Rapid Response

Virgin Jungle Reserve Replaced by Oil and Gas Refinery Sparks Climate and Biodiversity Concerns

The Sipitang Oil and Gas Industrial Park (SOGIP) in Sabah aims to develop oil, gas, and heavy industries in Sabah, diversifying the region's economy. This analysis finds that SOGIP is located in a former virgin jungle reserve, and will be a significant source of GHG emissions.

Key Take-Aways:

- Petronas, EA Gibson Shipbrokers, Sonoma Resources, Esteel and others are developing facilities in SOGIP, and is expected to handle a trade volume of two million tonnes of liquified fossil gas and five million barrels of crude oil per annum, in addition to the consumption of 150m standard cubic feet per day (mmscfd) of fossil gas by the Esteel facility.
- The annual carbon lock-in of SOGIP is estimated at 12.78m tCO2e, which is nearly Brunei's entire 2022 emissions.
- SOGIP is located within a degazetted part of the Mengalong Forest Reserve, which is a Class VI Virgin Jungle Reserve, and was a peat swamp forest.
- There are 787ha of remaining forest within SOGIP's boundaries.

Recommendations:

- The Sabah Forestry Department should disclose what measures are being taken to protect Dacrydium elatum / Gymnostoma nobile forest communities in the State, which are only found in the Mengalong Forest Reserve, given its degazettement.
- The Federal and State Governments should disclose what studies have been undertaken to ensure that SOGIP's carbon lock-in is consistent with a 1.5 degree pathway.

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Rapid Response Reports provide an analysis on pertinent problematic activities, summarising the state of knowledge on a particular issue, and presenting specific recommendations to inform ongoing policy debates.

This Analysis has been prepared by RimbaWatch

Introduction

The Sipitang Oil and Gas Industrial Park (SOGIP), located in Sipitang, Sabah, was established as an 'integrated industrial park' for the development of downstream oil & gas-related activities and heavy industries (SOGIP, 2022). Spanning more than 2,000 hectares, the SOGIP project was launched in 2011 by the Sabah State Government, who set up the Sabah Oil & Gas Development Corporation Sdn Bhd ('SOGDC') in 2010 as a state government agency to manage SOGIP.

Main Activities

The SOGIP was established to "diversify Sabah's economic base beyond agriculture and forestry", and was envisioned to position Sabah as a key player in the regional oil and gas industry (PEMANDU, 2023). To date, a number of oil and gas operators are constructing fossil fuel infrastructure in the SOGIP.

In 2011, the Petronas Chemicals Fertiliser Sabah Sdn Bhd (PC FSSB) was established, with a facility constructed over 85 hectares of SOGIP. The facility consists of an integrated ammonia and urea production complex, which is designed to output 1.9 million metric tonnes of ammonia and urea annually (PCG, 2024). According to Petronas, this facility is "a key catalyst for the development of oil and gas industry in Sabah".

Further, Petronas, in 2024, began construction of the ZLNG project, which is a nearshore floating liquefied natural gas (FLNG) facility, Malaysia's first, that will be moored at SOGIP. The ZLNG's infrastructure includes an onshore substation, jetties and pipelines in addition to the offshore facility. Petronas aims for the unit to produce up to 2 million tonnes of liquified fossil gas annually, and is targeted to begin operations in 2027 (Upstream Online, 2024).

In 2022, Sonoma Resources Co., Ltd, a Korean advisory firm, signed an agreement with EMOG Strategic Group to develop a fossil gas to liquid ammonia conversion facility, and associated carbon capture and storage (CCS) plant in SOGIP (SOGIP, 2024).

In 2024, EA Gibson Shipbrokers Ltd signed an agreement with the developers of SOGIP to construct further oil and gas facilities in the Park, including a jetty, onshore fossil fuel storage terminals, a "floating power plant" and fossil gas bunkering operations and shuttle vessels. According to SOGIP's Chairman, this development accompanies expected initial trade volumes of two million metric tonnes of liquified fossil gas, 600,000 tonnes of Liquefied Petroleum Gas (LPG), 150,000 tonnes of ammonia, and five million barrels of crude oil per annum (Borneo Post, 2024).

"SOGIP... accompanies expected initial trade volumes of two million metric tonnes of liquified fossil gas, 600,000 tonnes of Liquefied Petroleum Gas (LPG), 150,000 tonnes of ammonia, and five million barrels of crude oil per annum."

Also in 2024, Sabah Energy Corporation signed an agreement with Esteel Enterprise Sabah to supply 150 million standard cubic feet per day (mmscfd) of fossil gas to Esteel's "green steel project" in SOGIP. According to Sabah's Chief Minister, this agreement involves "investing in green technology based products" which "aligns with global sustainability goals" (NST, 2024).

SOGIP Is Located Within a Former Protected Area

According to an undated forestry map of Sabah (Bhavik Borneo, 2013), the area currently being developed as SOGIP was once part of the Mengalong Forest Reserve, which is a Class VI Virgin Jungle Reserve. The Sabah Forestry Department states that, officially, Class VI Reserves are "conserved strictly for forestry research purposes such as ecological baseline research, biodiversity & genetic conservation" and "timber harvesting is not permitted" in such reserves (SFD, 2024).

The Mengalong Forest Reserve is primarily a peat swamp forest area. A Wetlands International report states that three main vegetation types are found in Sabahan peatlands, of which the Mengalong Forest Reserve consists of Dacrydium elatum / Gymnostoma nobile communities, constituting a "rare forest type" which is not found elsewhere in Sabah (2010). In line with this importance between 2008-2009, the Sabah Forestry Department allocated RM400,000 for the establishment and restoration of the Mengalong Forest Reserve (SFD, n.d). However, just three years later, the Sabah government announced that it had degazetted 1,008 hectares of the Mengalong Reserve for the SOGIP (Borneo Post, 2012).

A geospatial analysis of SOGIP confirms that 703 hectares of the Industrial Park are located in peatlands, and that 787 hectares of the Park remain under forest cover as of 2022 (see Fig. 1).

Peat swamp forests are one of the most carbon intensive ecosystems in the world, storing significantly more carbon than other terrestrial forests, making it a high carbon stock forest. Emissions from the clearance of peat swamp forests are significant, and the loss of peat swamp forests in Southeast Asia alone have been estimated to comprise up to 3% of total global anthropogenic emissions (Posa et al., 2011).

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In the last decade, peat swamps have gained global interest due to these factors, with various initiatives established to protect and restore global peatlands. Domestically, this includes Malaysia's National Action Plan for Peatlands, which identifies the restoration of degraded peatlands, minimizing emissions from peatlands and promotion of the conservation of peatland biodiversity and ecosystem functions as key priorities (NRECC, 2010).

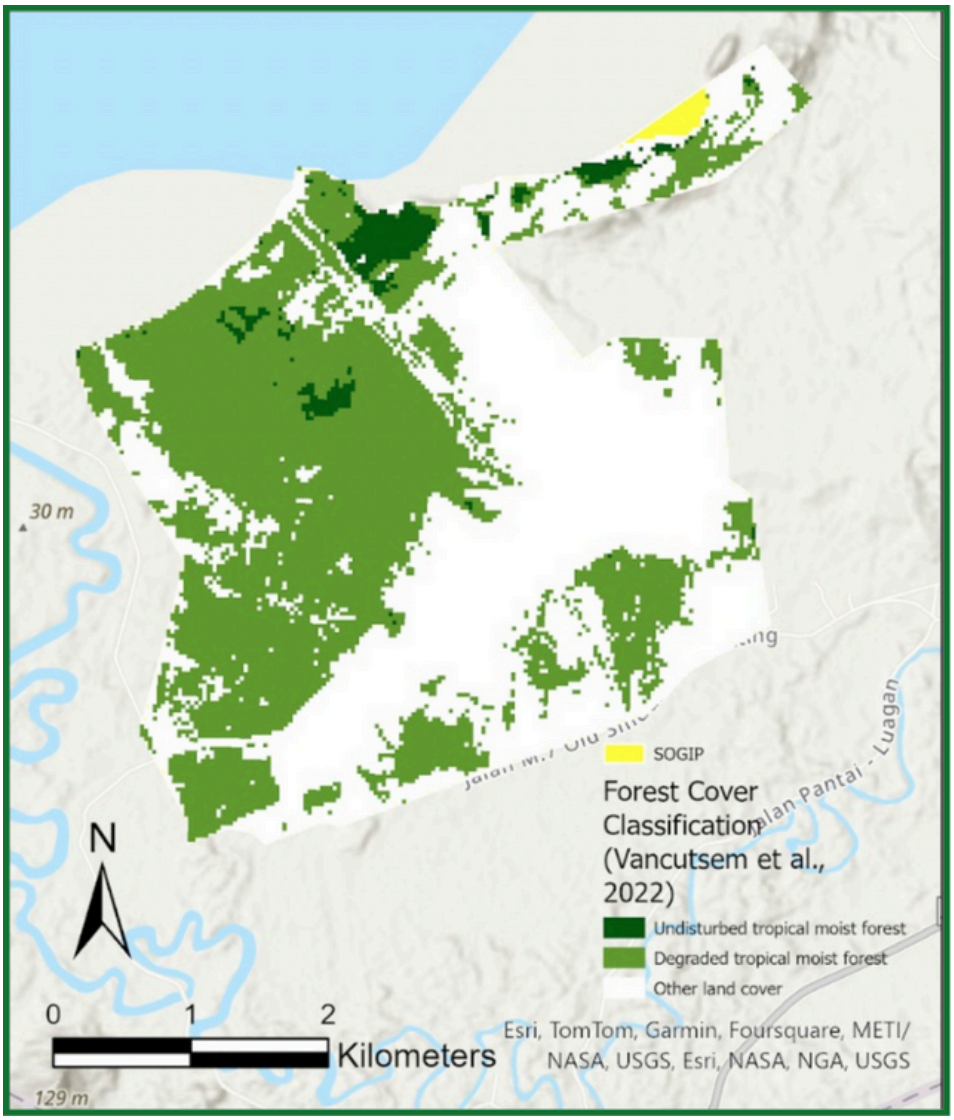

Figure 1: Geospatial Analysis of SOGIP

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Carbon Lock-In

As stated above, SOGIP is a key catalyst for the development of the oil and gas industry in Sabah. According to the three projects with published figures above, SOGIP will facilitate the processing of 2 million tonnes of liquified fossil gas, 600,000 tonnes of liquified petroleum gas (LPG) and five million barrels of crude oil annually, while 54.75 billion cubic feet of fossil gas will be consumed annually by Esteel's "green steel" production. We estimate that the carbon lock-in that will be facilitated by this fossil fuel infrastructure, if operated as planned, is 12,788,561t CO2e per year, which is nearly equivalent to the amount Brunei as a nation-state emitted in 2022 (EDGAR, 2023).

There is a general consensus across many published studies that developing any new oil and gas fields is incompatible with a 1.5C target. Notably, the Intergovernmental Panel on Climate Change (IPCC) projects that if existing climate policies do not change to reflect the urgency of this threat, including policies related to oil and gas production and processing, such activities puts us on **a trajectory for 3.2*°C* warming by 2100**, which is more than double the 1.5C target (IPCC, 2022). This will result in irreversible climate disasters at an unprecedented scale, including uninhabitable temperatures, major cities underwater, widespread water shortages and the extinction of a million species of plants and animals.

Lack of Credible Safeguards

It must be noted that none of the operators involved in the project have credible decarbonisation or biodiversity policies to mitigate the impacts of SOGIP on the climate and the former Mengalong Forest Reserve.

Sonoma Resources, EMOG Strategic Group, Esteel, EA Gibson Shipbrokers Ltd and SOGIP itself do not have climate or biodiversity policies or targets. Meanwhile, while Petronas does have a net-zero target, this target excludes Scope 3 emissions which is the emissions scope involving the combustion of oil and gas products, representing around 85% of their current emissions. Omitting to include targets on their largest emissions scope is a notable omission and a departure from nearly all international voluntary net-zero standards, which require the inclusion of Scope 3 targets. Further, a United Nations High-Level Expert Group report has warned that "net-zero is entirely incompatible with continued investment in fossil fuels", and that companies cannot claim to be net-zero while continuing to build fossil fuel supply (UN, 2022). Illustrating the weakness of Petronas's targets, the World Benchmarking Alliance gave Petronas's net-zero strategy a score of 4.5/100 (WBA, 2024).

"The Carbon Lock-in that will be facilitated by this fossil fuel infrastructure... will result in irreversible climate disasters at an unprecedented scale, including uninhabitable temperatures, major cities underwater, widespread water shortages and the extinction of a million species of plants and animals."

On biodiversity, Petronas's Position on Nature and Biodiversity explicitly facilitates Petronas projects in protected areas, committing the company to establishing a "Biodiversity Action Plan" for projects in such areas, rather than avoiding such areas entirely (Petronas, 2024).

Conclusions

The Sipitang Oil and Gas Industrial Park (SOGIP) in Sabah aims to develop oil, gas, and heavy industries in Sabah, diversifying the region's economy. Major projects in SOGIP include Petronas's ammonia-urea plant, the ZLNG facility, and agreements for gas-to-liquid ammonia production, oil and gas storage, and a "green steel" project. However, SOGIP was developed on a formerly protected peat swamp forest, raising concerns on emissions and biodiversity loss. The fossil fuel projects are expected to lock in significant carbon emissions, conflicting with global climate goals. The following recommendations highlight specific actions that should be taken by the relevant authorities to address the impacts of fossil fuel infrastructure expansion in a biodiverse area:

- In the degazettement process, the Sabah Forestry Department stated that 15 pieces of state land were chosen to replace the degazetted forest reserve. Given that the Mengalong Forest Reserve consisted of Dacrydium elatum / Gymnostoma nobile communities which were not found elsewhere in Sabah, **the Department should disclose** whether the substituted area is of the same forest community, and what is being done to protect this rare forest community in the state given this development.

- The operators of planned and current facilities in SOGIP, including **Petronas, should disclose their position** on Protected Area Downgrading, Downsizing and Degazettement (PADDD).

- An atmospheric viability test considers whether fossil fuel infrastructure is compatible with a carbon budget consistent with a Paris-aligned climate scenario (ClientEarth, 2023). Given the consensus that any new fossil fuel expansion is incompatible with a global 1.5 degree target, **the Federal and State Government of Sabah should disclose** what studies have been undertaken to ensure that SOGIP's carbon lock-in is consistent with a 1.5 degree pathway.

"However, SOGIP was developed on a formerly protected peat swamp forest, raising concerns on emissions and biodiversity loss. The fossil fuel projects are expected to lock in significant carbon emissions, conflicting with global climate goals."

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