

ESG - Climate Risks

NEUTRAL

Rationale for report: Sector Update

Analyst (s)

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Rising Climate Risks

Climate risks refer to the negative effects of climate change on the economy, businesses, environment and people. Climate risks are rising as the weather has become more volatile with temperature swings, extreme heatwaves and precipitation. In Malaysia, floods are an annual occurrence while heatwaves usually take place in the middle of the year. It is a matter of how severe the floods and heatwaves are. According to the World Resources Institute, climate action falls into two strategies i.e. mitigation and adaptation efforts. In Malaysia, we believe that there has been more emphasis on mitigation compared to adaptation as the country embarks on various initiatives to reduce carbon emissions.

- Climate risks are growing.** According to the World Meteorological Organization, the number of disasters has increased by a factor of five in the past 50 years, driven by climate change, extreme weather and improved reporting. An increase in a degree of temperature causes a 7% rise in rainfall. Extreme heatwaves in 2003 and 2010 caused 80% of weather-related deaths in Europe from 1970 to 2019.
- Climate risks cause massive losses.** Extreme weather events result in significant social and financial losses. People lose their livelihoods and homes. Sometimes, there are fatalities. The healthcare system is also affected not only because hospitals are stretched by injuries but also due to damaged infrastructure and disruptions in the medical supply chain.
- Malaysia faces climate risks caused by floods and drought.** According to Bank Negara's 2019 Annual Report, the Malaysian economy sustained a total damage of roughly RM8bil due to floods and dry spells from 1998 to 2018. More than three million people were affected (displacement, injury and deaths). The major flood event in late-2021 caused damages of RM6.1bil, which was 0.4% of the country's GDP.
- Reduce GHG emissions to alleviate climate risks.** Climate change is caused mainly by an increase in greenhouse gases (GHG). GHG is in turn caused by fossil fuels such as coal, oil and gas. Hence to mitigate or reduce the frequency of extreme weather events, GHG must be reduced. According to the United Nations, 107 countries that are responsible for 82% of global GHG adopted net zero pledges in June 2024. Despite this, commitments made by the countries still fell short. Current national climate plans would reduce GHG emissions by only 12% by 2035F from 2019's levels compared to the target of 55%.

Key Indicators

2026F CPO Price:
 RM4,400/tonne

Top picks

SD Guthrie
 TP: RM7.26
 Rec: BUY
 Upside/Downside: +17.1%

Johor Plantations
 TP: RM2.08
 Rec: BUY
 Upside/Downside: +10.6%

Kim Loong Resources
 TP: RM3.00
 Rec: BUY
 Upside/Downside: +11.9%

Genting Plantations
 TP: RM6.07
 Rec: BUY
 Upside/Downside: +17.2%

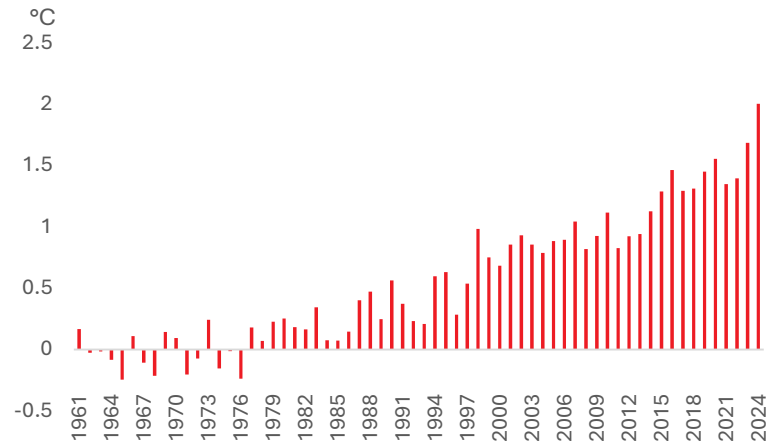
IOI Corp
 TP: RM4.12
 Rec: HOLD
 Upside/Downside: -2.8%

TSH Resources
 TP: RM1.33
 Rec: HOLD
 Upside/Downside: -3.6%

KL Kepong
 TP: RM20.80
 Rec: HOLD
 Upside/Downside: -6.3%

What causes climate risks and climate change?

EXHIBIT 1. ANNUAL GROUND SURFACE TEMPERATURE CHANGE



Source: IMF

Climate risks are caused by changes in weather

Climate risks arise as there are extreme changes in the weather. Climate risks affect people, businesses and the environment. Society is impacted as people are displaced, and infrastructure is damaged (see Exhibit 2). The healthcare system is affected not only due to diseases and injuries from natural disasters but also because hospitals and the medicine supply chain are damaged.

According to the United Nations, fossil fuels i.e. coal, oil and gas are the largest cause of global climate change, accounting for about 68% of global greenhouse emissions and 90% of all carbon dioxide emissions.

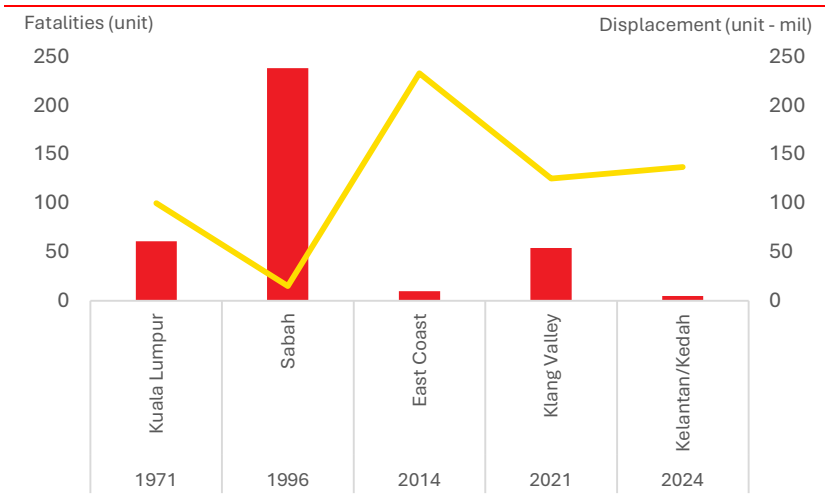
Most of the emissions from coal can be attributed to electricity generation. Coal is also used to produce cement, iron and steel. Oil and gas derivatives are used in the transportation sector and manufacturing of various products such as plastic, fertiliser and paint.

GHG emissions are mainly from carbon dioxide

Greenhouse gas emissions (GHG) affect temperatures. Greenhouse gases comprise mainly carbon dioxide, methane and nitrous oxide. According to USA’s National Oceanic and Atmospheric Administration (NOAA), greenhouse gases absorb heat radiating from the Earth and then re-release it everywhere including back to Earth.

As carbon dioxide traps and releases heat, it plays an important role in preventing the Earth from freezing. However, as carbon dioxide emissions have increased in recent decades, global temperatures have risen.

EXHIBIT 2. HISTORICAL FLOOD FATALITIES AND VICTIM DISPLACEMENT IN MALAYSIA



Source: DOSM, NADMA

Rising temperatures are causing extreme weather events

An increase in temperature can cause drought, wildfires and flooding. In Malaysia although floods are an annual occurrence, there have been times when the flooding was severe. The floods, which hit Klang Valley in late-2021 was described as the worst in 50 years. The floods were caused by Tropical Depression in South China Sea, which is a tropical cyclone.

According to ScienceDirect, the increased risk of flooding is caused primarily by the warming of atmosphere, which increases the moisture content in the atmosphere, thereby raising the intensity of rainfall (see Exhibit 1). For every degree increase in the temperature, the atmosphere can hold 7% more moisture.

As for drought, the warmer weather results in more water being evaporated from the surface. According to the NOAA during the drought in the US Mid-West, evaporation accounted for 61% of the drought's severity while reduced rainfall only accounted for 39%.

An area can swing between floods and drought

As higher temperatures can cause floods and drought, which are opposites, this means that an area can swing between the two. Also, as water is always moving, the water cycle changes from place to place. According to USA's Center for Science Education, some areas may experience heavier than normal rainfall while others may be more prone to drought as the traditional locations of rain belts and deserts shift due to a changing climate.

What are the types of climate risks?

EXHIBIT 3. Climate-Related Risks, Opportunities and Financial Impact



Source: US EPA

There are two types of climate risks

There are two types of climate risks i.e. transition and physical risks (see Exhibit 3). Transition risk arises during the transition to a low carbon economy while physical risk occurs due to changes in the climate.

EXHIBIT 4. Transition Risks

Policy and Legal	Policy actions around climate change continue to evolve. Their objectives generally fall into two categories—policy actions that attempt to constrain actions that contribute to the adverse effects of climate change or policy actions that seek to promote adaptation to climate change. The risk and financial impact of policy changes depend on the nature and timing of the policy change. As the value of loss and damage arising from climate change grows, litigation risk is also likely to increase. Reasons for such litigation include the failure of organizations to mitigate impacts of climate change, failure to adapt to climate change, and the insufficiency of disclosure around material financial risks.
Technology	Technological improvements or innovations that support the transition to a lower-carbon, energy efficient economic system can have a significant impact on organizations. To the extent that new technology displaces old systems and disrupts some parts of the existing economic system, winners and losers will emerge from this "creative destruction" process. The timing of technology development and deployment, however, is a key uncertainty in assessing technology risk.
Market	While the ways in which markets could be affected by climate change are varied and complex, one of the major ways is through shifts in supply and demand for certain commodities, products, and services as climate-related risks and opportunities are increasingly considered.
Reputation	Climate change has been identified as a potential source of reputational risk tied to changing customer or community perceptions of an organization's contribution to or detraction from the transition to a lower-carbon economy.

Source: US EPA

Transition risks consist of policy and legal, technology, market and reputation

According to the Environmental Protection Agency (EPA) of the USA, transition risks can be broken down into policy and legal, technology, market and reputation (see Exhibit 4).

What is policy and legal risk?

We believe that policy and legal are similar to regulatory risks. For instance, as the country transitions into low carbon, it may impose carbon taxes or require companies to report their GHG emissions. As a result, compliance and administrative costs would increase.

What is technology risk?

As for technology, costs or capital expenditure would increase as companies switch to environmentally friendly solutions or adopt new technology to reduce GHG emissions. For instance, setting up a gas power plant with hydrogen or ammonia co-firing is more expensive than a normal plant.

In the plantation sector, companies build biogas plants next to palm oil mills to capture methane gas released by the mills and then, convert them into energy. A biogas plant depending on the capacity, can cost between RM15mil and RM25mil.

What is market risk?

Market transition risks arise due to an increase in raw material costs or a change in consumer preferences. For example, companies may incur higher costs when they

switch to a more environmentally friendly raw material. If consumers prefer sustainable palm products, companies may be forced to spend more to come up with the product.

What is reputational risk?

We believe that reputational risk relates to the negative perception of the company or sector that may arise due to challenges or setbacks during the transition process. For instance, there could be delays while building a gas/hydrogen power plant in Malaysia as it has never been done before in the country. The delay could affect the company’s reputation. Another example would be selling a more environmentally friendly but expensive product, which may result in lower demand and revenue for the company.

EXHIBIT 5. Physical Risks

Acute	Acute physical risks refer to those that are event-driven, including increased severity of extreme weather events, such as cyclones, hurricanes, heat or cold waves, or floods.
Chronic	Chronic physical risks refer to longer-term shifts in climate patterns (e.g., sustained higher temperatures, sea level rise, changing precipitation patterns) that may cause sea level rise or chronic heat waves.

Source: US EPA

Physical risks consist of acute and chronic risks

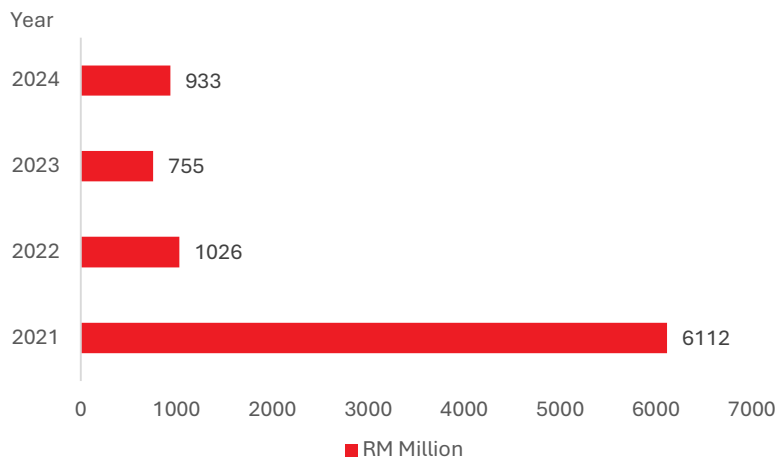
According to the EPA, physical risks can be broken down to acute and chronic risks (see Exhibit 5). Acute risks arise due to increased severity of weather events such as floods or drought. Chronic risks are long-term risks resulting from sustained high temperatures.

A severe flood would result in infrastructure expenses i.e. cost to repairs roads and houses, displacement costs i.e. temporary housing for those, who are affected and healthcare costs. Insurance companies may also be affected.

As temperature rises each year, costs would also increase. For example, a higher temperature each year may shorten the life span of an asset. A chronic shortage of water would result in disruptions of water not only to households but also to industries.

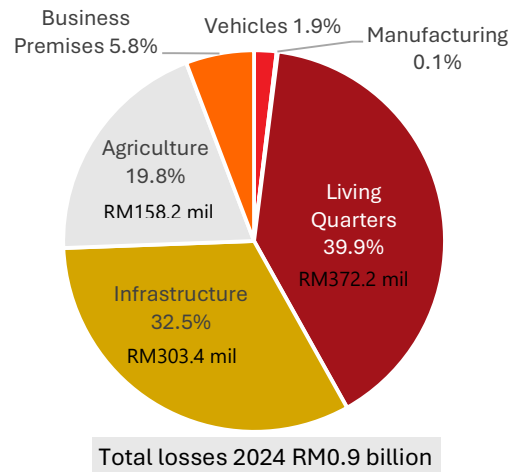
Financial impact of climate risks in Malaysia

EXHIBIT 6. Total Losses Due to Floods in Malaysia from 2021 to 2024



Source: Department of Statistics, Malaysia

EXHIBIT 7. Breakdown of Flood Losses in Malaysia in 2024



Source: Department of Statistics, Malaysia

Climate risks in Malaysia result mainly from floods and drought. Haze is also an occasional event.

Floods in Malaysia caused more than RM500mil in damages and losses

According to Malaysia’s Department of Statistics, flood-related losses amounted to RM933.4mil in 2024 vs. RM755.4mil in 2023 (see Exhibit 6). These were 0.05% of the country’s GDP in 2024. Breaking down 2024’s losses, the highest were in respect of housing. These amounted to RM372.2mil (see Exhibit 7). Second highest losses of RM303.4mil related to public assets and infrastructure.

The floods in 2021 were devastating

The highest flood- related losses, however, took place in 2021 (see Exhibit 6). In late-2021, torrential rains lasted more than 24 hours and hit 11 states in the country. The floods, which were described as a once in 50 years event, was caused by a tropical cyclone called Tropical Depression 29W. There were 54 human casualties.

The losses were RM6.1bil, which was 0.4% of Malaysia’s GDP. According to the Department of Statistics, Selangor was hardest hit by the floods (RM3.1bil losses), followed by Pahang (RM593.2mil) and Melaka (RM85.2mil).

Drought causes lower yields but higher commodity prices

There were three significant drought events in Malaysia. These took place in 1997/1998, 2016 and 2019. Drought causes water shortage and lower yields in the agriculture sector. Also, due to the lack of moisture, forest fires and haze occur. In addition, households, businesses and hydropower plants suffer when there is a water shortage.

Although a drought causes plant yields to drop, agriculture prices rise, which more than compensate for the fall in output. As such, there is no loss of revenue caused by a drought. During the 1997/1998 El Nino, Malaysia’s CPO production fell by 8.3% to 8.3mil tonnes in 1998. However, due to the surge in CPO prices, the sales value of CPO climbed by 61% to RM19.8bil in 1998.

Similarly for the El Nino and haze events in 2016 and 2019. The sales value of CPO rose by 5.4% in 2017, 25.7% in 2020 and 51% in 2021. The effects of the drought in 2019 on FFB yields in Malaysia was augmented by a labour shortage due to the Covid pandemic.

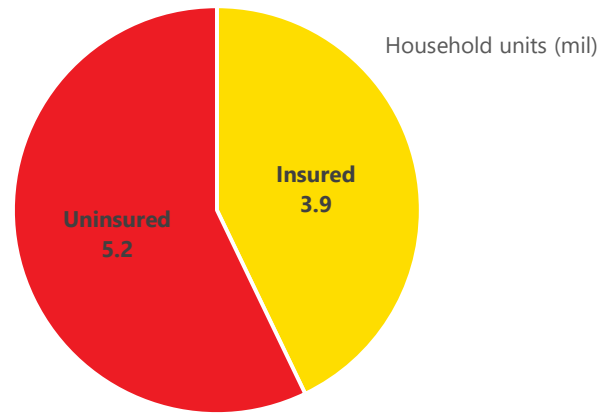
Elsewhere, the tourism industry in Australia suffered a loss of US\$2.8bil due to the 2019/2020 bushfires. A report by WWF Australia and the University of Sydney estimates that the bushfires cost the agriculture sector US\$4bil to US\$5bil due to damages to equipment and buildings, reduction in farmland values and loss of crops.

Globally, a 2024 study by the Potsdam Institute for Climate Impact estimates that by 2050F, damages to agriculture, infrastructure, health and productivity could cost the world economy US\$38trillion a year. Manufacturing and logistics would be facing

higher operating costs as more cooling is needed. Severe storms and floods are also expected to cause damages to infrastructure.

Financial impact of climate risks on insurance companies

EXHIBIT 8. NUMBER OF INSURED VS UNINSURED HOUSEHOLDS IN MALAYSIA (HOME INSURANCE)



Source: DOSM

Global insurance companies are affected by massive claims

Insurance companies are also affected by climate risks due to massive claims. In April 2025, UK’s Guardian cited an official with Allianz SA as saying that the world is approaching temperature levels where insurers will no longer be able to offer cover for many climate risks. Aviva was cited as saying that extreme weather damages for the decade to 2023 were US\$2trillion.

Home and car owners in Malaysia can choose extended insurance coverage

According to the General Insurance Association of Malaysia in November 2025, most standard insurance policies for houses in the country exclude natural disasters. This is unless there is a specific extension for coverage. There are extensions available under the fire policy to cover housing losses caused by floods, landslides and other natural events. Alternatively, house owners can opt for Houseowner or Household insurance policy (Home Insurance Policy), which offers protection for floods, etc.

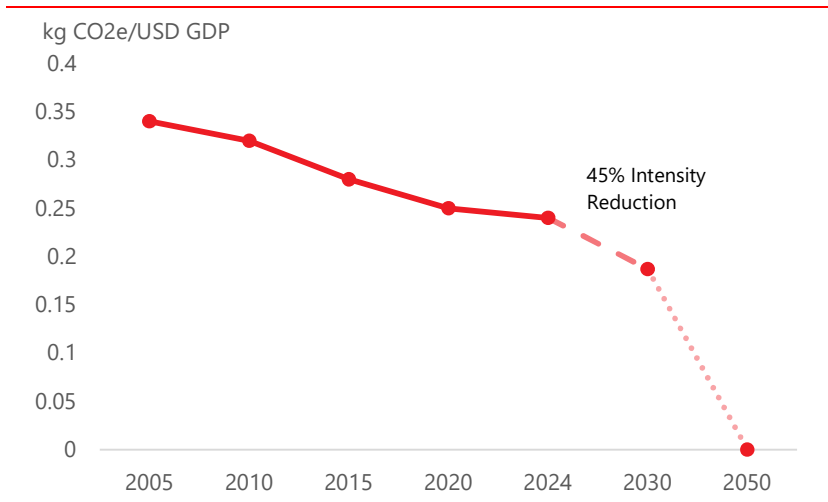
Not many house owners in Malaysia are insured

According to the Department of Statistics, only 3.9mil out of Malaysia’s 9.1mil households have a Home Insurance Policy in 2023/2024 and even fewer have flood extensions (see Exhibit 8).

As for motor insurance, the standard policy does not cover flood damage. This is unless there is an extension for Special Perils, which cover damage caused by floods, storms and other natural events. According to Insurance Services Malaysia, 89 vehicle flood claims were filed in 2024, amounting to more than RM3mil. Businesses can opt for Commercial Property Insurance and/or Business Interruption Insurance, which compensates for loss of income due to floods or other natural events.

How to manage climate risks?

EXHIBIT 9. MALAYSIA CARBON INTENSITY



Source: DOSM, IEA, NETR

Two ways to manage climate risks

There are two ways i.e. mitigation and adaptation. According to the WWF, mitigation means avoiding or reducing emissions of greenhouse gases while adaptation means changing behaviours or systems to adjust to the change in climate.

According to the World Resources Institute (WRI), mitigation and adaptation strategies can work together. WRI has analysed more than 300 global adaptation investments and found that more than half of them can reduce GHG emissions in the long-term. Some of the projects include the Heritage Colombia, which focuses on sustainable land management in Colombia. The project is expected to yield more than US\$1.5bil in emission reductions and US\$1.4bil in other benefits.

Malaysia is on the mitigation path

We believe that Malaysia is adopting mitigation strategies instead of adaptation. We reckon that most of the efforts are concentrated on the power sector. Malaysia’s target is to achieve net zero emissions by 2050F. As part of its Nationally Determined Contribution (NDC), the country aims to reduce carbon emissions by 45% by 2030F compared to 2005’s levels (see Exhibit 9).

Largest utility company leads the way

The country’s largest electricity producer aims to reduce its Scope 1 carbon emissions intensity by 5% each year from 2024 onwards. To do this, the group has a Carbon Management Strategy, which entails reducing, capturing and off-setting carbon emissions. Some of the initiatives under the Carbon Management Strategy include transitioning from coal to gas and renewables and implementing CCUS projects.

Malaysia launched the Hydrogen Economy and Transition Roadmap in October 2023. The roadmap sets out development plans for the use of hydrogen in Malaysia. In May 2025, Sarawak launched its own Hydrogen Economy Roadmap 2035. Sarawak’s Hydrogen Hub includes two projects i.e. H2ornbill and H2biscus. The state’s green hydrogen initiatives were reported to be worth US\$4.2bil.

Sarawak is at the forefront of hydrogen development

The H2ornbill project is a collaboration with Japan’s Eneos and Sumitomo Corporation. H2biscus is a collaboration between SEDC Energy and South Korea’s Lotte Chemical, Posco and Samsung. According to a news report, the joint ventures have a combined annual capacity of 240,000 tonnes of green hydrogen upon completion. The first phase of the Sarawak Hydrogen Hub is expected to be operational in 2028F.

Singapore has been imposing carbon tax since 2019

Carbon tax is a mitigation strategy as it encourages businesses to reduce GHG emissions by adopting low carbon technologies. In the area of carbon tax, Singapore is the leader. The country implemented the carbon tax in 2019 at a rate of S\$5/tonne for the first five years. It was raised to S\$25/tonne in 2024.

The carbon tax was further increased to S\$45/tonne for the period of 2026F to 2027F. It would reach S\$50 to S\$80/tonne by 2030F. The carbon tax revenue is used by the Singapore Government to fund decarbonisation and energy transition initiatives.

Carbon tax in Malaysia will take time

Malaysia has also proposed a carbon tax. However., there are no details on the carbon tax yet.

VALUATION MATRIX

Stock	Call	Share price			EPS (sen)		PE		Div yield
		RM/shar	Market cap	Fair value			x	x	%
		e	RMmil	RM/share	FY26F	FY27F	FY26F	FY27F	FY26F
IOI Corp	Hold	4.24	26,303.7	4.12	21.7	24.0	19.5	17.7	2.6%
KLK	Hold	22.20	24,724.1	20.80	114.9	117.8	19.3	18.8	2.9%
SDG	Buy	6.20	42,877.3	7.26	36.3	38.2	17.1	16.2	3.1%
GenP	Buy	5.18	4,647.5	6.07	40.5	40.9	12.8	12.7	5.8%
JPG	Buy	1.88	4,700.0	2.08	13.8	14.3	13.6	13.1	4.0%
TSH	Hold	1.38	1,904.7	1.33	12.0	12.6	11.5	11.0	3.6%
Kim Loong	Buy	2.68	2,632.0	3.00	18.3	18.8	14.6	14.3	5.6%

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