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Climate Finance in Southeast Asia: Trends and Opportunities

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Thousands of panels glinting in the sun stretch into the sea off Singapore, part of the land-scarce city-state's push to build floating solar farms to cut greenhouse gas emissions. This photograph taken on January 22, 2021 shows a general view of a floating solar power farm at sea. Photo: Roslan RAHMAN, AFP.

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EXECUTIVE SUMMARY

- Developed countries were committed to mobilising by 2020 US\$100 billion in climate finance annually to assist vulnerable countries. However, the Covid-19 crisis stalled the delivery of the pledge and as of 2019, such climate finance reached only US\$ 79.6 billion.
- For Southeast Asia, a region frequently cited as being one of the most vulnerable regions threatened by climate change, the broken promise on climate finance is highly disappointing.
- In the most updated Nationally Determined Contributions (NDCs) to the United Nations Framework Convention on Climate Change (UNFCCC), for instance, seven out of ten ASEAN countries (excepting Brunei, Malaysia, and Singapore) have set more ambitious carbon emission reductions conditional upon receiving international assistance from advanced economies.
- This article provides key trends of climate finance inflows to the region throughout 2000-2019. It also informs strategic directions and offers some considerations for climate negotiations with international partners, such as determining the financial needs, attracting more donors and utilising a wide range of financial instruments to fill financial gaps, and directing more funding for adaptation projects.

INTRODUCTION

Climate finance has been one of the most contentious issues in global climate politics. At the 2009 United Nations Climate Change Conference (COP 15), developed countries committed to mobilising by 2020 US\$100 billion climate finance annually to assist vulnerable countries. The pledge has been key to building trust between states to limit global warming to well below 2 degrees Celsius, as specified in the Paris Agreement.

However, the spread of Covid-19 in late 2019 devastatingly halted the delivery of the pledge. A study by the World Resource Institute pointed out that international climate finance decreased during the pandemic.¹ Even before the pandemic, climate finance had been falling short. As of 2019, climate finance reached only US\$79.6 billion.² The deadline has come and gone with the 2021 United Nations Climate Change Conference (COP 26) giving assurance that the target will be fulfilled by 2023, delaying the commitments by another three years, and undermining the credibility of developed countries and the overall progress in addressing the global climate crisis.³

For Southeast Asia, a region frequently cited as being one of the most vulnerable regions threatened by climate change, the broken promise of climate finance is highly disappointing. In many climate summits and meetings with international partners, Southeast Asian leaders frequently seek assistance to enhance their fiscal capacities to fund their long-term climate goals, namely green infrastructure development, institutional strengthening, and extending climate assistance to the poor and vulnerable populations.⁴ In the most updated Nationally Determined Contributions (NDCs) to the UNFCCC, seven out of ten ASEAN countries, with the exception of Brunei, Malaysia, and Singapore, have set more ambitious carbon emission reductions conditional upon receiving international assistance from advanced economies.⁵

This article gives an overview of international climate assistance distributed to Southeast Asian countries, provides key trends analysis and highlights gaps in climate assistance mobilised in the region from 2000 to 2019. Using data from the OECD Development Assistance Committee (DAC) on Official Development Assistance (ODA) and other resource flows to developing countries from bilateral and multilateral development cooperation, it analyses climate-related development finance data inflows to ASEAN countries. It further informs strategic directions for the regional policymakers and offers some considerations for future climate negotiations with international partners.

CLIMATE ASSISTANCE TRENDS IN SOUTHEAST ASIA

Trend 1: 10.56% of the Global Climate Finance went to ASEAN Countries

From 2000 to 2019, developed countries mobilised a total of US\$ 533 billion in climate finance for developing countries. Thus, on average, nearly US\$28 billion were given to developing countries in the past 20 years annually. The pledge made at COP 15 in Copenhagen was to provide an annual sum of US\$100 billion in climate finance by 2020. In 2019, only US\$79.60 billion was mobilised.

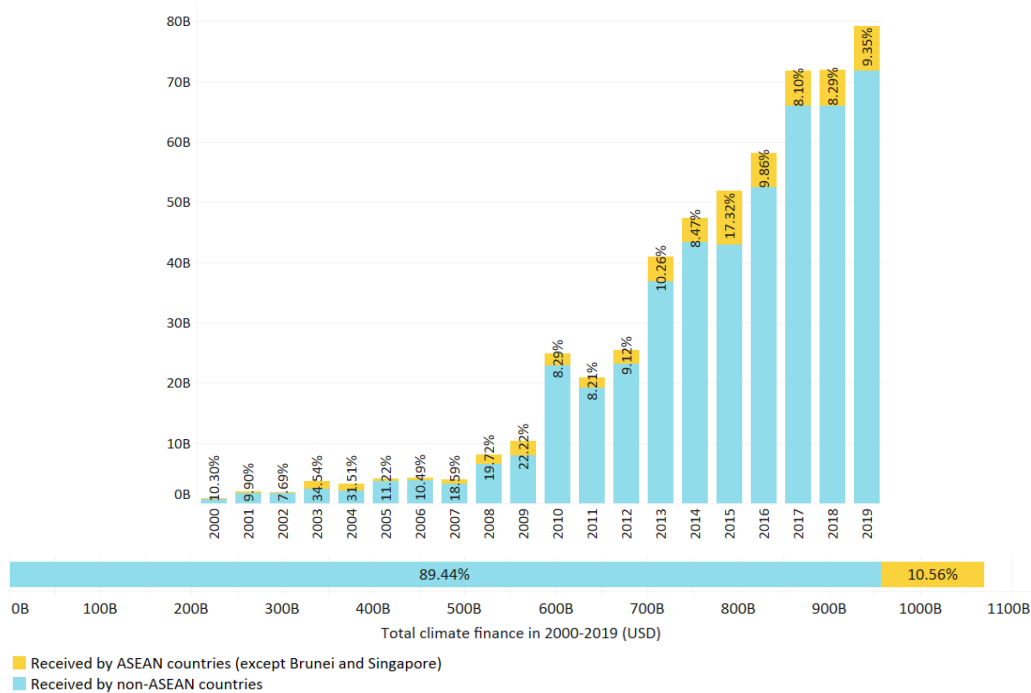
Figure 1 Climate Finance Provided to Developing Countries (2000-2019)



Source: OECD (adapted from the Financial Times article: “COP26: where does all the climate finance money go?”). Figures for 2020 are not available.

ASEAN countries (except Brunei and Singapore) received a total of US\$56 billion or 10.56% of the total assistance between 2000 and 2019. On average, developed countries provided only US\$86 per person in eight ASEAN countries over 20 years, or as little as US\$4 per person annually.⁶

Figure 2 Climate Finance Provided to ASEAN Countries (2000-2019)

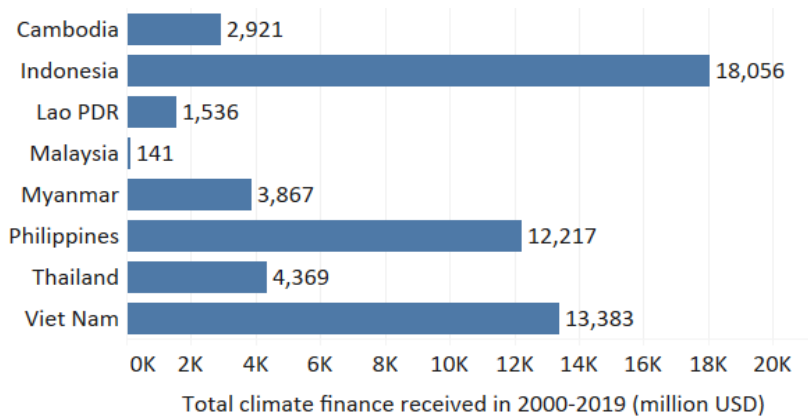


Source: OECD, 2019

Trend 2: Indonesia, the Philippines and Vietnam are the Top Three Climate Finance Recipients in ASEAN

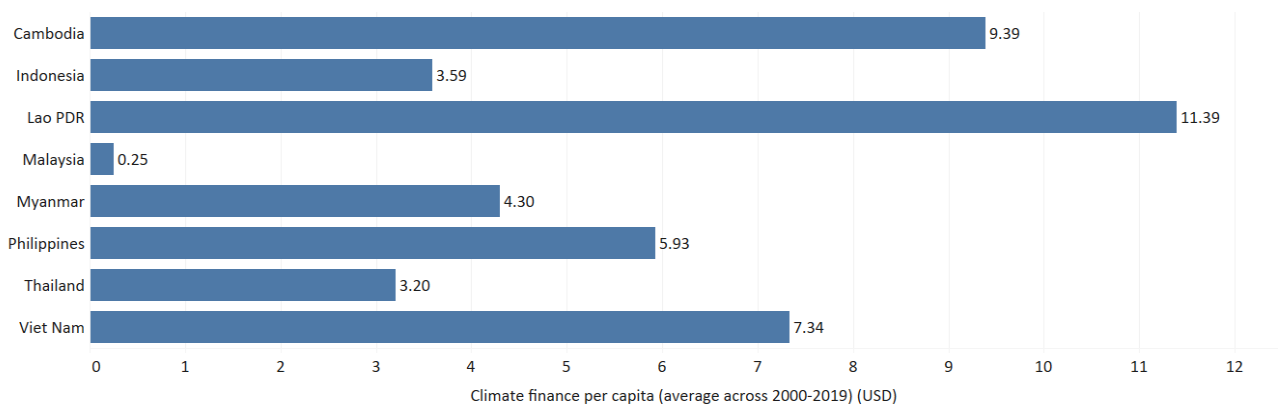
Of the eight ASEAN countries that were recipients of assistance mobilised by developed countries over the past 20 years, the three with the highest populations — Indonesia, the Philippines, and Vietnam – were the top recipients. However, Lao PDR, Cambodia, and Vietnam are the top three recipients of assistance received per capita. Cambodia and Laos are among the lowest per-capita GDP countries in the region. Meanwhile, Myanmar, the poorest country with a GDP per capita of US\$1,250⁷ received a relatively modest amount of climate assistance per capita over those 20 years of US\$4.30 on average, compared to US\$9.39 and US\$11.39 for Cambodia and Laos respectively.

Figure 3 Total Climate Finance by Recipient



Source: OECD, 2019

Figure 4 Average Climate Finance per Capita



Source: OECD, 2019

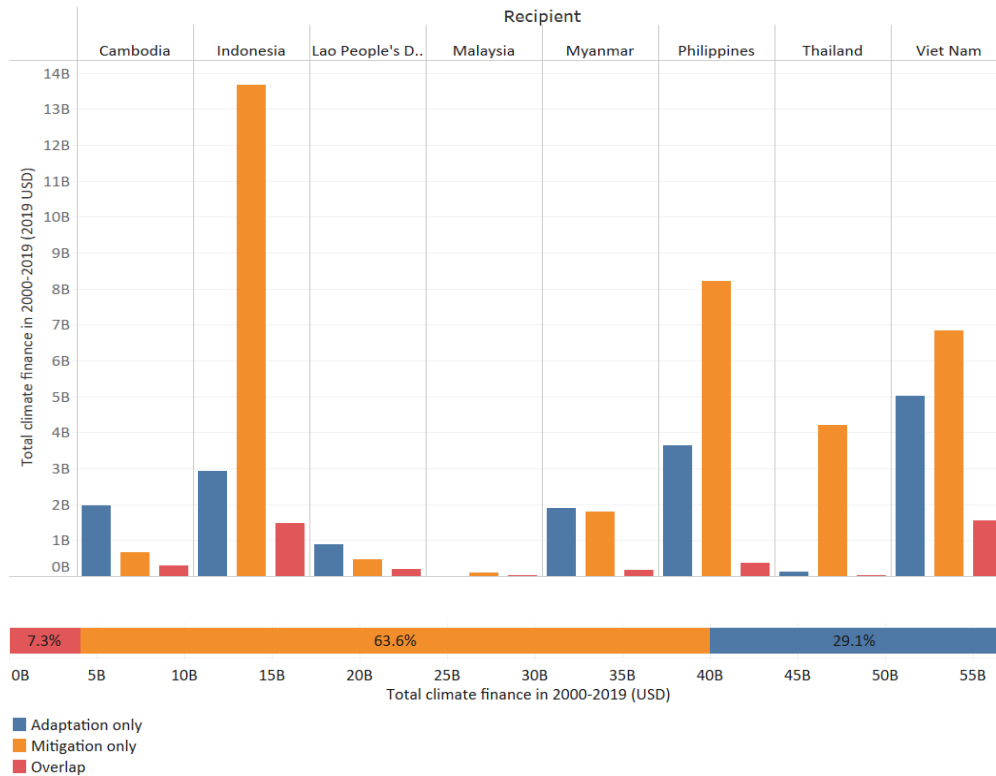
Trend 3: Lack of Climate Adaptation Finance in The Region

The Global Climate Risk Index developed by GermanWatch ranked four ASEAN countries, Myanmar, the Philippines, Vietnam and Thailand among the top ten countries most affected by extreme weather events from 1999 to 2018.⁸ Although Southeast Asia is frequently referred to as one of the most vulnerable regions to climate change, assistance on climate adaptation finance that can provide the region with the capacity to reverse effects of climate change such as floods, drought, and extreme weather, and to improve the resilience of vulnerable populations is still lacking.

The region received a total of US\$28.37 billion in assistance to fund climate mitigation projects between 2000 to 2019. In comparison, it only received US\$10.42 billion assistance to invest in adaptation capacities. Simply put, climate mitigation projects attracted almost three times as much funding as climate adaptation projects did.

Among ASEAN countries, Indonesia received the highest amount of climate mitigation assistance (US\$13.7 billion), while Vietnam received the largest amount of climate adaptation assistance (US\$5 billion).

Figure 5 Climate Finance Received by Recipient and Intervention



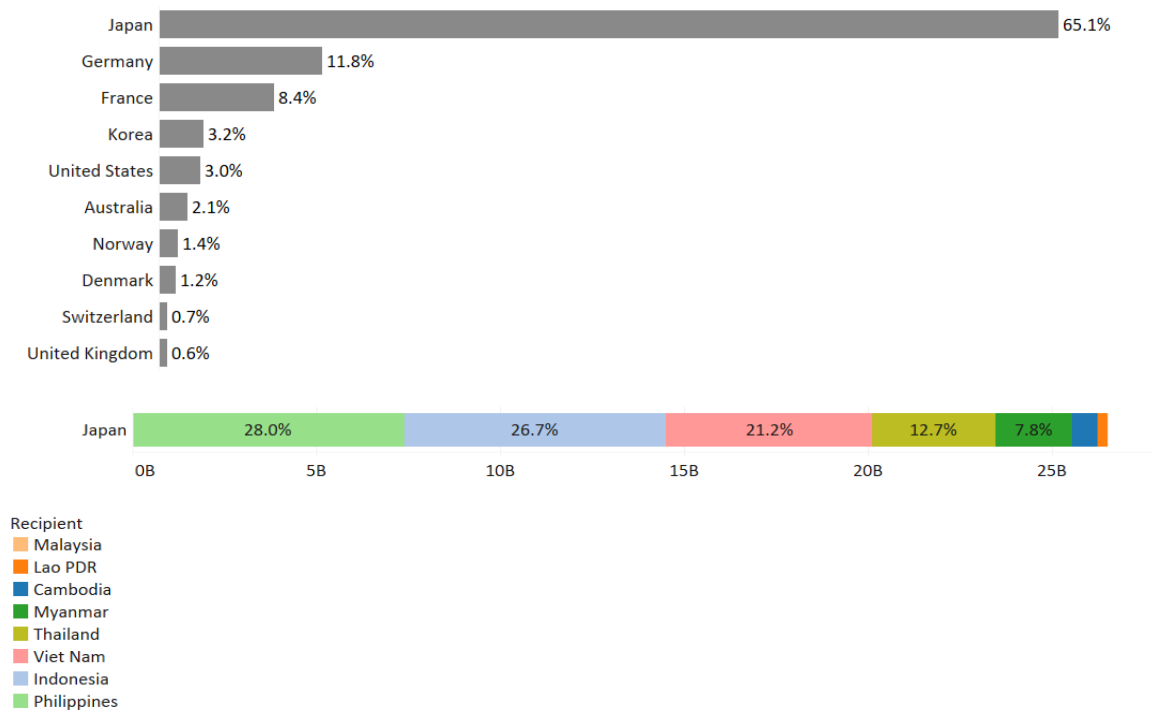
Source: OECD, 2019

Trend 4: Japan is the Biggest Donor in the Region

The Japanese government is by far the biggest bilateral and multilateral donor in the region. The Japanese government provided 65% of total bilateral climate finance between 2000 to 2019, outstripping Germany’s 11.8% and France’s 8.4% contribution. Similarly, the Asian Development Bank (ADB), where Japan is the top contributor to the institution’s funds, provided 32.8% of the total multilateral climate finance. However, both donors’ contributions to the region were concentrated in Indonesia, the Philippines, and Vietnam.

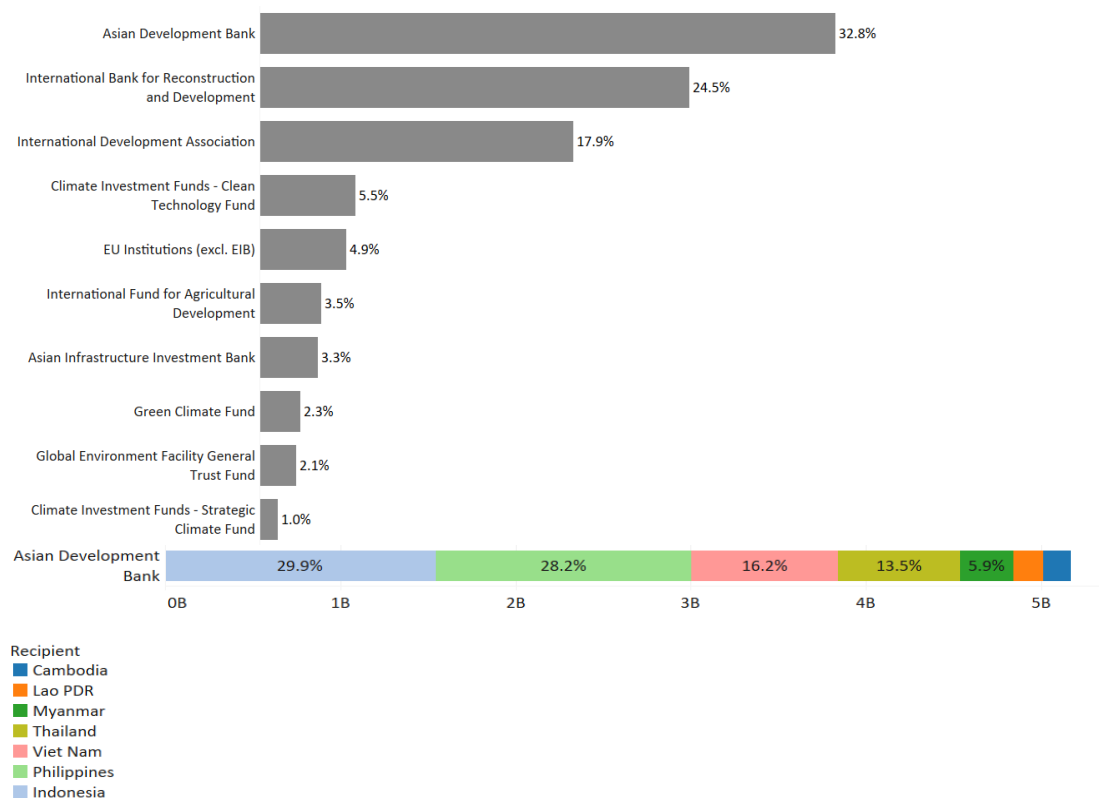
The role of the Japanese government in assisting the region’s transition to a green economy is important for the region. In the Southeast Asia Climate Outlook 2021 Survey conducted by the ISEAS – Yusof Ishak Institute, Southeast Asians think that Japan is the second most trusted partner in helping the world achieve Paris-aligned goals and in sharing their climate expertise to the region, after the European Union. Interestingly, Japan’s climate leadership was polled as the first choice in the Mekong countries of Cambodia, Laos, and Myanmar, as well as in the Philippines.⁹

Figure 6: Top 10 Contributors of Bilateral Climate Development Finance to ASEAN Countries (2000-2019) (% Of Total Bilateral Climate Finance to ASEAN Countries)



Source: OECD, 2019

Figure 7: Top 10 Contributions to Multilateral Climate Development Finance to ASEAN Countries (2000-2019) (% of Total Multilateral Climate Finance to ASEAN countries)

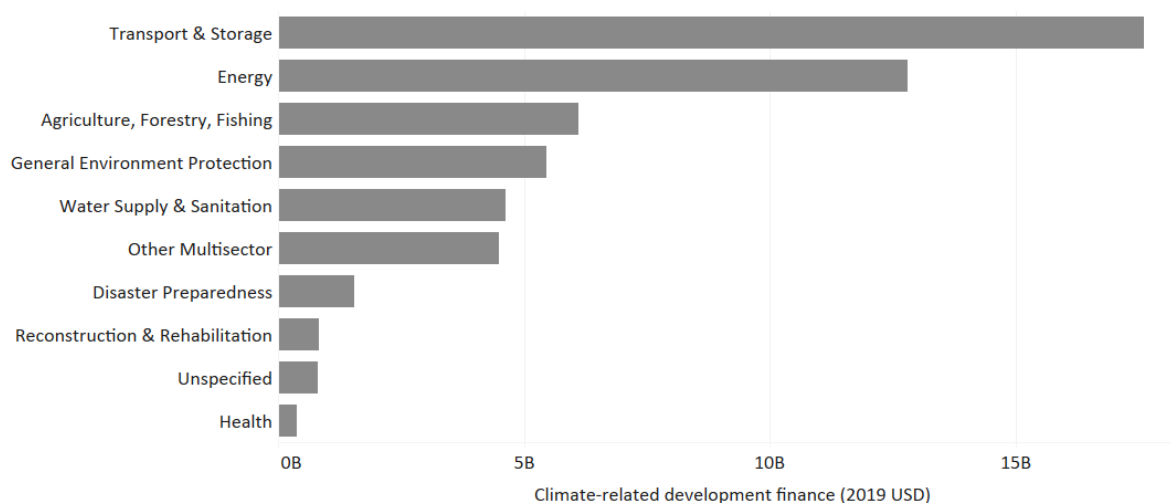


Source: OECD, 2019

Trend 5: Transport & Storage, Energy, and Agriculture and Forestry, Fishing are the Top Three Most Funded Sectors in the Region

Transport and Storage, Energy, and Agriculture, Forestry, and Fishing are the top three most funded sectors in the region, receiving a total of US\$17.6 billion, US\$12.8 and US\$ 6.1 billion respectively from 2000 to 2019. Meanwhile, adaptation-specific sectors, such as water supply and sanitation, disaster preparedness, and reconstruction and rehabilitation, albeit much needed, received less than US\$5 billion each in the same period.

Figure 8: Top Ten Sectors Funded



Source: OECD, 2019

NDCs and Biennial Update Reports (BURs) submitted to the UNFCCC by ASEAN countries contain details of the amount of climate finance needed to achieve their Paris pledges. While some countries identified specific sectors where international financial support is needed, others have gone further to estimate the amount of finance needed for specific sectors and projects. Figure 9 shows comparisons between sectors and focuses on climate mitigation and adaptation finance received from 2000 to 2019 versus climate finance needs reported by ASEAN countries. In general, international climate finance has been channelled consistently to the priority sectors of ASEAN countries, although there is some mismatch.

For instance, Indonesia’s climate pledge highlighted the need to prioritise (1) Energy and Transport, (2) Land Use, Land Use Change and Forestry, (3) Waste, and (4) Agriculture. These four sectors received the highest climate finance provided by donors. Indonesia also articulated a commitment to slash carbon emissions from the Energy and Industrial Processes and Product Use (IPPU). However, this sector has yet to receive significant funding from donors. Similarly, Malaysia and Cambodia articulated their priority in enhancing their infrastructure and health sectors in response to climate change, yet these sectors have not garnered significant support from donors (see Annex 1 for detailed analysis).

Figure 9: Top Five Sectors Funded Versus Sectors in Need of Climate Finance

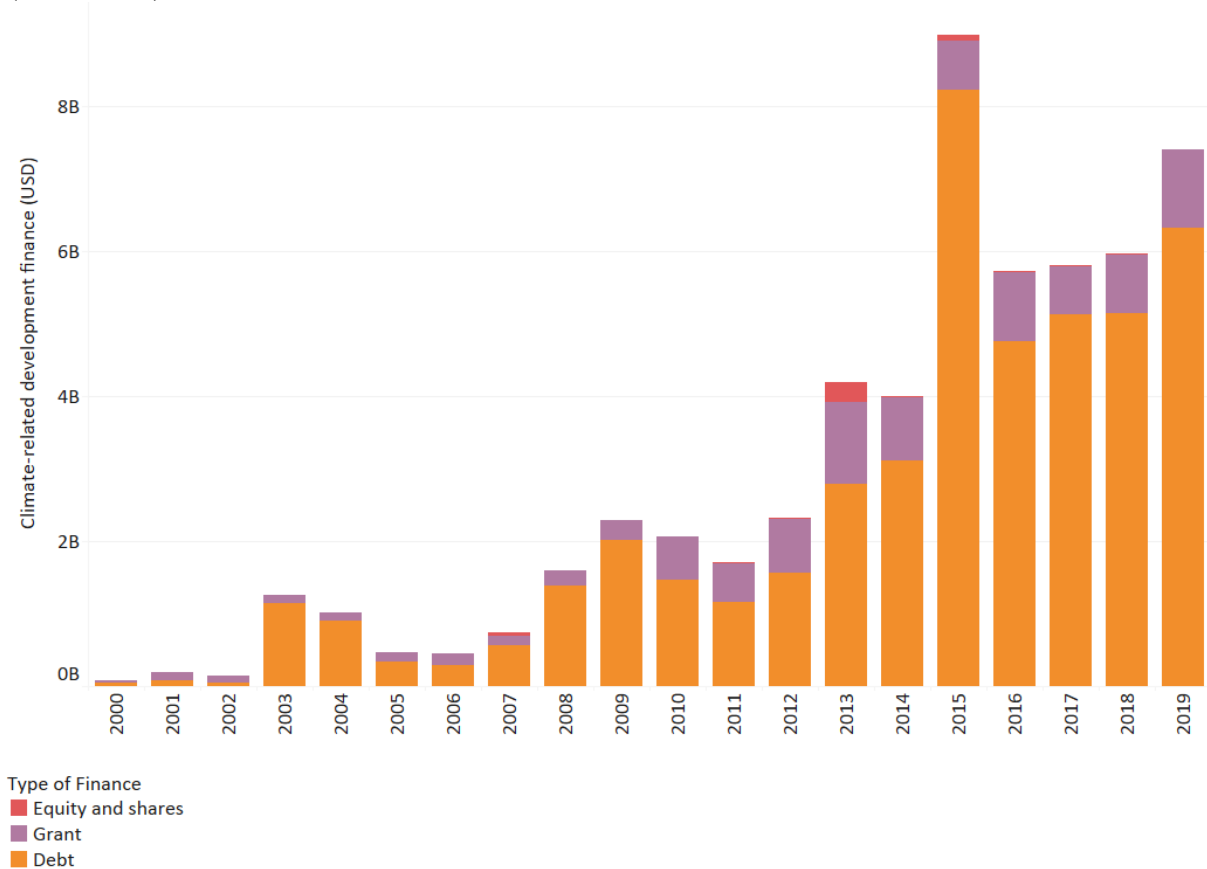
Top 5 receiving sectors of climate finance	Top sectors in need of international climate finance (as reported in NDCs and BURs), ranked by estimated amounts (where available)						
Overall	Cambodia	Indonesia	Laos	Malaysia	Myanmar	Thailand	Vietnam
Transport & Storage	Forestry	Energy & Transport	Energy	Water	Energy	No ranking of sectors as amounts are not specified. Identified needs are in: Energy, Transport, Agriculture, Waste, Water, Health, Cross-sectoral	Energy
Energy	Waste	LULUCF	Forests	Energy	Agriculture		Agriculture
Agriculture, Forestry, Fishing	Infrastructure	Waste	Transport	Health	Transport		LULUCF
General Environment Protection	Energy	Agriculture	Waste	IPPU	-		Waste
Water Supply & Sanitation	Health	IPPU	-	-	-		IPPU

Source: Writers' analysis (see Annex 1 for methodology and detailed analysis). Data are unavailable from the Philippines (international climate finance needs not discussed in NDCs, no BUR submitted). Sector category names differ for climate finance received (from OECD data, leftmost column) and climate finance needs (from country reports, remaining columns). Colours indicate a rough match between OECD sectors and country-reported sectors.

Trend 6: Loans Comprise the Majority of Climate Finance in the Region

There is yet to be a multilaterally agreed definition of climate finance; this is considered by some countries to be an obstacle in the proper accounting of climate finance.¹⁰ OECD's definition includes grants, debt instruments, mezzanine finance instruments, equity and shares, debt relief, guarantees and other unfunded contingent liabilities in its estimates of climate finance. This led to an estimated amount of US\$79.2 billion in global climate finance in 2019. The proportion of global climate finance delivered in the form of debt instruments increased from 14.91% in 2000 to 63.89% in 2019.

Figure 10 Financial Instruments Used in Climate Finance to ASEAN recipients, 2000-2019 (2019 USD)



Source: OECD, 2019

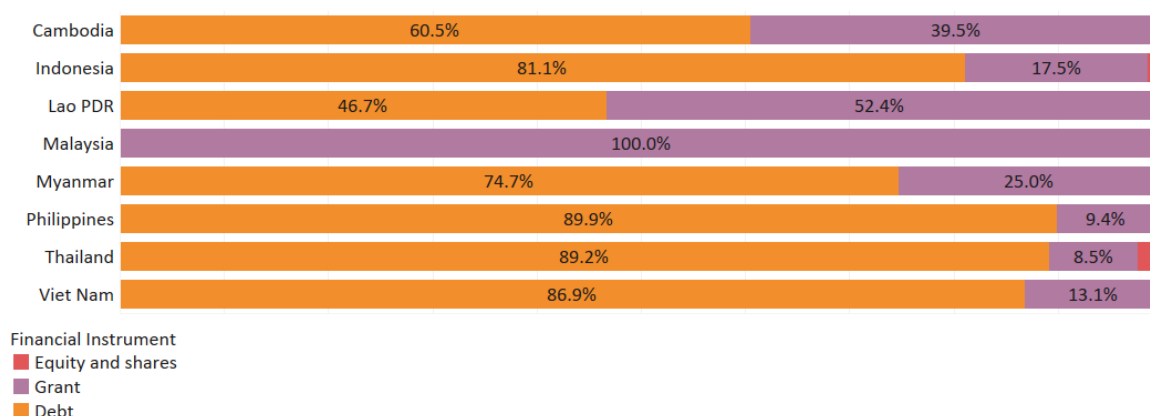
Focusing on the ASEAN-8 recipients, the proportion of finance in the form of debt instruments reached 85.5% in 2019, compared to 53.2% in 2000. The proportion of debt instruments shot up to 90.9% in 2003, and has stayed within 65% to 90% since. Mostly, debt instruments consistently made up over 80% of finance in 2015-2019. Of this debt finance, 0% was non-concessional in 2000, compared to 48.62% in 2019. As such, the proportion of climate debt offered under more generous terms than market loans is decreasing steadily. Compared to the global context, climate development finance flows to ASEAN countries are more likely to be in the form of debt instruments such as standard loans, with similar rising trends in non-concessional debt finance.

The Climate Finance Shadow Report 2020¹¹ conducted by Oxfam found that while reported public climate finance has increased over the years, this is largely due to the rise of non-concessional loans and other non-grant instruments, a trend which is also observed on the part of ASEAN recipients. The report highlighted that the grant equivalent of global reported public climate finance in 2017-2018 was just US\$25 billion, less than half the face-value figure of US\$59.5 billion in the same period. To avoid overstating international climate assistance, Oxfam urged countries to report the grant equivalent of their climate finance to the UNFCCC, which would provide an estimation of the amount of money given

away in a concessional loan compared to a standard market loan. This practice has been adopted for development finance reported to the OECD since 2018.

The growing magnitude of debt instruments in overall climate finance is not surprising, given the rising popularity of sustainable finance globally and in the region, but this raises concerns of debt burden. The Jubilee Debt Campaign estimated¹² that spending on external debt is over five times higher than on climate adaptation in lower income countries, bolstering developing countries' argument¹³ that overwhelming debt restricts their ability to take climate action. Oxfam argues that some climate-financed projects may not be as profitable in low-income societies, which may have difficulty generating the revenue needed for repayments.¹⁴ The proportion of debt instruments in climate finance received by lower-income ASEAN countries can be seen in Figure 11.

Figure 11 Financial instrument breakdown of total climate finance received, 2000-2019 (%)



Source: OECD, 2019

Cambodia, Laos and Myanmar respectively received 60.5%, 46.7% and 74.7% of their climate finance in the form of debt instruments. This amounts to around US\$1.8 billion, US\$716.9 million and US\$2.9 billion respectively, over two decades. Yet, the overall debt burden in these countries is already high. Between 2018 and 2020, Laos spent an average of US\$509 million per year, Myanmar spent an average of US\$492.3 million per year, and Cambodia spent over US\$1 billion per year on principal repayments. In the same period, the average ratio of external debt to Gross National Income was 63.7% for Cambodia, 94.0% for Laos and 16.0% for Myanmar.¹⁵

Japan was the largest provider of climate finance to the ASEAN region in 2000-2019, contributing 65.1% of all bilateral climate finance received, while France was the third largest provider. Both are also among the largest providers of climate finance globally.¹⁶ In contrast to other major providers, almost all of Japan's and France's contributions are in the form of concessional and developmental debt (95.0% and 97.3% respectively). In contrast, Germany, Japan, the US and Australia were the largest providers of grant-based finance.

RECOMMENDATIONS

International climate finance is needed to enable developing countries to adopt more ambitious NDCs under the Paris Agreement. The climate finance mobilised by developed countries for ASEAN has highlighted several gaps and opportunities for future climate finance cooperation.

1. The pledge to provide US\$100 billion climate finance annually has yet to be achieved. Developed countries will be expected to provide more to keep this pledge in future climate negotiations. Data show that ASEAN countries (except Brunei and Singapore) received a sum of US\$56 billion or 10.56% of the total assistance over 20 years. Further study is needed to evaluate whether the number or proportion is enough, given Southeast Asia's projections of climate risks and the population numbers exposed to the risks.
2. Most climate finance received in the region is in the form of loans. ASEAN governments should also be more articulate in determining to what extent loans can assist lower-income countries in climate action without adding to their existing financial burdens.
3. The ASEAN region currently receives much bilateral and multilateral climate assistance from the government of Japan. Given the region's investment attractiveness, ASEAN needs to better communicate their climate visions to other bilateral and multilateral partners so that they can play more critical roles in filling the financial gaps in the future.
4. Although studies show that Southeast Asia is in dire need of climate adaptation, the region did not receive enough financial assistance on climate adaptation-related projects. Projects such as Nature-based solutions (NBS) and Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDD+) have been attractive and proven bankable. Donors must continue mobilising funding for scaling and replication of these projects across the region. At the same time, ASEAN countries need to articulate better adaptation pledges as well as make adaptation investments bankable to attract more capital from other sources.
5. Determining the instruments for climate action has been a contentious issue in many climate conferences. While economists and policymakers are still examining the prospect of various climate instruments, ASEAN governments must consider utilising a wide variety of instruments. Such an approach will help diversify financial sources.¹⁷
6. The analysis in Figure 9 suggests that some sectors are underfunded, such as infrastructure and health (Cambodia) and IPPU (Indonesia, Malaysia, and Vietnam). ASEAN countries need to articulate their climate finance needs more clearly in their NDCs, e.g. defining conditional and unconditional targets at sector level, identifying sectors that need climate finance, and estimating amounts needed if possible, so that international finance can better match their contribution to the Paris Agreement.

Appendix 1**Methodology and Analysis on Most Funded Sectors Versus Sectors in Need of Climate Finance**

Nationally Determined Contributions (NDCs) and Biennial Update Reports (BURs) submitted to the UNFCCC contain details of the climate finance needed for each country to fulfil its conditional targets. Figure 9 compares sectoral focuses on climate mitigation and adaptation finance received in 2000-2019 versus climate finance needs reported by ASEAN countries (where data are available from their NDCs and/or BURs), while detailed figures can be found in Tables 1 and 2 below. While some countries have identified specific sectors where international financial support is needed, others have gone further to estimate the amount of finance needed for specific sectors and projects. It should be noted that sector categories differ for climate finance received (from OECD data) and climate finance needs (from country reports), which allows for only a general comparison between the two.

Cambodia

The sector allocation of mitigation finance received by Cambodia so far is generally aligned with its needs. Both show an emphasis on forestry, agriculture and other land-use activities. Past finance flows also focused on multi-sector projects. Notably, the waste sector has the second greatest need for mitigation finance, after forestry. In terms of adaptation, Cambodia's top identified financial needs were for Infrastructure (climate resilience and response measures), Water and Agriculture. Agriculture, Forestry and Fishing and Water Supply and Sanitation are indeed among the top sectors for which Cambodia received adaptation finance, though more focus may be needed for Infrastructure and Energy measures. For longer-term finance (2025-2050), Cambodia has indicated in its Long-Term Strategy for Carbon Neutrality that its international climate finance needs for meeting its 2050 carbon neutrality target amount to US\$2.3 billion. It intends to allocate such funds to the Transport (public transport and rail freight), Forestry and Energy (carbon capture and storage and grid flexibility) sectors.

Indonesia

Indonesia identified the greatest need for finance in the Energy and transport, LULUCF, Waste and Agriculture sectors. This matches the sectors in which it received the most climate mitigation finance in 2000-2019, with a significant amount allocated to multi-sector activities as well. Indonesia did not indicate sector-specific needs for adaptation finance.

Laos

There is a good match between the sector allocation in finance received and finance needed, with the main focus being on Forests, Energy, Transport and Waste. In terms of amount, mitigation finance received in 2000-2019 was much less than what Laos needs now to achieve its 2030 targets. For instance, Laos received about US\$ 178 million for the Agriculture, Forestry and Fisheries sector in 2000-2019, compared to the US\$ 3.4 billion it requires in the forestry sector this decade. This indicates a need to ratchet up the volume of

climate finance flows to the country to meet demand, while maintaining similar sector priorities. Laos did not indicate sector-specific needs for adaptation finance.

Malaysia

Malaysia specified mitigation finance needs in two sectors: Energy and Industrial Processes and Product Use (IPPU). The top five sectors in which Malaysia received climate mitigation finance included Industry, Mining and Construction, while Energy was the sixth most financed sector, and may be an area for greater attention in future. For climate adaptation finance, Malaysia indicated its needs in the Water and Health sectors. Health was among the top sectors in climate adaptation finance received, while the Water sector has received less than 100,000 USD in adaptation finance so far.

Myanmar

Myanmar's sector priorities for climate mitigation finance needs were Energy, Agriculture and Transport. In 2000-2019, it mainly received mitigation finance in the Energy, Agriculture, Forestry and Fishing sectors. Moving forward, a greater emphasis on the Transport sector may be needed. For adaptation finance needs, Myanmar indicated its need for support in the Agriculture and Health sectors, but did not specify the amounts. Both of these sectors have also been prioritised in past adaptation finance.

Thailand

Thailand identified its greatest mitigation finance needs in the Energy, Transport and Waste sectors. These sectors also received the most mitigation finance in 2000-2019. In adaptation, Thailand identified needs in Agriculture, Health and Water (amounts not specified), while its top receiving sectors of adaptation finance in the past two decades included Water Supply and Sanitation, Agriculture, Forestry and Fishing as well as Reconstruction and Rehabilitation. While the latter includes support for healthcare services in the aftermath of disasters, more comprehensive and holistic support for the Health sector may be needed.

Vietnam

Vietnam's estimated mitigation finance needs are the greatest in the Energy sector, followed by Agriculture, Land Use, Land Use Change and Forestry (LULUCF), IPPU and Waste. In 2000-2019, it received the greatest mitigation finance in Energy, Transport and Storage, General Environment Protection, Agriculture, Forestry and Fishing and Water Supply and Sanitation. Future mitigation finance flows to Vietnam may need greater focus on the IPPU sector. Vietnam did not indicate sector-specific needs for adaptation finance.

The Philippines

While comparisons were not made for the Philippines due to a lack of sector-specific information on its climate finance needs and 2030 targets, the country has strongly signalled its need for international support on mitigation. Its updated NDC states an unconditional economy-wide target of 2.71% in emissions reduction and avoidance, while its conditional target of 75% in emissions reduction is much more ambitious. Hence, its climate mitigation

potential is largely contingent on aid. So far, the mitigation finance it has received has been dominated by spending in the Transport and Storage sector, which amounts to 6.9 billion USD, or 80.7% of all mitigation finance received in 2000-2019. The Philippines' reported national circumstances, as detailed in its updated NDC, emphasise adaptation gaps in disaster management as well as infrastructure in the food and agriculture and health sectors. In 2000-2019, the adaptation finance it received was mainly in Disaster Preparedness, Reconstruction and Rehabilitation, Water Supply and Sanitation, as well as multi-sector activities.

Table 1. ASEAN Countries' Climate Mitigation Finance Needs (2019 million USD)

Country\Sector	Energy	Transport	Agriculture	LULUCF	IPPU	Waste
Cambodia	672.1	10.6	49.4	3466.4 (Forestry)	78.7 (Industry)	1490.3
Indonesia	236,214		2,164	5,557	379	2,907
Laos	2,285	730		1,700 (Forests)		17
Malaysia	4.9				1	
Myanmar	1,209	2.3	224.4345			
Thailand	Unspecified	Unspecified				Unspecified
Vietnam	35,904.6		4,203.5	1,920.2	197.9	1,903.7

**Grey-coloured cells show the sector where the country has indicated a need for international financial support. Amount of finance needed may not be specified.*

**Data is unavailable for the Philippines. (Not discussed in NDCs, no BUR submitted. The Philippines also did not specify sector-specific conditional targets)*

Table 2. ASEAN Countries' Climate Adaptation Finance Needs (2019 million USD)

Country	Energy	Agriculture	Health	Infrastructure	Water	Industry	Others/Cross-cutting adaptation sectors
Cambodia	0.322	306.268	0.467685	957.99	468.7989	Unspecified	<ul style="list-style-type: none"> • Coastal zones: 72.0 • Enabling actions: 21.05 • Livelihoods, poverty and biodiversity: 211.125 • Tourism: 2.5
Malaysia			3		50		<ul style="list-style-type: none"> • Development of National Adaptation Plan: 3 • Vulnerability and adaptation assessments: 5
Myanmar		Unspecified	Unspecified				
Thailand		Unspecified	Unspecified		Unspecified		<ul style="list-style-type: none"> • Climate Change Vulnerability Assessment under NAP • Capacity-building for agencies under NAP • Capacity-building for agencies to enhance early warning systems • Systematic climate model and atmospheric observation

**Grey-coloured cells show for which sectors the country has indicated a need for international financial support. Amount of finance needed may not be specified.*

**Data are unavailable for Indonesia, Laos, the Philippines and Vietnam (Not explicitly discussed in NDCs or BUR)*

¹ Natalia Alayza and Molly Caldwell, “Financing Climate Action and the COVID-19 Pandemic: An Analysis of 17 Developing Countries,” October 28, 2021, <https://www.wri.org/research/financing-climate-action-and-covid-19-pandemic>.

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- ² Leslie Hook and Joanna S. Kao, "COP26: Where Does All the Climate Finance Money Go?," *Financial Times*, November 3, 2021, <https://www.ft.com/content/d9e832b7-525b-470b-89db-6275853315dd>.
- ³ William Worley, "Report: \$100B Climate Finance Commitment Won't Be Met until 2023," *Devex*, October 25, 2021, <https://www.devex.com/news/sponsored/report-100b-climate-finance-commitment-won-t-be-met-until-2023-101923>.
- ⁴ Ry Sochan, "Developed Countries Should Pledge More to Tackle Climate Change, Says PM," October 8, 2020, <https://www.khmertimeskh.com/50771436/developed-countries-should-pledge-more-to-tackle-climate-change-says-pm/>.
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- ⁵ Writers' analysis based on the updated Nationally Determined Contributions (NDCs) of ASEAN Member States.
- ⁶ Assuming the total population of ASEAN countries without Brunei and Singapore is 654 million (2020).
- ⁷ Statista, "ASEAN Countries - Gross Domestic Product (GDP) per Capita 2016-2026," in *Statista*, accessed January 6, 2022, <https://www.statista.com/statistics/804307/gross-domestic-product-gdp-per-capita-in-the-asean-countries/>.
- ⁸ David Eckstein et al., "GLOBAL CLIMATE RISK INDEX 2020 Who Suffers Most from Extreme Weather Events? Weather-Related Loss Events in 2018 and 1999 to 2018" (Germanwatch, December 2019).
- ⁹ Sharon Seah, Melinda Martinus, and Jiahui Qiu, "Southeast Asia Climate Outlook 2021 Survey Report" (Singapore: ISEAS-Yusof Ishak Institute, Singapore, September 16, 2021), <https://www.iseas.edu.sg/wp-content/uploads/2021/09/Southeast-Asia-Climate-Outlook-2021-Survey-Report.pdf>.
- ¹⁰ International Institute for Sustainable Development (IISD), "Summary report, 31 October – 12 November 2021 Glasgow Climate Change Conference" (IISD, 2021), <https://enb.iisd.org/Glasgow-Climate-Change-Conference-COP26-summary>.
- ¹¹ Oxfam, "Climate Finance Shadow Report 2020" (Oxfam, 2020), <https://oxfamilibrary.openrepository.com/bitstream/handle/10546/621066/bp-climate-finance-shadow-report-2020-201020-en.pdf>.
- ¹² Jubilee Debt Campaign, "Lower Income Countries Spend Five Times More on Debt Payments than Dealing with Climate Change" (Jubilee Debt Campaign, October 2021), https://jubileedebt.org.uk/wp-content/uploads/2021/10/Lower-income-countries-spending-on-adaptation_10.21.pdf.
- ¹³ Zoha Shawoo, "Climate Finance Needs to Acknowledge the Unmitigated Debt Crisis," November 2, 2021, <https://www.sei.org/perspectives/climate-finance-acknowledge-debt-crisis/>.
- ¹⁴ Joe Thwaites, "Analysis: Why Climate-Finance 'flows' Are Falling Short of \$100 Bn Pledge," October 25, 2021, <https://www.carbonbrief.org/analysis-why-climate-finance-flows-are-falling-short-of-100bn-pledge>.
- ¹⁵ The World Bank, "International Debt Statistics" (Washington DC, 2021), <https://openknowledge.worldbank.org/bitstream/handle/10986/36289/9781464818004.pdf>.
- ¹⁶ Thwaites, "Analysis: Why Climate-Finance 'flows' Are Falling Short of \$100 Bn Pledge."
- ¹⁷ UNFCCC, "TECHNICAL ASSESSMENT OF CLIMATE FINANCE IN SOUTH-EAST ASIA" (Bonn, Germany, 2021).

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