Board (ISSB), *IFRS S2: Climate-related Disclosures* (London: ISSB, 2023), para. 22, 11-12, https://www.ifrs.org/content/dam/ifrs/publications/pdf-standards-issb/english/2023/issued/part-a/issb-2023-a-ifrs-s2-climate-related-disclosures.pdf?bypass=on.

Scenario analysis does not predict the future; rather, it explores a range of possible outcomes based on selected climate scenarios.

Whilst there are no prescribed scenarios and approach to scenario analysis from the IFRS S2, guidance has been provided to steer companies based on academics and leading companies who have examined climate risks for many years.

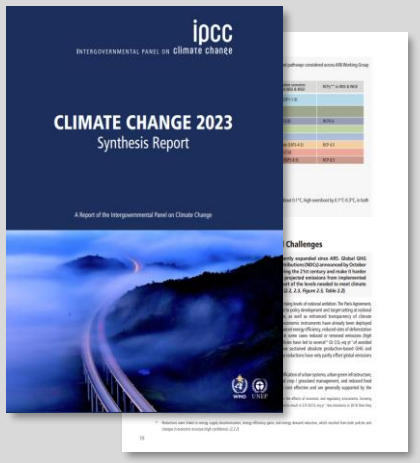
Key considerations for climate scenario analysis:

- ✓ To **select multiple scenarios**, covering a variety of future outcomes, both favourable and unfavourable ones.
- ✓ To **use a 2°C or lower scenario**, and additionally use two or three other scenarios most relevant to your circumstances
- ✓ To **challenge organisations' thinking about traditional planning horizons**, which are often too short. Choosing a time horizon is a trade-off between too short, where climate-related impacts have not developed sufficiently, and too long, where climate-related impacts are too uncertain.

A scenario describes different possible future worlds …

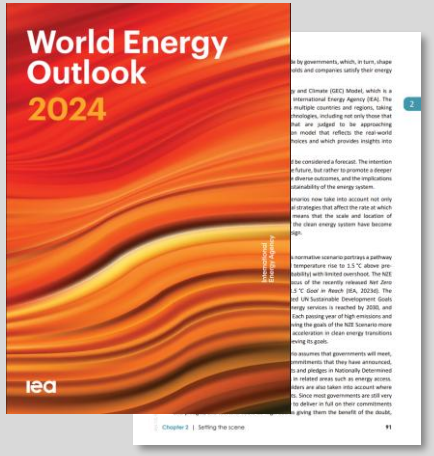
Scenario analyses **do not provide projections or probabilities**, but **plausible outcomes** based on the chosen climate scenarios.	Scenarios help answer: *"What would be the potential **implications for our strategy** if the future described in a scenario came to pass".*	The number of scenarios should be **sufficiently diverse** to create challenging "what-if" analyses and capture a wide range of insights about uncertain futures.

There are three (3) widely used sources of guidance for climate scenario analysis that reflect a science-based and holistic approach



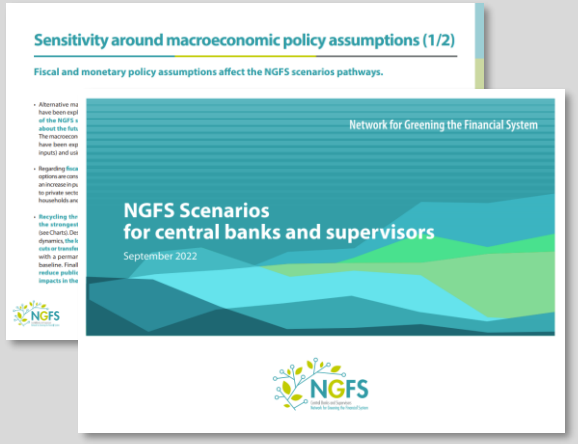
Intergovernmental Panel on Climate Change (IPCC)'s Assessment Report (AR5/AR6)

- Scientific and academic perspectives to inform **policymakers** with summary across all scientific assessments on climate change, implications and potential future risks, and the potential adaptation and mitigation options.



International Energy Agency (IEA)'s Global Energy and Climate (GEC) Model

- **Energy system** perspective to describe low carbon scenarios ranging from a baseline where announced policies are implemented to net zero scenarios.



Network for Greening the Financial System (NGFS)'s Scenarios for central banks and supervisors

- Convened by a group of 91 **central banks and supervisors** and delivered by an academic consortium to describe scenarios to inform risk management in the financial system, with relevance for the private sector

Reporters may use IPCC, IEA and NGFS scenario datasets to inform broader climate scenario analysis, while using NAHRIM's report as an input for flood exposure assessment.

Practitioners are facing the following challenges in performing climate scenario analysis

Climate data is complex, our knowledge in climate bridges that gap

Public data is available; however, it is difficult to identify if the source is relevant without a background in academia

- The Advisory Committee on Sustainabiliyt Reporting (ACSR) has provided sources for climate related data; however, the list is not complete to support a full climate scenario analysis (e.g. climate and marco-economic variables)

NSRF Listed Sources	Applicable to CSA
Aqueduct Water Risk Atlas	✓
Climate Impacts Explorer	—
JC3 Climate Data Catalogue	✓
Climate Change Knowledge Portal (World Bank)	—
Global Resilience Index (GRI) Risk Viewer	✓

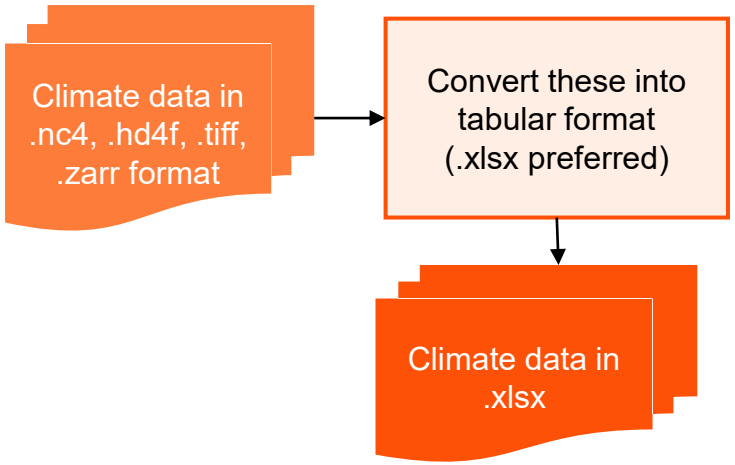
Source: NSRF Tools and Data Resources

✓ Applicable — Not Applicable

Raw climate data is not readable, translating Into readable format provides actionable insights

Climate data is mainly used by scientists and academia; without extensive knowledge it is difficult to understand and identify the risk presented.

- Data is not in a format that is easy to understand
- Technical knowledge is required to extract and covert these data
- Currently performed by sustainability firms and sold at premium and/or subscription, together with climate simulation



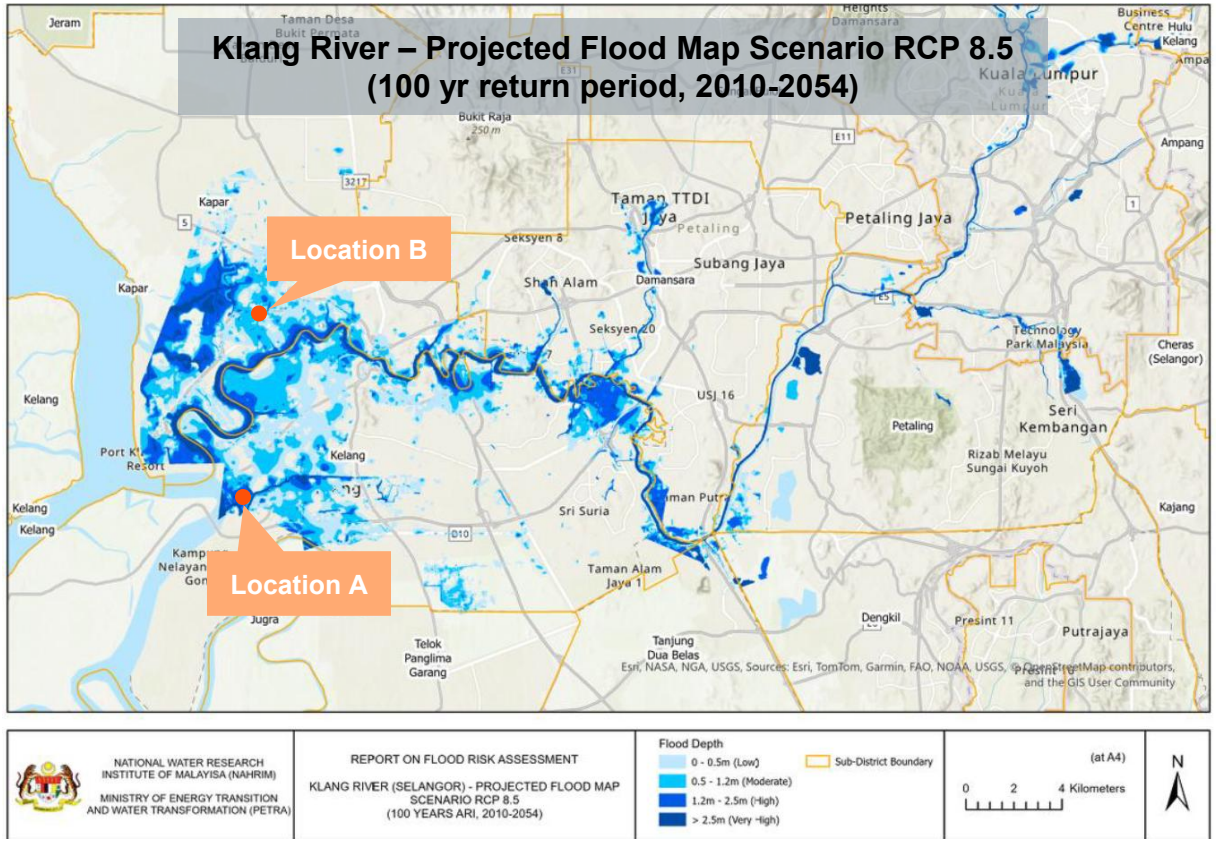
Climate data shows hazards, IFRS requires impact quantification

Our current observations on pain points from Group 1 and 2 CSA quantification process:

- Majority of climate data is presented by hazards with no linkages to business risk e.g. flood at 0.5 metres at a location.
- Current business continuity plans are based on historical data rather than forward looking
- There are no methodology set on how to analyse these hazards based on organisation's risk appetite
- No formalised linkages of these hazards to enterprise risk management (gross risk, controls (mitigation), net risk)

How can reporters use NAHRIM's flood report for IFRS S2 disclosures?

Climate exposure and resilience can be assessed by overlaying asset / facility locations against NAHRIM's reported flood zones and interpreting the corresponding flood thresholds.



Example Location A:
Warehouse located at Telok Gong Port Klang (2.98, 101.40)

1.2m – 2.5m (High)

Example Location B:
Residential location at Taman Sri Rantau (3.05, 101.40)

0.5 – 1.2m (Moderate)

1. **Overlay asset locations with NAHRIM flood maps** to determine flood exposure.
2. **Apply NAHRIM flood depth classifications** to identify assets exposed to high flood risk (e.g., 1.2m – 2.5m flood depth).
3. **Engage management and operational teams** to assess whether existing controls and mitigation measures reduce the potential impact on exposed assets.
4. **Identify assets that remain materially vulnerable** and incorporate the findings into climate risk and resilience disclosures under IFRS S2.

Note: Flood values provided by NAHRIM are "Gross" values without considering existing mitigation and adaptation actions

Illustrative disclosure: Flood risk quantification

Metric	Methodology to calculate metric	2025	Targets		
			Short term (2026)	Medium term (2027-2031)	Long term (beyond 2031)
Own Operations					
Percentage (%) of branches in flood-prone locations[1]	Number of branches located in flood-prone locations[1] / total branches as at the end of the reporting period	6%	< 5%		

Source: National Sustainability Reporting Framework (NSRF) Guidance Document for Financial Institutions (FIs) Banking Sector

For assets or locations identified as high climate risk, reporters should conduct a high-level impact assessment after evaluating feasible mitigation measures

Illustrative example for the Plantation Industry:

	Change in risk exposure	✖	As-is impacts of climate risk or opportunity	−	Impact and cost of mitigation actions	=	Projected net impact
Description	Under each scenario, the projected change in risk profile for each asset / business unit at each time frame (e.g. 2030)		Business impacts experienced and mitigation actions identified at each asset / BU as captured in the P&L				Under each scenario, the net impacts of all material climate risks at each time frame can be integrated into your processes: • integrate into risk registers (for existing investments) • integrate into investment committee decisions (for new investments) • integrate into assumptions / scenarios for business planning and budgets
Data Source	Third party scenario data providers e.g. IPCC, IEA		Internal financial information e.g. Fixed Asset Registers, long-term business plan				
Example	Projected change in general / river flooding risks and storm intensity (e.g. near normal / 1x increase / 2x increase)		Asset/BU-level questionnaire to include, e.g.: • **Operational Impact**: Average yield loss (MT FFB) per day of flood-related disruption. • **Financial Impact**: Historical flood-related repair costs (RM per event) for bund restoration, road repairs, machinery hire, and drain desilting. • **Mitigation & Adaptation**: Cost/budget of planned flood defences (e.g., bund construction, mangrove planting, flood pumps). • **Supply Chain & Logistics**: Impact on raw material delivery (e.g., Port Klang access disruption), alternative routes and cost implications.				

Leveraging NAHRIM report as a foundation for IFRS S2 Climate Risk Assessment

IFRS S2 requires climate risk assessment across locations, applicable perils, defined time horizons and climate scenarios; external climate data offers a strong preliminary foundation. Where risks are assessed as material, additional data may be required.

Five (5) key considerations to note:

	1 Geographic scope	2 Range of perils	3 Time horizon scope	4 Usage of AR5	5 Scenario range
IFRS S2 disclosure requirements	***S2.13(b)*** entities to disclose where climate risks are geographically concentrated across their operations	***S2.22(b)(i)(3)*** entities to assess resilience against climate physical risk *(note that this may include additional perils)*[1]	***S2.10(c)-(d)*** & ***S2.22(b)(i)(6)*** entities to specify and disclose the time horizons used in their analysis	***S2.22(b)(i)(4)*** entities to disclose whether their scenarios are aligned with the latest international climate agreement	***S2.22(b)(i)(2)*** entities to disclose a diverse range of climate-related scenarios to test resilience across plausible futures
NAHRIM report scope	Current coverage areas: • Selangor, • Kuala Lumpur, and • Johor	Assesses flooding only; other Malaysia-relevant hazards (e.g., landslides and heatwaves) can be assessed upon entities' request	Fixed time horizons; • Fluvial: 2010-2054 (period average) • Coastal: 2030, 2050, 2100 snapshot	• Uses AR5 (2014) • AR6 is the latest standard (2021-23)	• Fixed set of scenarios (e.g. coastal only RCP 4.5 & 8.5) • Assessment on other scenarios based on entities' request and expert analysis
Our suggestion	Supplement with other hazard databases for locations outside the 3 covered states	After determining which other perils are relevant, supplement this with other relevant hazard data to build a multi-peril view	Where an entity's time horizon is not aligned with the above, additional analysis or interpolation may be required	Using AR5-based data is acceptable; entities need not obtain AR6 data if doing so involves undue cost or effort.	Where a company requires a scenario beyond the above, supplement with alternative sources offering that scenario

Note: (1) The standard does not refer to 'perils' specifically, nor does it name any specific perils. However, based on our understanding, additional perils such as landslides, heatwaves, and prolonged droughts may materially affect an entity's prospects and should therefore be considered
Source: IFRS S2

In accordance with IFRS S2, our offerings for Climate Scenario Analysis (CSA) supports the quantification of financial impacts and climate resilience assessment

1 Quantification of Financial Impacts

Based on **IFRS S2.15** requirements, an entity shall disclose information that enables users to understand the following:

- **Current financial effects** of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows for the reporting period; and
- **Anticipated financial effects** of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how climate-related risks and opportunities are included in the entity's financial planning

2 Climate Resilience

IFRS S2.29 requires the following disclosure:

- Amount and percentage of assets or business activities vulnerable to climate-related transition risks; and
- Amount and percentage of assets or business activities vulnerable to climate-related physical risks

Three (3) options available for CSA in response to IFRS S2 expectations on climate resilience

Option 1: High-level CSA	Option 2: Intermediate CSA	Option 3: Advanced CSA
High-level CSA quantification conducted at business unit level (i.e. Retail and Property Management Services), leveraging **refreshed impact pathways** and **existing financial data obtained from financial statements and budget**	**Location-based CSA on selected material assets**, with quantitative financial impacts estimated using **existing financial data** and **scenario-adjusted exposure**.	Enhanced CSA incorporating location-based assessment for assets in Option 2, supplemented with **forward-looking excel-based projections of financial impacts** (e.g.,medium- and long-term revenue impacts arising from climate risk)

Note: These options do not include probabilistic catastrophe modelling, insurance stress testing, or valuation-level impairment analysis unless explicitly stated

Contact us

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Thank you

pwc.com

Reporting to Resilience (R2R) Forum
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Q&A Session

Approaches for your Scenario Analysis

Ts. Dr. Mohammad Fikry Abdullah

Research Officer for Water Resources and Climate Change Research Centre, NAHRIM

Farhana Jabir

Director, Sustainability & Climate Change, PwC Malaysia

Scan the QR code to access the Slido

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From Report to Reality: Reflections from the First Reporting Cycle

Elaine Chan

Head, Climate Change & Reporting, SD Guthrie Berhad

Azizul Rahman

Chief Risk and Sustainability Officer, DRB-HICOM Berhad

Luanne Sieh

Chief Sustainability Officer, CIMB Bank

Moderator

Tan Bee Leng

Executive Director, Financial Reporting Foundation & ACSR Member

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