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Dear Honourable Ministers,

OPEN LETTER
We must reduce carbon at the source
Japan should not dump carbon dioxide into Malaysia

We are writing to express our deep concern over recent developments regarding plans for the export of Carbon Dioxide (CO₂) emissions from Japan to Malaysia for storage after the capture of the emissions.

We understand that the Japanese government is promoting carbon capture and storage (CCS) to capture hard-to-abate carbon, and has set a goal of storing 120-240 million tons of CO₂ by 2050 (which is equivalent to approximately 10-20% of Japan’s current emissions) and commercialising CCS by 2030. Two of the projects selected by Japan Organization for Metals and Energy Security (JOGMEC) assume Japan would export CO₂ overseas. Malaysia is one of the countries mentioned many times in the policies as a potential destination of CO₂.

Recently, a consortium of companies signed a Memorandum of Understanding on March 1st, 2024, to jointly study carbon capture and storage and the establishment of potential CCS value chains from carbon dioxide (CO₂) capture and accumulation in Tokyo Bay, shipping, and CO₂ storage in Malaysia.

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The amount of CO₂ to be captured is expected to be around 3 million to 6 million tonnes per year and is projected to start operation by 2030.

This practice does not only exacerbate the climate crisis but is fundamentally against the principle of climate justice, particularly by dumping CO₂ in countries in the Global South like Malaysia. Further, it is an unproven technology with high risk, high cost and comes with long-term liability. Relying on such technology will only delay real climate action in Japan.

Capturing CO₂ and transporting it to other countries results in significant problems such as raising costs and safety concerns. Japan must cut the emissions at source and should not export or dump CO₂ in other countries.

Firstly, there are significant technical and financial challenges associated with CCS.

CCS technology has been studied since the 1970s, but there are not many examples of this technology being demonstrated in real-world applications. What has been implemented is a type of enhanced oil recovery (EOR), in which captured CO₂ is injected into oil fields to increase the amount of crude oil extracted, which promotes increased fossil fuel production, leading to further carbon emissions.

The Japanese government is considering exporting CO₂ as a "cheaper" option but this does not take into account that the majority of projects globally using CCS have had unique engineering challenges that have led to underperformance and cost blow-outs. This happened to the Gorgon CCS project in Australia, which is around the same size as the proposed Kasawari CCS project in Malaysia. The Gorgon CCS project in Australia, by oil giants Chevron, was expected to capture at least 80% of the carbon dioxide emissions from the production of LNG (liquefied natural gas). However, it has never operated up to its claimed capacity. The Guardian reported in April 2023 that emissions from Chevron’s gas project with the world’s largest industrial carbon capture system rose by more than 50%. Gorgon agreed to pay to offset its target shortfall of 5.23 million tonnes of carbon dioxide, which is estimated to cost Gorgon between US$100 million and US$184 million.

Who will account for this if this happens to the CO₂ exported from Japan to Malaysia? Who pays for this although any payment will not guarantee safety for generations to come? This will certainly undermine Malaysia's own emissions reduction efforts.

Many CCS projects in the past have failed. 43% of the CCS projects planned between 1995 and 2018 were either cancelled or postponed for various reasons such as lack of funding. Furthermore, 78% of...

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3 Morton, op. cit.
large-scale projects (those that capture more than 30,000 tons of CO₂ per year) were either cancelled or postponed.⁵

Second, environmental and social risks are a further major concern, including the possibility of inducing earthquakes as a result of ground injections, the risk of CO₂ leakage⁶, increased water stress, and ocean acidification. Over 500 international, US and Canadian organizations sent an open letter to policymakers calling on them to “reject carbon capture and storage” in July 2021.⁷ A CCS project in Algeria where CO₂ had been injected into depleted gas fields from 2004 was suspended in 2011 when movement was observed in the layers of the ground that was supposed to prevent CO₂ from leaking out, provoking concerns of leakage.⁸ The same happened with the Norwegian’s Sleipner CCS where CO₂ migrated upwards faster than expected.⁹ Compressed CO₂ is highly hazardous upon release and can result in the asphyxiation of humans and animals.¹⁰ In 2020, a CO₂ transport pipeline that was part of an EOR project in Mississippi, USA was damaged, resulting in the evacuation of about 300 people.¹¹ 49 people were hospitalised with carbon dioxide poisoning.¹²

The technologies used to recover CO₂ from exhaust gas include the chemical absorption method (which separates CO₂ by chemically absorbing it into a physical solvent under high pressure). The amine absorption method generates harmful chemicals such as amine compounds in the process of absorbing, separating, and recovering CO₂, and there are concerns regarding the impacts it will have on ecosystems and the environment.¹³

Thirdly, exporting CO₂ emissions perpetuates energy inefficiency with significant increase in energy consumption. However, CCS is highly unreliable capturing only less than 1% of global emissions currently¹⁴ or 0.1% of global energy-related carbon emissions in 2022¹⁵.

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¹² Zegart op. cit.; Nolan op. cit.
¹⁵ Amandine Denis-Ryan, “Fact Sheet: Carbon Capture and Storage (CCS) Has a Poor Track Record” (e Institute for Energy Economics and Financial Analysis (IEEFA) e, February 8, 2024), https://ieefa.org/resources/fact-sheet-carbon-capture-and-storage-ccs-has-poor-track-record
Any CCS project requires significant energy inputs and all of CCS infrastructure poses risks to the public and environment. Running carbon capture equipment is also energy-intensive and increases the overall emissions of the facility where the capture equipment is installed.\textsuperscript{16} The most energy intensive part is for the capture and compression of carbon, with additional amounts needed for transportation and storage. Capture and compression alone require 330–420 kWh per tonne of CO\textsubscript{2} captured. CCS projects increase the energy demand of the facility they capture carbon from by 15%–25% on average.\textsuperscript{17}

The fourth challenge is the issue of ensuring permanent storage. For CCS to be a viable option for decarbonisation, it is important to make sure that carbon can be stored in a stable state permanently. IPCC uses the word “durably” to describe the storing of CO\textsubscript{2} in geological, terrestrial, or ocean reservoirs, or in products for CDR (Carbon Dioxide Removal). There is no clear definition for the length that “durably” entails, but some have suggested at least 200-300 years.\textsuperscript{18} A legal system that can guarantee the maintenance of sequestered carbon for such a long period is not feasible in practice. After the monitoring period conducted by the utility company ends, if the government takes over responsibilities and finances the management of the expected large amount of carbon at public expense, we will only be leaving this problem for future generations to deal with. Why should Malaysian taxpayers or the Global South bear such long-term liability for keeping the CO\textsubscript{2} dumped by rich countries?

Cross-border transport of carbon dioxide for permanent geological storage below the seabed is in practice a dumping of waste. The need for such export in situations where a country does not have sufficient suitable geological storage capacity but may still wish to use CCS to reduce emissions domestically is unjustifiable. We need rich countries to undertake deep, rapid and sustained emission reductions at home and at the source.

Dumping CO\textsubscript{2} is irresponsible and only transfers the burden to the Global South and this is nothing but carbon colonialism. The Global South is not Japan’s waste dumping site.

We urge the Japanese Government to recognise the grave consequences of exporting CO\textsubscript{2} emissions and stop doing so.

Also, both governments should not subsidise CCS projects as it effectively transfers the responsibility of polluters to taxpayers. Target 18 of the Global Biodiversity Framework requires governments to identify by 2025 and eliminate, phase out or reform incentives including subsidies that are harmful to biodiversity. We urge the Malaysian Government not to accept the CO\textsubscript{2}.

\textsuperscript{17} Angela Carter, Laura Cameron “Why Carbon Capture and Storage Is Not a Net-Zero Solution for Canada’s Oil and Gas Sector The Bottom Line: Unpacking the future of Canada’s oil & gas”, February 9, 2023, https://www.iisd.org/articles/deep-dive/carbon-capture-not-net-zero-solution
\textsuperscript{18} Article 6.4 Mechanism Information note, Removal activities under the Article 6.4 mechanism Version 04.0, https://unfccc.int/sites/default/files/resource/a64-sb005-aa-a09.pdf
Both governments should cooperate for a just and fair transition prioritising investments in renewable energy, energy efficiency, and sustainable development that benefit both local and global environment.

Thank you for your attention to this critical matter and we seek your timely response in this regard.

Yours sincerely,

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