

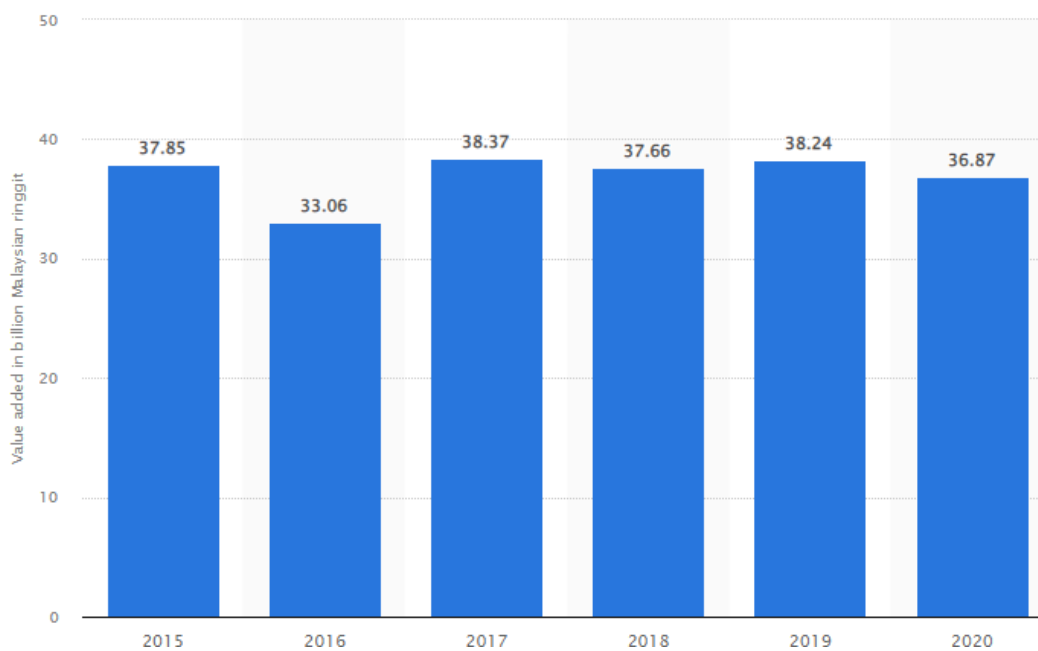
Why is climate change an issue in Malaysia? What climate change mitigation and adaptation measures would you suggest to the government? Discuss.

Introduction: Defining climate change & its causes.

Climate change is defined by NASA's Global Climate Change website as "a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates" (Earth Science Communications Team, 2020). These changes in the Earth's climate, such as global warming and accelerated sea-level rise, have been observed as early as the 1830s and have consequently led to the creation of a socioeconomic situation that has been a hot-button issue since 1850. The main reasons for climate change in recent years include energy wastage, industrial activities, transportation, cooling and heating of buildings, and mass deforestation for agriculture and development (Intergovernmental Panel on Climate Change (IPCC), 2021). It can be argued that these human activities are needed for humanity's advancement in technology and science or to meet rising demands for commodities, but it is humanity's greed that has been the main driving force for the escalated rate of climate change. Climate change can originate from both natural and man-made factors. Although uncontrolled human activities, including the burning of fossil fuels, mass deforestation, open burning and the building of roads or structures, are the main factors and have led to the build-up of greenhouse gases and subsequently the greenhouse effect, causing rises in the average temperature of the Earth and rising sea levels (National Aeronautics and Space Administration (NASA), 2022). Perhaps, an important question to ask is: "How do these affect the Malaysian economy?", because some if not most will only care about climate change if it affects them economically.

Section 2: How are these affecting the Malaysian economy?

Firstly, Murugiah (2021) reports that if the average global temperature rises by up to 2°C by 2050, Malaysia's economic growth rate will be 20% lower than expected and lead to a multitude of severe social issues. A possible concern for Malaysians is a higher unemployment rate. This is because Malaysia is the world's second-largest producer of palm oil which Malaysia heavily relies upon as a significant contributor to its agriculture sector. For example, over the years, the gross domestic product (GDP) from the palm oil industry in Malaysia has reached over 30 billion Ringgit Malaysia, as shown in Diagram 1 (Hirschmann, 2022). The high GDP from the palm oil industry in Malaysia employs over 500,000 labours in 2020 (Roundtable on Sustainable Palm Oil, 2020). However, as climate change becomes a more pressing issue in Malaysia, it threatens the harvest of palm oil and the industry itself. As an example, climate change will severely decrease the productive capacity of palm oil (Paterson, et al., 2015). Consequently, Malaysia's exports or, in other words, its GDP will drop. As a result, the local businesses will be affected as they cannot supply enough to cover their cost of production, forcing them to shut down and leading to workers in that industry losing their jobs and causing a surge in unemployment rates (Alam, et al., 2012).



(Diagram 1, Source: Statista 2022)

Furthermore, another possible socioeconomic issue is that Malaysia may face higher government spending. As discussed in the previous paragraph, Malaysia's crop yields such as palm oil will fall and the unemployment rate will rise severely due to climate change. Therefore, the government will need to provide financial support to help the agriculture sector and help maintain the sustainability of local businesses, for example, the production of palm oil. This is so that, people working in the industry will be able to keep their jobs and have the income to sustain their living. While these financial aids will greatly aid the people, they will inevitably lead to government overspending and worsen Malaysia's national debt level.

In addition to that, climate change will also lead to the spread of diseases. As an example, the spread of Malaria, dengue fever, Japanese encephalitis (JE), and tick-borne encephalitis are influenced by global warming (Kurane, 2020). In recent years, Malaysia has been threatened by high dengue fever incidents and has reported 130,101 cases with 182 deaths in 2019 (Arumugam, 2020). Locals who are infected will require immediate and intensive medical treatment, choosing to seek treatment in government-funded public hospitals instead of the exorbitantly priced private ones. Due to the spike in cases, the government will need to increase hospital funding which may consequently cause an increase in government debt. As the government budget deficit rises, the government will impose or reinforce certain policies to ease the debt burden.

Moreover, the rising sea levels due to climate change will lead to frequent and severe flooding in lower areas. Hence, the habitats of humans, flora and fauna will be damaged or destroyed, leading to a prominent threat of extinction to Malaysia's vast biodiversity (Benjamin & Thirumalni, 2022). Besides that, floods may also lead to economic loss due to the loss of property and damages to infrastructures. The government may then be faced with further

financial debt as more funds would need to be allocated to the repair or rebuilding of damaged infrastructures. Consequently, various government subsidies are likely to be reduced and instead an increase in taxes implemented to generate more funding. This chain of actions will increase the financial burdens of citizens as their disposable income is reduced, which leads to reduced spending and a fall in aggregate demand. This phenomenon is also known as a negative demand shock which will destabilise Malaysia's economy.

Section 3: Existing government policies & their effectiveness.

As aforementioned, Malaysia is a country whose economic activities rely heavily on its agricultural sector that is highly vulnerable to changes in climate. Temperature rises and increased rainfall have already adversely impacted the crop yields of grain, paddy, palm oil, rubber and cocoa. Subsequently, the sustainability of farming is greatly affected due to the low crop yield, low productivity and high production costs. This will cost farmers reduce incomes, higher poverty rates and inevitable higher unemployment rates.

In hopes of resolving this, Malaysia's government has designed several agricultural adaptations, such as technological developments, government programmes, insurance, farm production practices and farm financial management. However, it is crucial to ensure farmers are self-sufficient and not subsidy-dependent (Alam, et al., 2012). To achieve this, Malaysia's government encourages local farmers to attend specific training and education programmes aimed to equip them with the required skills. The government has also focused its attention on agricultural wages, land leasing systems and rates, maximum farm size and so on as these play a significant role in ensuring the sustainability of farmers, poverty reduction and reduced income inequality. Furthermore, they have fixated on technological improvements for future benefits, especially for paddy yield (Alam, et al., 2012). These policies will in the long run improve the crop yield and thus also improves the aggregate supply. This will help to ease the burden of cost-push inflation.

The government has also been providing subsidy support for those in need. The government will maintain a subsidy for cooking oil of an allocation of RM4 billion for 2022 with possible increases if palm oil prices increase further. This subsidy provides profit incentives to farmers in the production of palm oil and at the same time controls the price of cooking oil, which is a necessity due to its increased affordability (Salim, 2022). However, these subsidies are increasing the government's spending and may increase Malaysia's national debt burden.

The government also need to apply some green policies for the farmer to mitigate. With the increase in demand for food due to the growing population, the agriculture sector is forced to increase its crop faster. To do that, farmers are trying to use chemical fertiliser and pesticides as it allows them to maximise their crop yield in a shorter time frame. Chemical fertilizers and pesticides are widely used by farmers because they are artificially prepared and much cheaper compare to organic fertilizers (Diffen, 2014). However, the farmers do not fully realise the use of chemical fertilizer and pesticides would harm the environment by causing soil erosion, waterway pollution and air pollution. To tackle this problem, the government should encourage

the farmers to use organic fertiliser by subsidising it or organise campaigns by educating their harmfulness. There has been a law created by the Malaysian government to strictly control the use of pesticides, which is under Section 7 Pesticides Act 1974, where those that use pesticides without applying would be punished with heavy fines, imprisonment, or both (Ali & Shaari, 2015).

Section 4: Policies to recommend to the government.

One policy to recommend to the government is to increase the implementation of mitigation and adaptation measures as the creation of a greener economy can fix the labour shortages (Maitre, et al., 2018). Not only can unemployment be reduced, but so can our standard of living and economic output. One of the examples of adaptation measures is an investment in adaptation infrastructure required for water conservation, treatment, and supply. Another adaptation strategy is reforestation. These adaptation measures will require a large workforce and thus will significantly reduce the unemployment rate while also helping regulate water flows, create barriers against flash floods, and guard against erosion and mudslides. Investment in these areas could not only increase the capacity to produce more while using fewer carbon emissions and resources more efficiently, but it will also minimise the economic damages due to flash floods and mudslides. In other words, the economic growth will be more sustainable. Human life expectancy will also increase as a cleaner environment is adopted, and the population in each country will be healthier. This shall preserve the labour force for the future.

Another policy that can be suggested to the government in reducing the greenhouse effect is through control of transportation because transportation has caused one-quarter of the greenhouse gas emissions and it is about to be doubled by 2050 (United Nations, 2020). United Nations (2020) suggested that greenhouse gas emissions can be reduced by using electric vehicles and encouraging people to walk or cycle. Thus, the government should encourage car-pooling among the citizens. This can be done by introducing a congestion charge during rush hour on cars that go into the city centre. By doing this, the emission of carbon into the air will reduce and eventually improve the air quality. These will help labours to save time commuting and more time to rest, spend and to work. Moreover, the improved air quality will not only reduce the morbidity rate but also help the government to save on subsidising healthcare and divert these savings to build more green infrastructure.

Section 5: Limitations to the recommended policies.

Developing a greener economy is not simple. It takes time and money to implement sustainable mitigation and adaptation measures. So, although there are numerous advantages to funding these projects, several countries are still not doing enough. The most likely reason for this is that these measures require constant funding from the government, as they are not generating revenues directly, but the government has a limited budget to also spend on other social welfare programmes. This forces the government to choose between short-term social welfare programmes against long-term green infrastructure projects. A government is expected to focus

on short-term social welfare programmes as that's what most citizens will be more concerned about.

As for the policy of congestion charge, it is expected to be a very unpopular policy and will create lots of backlashes. This is because the urban citizens will be forced to use the public transport system which many citizens still complain that it is not fully developed (New Straits Times, 2022). Thus, the congestion charge must only be implemented in the area where the public transport system is fully developed.

Conclusion: .

Climate change issues should not be taken lightly as they are not only damaging to the environment but it also has negative economic impacts. The government should tackle the issue from the six main contributors to climate change. The government has done something to reduce energy wastage and mass deforestation. Therefore, the government is suggested to also focus on improving the transport system and making industrial activities and cooling and heating of buildings greener.

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