

**ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR THE  
PROPOSED MASTERPLAN DEVELOPMENT OF MAHARANI ENERGY  
GATEWAY, MUAR, JOHOR DARUL TAKZIM**

**Comments submitted by Sahabat Alam Malaysia (SAM)  
to the Department of Environment Putrajaya**

**30 March 2022**

**A. Project Background**

The Maharani Energy Gateway is the development of an energy hub and deep-sea port. The main project components are:

- 10 STS (ship-to-ship) slots at approximately the 24mCD contour;
- Plot A – 1,500 acres (607 ha) artificial island for oil and gas storage and deepsea port operation; including Jetty
- Plot B – 1,500 acres (607 ha) artificial island for future development of petrochemical plant;
- Plot C – 200 acres (80.9 ha) artificial island for future development of ship repair and facilities; and
- Floating liquefied natural gas terminal include trestle and regasification station for Boil-Off-Gas.

The main activities involved in the reclamation stage for the man-made islands are the transportation of sea sand from Malacca, sand filling work, compaction and bank revetment works.

**B. Summary of comments**

Our assessment is that the quality of the EIA is far from adequate, and cannot be approved as it exists, for the following reasons:

1. The legal and policy matters - The EIA cannot be approved if it contradicts the gazetted Muar District Local Plan and Johor State Structure Plan. Further, a reclamation project of this nature requires clearance from the National Physical Planning Council as required under section 20B of the Town and Country Planning Act 1976.
2. The Statement of Need fails to take into account the urgency to address climate change and the global transition to renewable energy - thus exposing itself to serious financial risks due to stranded assets. The proposed project will also jeopardise Malaysia's ability to meet its Nationally Determined Contribution under the Paris Agreement.
3. The environmental impact assessment fails to take into account the sea level rise projections for Malaysia due to climate change.

- a) The EIA has failed to assess the potential impact of tidal intrusion due to sea level rise and climate change and also whether the proposed project will cause saline intrusion along Sg. Muar.
  - b) The problem of flooding and stagnant water in the study area is a common phenomenon. One of the recreational sites, Pantai Mesra Sri Penanti, is already facing erosion due to impacts from waves during high tide. Meanwhile, Kampung Sri Menanti has been experiencing inland flooding/inundation whenever there is a high tide phenomenon. Given sea level rise and climate change, the proposed project may further aggravate the situation.
  - c) The deduction that the impact of the reclamation activities on mangroves is insignificant because the hydraulic stimulation study found that the proposed works will have no impact on water level is again baseless due to the questionable conclusion from the water level impact assessment.
4. Loss of fishing grounds and hindrance of access to the sea for fisher groups
  5. Reclamation and sand mining will result in permanent loss of the seabed habitat.
  6. The proposed removal of the belt of mangroves is intolerable given that mangroves play an important role in mitigating and adapting to climate change and tsunami. Malaysia should aim to enhance the protection of mangrove areas and restore it instead of removing them.
  7. Incomplete Marine Risk Assessment study - Part B of the study is not available in the EIA
  8. Lack of a comprehensive economic valuation assessment and cost and benefit analysis.

### **C. The details -**

#### **1. The legal and policy matters - The EIA cannot be approved if it contradicts the gazetted Muar District Local Plan and Johor State Structure Plan**

We note from the EIA that amendments have been proposed to the *Rancangan Struktur Negeri Johor 2030 (Penggubalan 1)* to rezone the Project site under *Pembangunan Khas*, which is categorized as oil and industrial zone as shown in Figure 6-4. However, the *Rancangan Struktur Negeri Johor 2030 (Penggubalan 1)* has yet to be gazetted based on Appendix 1-2. Based on the EIA consultants' response to one of the TOR comments on Page 2-15, the proposed project has yet to be tabled to Majlis Perancang Fizikal Negara (MPFN).

The same with the *Draf Rancangan Tempatan Daerah Muar 2030 (Penggantian)* where the future land use for the proposed project site is categorized as water body. We further note that the *Draf Rancangan Tempatan 2030 (Penggantian)* has undergone public consultation from 15 November to 15 December 2020. While the State Planning (SPC) Committee had agreed to include the proposed development in the *Draf Rancangan SPC* meeting on 6th July 2021, the *Draf Rancangan Tempatan* has also yet to be gazetted based on Appendix 1-2.

As clearly stated in Section 34A(4) of the EQA 1974, the DG cannot approve the EIA if it violates the current Local Plan. In the event that the revised local plan has yet to be gazetted, the DG has no discretion on the matter but to reject the EIA because it violates the local plan.

Further, it is presumptuous to assume that the local plan will be amended automatically when the process for amendment requires a public inquiry to take place.

Moreover, section 20B of the Town and Country Planning Act 1976 makes it mandatory on the part of all relevant agencies to seek the advice of the National Physical Planning Council. Since the implications of this project is beyond the Johor boundary, the MPFN clearance is imperative, prior to EIA approval.

On page 1-13, the EIA states that the coast of Muar is a Rank 2 Environmentally Sensitive Area (ESA) consisting of mangroves and mudflats. According to the *Garis Panduan Khusus Kegunaan Tanah Di Kawasan Pantai by PLAN Malaysia*, only low-impact activity, tourism, recreation and research are allowed in Rank 2 ESAs. Activities that are not allowed in Rank 2 ESAs are: Industry, development projects that will harm or destroy the marine ecosystem, or alter the sediment plains regime which leads to sedimentation or erosion. In Mukim Sg. Balang, there is an ESA for livelihood – (aquacultural zone) near to the project site. ESA for livelihood is an area that needs to be managed sustainably to ensure the integrity of value, structure, functions of the ecosystem as well as sustainable use of resources which supports life and ensure the health and well-being as well as economical sustainability. Therefore, the proposed project should not be considered in the first place.

**2. The Statement of Need fails to take into account the urgency to address climate change and the global transition to renewable energy - thus exposing itself to serious financial risks due to stranded assets. The proposed project will also jeopardise Malaysia's ability to meet its Nationally Determined Contribution under the Paris Agreement.**

The Statement of Needs in Chapter 3 is completely misplaced, as it is promoting a sunset industry that is not consistent with a climate-safe future.

First, as stated on page 3-7, liquid natural gas (LNG) is expected to remain a preferred alternative fuel only for the near to medium term. It is widely acknowledged that the once profitable growth of the oil and gas industry is no longer guaranteed compared to the past decades. The International Energy Agency (IEA) has made a statement in 2021 that no new oil and natural gas fields are needed in the global net-zero pathway. After reaching net zero by 2050 – the world must head towards a negative emissions pathway to keep below the safe temperature limit. There is no scenario where the world continues to emit carbon as usual and have a climate safe world.

Second, the EIA also states that LNG is seen as a transition fuel due to the increasing restrictions on carbon emissions from burning fossil fuels such as oil and coal. Malaysia is indeed going to implement restrictions on carbon emissions including a carbon pricing mechanism and the financial sector is moving rapidly into climate disclosure. This is in line with the focus of global capital market stakeholders who are transitioning away from non-sustainable businesses such as the oil and gas industry, and into a greener and circular economy. Many countries have long-term visions for climate change mitigation and the usage

of natural gas as transition fuel. There are policy suggestions to adopt concrete roadmaps or exit strategies, which specifically discuss (1) the upper limits of natural gas and coal plants, (2) time-bound and measurable plans to transition from LNG to RE, etc. It makes little to no economic sense for Malaysia to invest in LNG given these trends, which will ultimately present physical risks (such as stranded assets) and transition risks to the oil and gas industry.

Third, the Statement of Needs fails to take into account the urgent need to address climate change. The oil and gas industry has been under scrutiny as it plays a dominant role in causing climate change, as clearly stated in the Intergovernmental Panel on Climate Change (IPCC) reports. To achieve the Paris Agreement's objective to limit global warming to 1.5 °C above pre-industrial levels (a safer limit compared to 2°C), the IPCC 6th Assessment Report: The Physical Science Basis (August 2021) has shown that the world can emit only about 500 gigatonnes of carbon dioxide (GtCO<sub>2</sub>) starting 1 January 2020, for a 50% chance of limiting warming to 1.5°C.<sup>1</sup> The world is emitting around 43 GtCO<sub>2</sub> now and at the current emission rate, the carbon budget (i.e., the 500 GtCO<sub>2</sub>) will be exhausted in a decade.

Malaysia may be small in terms of global emissions, but still has a role to play in not increasing our emissions, including methane.

Natural gas consists primarily of methane and methane has a global warming impact 84 times higher than CO<sub>2</sub> over a 20-year period.<sup>2</sup> It is responsible for almost a quarter of global warming.<sup>3</sup> Hence, the Statement of Needs has selectively justified the need for the project by taking advantage of the short and medium forecast for LNG as a transition fuel and has totally missed the point of the urgency for the world to transition to a climate-safe future, aside from ignoring climate science altogether. The proposed project is a long-term investment into an unsustainable industry that is highly averse to a climate-safe future. It would be irresponsible to allow such projects to be approved.

Fourth, Johor will be better off focusing on developing green industries rather than investing in the oil and gas industry, which faces physical risks (such as stranded assets) and transition risks. As an urgent response to address the worsening impacts of climate change, the world, including Malaysia must rapidly transition to renewable energy and phase out the reliance on fossil fuels, while ensuring a just transition for the phase-out.

If Malaysia allows the expansion of the oil and gas industry, it is in direct contradiction to its nationally determined contribution (NDC) as a signatory to the Paris Agreement, where it commits to reducing its economy-wide carbon intensity (against GDP) of 45% in 2030 compared to 2005 level. The proposed dirty energy project in Johor will compromise Malaysia's ability to meet its international commitment. Moreover, this proposed project sends the wrong signal to the world (including international investors) that we are not serious about addressing climate change or that we are aligned to the Paris Agreement goals.

In developed countries, the renewable energy industry is providing more jobs compared to traditional coal, oil and gas energy combined. There are more opportunities for sustainable financing into climate friendly and climate resilient development pathways that provide a new employment landscape which will not only be advantageous for the people in Johor, but also presents an opportunity for the Johor government to pioneer this in the country. This

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<sup>1</sup> [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_SPM\\_final.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM_final.pdf)

<sup>2</sup> <https://www.climatechangenews.com/2021/08/09/five-takeaways-ipccs-2021-climate-science-report/>

<sup>3</sup> <https://www.climatechangenews.com/2021/08/09/five-takeaways-ipccs-2021-climate-science-report/>

would be in line with the 12th Malaysia Plan (2021 - 2025) where Chapter 8 is focused on accelerating the nation's progress towards a low-carbon nation, safeguarding natural endowments and increasing resilience against climate change and disasters.

In addition, the Energy and Natural Resources Minister Datuk Seri Takiyuddin Hassan has recently called on local sustainable energy industry players to continue their efforts to support the country's energy transition agenda towards carbon neutrality. He also stated that "the energy transition agenda is one of the things that will dominate the narrative of world geopolitical relations as well as business and trade activities between countries."<sup>4</sup>

Therefore, the Statement of Needs in the EIA is completely misplaced, as it is promoting a sunset industry which is not consistent with a climate-safe future.

### **3. The environmental impact assessment fails to take into account the sea level rise projections for Malaysia due to climate change**

The EIA has failed to consider the climate change impact. This is important given the recent IPCC report regarding Climate Change Impacts, Adaptation and Vulnerability (Working Group II Contribution to the IPCC Sixth Assessment Report) that concludes with high confidence that future sea level rise combined with storm surge and heavy rainfall will increase and compound flood risks.

According to the Impact of Climate Change Sea Level Rise Projections for Malaysia published by the Coastal and Oceanography Research Centre, National Hydraulic Research Institute of Malaysia (NAHRIM) 2020 on page 58, the sea level projections for Johor Bahru will be between 0.39m and 0.70m for the four different Representative Concentration Pathways (RCPs) for 2100 relative to 1985-2005. Note that the sea level for Johor for the year 2020 was at 0.07m. This information was missing from Chapter 6.

This is a critical aspect that was not included and considered in the EIA. According to NAHRIM (2020), the physical vulnerability of the coastline to sea level impacts will be determined by several factors. Shoreline features such as whether a shoreline is sandy or rocky, vegetated or not influences its susceptibility to erosion from rising sea levels. The factors that may combine with sea level rise to generate significant coastal impacts are discussed in Seneviratne et al. (2012) and include;

- Severe storm events that cause storm surges and large wind-driven waves, which can lead to erosion events,
- Changes in wave magnitude and speed due to sea-level rise, which alters wave refraction, and thus a change in wave direction, which can cause realignment of shorelines.

Hence, the water level impact assessment that concludes that there would be no direct changes to the water levels and floods level at these locations after reclamation based on the result simulation is questionable and inadequate due to the lack of consideration of sea level change projections.

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<sup>4</sup> <https://www.theedgemarkets.com/article/renewable-energy-contributes-competent-credible-local-energy-industry-%E2%80%94-takiyuddin>

*“Based on the result simulation, it does not show any rise in water levels after the reclamation. As such, it can be deduced that there would be no direct changes to the water levels and floods level at these locations.” (Page 7-31, Chapter 7)*

The questionable conclusion has a few implications:

a) Saline Intrusion

Sg. Muar has been reported to be affected by saline intrusion in recent years. The National Water Services Commission (SPAN) commissioner has noted that Sg. Muar’s freshwater is turning salty due to seawater moving deeper into the river as freshwater is being pumped out to be supplied to other states like Melaka and Negeri Sembilan and also to nearby districts in Johor.<sup>5</sup>

Saline intrusion affects the quality of freshwater and makes it unconsumable. Land exposed to salt water will tamper the pH value of the soil over time and will affect the crops/plantations if the water is used for irrigation.

In any case, the EIA has failed to assess the potential impact of tidal intrusion due to sea level rise and climate change and also whether the proposed project will cause saline intrusion along Sg. Muar. We note that the same concern is also mentioned in one of the comments on the Terms of Reference in Chapter 2. There have been incidences of salt-water intrusion into the raw water intakes, especially during the low flow event.<sup>6</sup> Meanwhile, research has also found that the construction of the Kg. Belemang and Tg. Olak Bypasses, while speeding up flood discharges, may also increase salt-water intrusion along Sg. Muar during low flows.<sup>7</sup> There is also a need to understand the cumulative impact and the impact of the proposed project on Sg Muar’s carrying capacity.

Sg. Muar is an important water source which provides water to thousands of households in three (3) different states in Malaysia. Hence, as an important water source, it must be protected at all costs to prevent further deterioration which could cause water security issues in the future.

b) Erosion and Flooding

Moreover, according to the EIA Chapter 6, the problem of flooding and stagnant water in the study area is a common phenomenon. One of the recreational sites, Pantai Mesra Seri Menanti, is already facing erosion due to impacts from waves during high tide.<sup>8</sup> Meanwhile, Kampung Seri Menanti has been experiencing inland flooding/inundation whenever there is a high tide phenomenon.<sup>9</sup> It was also reported

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<sup>5</sup> <https://www.thestar.com.my/metro/metro-news/2020/03/02/sungai-muar-becoming-saltier>

<sup>6</sup> [https://www.e3s-conferences.org/articles/e3sconf/pdf/2018/09/e3sconf\\_cenviron2018\\_02050.pdf](https://www.e3s-conferences.org/articles/e3sconf/pdf/2018/09/e3sconf_cenviron2018_02050.pdf)

<sup>7</sup> [https://www.e3s-conferences.org/articles/e3sconf/pdf/2018/09/e3sconf\\_cenviron2018\\_02050.pdf](https://www.e3s-conferences.org/articles/e3sconf/pdf/2018/09/e3sconf_cenviron2018_02050.pdf)

<sup>8</sup> <https://www.bharian.com.my/berita/nasional/2019/10/617591/hakisan-pantai-makin-meruncing-di-semenanjung>

<sup>9</sup> <https://www.bharian.com.my/berita/wilayah/2021/12/895386/amaran-fenomena-air-pasang-besar-di-muar>

in the news in 2016 where the high tide phenomenon has caused erosion with the breakwater structure observed broken near Kampung Parit Seri Menanti.<sup>10</sup>

Any reclamation project will alter the natural coastal landform and lead to a change to the existing hydrodynamic regime which in turn may cause erosion or siltation to the adjacent coastline.<sup>11</sup> Given sea level rise and climate change, the proposed project may further aggravate the situation. It will cause a complete or partial loss of recreational sites like Pantai Mesra Seri Menanti and intensify the flooding situation faced by the local residents.

c) Mangroves

Drawing from the water level impact assessment conclusion, the EIA on Page 7-51 further deduces that the impact of the reclamation activities on mangroves is insignificant because the hydraulic stimulation study found that the proposed works will have no impact on water levels. This is again baseless due to the questionable conclusion from the water level impact assessment.

#### **4. Loss of fishing grounds and hindrance of access to the sea for fisher groups**

Johor is the second state in Malaysia to have the highest number of registered fishermen which totals up to 11,136 registered fishermen, where 1,248 (11%) of them are registered in Muar and Ledang district.

Based on Figure 6-80 in Chapter 6, it clearly indicates that the proposed project site is located within the radius of Zone A of the Fishing Zone of Peninsular Malaysia. Most importantly, it is in Zone A where individuals who fish are mainly inland, coastal and traditional fishermen. This must take into consideration that the main fishing gear used by the local fishermen are drift nets (Appendix 6-13, Section 7.1.3 Fishing Vessel Activities, page 7-9), which require a large water area for the net to operate. The reclamation and the port limits are essentially occupying the spaces which the fishermen require to operate. Essentially, by the nature of their fishing method and location for fishery, these fisher groups require far less capital to operate compared to fishermen in deeper waters.

In Chapter 7, on page 7-118, it has been clearly stated that the proposed reclamation project will cause “*Loss of fishing grounds and hindrance of access to the sea for fisher groups*”. The reclamation project will force these small-scale fishers to find alternative fishing grounds which in the end will incur more expenditure to them since they have to spend more money on fuel to power their fishing vessels to travel farther. Not only that, conflicts may arise among other fisher groups with respect to competing for space on the traditional fishing grounds of other fishermen. Safety of the inshore fishermen will also be compromised by the risk of collision when their fishing vessels enter the inshore traffic zone, a space which will be shared among the ferry, conveyor vessel to the reclamation area (Appendix 6-13, Section 7.4.5 Navigational Considerations and Hazardous Areas, page 7-46). This risk will increase when the fishermen are plying the fishing area at night (Appendix 6-13, Attachment 1 : List of Hazardous Events, No. 11).

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<sup>10</sup> <https://www.bharian.com.my/berita/nasional/2016/10/203430/air-pasang-besar-punca-hakisan-di-muar>

<sup>11</sup> <https://www.water.gov.my/jps/resources/auto%20download%20images/5844e31c1a57f.pdf>

The number of fishermen who operate near the proposed project area has been reported to be 936 individuals with 418 vessels who use the 12 fish landing jetties which are located within the proposed project area. In chapter 8 of the EIA for Mitigation Measures on page 8-61, it has been clearly laid out that *“Impact from the reclamation project would be felt by traditional fishermen in Zone A who are coastal fishermen, where their fishing ground is very near to the project site”*.

The proposed mitigating measures such as controlling deterioration of the quality of seawater, providing compensatory measures like introducing rebuilding programmes and installing artificial coral reefs to promote new fishing grounds and establishing hotline centres for the fishermen and for the local residents to lodge complaints are inadequate and piecemeal suggestions that do not address the long term livelihood issues of the fishermen caused by the proposed reclamation.

Further, in Chapter 6 on page 6-219, Figure 6-97 shows that 101 fishermen out of 1,021 registered fishermen in Muar have been working as fishermen for more than 10 years. Hence the proposal of this project will affect their livelihood in many ways. The proposed mitigation measures will not be able to solve the socio-economic predicament which is going to be faced by the local residents during and also after the proposed reclamation project ends.

#### **5. Reclamation and sand mining will result in permanent loss of the seabed habitat.**

The loss of seabed will result in some reduction in the amount of resources important to support marine lives and reproduction. The total area that will be affected is 1,295 hectares consisting of Plot A (607 ha), Plot B (607 ha), and Plot C (81 ha). The impact on the seabed that makes up the reclamation footprint is permanent. In fact, the actual extent of seabed damage caused by this reclamation project is even larger when it includes the impact from sand mining. Its impacts include the direct habitat destruction of benthic species, disruption in the food web structure, oxygen depletion, just to name some.

Based on Table 5-12 on page 5-24, the total quantity of sand required for reclamation for each plot is as follow:

- Plot A - 148.46 million m<sup>3</sup>
- Plot B - 134.09 million m<sup>3</sup>
- Plot C - 17.18 million m<sup>3</sup>
- Plot D - 0.75 million m<sup>3</sup>

The total volume of sand for reclamation is 300.48 million m<sup>3</sup>. Assuming the standard size of an Olympic swimming pool is 2,500 m<sup>3</sup>, the project will be extracting sand and dumping them to reclaim land which amounts to the size of 120,192 Olympic-sized swimming pools. This is indeed massive.

The need for huge volumes of sand mining has not been adequately assessed and cannot be seen separately from this project, since the overall environmental impacts must be properly studied. We cannot separate the sand mining impacts from the land reclamation.

**6. The proposed removal of the belt of mangroves is intolerable given that mangroves play an important role in mitigating and adapting to climate change and tsunami. Malaysia should aim to enhance the protection of mangrove areas and restore it instead of removing them.**

Mangroves play an important role in mitigating and adapting to climate change. The biodiversity and ecosystem services of mangroves as feeding and nursery grounds for fisheries, as well as being the habitats of several of our important commercial fishes and shrimps, are also duly recognised in the National Biodiversity Policy 2016 - 2025. In response, Malaysia aims to enhance the protection of mangrove areas against unsustainable land-use practices.

The proposed removal of the belt of mangroves is intolerable given that mangroves play an important role in mitigating and adapting to climate change. The mangrove dieback occurring along some parts of the coastal area within the proposed project site should be a reason for restoration, and not be used as an excuse to justify its removal.

Further, the discrepancy in the EIA on how large the mangrove areas will be cleared is unwarrantable given that removing mangroves is important information in the EIA. From Chapter 5, we note that Plot D which is located in Lot PTD 10498 in Mukim Sg Balang is currently a belt of mangroves that will be removed, and the land will be reclaimed prior to the development of the facility. The area involved is about 20.022 acres.

*“Prior to the construction of the onshore facilities, earthwork has to be carried out to clear the site vegetation (mangrove) and raise it to the desired platform level. The required area to be developed for onshore facilities is 20.022 ac out of 40.038 ac.”*  
(Page 5-92, Chapter 5)

However, Chapter 7 states that 16.203 ha (approximately 40 acres) will be lost to make way for Plot D. This is double the size of the area mentioned in Chapter 5.

“The estimated size of mangrove area that will be lost to make way for the project is 16.203 ha (Plot D). (Page 7-121, Chapter 7)

Further, the Asian tsunami had also brought to light the importance of coastal mangroves as a natural barrier against catastrophes.<sup>12</sup> The EIA has not assessed the tsunami risk. The Malacca Strait, one of the world's busiest and most congested waterways, may need extensive dredging and re-charting as a result of the massive earthquake and tsunami off Indonesia that devastated South Asia on 26 December 2004.<sup>13</sup>

**7. Incomplete Marine Risk Assessment study - Part B of the study is not available in the EIA**

We note that the EIA in Chapter 3 has stated that the location of the project site is not within the heavy marine traffic route and away from the main shipping route based on the Marine Risk Assessment study. On marine traffic during the reclamation stage, the EIA on page 7-50 has also concluded that the marine survey showed that there may not be any hindrance posed

<sup>12</sup> <https://www.fao.org/forestry/tsunami/27285@69434/en/>

<sup>13</sup> [https://www.joc.com/maritime-news/tsunami-swamped-malacca-strait\\_20050118.html](https://www.joc.com/maritime-news/tsunami-swamped-malacca-strait_20050118.html)

on the maritime traffic and navigation of the area with proper mitigation measures taken into consideration.

However, the EIA Appendix 6-13 does not provide a complete Marine Risk Assessment study. We understand that the Appendix 6-13 provides only Part A of the Marine Risk Assessment study. Part B of the MRA study which should present the following (including findings for simulation and conclude on the assessment findings) is not available in the EIA.

- Present the findings and results for the ship handling simulation study to support validation of concept design;
- Present the results for the quantitative risk analysis from the IWRAP analysis;
- Present the risk control measures acquired from all the analysis;
- Concludes the assessment findings and risk mitigation measures drawn from assessment.

#### **8. Lack of a comprehensive economic valuation assessment and cost and benefit analysis.**

A comprehensive economic valuation should assess the cost and benefit of the proposed project. In particular, the cost of the loss of (1) seabed habitat due to reclamation, (2) mangrove area, (3) fishing ground and access to sea (higher cost of fishing) should be compared against the benefits of the project, i.e., the employment opportunities, revenue gains, and business opportunities.

The economic evaluation should also take into account the impact of the project on local food security, as well as the likelihood of the risks of investing in assets which will be stranded due to oil and gas being a sunset industry for reasons of climate change.

In addition, the adverse economic impact in the event of project abandonment is not articulated properly. The EIA is silent on the significant environmental and social costs if the project is abandoned halfway, with respect to who will be bearing the cost. It is unclear who will bear the cost of rehabilitating the environment, or even whether it can be done at all. This is a real concern given that there is a possibility of such situation happening (i.e. Melaka Gateway), in addition to the economic risk from the global energy transition towards renewable energy and away from fossil fuel in the foreseeable future.

#### **D. Conclusion**

In view of the very serious shortcomings in the EIA and the significant environmental and social impacts of the project, SAM calls for the EIA to be rejected and the proposed project should be cancelled altogether.

Climate change is an important aspect of the proposed project but has not been considered thoroughly in the report. The need to expand investments in the oil and gas industry is very short-sighted, irresponsible and ignores current global trends which are to chart climate-safe and resilient development pathways, which this project is not about.