Carbon capture and storage is not a solution to the climate crisis, but a dangerous distraction

2024 May 8th

Dear Mr. Ken Saito, Minister of Trade, Economy and Industry in Japan

We are writing to express our deepest concerns over recent developments regarding plans to export Carbon Dioxide (CO_2) emissions from Japan to other countries.

The Japanese parliament is currently discussing the Carbon Capture and Storage (CCS) Business Bill to set a legal framework for CCS projects in Japan and overseas. Meanwhile, Japanese corporations are already recklessly pushing CCS projects in the region as they sign related agreements with oil and gas giants such as Petronas and ExxonMobil.

As of April 2024, there are at least 15 agreements signed by Japanese government entities and corporates to explore the feasibility of exporting carbon dioxide to be stored in Indonesia, Malaysia, Australia, and other unspecified countries in the region. Of these, Malaysia had the most agreements signed with Japanese companies (please see the table on page 3).

This practice not only exacerbates the climate crisis but is fundamentally against the principle of climate justice, particularly as it results in the dumping of CO_2 in Global South countries like Malaysia and Indonesia. CCS is a high-risk and high-cost[1] and proven failure that comes with long-term liabilities and risks. Relying on such a technology will only delay real climate action and harm our environment and society.

We call on the Japanese government as well as private companies who are promoting CCS to stop doing so and reduce the emissions at the source by phasing out fossil fuels such as coal, oil, and gas.

We also urge the governments of Malaysia, Indonesia, Australia, and other countries in the region to stop providing, extending, or channeling government support, including funding and subsidies for CCS/CCUS and related infrastructure. Public resources must be invested in sustainable infrastructure and community-based initiatives that serve the people, not polluters.

CCS has had a long history of problems – including **significant technical and financial challenges**.

Most CCS projects have had unique engineering challenges which resulted in underperformance and cost blow-outs, as happened to the Gorgon CCS project in Australia. Gorgon agreed to pay to offset its target shortfall of 5.23 million tonnes of carbon dioxide, which is estimated to cost between US$100 million and US$184 million[2].

[1] Rupert Way et al. "Heavy dependence on Carbon Capture and Storage 'highly economically damaging', says Oxford report" 4 Dec 2023
[2] Institute for Energy Economics and Financial Analysis (IEEFA) "Gorgon Carbon Capture and Storage: The Sting in the Tail" April 2024

Additionally, a CCS project in Algeria where CO_2 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 CO_2 from leaking out, provoking concerns of leakage[3]. A similar event happened with Norway's Sleipner CCS project, where CO_2 migrated upwards faster than expected.[4]

Second, **environmental and health risks** are an additional major concern, including the risk of CO_2 leakage[5], increased water stress, ocean acidification, and the possibility of CCS projects inducing earthquakes as a result of ground injections.

While CCS technology has been developed since the 1970s, its use globally has mainly been confined to enhanced oil recovery (EOR), a process in which captured CO_2 is injected into oil fields to increase the amount of crude oil extracted. This promotes increased fossil fuel production, leading to additional carbon emissions. Over 80% of CCS projects are used for EOR, or *for* oil and gas production[6].

Compressed CO_2 is highly hazardous upon release and can result in the asphyxiation of humans and animals.[7] In 2020, a CO_2 transport pipeline that was part of an EOR project in Mississippi, USA was damaged, resulting in the evacuation of more than 200 people, and the hospitalisation of 45 people with carbon dioxide poisoning[8].

Thirdly, exporting CO_2 emissions **perpetuates energy inefficiency as there is a significant increase in energy consumption** associated with certain phases of CCS.

The most energy-intensive part is for the capture and compression of carbon, with additional amounts needed for transportation and storage. CO_2 liquefaction is essential for efficient transportation and storage[9]. Capture and compression alone require 330–420 kWh per tonne of CO2 captured. CCS projects increase the energy demand of the facility they capture carbon from by 15%–25% on average[10].

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_2 in geological, terrestrial, or ocean reservoirs, or in products for Carbon Dioxide Removal (CDR) . There is no clear definition for the length that "durably" entails, but some have suggested at least 200-300 years[11]. A legal system that can guarantee the maintenance of sequestered carbon for such a long period is not

---

[3] MIT, In Salah Fact Sheet: Carbon Dioxide Capture and Storage Project, Last accessed February 2024.
[4] IEEFA "Norway's Sleipner and Snøhvit CCS: Industry models or cautionary tales?" June 2023
[5] Center for International Environmental Law (CIEL) "Deep Trouble: The Risks of Offshore Carbon Capture and Storage" November 2023
[6] Zero Carbon Analytics "A closer look at CCS: Problems and potential" 29 Feb 2024
[7] Center for International Environmental Law "Carbon Capture and Storage" last accessed March 7th 2024
[8] Huffington Post, "The Gassing Of Satartia", August 2022; The Intercept, "Louisiana rushes buildout of carbon pipelines, adding to dangers plaguing cancer ally", August 2023.
[9] According to CCS proponents, CO_2 liquefaction reduces the volume of the gas, making it easier and more cost-effective to transport over long distances.
[10] 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,
[11] Information note, Removal activities under the Article 6.4 mechanism.

feasible in practice. After the monitoring period conducted by the utility company ends, the government is likely to take over that responsibility and finance the management of the large amount of carbon at the public's expense – leaving this problem for future generations to deal with.

Cross-border transport of CO_2 for permanent geological storage below the seabed is in practice a dumping of waste. Exporting CO_2 for a country like Japan that does not have sufficient suitable geological storage capacity, but still wishes to use CCS to reduce emissions domestically, is unjustifiable. The current bill does not pinpoint a clear entity to take responsibility for monitoring the CO_2 for any leaks that occur at the export destination, or during the overseas transfer. We need rich countries like Japan to undertake deep, rapid, and sustained emission reductions at home and at the source.

Dumping CO_2 elsewhere is irresponsible and a form of waste colonialism. There is no way to deploy CCS in a way that is compatible with the 1.5 degree target, without posing substantial risks to the environment and communities on the frontlines. To conclude, CCS is a dangerous distraction, a false climate solution, ineffective, exceptionally risky, and against the principles of climate justice.

Therefore, we, the undersigned organisations, urge the Japanese Government to recognise the grave consequences of exporting CO_2 emissions overseas and stop promoting CCS. Instead, Japan should undertake deep emission reductions at home by investing in renewable energy to stay in line with its international climate commitments. We also call on potential "recipient" countries to reject CCS projects and instead urge for collaboration on the region's vast renewable energy potential[12].

List of CCS Projects involved with the export of CO_2 from Japan (From June 2022 to April 2024, non-exhaustive)

	Agreements	Signed	Companies	Sources of CO_2	Storage Location
1	Joint Study Agreement with PETRONAS to Explore Feasibility of the Entire Carbon Capture and Storage Value Chain between Japan and Malaysia	April 2024	PETRONAS, JERA	CO_2 emitted by JERA in Japan	Malaysia
2	MOUs Concluded on Joint Studies with Mitsubishi UBE Cement and Resonac Concerning CCS Value Chain Development between Malaysia and Japan	April 2024	Mitsui & Co., Ltd., Resonac's Oita, Ube Cement	CO_2 emitted at MUCC's Ube Cement Plant and Resonac's Oita Complex	Malaysia
3	Establishment of potential CCS value chains from CO_2 capture and accumulation in Tokyo Bay, shipping, and CO_2 storage in Malaysia	Mar 2024	Mitsubishi Corporation, JX Nippon, ENEOS, and PETRONAS	CO_2 emitted in Tokyo Bay	Malaysia

[12] Carbon Brief "Wind and solar capacity in south-east Asia climbs 20% in just one year, report finds" 17 January 2024, Renewable Energy Institute "Renewable Energy: The Top-Priority for Southeast Asia to Fully Blossom" September 2023

4	Evaluating the export of (CO_2) from Japan to (CCS) projects in Australia and other countries in Asia	Mar 2024	JX Nippon Oil & Gas Exploration Corporation, Chevron New Energies	CO_2 emitted from industries in Japan	Australia, Asia (unspecified)
5	Memorandum of Understanding with Chugoku Electric Power on the Creation of a CCS Value Chain between Malaysia and Japan	Feb 2024	Mitsui & Co., Chugoku Electric Power Co.	CO_2 emitted by a coal-fired power plant operated by Chugoku Electric Power	Malaysia
6	Agreement to conduct a feasibility study covering on (1) CO_2 capture in Japan, (2) shipping the CO_2 to Australia, (3) production and storage of synthetic fuel (e-fuel) derived from the CO_2 in Australia, and (4) establishment of a comprehensive supply chain, including export of e-fuel from Australia	Feb 2024	ITOCHU, HIF Asia Pacific, Mitsui OSK, JFE Steel	CO_2 emitted in Japan	Australia
7	Establish a CCS value chain by capturing CO_2 emitted from industrial emitters in JP (incl Eneos refinery), transporting it by CO_2 carrier to the Port of Bonython in Australia, and injecting and storing it at a storage site	Feb 2024	JX Nippon Oil & Gas Exploration Corporation, Mitsui OSK	CO_2 emitted from ENEOS refinery and nearby various industries in Japan	Australia
8	MoU for a joint feasibility study that will evaluate the potential to capture, transport and sequester emissions from Japan, supporting expansion of the Moomba CCS project in Australia	Dec 2023	Santos, JX Nippon Oil & Gas Exploration Corporation and ENEOS Corporation	CO_2 emitted from Japan	Australia
9	MOU for Feasibility Study to Realize "Setouchi / Shikoku CO_2 Hub Concept"	Dec 2023	Sumitomo, JFE Steel, Sumitomo Osaka Cement, Kawasaki Kisen Kaisha, Woodside Energy	CO_2 emitted from the Setouchi and Shikoku regions	Australia
10	MoU to study cross boundary CCS projects between Japan and Malaysia	Oct 2023	METI, JOGMEC, Petronas	CO_2 emitted in Japan	Malaysia
11	MoU for feasibility study of an international CCUS value chain from Port of Nagoya, Japan, using CO_2 storage at the Tangguh* field in Indonesia	Sep 2023	Chubu, BP	CO_2 emitted from Port of Nagoya, Japan	Indonesia

12	MOU for Feasibility Study to Establish a Japan-Australia CCS Value Chain	Sep 2023	Sumitomo, Toho Gas, Kawasaki Kisen Kaisha, Woodside	CO_2 emitted from various industries and companies in the Chubu region, Japan	Australia
13	Mitsui, PETRONAS and TotalEnergies have selected offshore Peninsular Malaysia as the location of underground sequestration of CO_2 ... Under this collaborative framework, Mitsui, together with PETRONAS and TotalEnergies, will work together on technical evaluation and development concept of depleted field	June 2023	Mitsui & Co, Petronas, TotalEnergies		
14	MoU to Evaluate and establish CCS value chains in the Asia Pacific Region	Jan 2023	Nippon Steel, Mitsubishi Corporation, ExxonMobil	CO_2 emitted from Nippon Steel's steelworks in Japan	Malaysia, Indonesia and Australia
15	The three Japanese energy companies plan to store (CO_2) emitted during the production of liquefied natural gas (LNG) at projects in northern Australia and they also hope to eventually transport CO_2 from Japan by ship	Jun 2022	JERA, Tokyo Gas and INPEX, and Santos		Australia

CC:
Mr. Fumio Kishida, Prime Minister of Japan
Ms. Yoko Kawakami, Japanese Minister of Foreign Affairs
Ms. Shintaro Ito, Japanese Minister of Environment
Mr. Shunichi Suzuki, Japanese Minister of Finance
Mr. Nobumitsu Hayashi, Governor of Japan Bank for International Cooperation (JBIC)
Mr. Ichiro Takahara, Chairman and CEO of Japan Organization for Metals and Energy Security
Mr. Atsuo Kuroda, Chairman and CEO of Nippon Export and Investment Insurance (NEXI)
Mr. Chris Bowen, Australian Minister for Climate Change and Energy
Ms. Penny Wong, Australian Minister for Foreign Affairs
Ms. Madeline King, Australian Minister for Resources
Mr. Arifin Tasrif, Minister of Energy and Mineral Resources of Indonesia
Mr. Bahlil Lahadalia, Minister of Investment/Head of Indonesia Investment Coordinating Board
Mr. Luhut Binsar Pandjaitan, Coordinating Minister for Maritime and Investment Affairs of Indonesia
Dato' Seri Anwar bin Ibrahim, Prime Minister of Malaysia and Minister of Finance
Dato' Sri Haji Fadillah bin Haji Yusof, Ministry of Energy Transition and Water Transformation
Mr Nik Nazmi bin Nik Ahmad, Malaysian Minister of Natural Resources and Environmental Sustainability
Mr Mohd Rafizi bin Ramli, Malaysian Minister of Economy
Datuk Patinggi Tan Sri (Dr) Abang Haji Abdul Rahman Zohari Bin Tun Datuk Abang Haji Openg, Premier of Sarawak
Mr. Katsuya Nakanishi, Representative Director, President and CEO of Mitsubishi Corporation

Mr. Tomohide Miyata, Representative Director and Executive Vice President of ENEOS Corporation
Mr. Toshiya Nakahara, President and CEO of JX Nippon Oil & Gas Exploration Corporation
Mr.Kenichi Hori, Representative Director, President and Chief Executive Officer of Mitsui & Co.
Mr. Yukio Kani, Global CEO of JERA
Mr. Hayashi Kingo, President and Director of Chubu Electric Power Co.,
Mr. Ashitani Shigeru, Representative Director, Chairperson of the Board of The Chugoku Electric Power co.
Mr. Masahiro Kihara, Masahiro Kihara, President & Group CEO of Mizuho Financial Group, Inc.
Mr. Toru Nakashima, President and Group CEO of Sumitomo Mitsui Financial Group
Mr. Hironori Kamezawa, President & Group CEO of MUFG
Tan Sri Tengku Muhammad Taufik Tengku Kamadjaja Aziz, President & Group Chief Executive Officer, Executive Director of Petronas

Signatories (90 organizations from 26 countries)

Malaysia

1. Forum Kedaulatan Makanan Malaysia (FKMM)
2. Aliran
3. Gabungan Darurat Iklim Malaysia (GDIMY)
4. KAMY
5. RimbaWatch
6. Greenpeace Malaysia
7. Center to Combat Corruption and Cronyism (C4 Center)
8. Consumers' Association of Penang
9. SAVE Rivers
10. Jaringan Ekologi dan Iklim (JEDI)
11. Treat Every Environment Special Sdn Bhd
12. Climate Action Network Southeast Asia (CANSEA)
13. Gabungan Bertindak Malaysia (GBM)
14. Alliance Of River Three
15. Gerakan Belia Sepunjabi Malaysia
16. Malaysian Youth Delegation (MYD)
17. Sahabat Alam Malaysia / Friends of the Earth Malaysia
18. Monitoring Sustainability of Globalisation
19. MYDCLIMATE

Indonesia

20. Wahana Lingkungan Hidup Indonesia (WALHI) / Friends of the Earth Indonesia
21. Kampoeng Tjibarani
22. World March of Women Indonesia
23. Yayasan PIKUL
24. KRuHA
25. AEER (Action for Ecology and People Emancipation)
26. TREND ASIA
27. Publish What You Pay (PWYP) Indonesia
28. greenpeace indonesia
29. Humanis (affiliated with Hivos)
30. Lembaga Bantuan Hukum Pijar Harapan Rakyat

31. WALHI East Java
32. WALHI Riau
33. Eksekutif Daerah WALHI Aceh
34. Jala PRT
35. WALHI Sulawesi Tengah
36. DEWAN MAHASISWA UNIVERSITAS ISLAM NUSANTARA
37. WALHI Papua

Australia

38. Solutions for Climate Australia
39. Friends of the Earth Australia
40. Australian Conservation Foundation

Japan

41. Kiko Network
42. Mekong Watch
43. Friends of the Earth Japan

Regional/International

44. Friends of the Earth International
45. Oil Change International
46. Hawkmoth
47. Senik Centre Asia
48. Asian People's Movement on Debt and Development
49. SteelWatch

Bangladesh

50. Coastal Livelihood and Environmental Action Network (CLEAN)
51. Dhoritri Rokhhay Amra
52. Waterkeepers Bangladesh

Bosnia and Herzegovina

53. Center for Environment / FoE Bosnia and Herzegovina

Denmark

54. NOAH Friends of the Earth Denmark
55. Miljøforeningen Havnsø-Føllenslev
56. Fossil Free Future in Denmark

DR Congo

57. Congo Basin Conservation Society CBCS network DRC
58. Innovation pour le Développement et la Protection de l'Environnement

England Wales and Northern Ireland

59. Friends of the Earth England Wales and Northern Ireland

Finland

60. Friends of the Earth Finland

Germany

61. Buergerinitiative gegen CO2-Endlager e.V.
62. Andy Gheorghiu Consulting

Ghana

63. AbibiNsroma Foundation

India

64. Integrated Rural Development Society

Italy

65. ReCommon

Kenya

66. WMW Kenya

Nepal

67. Forum for Protection of Public Interest (Pro Public)

Pakistan

68. Policy Research Institute for Equitable Development (PRIED), Pakistan
69. Indus Consortium
70. Pakistan Fisherfolk Forum

Papua New Guinea

71. Centre for Environmental Law and Community Rights Inc.

Philippines

72. 350 Pilipinas
73. Legal Rights and Natural Resources Center - Friends of the Earth Philippines
74. People of Asia for Climate Solutions
75. Youth for Climate Hope (Y4CH)

Korea

76. Citizens' Institute for Environmental Studies (CIES)

Scotland

77. Friends of the Earth Scotland

South Africa

78. South Durban Community Environmental Alliance
79. groundWork/ Friends of the Earth South Africa

Sri Lanka

80. Centre for Environmental Justice/ FoE Sri Lanka

Togo

81. Les Amis de la Terre-Togo

Uganda

82. Centre for Citizens Conserving Environment & Management (CECIC)

US

83. Friends of the Earth US
84. Indigenous peoples of the coastal bend
85. Ingleside on the Bay Coastal Watch Association
86. Texas Campaign for the Environment
87. Healthy Gulf
88. Center for International Environmental Law (CIEL)
89. Vessel Project of Louisiana
90. For a Better Bayou


GABUNGAN DARURAT IKLIM
MALAYSIA


IDPE / asbl


RIMBAWATCH


Kampoeng
Tjibarani


solutions
for Climate Australia


GREENPEACE


Publish
What You Pay
INDONESIA


C4
THE CENTER TO COMBAT
CORRUPTION AND CRONYISM


Friends of
the Earth
United States


humanis
affiliated with Hivos


LRC
LEGAL RIGHTS
AND NATURAL
RESOURCES
CENTER


Mekong Watch


DEWAN MAHASISWA
UNIVERSITAS ISLAM NUSANTARA


LEMBAGA BANTUAN HUKUM
PIJAR
HARAPAN
RAKYAT


Friends of
the Earth
International


PULAU PINANG


SAVE Rivers
NETWORK


JEDI
Jaringan Ekologi
dan Iklim


TrEES
Together for a Greener Future


Maan ystävät
Friends of the Earth Finland


Friends of
the Earth
Australia


PAKISTAN
FISHER FOLK FORUM
FOUNDER GROUP


groundWork


andy gheorghiu consulting


Coastal Livelihood
and Environmental
Action Network
clean


YOUTH FOR
CLIMATE
HOPE


AbibiNsroma
Foundation


Friends of
the Earth
Scotland


NOAH
Friends of the Earth Denmark


Vessel Project


CANSEA
CLIMATE ACTION NETWORK
Southeast Asia


Fossilfri
Fremtid


APMDD
ASIAN PEOPLES' MOVEMENT
ON DEBT AND DEVELOPMENT


MILJØforeningen
HAVNSØ-FØLLENSLEV


FOR A BETTER BAYOU
FOR A BETTER BAYOU


TEXAS CAMPAIGN
FOR THE
ENVIRONMENT


Centar za
životnu sredinu


ALLIANCE OF RIVER TRIBES
SINCE 18 SEPTEMBER 2018


STOPPT
CO2- Endlager
und Fracking
STOP
STOPPT DEN WAHNSINN!


Re
Com
mon


WALHI
JAWA TIMUR


WALHI
Riau


IOBCWA


healthy
gulf


WALHI
PAPUA


WALHI
Aceh


WALHI
SULAWESI TENGAH