

# ESG Thematic Report

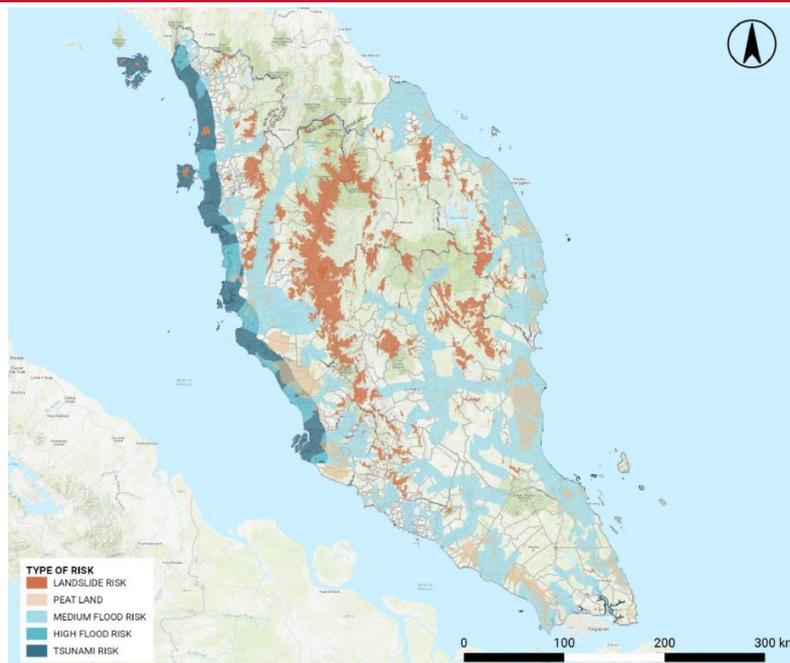
## UrbanMetry: Understanding Floods with Big Data

By Clement Chua / [clement.chua@kenanga.com.my](mailto:clement.chua@kenanga.com.my)

We collaborated with UrbanMetry, a leading data company with extensive expertise in urban and geo-behavioural analytics to better appreciate climate-related issues. With floods the biggest emphasis for Peninsular Malaysia, UrbanMetry shared insights on risks affecting large scale projects i.e. township development, logistics business, and even data centres. Our key takeaway is that although affected zones are usually small and scattered, their socioeconomic impact should not be understated; in this note, we outline flood risks across sectors of financial institutions, property developers, construction, ports and logistics, and also the mitigation measures that have been put in place.

**Data as an invaluable tool for climate-risk management.** From its founding in 2015, UrbanMetry capitalizes on various data points from spatial data, AI-harvested data and public unstructured, fragmented data. After cleaning and restructuring these captured information, UrbanMetry essentially transforms the data to useful information and cohesive imagery on tools such as: (i) time-lapsed mapping of climate risks, (ii) accurate geo-positioning of physical assets (land areas, properties), and (iii) analytics on real estate pricing. This allows UrbanMetry's clients to consider a range of sustainability-related matters i.e. value of new property development projects and financial recoverability of assets in climate-risk sensitive areas; and long-term viability and continuity for developing projects.

### Exhibit 1: UrbanMetry's Climate Physical Risk Map in Peninsular Malaysia

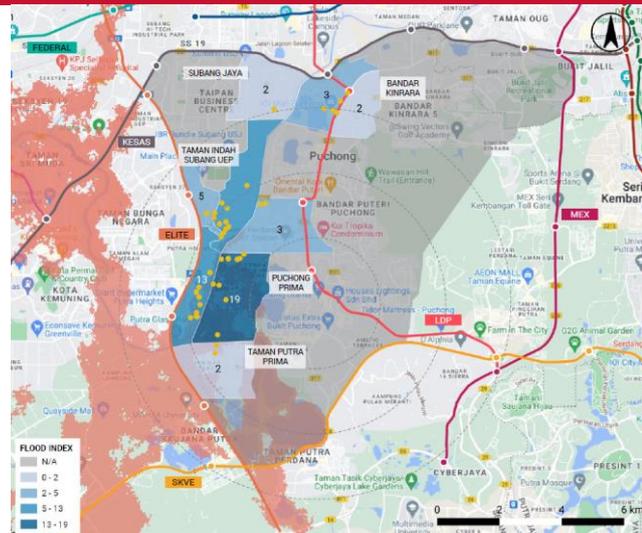


Source: UrbanMetry

**Floods make waves, sink plans.** As highlighted by UrbanMetry, flooding may be the most common climate-related concerns Peninsular Malaysia, most susceptible in the coastal regions of Klang Valley. This is likely to worsen as rising sea levels would only widen flood-prone zones.

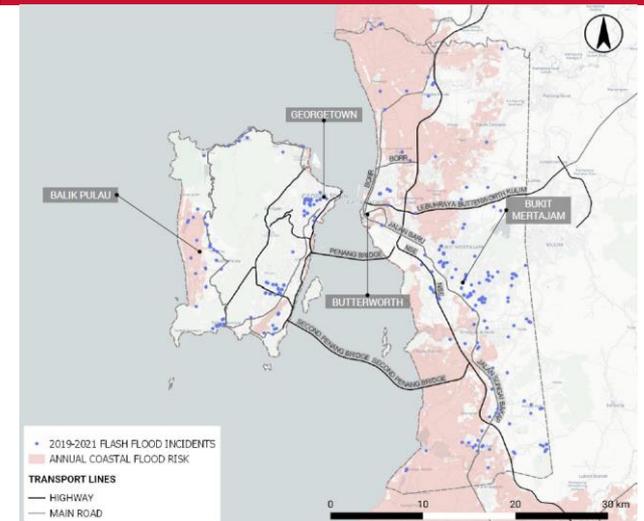
Beyond its environmental and societal implications, floods are also economic disruptors and impact a multitude of sectors. From UrbanMetry's sharing, we dive into several sectors in which climate-risk management may require greater proactive and preventive action from companies operating within them. In this report, we explore this issue with the following sectors: (i) financial institutions, (ii) property developers, (iii) construction and infrastructure projects, and (iv) logistics.

**Exhibit 2: UrbanMetry’s 2030 Projection and Historical Flood Zone Mapping of Klang Valley**



Source: UrbanMetry

**Exhibit 3: UrbanMetry’s Flood Map of Penang**



Source: UrbanMetry

**Not vulnerable, but weak spots such as flood had up to 4.1% impact to GDP.** Malaysia is ranked 49<sup>th</sup> in an index measuring the country’s vulnerability to climate change, based on a University of Notre Dame study. While this is ahead of neighbouring countries, Malaysia has long grappled with exposure to flood related disasters as she ranks 12<sup>th</sup> in terms of frequency of events per a World Bank study in March this year. Thanks to this study as well, done in conjunction with BNM, the economic risk was also quantified - a once-in-20 year flood erases up to 4.1% of GDP in 2030, with also repercussions of a 2.2 percentage points rise in the unemployment rate.

**Impact to corporates looks to us uneven; information from UrbanMetry gives more colour.** The ramifications are wide-ranging, but more alarmingly, uneven. This is considering the projected sea level rise along Peninsular Malaysia, Sarawak and Sabah coastline at year 2100 may be driven 0.25 to 0.52 m, 0.43 to 0.64 m, and 0.67 to 1.07 m, respectively, according to National Water Research Institute of Malaysia. An increase in rainfall is also projected and is expected to be larger in Sabah and Sarawak than in Peninsular, which will have crop yield ramifications in our view. SMEs are particularly vulnerable to floods in Malaysia, with social inequality widening another latent damage. There is far ranging impact to logistics, banks and property companies along the more than 4,000km of coastline that listed companies need pay heed. Data is usually vague and this is where the sharing from UrbanMetry data in this report gives us invaluable insight to what the hotspots are.

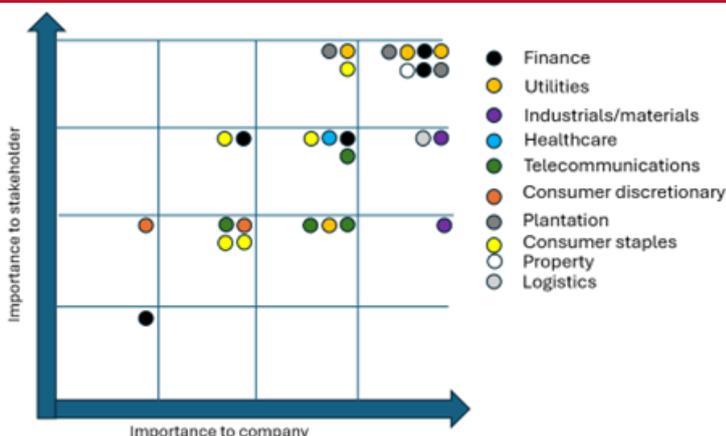
We highlight some of the risk rewards across sectors below, which are also further elaborated in this report.

Sector	Risks	Mitigation
Banks and insurers	<ul style="list-style-type: none"> <li>Lower mortgage repayments</li> <li>Lower collaterals given downshift of house prices</li> </ul>	<ul style="list-style-type: none"> <li>BNM requires stress-testing of all business loans and selected household lending</li> <li>Insurers have disclosures on maximum probable losses</li> </ul>
Property developers	<ul style="list-style-type: none"> <li>Larger concentration of flood prone properties in the &lt;RM500k price range</li> <li>Future depreciation of home prices</li> </ul>	<ul style="list-style-type: none"> <li>Incorporating recreational wetlands/preservation of forests</li> <li>Development of resilient materials</li> <li>Employing flood criteria in land-banking</li> </ul>
Data centers	<ul style="list-style-type: none"> <li>Flooding risk which cause critical downtime</li> </ul>	<ul style="list-style-type: none"> <li>Situated in non-flood prone areas/high elevation (Cyberjaya)</li> </ul>
Port	<ul style="list-style-type: none"> <li>Deck flooding</li> </ul>	<ul style="list-style-type: none"> <li>Climate study and ensuring top deck of port has buffer</li> </ul>
Logistics players	<ul style="list-style-type: none"> <li>Higher cost due to flood disruption</li> </ul>	

**Business practices are quickly evolving alongside climate understanding.** Back in 2022, 50 BURSA companies already reported voluntarily climate data, but more will soon be done as disclosure requirements for TCFD-aligned climate-related financial risk disclosures for Main Market come in force by 2025 and ACE Market listed firms by 2026. Across sectors we are seeing more attention being paid to examining physical asset risks, based on disclosures. This was most evident for companies within the utilities and related space - **TENAGA** conducted such assessment for its power generation assets and substations, while Petronas firms have examined their terminals and stations (**PETDAG**) and operating units (**PCHEM**). Encouraged to see other segments incorporating climate into assessments, property firms, such as **SIMEPROP**, have performed assessment for selected townships, and **SUNWAY** now employs flood criteria when performing new land acquisitions. In telcos, we have seen climate assessments responses such as **CDB** raising the platform of its base stations to pre-empt weather effects (2022).

**Companies themselves seem focused on climate more than stakeholders.** Fortunately, Corporate Malaysia is paying attention. A surprising find canvassing the FBMKLCI companies' materiality matrix – where company and its stakeholders the relative importance of focus including climate change – was that more companies rank climate change as higher on the agenda than by their stakeholders themselves. Per exhibit below, 74% of companies rank climate agenda in the upper half of own scoring while only 63% of stakeholders ranked them as such. The sample is small, granted, but no less encouraging as companies get ahead of the curve. We were also encouraged to see among those in the top quartile (most upper right), they were represented by various sectors and not just traditionally exposed asset-heavy sectors, but banks also (having to pay attention due to BNM regulations), and even property firms.

**Exhibit 4: Mapping of How Climate Issues are Ranked by Company and Stakeholders in Terms of Materiality Matrix Using FBM KLCI Constituents as a Sample**



Source: Company, Kenanga Research

**Financial institutions – Mortgage, asset safety and insurance premiums**

**Spillovers from asset safety woes.** As floodings are mostly tied to damage to real estate (homes and business assets), financial institutions too will directly face ramifications to the health of their balance sheets. Beyond the potential loss of revenue and repair costs from bank branches affected by floods, banks face a higher credit risk from: (i) lower mortgage repayments as flood victims face financial strains in restoring their homes, and (ii) lower recoverable collaterals as property values in flood zone areas become less desirable (refer to our section on property developers).

**Preparing for mitigation.** From its recent publication in Feb 2024, Bank Negara Malaysia released the Climate Risk Stress Testing (CRST) Methodology Paper to improve the identification of climate change risks and to promote new stress testing methods for financial institutions. Quantitative assessments are a key highlight for banks where rising credit losses should be accounted to a reasonable degree. At minimum, banks are expected to measure credit risk of their on-balance sheet and off-balance sheet exposures in the following segments:

1. all business lending (including lending to large corporates and small and medium enterprises), comprising of loans, sukuk and bonds; and
2. selected household lending comprising of loans to purchase residential properties, loans to purchase non-residential properties and hire purchase loan/financing.

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Prudent considerations may take into account indirect geographical exposures as counterparty risks tend to exist as supply chains could be widely spread. As such, it is encouraged for banks to impute wider macroeconomic variables to their credit assessments to encapsulate larger-than-expected exposure to floods (i.e. to account for the likelihood of flash floods in urban areas, riverine floods near rivers). As an extension of disclosures, we note that the Sustainability Accounting Standards Board (SASB) pens the number of mortgages in 100-year flood zones as well as their overall value. Adding to this, insurers are required to disclose the Probable Maximum Loss of its products and its scope of coverage.

### Property developers – Reputation and housing

UrbanMetry found a strong relationship where houses within close proximity to flood zones tend to exhibit lower prices, citing their lower desirability. From distribution shown in Exhibit 5, flood zone houses reflect a heavier price concentration of <RM500k while a large majority of non-flood zone homes range between RM500k-RM800k. This poses an unfavourable situation to prospective buyers seeking affordable homes where they may be priced out of safer homes and are required to compromise safety for residence.

We gathered that all developers within our coverage are cognizant of this issue and have made significant efforts in flood mitigation across their projects, adopting flood risk management strategies, including situating developments away from high-risk flood zones, such as the flood-prone areas of the coastal Klang Valley. By strategically positioning their projects in less vulnerable locations, these developers aim to reduce the risk of flooding and potentially influence property valuations and market demand. Although quantifying the precise impact of these flood mitigation measures on property values and selling prices is challenging, the proactive approach in avoiding flood-affected areas suggests a positive effect on overall risk management and could indirectly enhance market perceptions and property attractiveness.

For most the companies, there are additional potential financial opportunities linked to their flood mitigation strategies. The group is positioned to design and develop properties and materials that are resilient to the anticipated increase in chronic weather effects. Furthermore, they can benefit from acquiring or leasing properties with low or adequately mitigated risks of chronic weather impacts. These strategies not only enhance their flood risk management but also open up new avenues for growth and market differentiation, potentially influencing their competitive edge and financial performance.

We note that **SIMEPROP**, has two projects located near a flood-prone area, Bandar Bukit Raja area. A part of their comprehensive flood mitigation strategy, they have developed 180 acres of recreational wetlands in Bandar Bukit Raja, which help manage and absorb floodwaters. Additionally, **SIMEPROP** has preserved 53 acres of secondary forest, known as KL East Park, in the heart of Kuala Lumpur. This urban biodiversity sanctuary not only enhances local ecological balance but also contributes to flood management by acting as a natural buffer against floodwaters

### Construction and Data centers – Operational continuity and risk mitigation (by Teh Kian Yeong | [tehy@kenanga.com.my](mailto:tehy@kenanga.com.my))

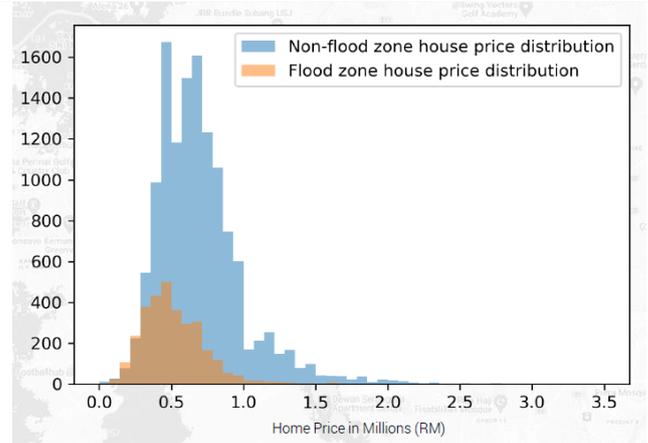
Malaysia is fortunate to be largely free from major natural disasters, with the exception of climate-related events like floods, especially during the monsoon seasons. However, the frequency of flooding has been on the rise in recent years, driven by urbanization, deforestation, and climate change, which intensify the impact of heavy rainfall. In response, the government has allocated RM12b under Budget 2024 for flood mitigation projects to address these issues.

When it comes to natural flood situations, mitigation measures include constructing dams and reservoirs to control water flow during heavy rainfall, and deepening, widening, and straightening river channels to increase their capacity to handle high water volumes. Additionally, proper maintenance of urban drainage systems can significantly reduce the occurrence of flash floods.

A prime example of flood mitigation in the country is the SMART Tunnel in Kuala Lumpur. This dual-purpose tunnel not only diverts excess stormwater during heavy rains but also serves as a road tunnel to alleviate daily traffic congestion.

On the other hand, responsible property and infrastructure developers should ensure a well-planned drainage system and maintain it consistently. For developments in low-lying areas, raising the floor level can also help prevent flooding. In fact, our local authorities have strict guidelines for drainage systems in new developments, which should help reduce the likelihood of flash flooding during heavy rain.

### **Exhibit 5: Relationship between flood-prone areas and house prices in the Klang Valley**

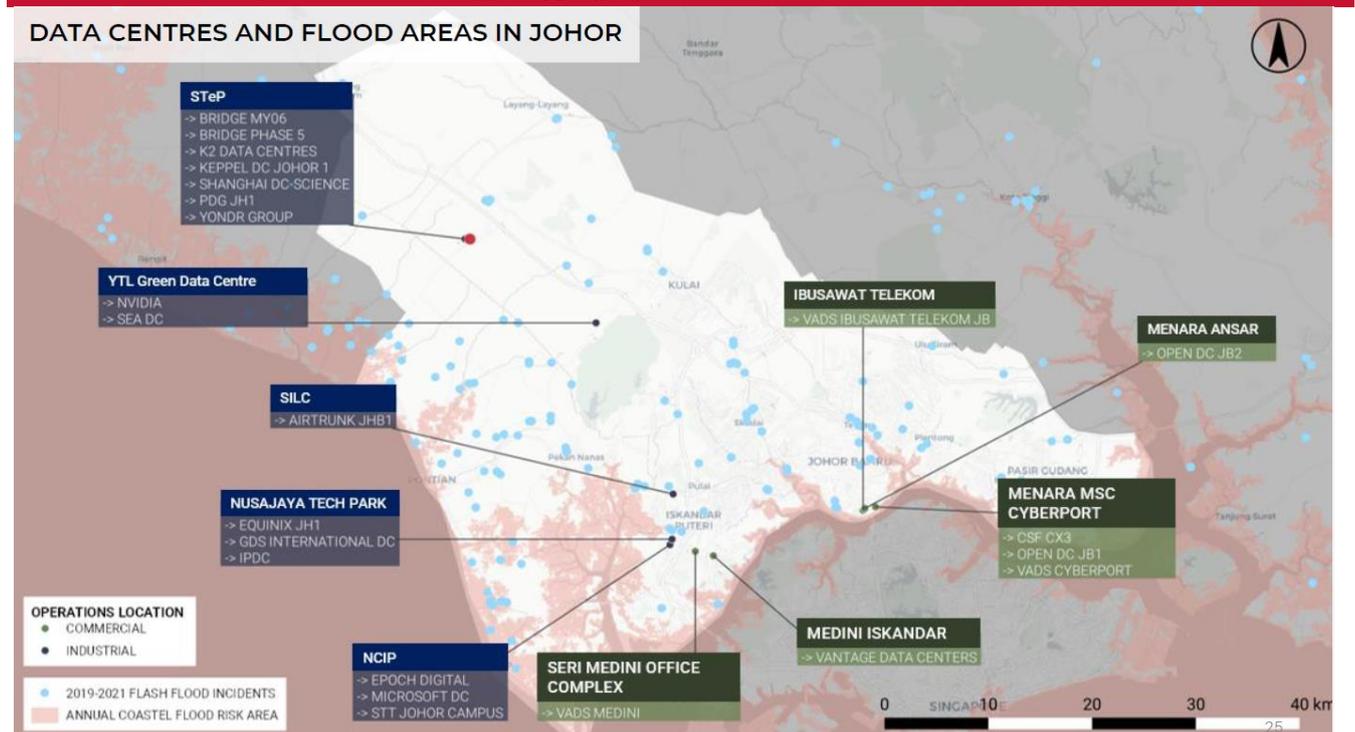


Source: UrbanMetry

Malaysia is now one of the leading locations for data centres development globally. The prime area for this growth is in southern Johor, primarily due to its proximity to Singapore. According to UrbanMetry, these data centres, especially those located in Sedenak, are strategically located in non-flood-prone areas (see Exhibit 6). Similarly, Cyberjaya, another major hub for data centres, is situated at a high elevation and is also free from flood risks. However, developers must still ensure effective drainage systems to prevent any future flooding issues. A key concern for these data centres is the sustainability of water supply, which is also a crucial aspect of their ESG responsibilities.

Under 12MP, a modest allocation of RM30.3m was provided to Johor state to implement various flood mitigation projects. This includes the development of an integrated river basin for the Skudai River and a drainage master plan for the Johor Bahru District. Additionally, RM1.69b was allocated to Selangor for the implementation of five high-priority flood mitigation projects, including efforts to stabilize and strengthen riverbanks, upgrade drainage systems, and address issues related to the high tide phenomenon. These measures are expected to help prevent flooding in data centres located in Southern Johor and Cyberjaya.

**Exhibit 6: UrbanMetry’s Flood and Energy Mapping against Data Centres**



Source: UrbanMetry

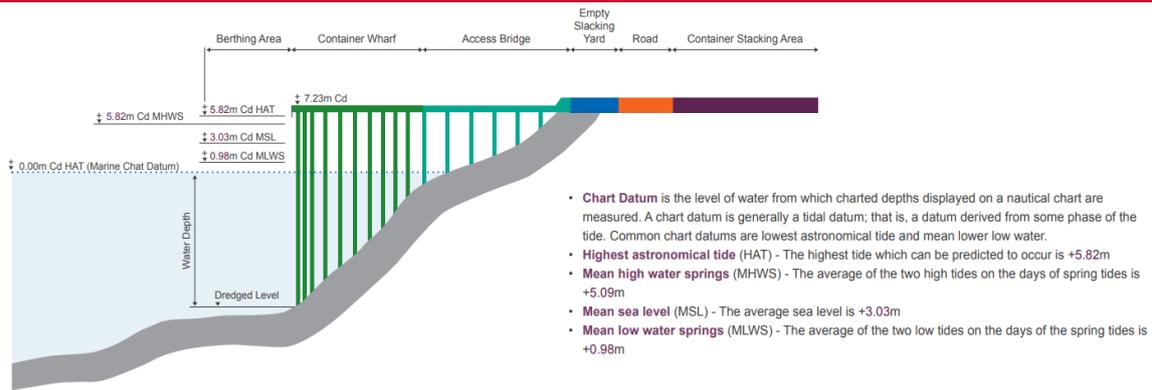
**Logistics – Service and access disruption**

(by Wan Mustaqim Bin Wan Ab Aziz I [wanmustaqim@kenanga.com.my](mailto:wanmustaqim@kenanga.com.my))

As a key listed port operator, **WPRTS** is dedicated to being a green port through environmentally responsible and sustainable operations, utilising equipment automation and digitalisation to mitigate environmental impacts. **WPRTS** commissioned consulting firm DHI Water and Environment in 2021 to conduct a climate risk assessment whereby it reviewed any significant changes every five years.

Based on the existing and future design, **WPRTS** does not expect the projected sea level increase for Peninsular Malaysia to affect **WPRTS**’ operations during the concession period (2024 to 2082). The highest astronomical tide (HAT) stands at +5.82m, whereas **WPRTS**’ top-of-deck level is +7.23m (refer to exhibit 7 and 8). Nevertheless, **WPRTS** is evaluating the need to conduct further studies to assess the potential impact of climate change in the near term compared to IPCC’s projected sea-level change by 2100. Additionally, **WPRTS** commissioned a marine and coastal engineering specialist to study how changes in wave height would affect its future expansion plans. Wave conditions at the proposed berths are unlikely to be too dissimilar to those at the existing berths and unlikely to pose any operational constraints. A breakwater is not deemed necessary.

Exhibit 7: Westport Chart Datum



Source: WPRTS Sustainability Report 2023

Exhibit 8: Westport Climate Change Scenario

Climate Change Scenario	Temperature Projections	Wind Projections
<b>High</b> NorESM1-M/RegCM4 (RCP8.5)	Averaged temperature increase by 1.7-2.1°C	Increment of wind speed of ~0.3 m/s
<b>Medium</b> Averaged from 10 different futures	Averaged temperature increase by 1.6-2.0°C	No change in wind speed in general
<b>Low</b> MPI-ESM-MR/RegCM4 (RCP8.5)	Averaged temperature increase by 1.9-2.7°C	Decrement of averaged wind speed ~0.17 m/s

The high-risk scenario, RCP8.5, projects:

- The water levels will increase between 0.30 and 0.65 meters by 2080
- The soffit of the berth deck slab has a freeboard of 0.80 meters above the current (Highest Astronomical Tide) HAT water level
- There is still an air gap before the water levels inundate the soffit.

Source: WPRTS Sustainability Report 2023

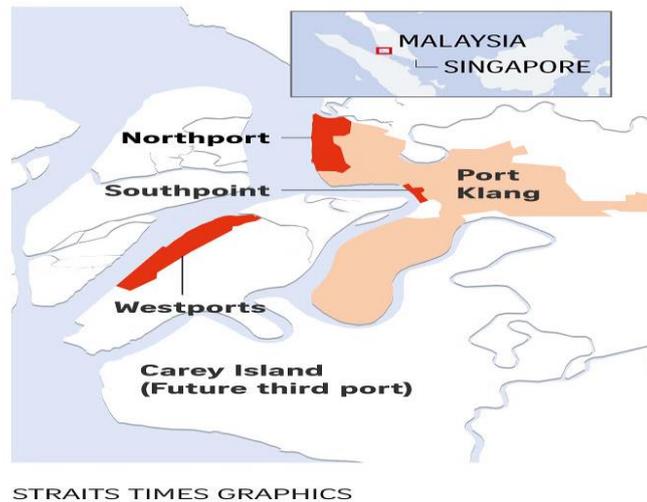
However, not all the physical climate risks can be addressed purely by **WPRTS**. For instance, the big Klang Valley flood in December 2021 that inundated many parts of Klang did not affect **WPRTS**. But more than 1,000 of its staff could not come to work because their houses were flooded. Hence, **WPRTS** insinuated that it's important to ensure, globally we don't reach a point where the sea level rises that much and temperature change exceeds the 1.5°C target.

According to the World Bank Group and Asian Development Bank's Climate Risk Country Profile for Malaysia in 2021, under the worst-case scenario of climate change, average temperatures are expected to increase by 3.11°C by the 2090s in Malaysia. There will be an increase in rainfall and flooding. The latter has already been observed to occur in higher frequency and intensity in recent decades. Other expected outcomes are higher frequency and intensity of heatwaves, lower yield of rice by up to 60% due to droughts and floods during the rice-growing season, among other things.

**For logistics players**, they are more focused toward adoption of electric prime movers to reduce carbon footprint and adopt sustainable and environmentally conscious logistics solutions. In addition, they also promoting eco-friendly practices in their warehouses by installing solar panels to generate sustainable energy and replacing some of the forklifts with battery-operated models. On top of that, they have also installed an electric vehicle (EV) charging station for electric prime movers in their haulage yard, marking another stride on their sustainability journey towards 2030. On the other hand, for natural disaster, they can only employ natural disaster insurance scheme to protect their assets and employees. In example, the flood disaster, which took place on 17 December 2021, affected approximately 259 of **SWIFT** employees in Selangor, Melaka, Pahang, and Terengganu whereby **SWIFT** provided a one-off financial aid amounting to RM104,000 in 1QFY22.

**Third Port in the horizon.** The Malaysian government is pressing ahead with plans for massive greenfield terminal on Carey Island in Port Klang, expected to be completed by 2060 (refer to exhibit 9). The RM28b Carey Island green port city project, currently under planning stage, would comprise both container and conventional berths capable of handling 30m TEUs and 20m tonnes of conventional cargo once fully developed. Unlike the linear berth structure of the existing terminals, Carey island's terminals would be developed in a basin lay out and would probably require artificial breakwater berth. We believe that the building of the third port, outside the natural breakwater berth which currently enjoyed by Port Klang would increase the adverse environmental impact especially to the coastal hydrology as well as marine and coastal ecology. Industry experts suggested that the third port construction is unlikely to begin in the next two years, as procedures to build a port can be complex and multiple studies need to be undertaken.

**Exhibit 9: Carey Island Ports**



Source: [straitstimes.com](http://straitstimes.com)

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OUTPERFORM : A particular stock's Expected Total Return is MORE than 10%  
MARKET PERFORM : A particular stock's Expected Total Return is WITHIN the range of -5% to 10%  
UNDERPERFORM : A particular stock's Expected Total Return is LESS than -5%

**Sector Recommendations\*\*\***

OVERWEIGHT : A particular sector's Expected Total Return is MORE than 10%  
NEUTRAL : A particular sector's Expected Total Return is WITHIN the range of -5% to 10%  
UNDERWEIGHT : A particular sector's Expected Total Return is LESS than -5%

**\*\*\*Sector recommendations are defined based on market capitalisation weighted average expected total return for stocks under our coverage.**

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