Needs-based Climate Finance Project

GUIDEBOOK ON HOW TO ACCESS CLIMATE FINANCE FOR MEMBER STATES OF THE ASSOCIATION OF SOUTHEAST ASIAN NATIONS

United Nations
Framework Convention on
Climate Change

JICA

Sweden
Sverige

UNDP

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Abbreviations and acronyms

AC	adaptation communication
ADB	Asian Development Bank
AE	accredited entity
AF	Adaptation Fund
AIIB	Asian Infrastructure Investment Bank
AMS	ASEAN member State(s)
APG	Algemene Pensioen Groep
ASEAN	Association of Southeast Asian Nations
AuM	assets under management
AWGCC	ASEAN Working Group on Climate Change
BUR	biennial update report
CCE	circular carbon economy
CCFF	Climate change financing framework
CCSA	Climate change screening and appraisal
CDM	clean development mechanism
CEO	chief executive officer
CIF	Climate Investment Funds
CO2 eq	carbon dioxide equivalent
COP	Conference of the Parties
COVID-19	coronavirus disease 2019
CPEIR	climate public expenditure and institutional review
DFI	development finance institution
EU ETS	European Union Emissions Trading System
EIB	European Investment Bank
ESG	environmental, social and governance
ESS	environmental and social safeguards
ETS	emissions trading system
FAA	funded activity agreement
FCPF	Forest Carbon Partnership Facility
FIP	Forest Investment Program
FMO	Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden N.V.
GCF	Green Climate Fund
GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GSIS	Government Service Insurance System
IBRD	International Bank for Reconstruction and Development
ICMA	International Capital Markets Association
IDA	International Development Association
IEA	International Energy Agency
IFC	International Finance Corporation
IPCC	Intergovernmental Panel on Climate Change
IPO	initial public offering
JICA	Japan International Cooperation Agency
LDCF	Least Developed Countries Fund
LGU	local government unit
M&E	monitoring and evaluation
MDB	multilateral development bank
MIRA	Macquarie Infrastructure and Real Assets
MRV	measurement, reporting and verification
MTEF	medium-term expenditure framework
MYR	Malaysian ringgit

N/A	Not applicable
NAP	national adaptation plan
NAPA	national adaptation programme of action
NBF	Needs-based Climate Finance
NC	national communication
NDA	national designated authority
NDC	nationally determined contribution
NIE	national implementing entity
N/A	not available
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
OOF	other official flows
PCCB	Paris Committee on Capacity-building
PDSL	post-disaster standby loan
PFM	public financial management
PHP	Philippine peso
PIF	project identification form
PINAI	Philippine Investment Alliance for Infrastructure
PPCR	Pilot Program for Climate Resilience
PPG	project preparation grant
PPP	public private partnership
PV	photovoltaic
REAF	Renewable Energy Asia Fund
REDD+	reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks (decision 1/CP.16, para. 70)
SAP	simplified approval process
SCCF	Special Climate Change Fund
SCF	Standing Committee on Finance
SGD	Singapore dollar(s)
SME	small and medium-sized enterprise
SNRM	sustainable natural resource management phase
SREP	Scaling Up Renewable Energy Program in Low Income Countries
SWF	sovereign wealth funds
SOE	state-owned enterprise
TAP	technology action plan
THB	Thailand baht
TNA	technology needs assessment
TOC	theory of change
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
VC	venture capital
WB	World Bank

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I. Foreword

Climate finance is needed to support action to reduce greenhouse gas emissions and build resilience to the impacts of climate change. Part of the objectives of the UN Framework Convention on Climate Change and the Paris Agreement[1] is to mobilize financial assistance from governments with more financial resources than those who have fewer financial resources and are more vulnerable.

The NBF Project[2] aims to facilitate mobilization of and access to climate finance for priority mitigation and adaptation needs identified by developing countries to implement their commitments under the Convention and the Paris Agreement, including in the development of improved national climate action plans (NDCs).[3] The project has responded to its mandate[4] by undertaking activities globally, including in South-east Asia.

Through the NBF technical assessment on climate finance in South-east Asia,[5] international climate finance flows averaged USD 3.2 billion annually between 2013 and 2017, which includes private sector investment in renewable energy totaling approximately USD 6 billion annually. Countries in the region devote 3 to 6% of their national budget to addressing climate change. The needs identified by countries include capacity building to participate in future market mechanisms; technology development and transfer; research and development; development of greenhouse gas inventories; establishment of measurement, reporting and verification systems and monitoring and evaluation systems; and increasing outreach and raising awareness. In order to address these needs, the estimated volume of climate finance required, as reported by the countries, is USD 422 billion up to 2030, most of which is needed for mitigation (USD 293.01 billion), with the balance needed for adaptation (USD 129.15 billion).

In addition to the identified needs, a regional strategy on climate finance, namely the ASEAN Climate Finance Access and Mobilization Strategy, is currently under development as part of the NBF Project. Furthermore, a guidebook on accessing climate finance was requested by the member States of the ASEAN in the NBF pre-validation workshop held in early 2021.

The guidebook is a response to the request from ASEAN and is a collaboration effort of the UNFCCC, UNDP, and JICA. The guidebook provides an overview of the ASEAN regional context on climate finance, information on the national framework needed to mobilize and access climate finance in an effective manner, sources and instruments of climate finance available for the region, as well as a brief manual on climate project development process.

This guidebook, together with the regional strategy on climate finance and the technical assessment on climate finance are a set of NBF knowledge products developed as resources to propel climate finance access and mobilization for South-east Asian countries to achieve their climate ambitions.

Lastly, we would like to acknowledge and express our appreciations to Mikaela Bernardino, Koji Fukuda, Cecilia Therese Guiao, Roberto Julian, Radhika Lal, Gianni Lorenzato, Asad Maken, Astrid Rahardjo and Tianyu Meng; as this guidebook was made possible through their contributions.

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1 Available at https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement.
2 Available at https://unfccc.int/NBF_Project.
3 Available at https://unfccc.int/ndc-information/nationally-determined-contributions-ndcs.
4 Available at https://unfccc.int/NBF_Project.
5 Available at https://unfccc.int/documents/616524.

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II. Background

A. Rationale and objectives of the guidebook

1. The guidebook has been requested by the AMS and prepared by the UNFCCC secretariat, UNDP and JICA to aid implementation of the ASEAN Climate Finance Access and Mobilization Strategy for the South-east Asia region, as part of the NBF Project. The NBF Project is implemented in collaboration with the ASEAN and UNESCAP.

2. The technical guidebook provides an overview of climate finance in the region and sources of climate finance flows, as well as the project development process to access sources of climate finance. It also highlights the development of an overall framework to mobilize and access climate finance.

B. Target users and use of the guidebook

3. The key users targeted include relevant government agencies at the operational and policy levels, climate change committees and units, decision makers, members of local government, the private sector and other key stakeholders.

C. Navigating through the guidebook

4. The guidebook is divided into four main sections:

(a) Section III – Overview of climate finance flows: This section provides an overview of climate finance flows and needs for the South-east Asian context. It also discusses the scope and definition of climate finance in the light of the UNFCCC process;

(b) Section IV – Framework for mobilizing and accessing climate finance: This section discusses the development of an overall framework/plan to mobilize and access climate finance;

(c) Section V – Sources and instruments of climate finance: This section provides a compilation of information and analysis on existing sources of climate finance;

(d) Section VI – Project development process: This section explains the approaches taken to develop climate projects that are aimed towards accessing international financial support.

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III. Overview of climate finance flows

A. Climate finance under the UNFCCC process

5. There is no internationally agreed definition of climate finance, although it is understood in general terms to refer to local, national or transnational financing drawn from public, private and alternative sources of funding that is meant to support climate change mitigation and adaptation actions.

6. In defining climate finance in its 2016 Biennial Assessment and Overview of Climate Finance Flows, the SCF report[6] noted that the although a number of different operational definitions of climate finance exist, these definitions converge upon a set of common elements. These elements include reducing GHG emissions, enhancing sinks of GHGs and reducing the vulnerability, and maintaining and increasing the resilience, of human and ecological systems to negative climate change impacts.

7. The UNFCCC approaches finance from the perspective of meeting the needs and costs of developing countries' climate actions. Finance under the Convention is guided by Articles 3, 4 and 11 which identify the principles of the Convention, the commitments of Parties and operational mechanisms that are meant to facilitate the provision of financial resources on a grant or concessional basis.

8. Under the Paris Agreement, making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development is envisioned, allowing Parties to look into how investments and financing in the larger economy are – or should be – shifting towards more climate friendly activities and sustainable development.

9. It is important to note that under the Paris Agreement, enhanced support in the form of scaled up financial resources should aim for a balance between mitigation and adaptation support. The strategies, needs and priorities of developing countries must be taken into account, with developed countries providing transparent and consistent information on support provided and mobilized biennially.

B. Climate finance in South-east Asia

1. South-east Asian context

10. The combined GDP of the ASEAN countries' amounts to approximately USD 2.6 trillion, which makes them – collectively – the third largest economy in Asia, and the seventh largest in the world. Their real GDP growth is at 5.3% year-on-year, and their pursuit of regional integration, once completed, could potentially increase ASEAN countries' economic output by 7% by 2025.

11. The South-east Asian region is also one of the most vulnerable to the adverse impacts of climate change in the world. From a global perspective, 6 of the 20 countries identified as being the most vulnerable to the impacts of the changing climate are ASEAN countries' – Indonesia, Malaysia, Myanmar, the Philippines, Thailand and Viet Nam. Sea level rise, the increasing frequency of heatwaves and heavy precipitation, and of tropical cyclones, floods and droughts will severely challenge food security, human security, water resources and economic growth. As a result, the region is expected to experience greater economic losses than any other part of the world, with an estimated 11% decrease in GDP by 2100.

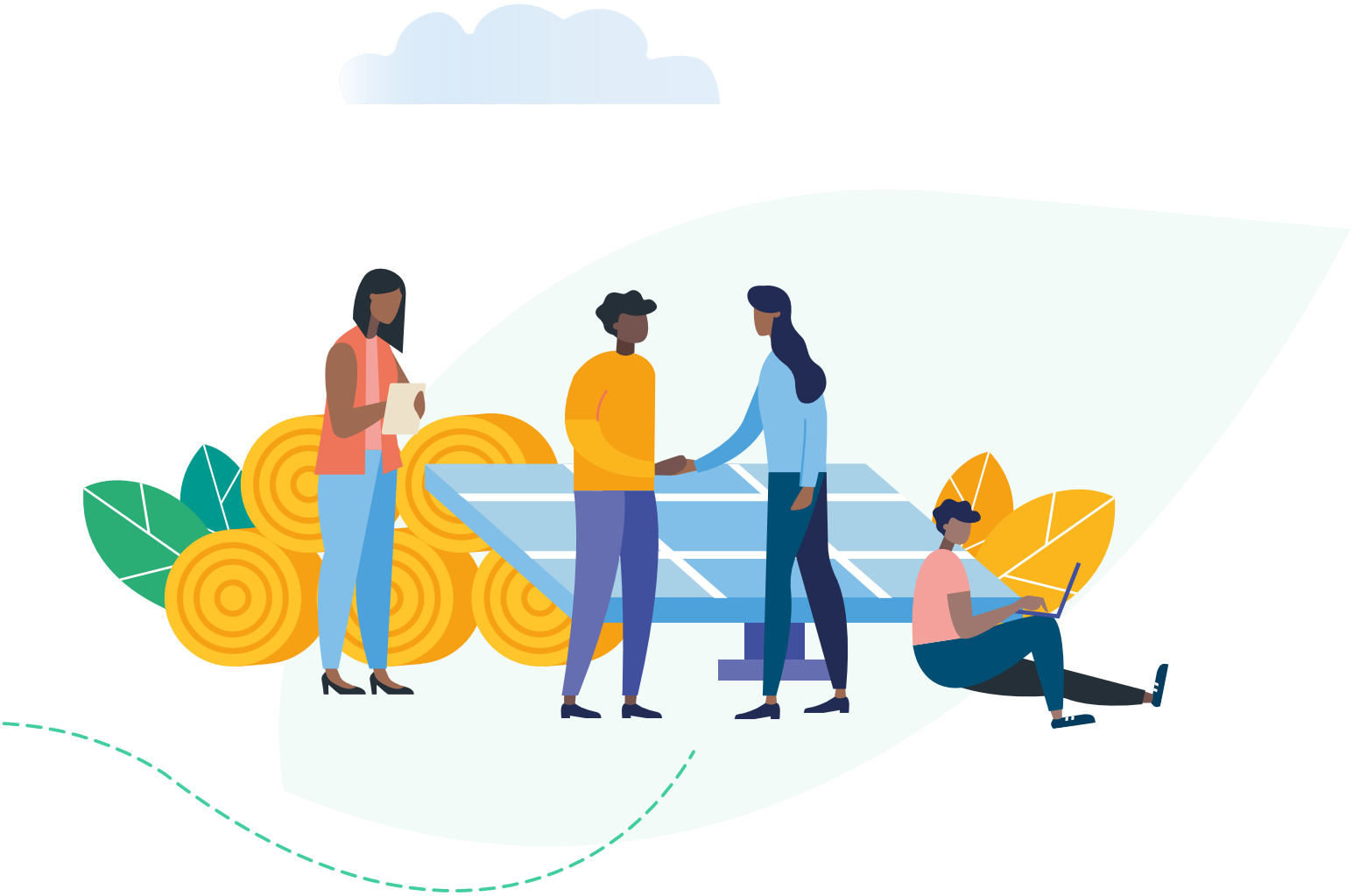
6 Available at https://unfccc.int/topics/climate-finance/workstreams/transparency-of-support-ex-post/biennial-assessment-and-overview-of-climate-finance-flows/the-second-biennial-assessment-and-overview-of-climate-finance-flows-2016.

2. Regional climate change needs and priorities

12. In the report on the *Technical Assessment of Climate Finance in South-east Asia*,[7] regional climate finance needs were identified from official reports and documents such as national climate change plans and strategies, national development plans, BURs, NAPs, NAPAs, NCs, NDCs, TAPs, TNAs, and a regional workshop.

13. With all ASEAN countries' being Parties to the Convention, the Kyoto Protocol and the Paris Agreement, all these countries have indicated climate finance needs through one or more of the above-mentioned documents. All of these countries have also identified climate finance needs to support their NDCs and adaptation priorities.

14. Based on the NDCs of ASEAN countries', an estimated USD 422.17 billion is needed by the region in the period up until to 2030. Of this amount, approximately USD 293.02 billion is needed for mitigation, and approximately USD 129.15 billion is needed for adaptation. Going by the USD 6 billion received annually on average in previous years, there appears to be a finance gap between regional needs and flows of more than USD 360 billion between 2022 and 2030. It must be noted, however, that these amounts are rounded estimates, and are based on the assumption that the estimated annual USD 6 billion of funds received will continue until 2030. In addition, NDCs are primarily meant to identify mitigation-related priorities, needs and activities; adaptation priorities, needs and activities may also be included in an NDC, although the Paris Agreement states that an AC may also be incorporated in other developing country Party communications or documents.



7 Available at https://unfccc.int/documents/616524.

IV. Framework for mobilizing and accessing climate finance

A. Climate change financing framework

1. Defining a climate change financing framework

15. CCFF has been defined by UNDP in its *Guidance Note on Climate Change Financing Frameworks*,[8] as a "voluntary, whole-of-government process to structure a more strategic approach toward the mobilization, management, and targeting of climate change finance".

16. In other words, CCFFs are meant to rationalize climate change policies and national budget processes in a country, thus ensuring a more cohesive and comprehensive approach to incorporating climate finance into the country's public economic and financial management systems. This would not only help to mainstream climate action and responses into the national budget in a programmatic manner; it would also assist in monitoring progress on other targets or commitments that arise from international treaties and other agreements on the environment and sustainable development.

17. CCFFs have a number of basic elements. These are: (a) the building of integrated climate governance; (b) measures and instruments for ensuring accountability; (c) the identification of institutional entry points that would bring both public and – to some degree – private climate finance into national appraisals and prioritization; (d) the identification of institutional entry points to bring public climate finance into the national budget; (e) a definition of what constitutes climate change related activities; (f) a costing of planned responses to climate change; and (g) an assessment of available resources and ongoing financial flows to address climate change mitigation.[9]

18. There are number of possible approaches in the development of a CCFF, but all of them must be effective, efficient and equitable. All approaches require the engagement of stakeholders from various sectors of society, and are meant to produce an MTEF, national economic plan, or some other type of "formal, government-issued master plan for financing a climate change response associated with a key budget or economic policy document".[10]

19. Examples of CCFFs already developed in the South-east Asian region include Indonesia's Mitigation Fiscal Framework (2012)[11] and Cambodia's Climate Change Financing Framework (2014).[12]

2. Developing a climate change financing framework

20. A CCFF has several different components working in consonance with interrelated policy processes and workflows. To build a climate change finance framework, a range of technical analyses and institutional reforms based on national contexts, circumstances and priorities is required. A comprehensive CCFF, however, includes several key components, namely: (a) the valuation of climate change and its integration in PFM systems; (b) CCSA; (c) MTEF integration and budget process reforms; (d) more evidence-based climate funding; (e) integrating climate change into planning templates and budgeting in annual economic reports; (f) the tracking and mapping of climate spending, including real-time expenditure reports; (g) climate change financing scenarios; and (h) the integration of climate change risk/valuation metrics in M&E guidelines.[13]

21. In general, workflows surrounding the development and implementation of a comprehensive CCFF circle around four main categories: (a) an integrated, evidence-based response to climate change and its impacts; (b) budget mainstreaming; (c) mobilizing funds; and (d) M&E. Aspects of these workflows may overlap and complement other processes, allowing for more robust findings and outcomes.

(a) An integrated, evidence-based response to climate change

22. This category of workflow is premised on the need for scientific, evidence-based decision- and policy-making in addressing climate change impacts and reducing climate risks and vulnerabilities. An integrated,

8 Nicholson K, Beloe T and Hodes G. 2018. *Hard Choices Integrated Approaches: A Guidance Note on Climate Change Financing Frameworks*. UNDP. Available at https://reliefweb.int/sites/reliefweb.int/files/resources/Hard%20Choices%20-%20Integrated%20Approaches.pdf.

9 Available at https://reliefweb.int/sites/reliefweb.int/files/resources/Hard%20Choices%20-%20Integrated%20Approaches.pdf.

10 See footnote 4 above.

11 Available at https://researchgate.net/profile/Sonny-Mumbunan/publication/319968174_Indonesia's_First_Mitigation_Fiscal_Framework/links/59c413e3aca272c71bb1a95a/Indonesias-First-Mitigation-Fiscal-Framework.pdf.

12 Available at https://ncsd.moe.gov.kh/sites/default/files/phocadownload/POLICYFRAMEWORK/FINANCING/cambodia%20climate%20change%20financing%20framework%20ccff_full%20report-en.pdf.

13 See footnote 7 above.

evidence-based response to climate change implies the conduct of scientific and similar data-driven assessments to determine the overall impact, risks, vulnerabilities and needs of a country in relation to climate change. This includes not only direct adverse effects of climate change, but also implications of climate impacts across sectors.

23. When taking into consideration intersectional climate change impacts, focus should be placed on the three primary dimensions of sustainable development – the economic, social and environmental. Existing assessments are used as the basis for estimating the economic and/or financial costs of climate risks and vulnerabilities, as well as loss and damage arising from them. This is a critical step in bridging purely climate data analyses and related policies with a State or local government's actual public economic and financial management processes, making more integrated national financing strategies possible.

24. It is important to keep in mind, of course, that loss and damage arising from climate change can be both economic and non-economic. In addition, not all climate change impacts are predictable or measurable. Loss and damage arising from extraordinary and/or slow onset events can be particularly difficult to monetize, along with the adaptation co-benefits of climate actions. However, these steps – or even attempts – towards understanding the micro-fiscal implications of climate change impacts and monetizing them is an important aspect of making climate risks, vulnerabilities, loss and damage more objective, quantifiable and actionable.

25. Note that the collection of climate data and its assessment is a continuous process; as more scientific findings and evidence become available, existing studies must be updated and frameworks revised accordingly, if necessary.

26. Once values have been assigned to climate impacts and actions, the next step is to ensure that there is a common understanding of what climate change expenditures are, and how they are classified. The classification of expenditures in relation to how they are relevant in the context of climate change is absolutely critical, as this will allow the monitoring of trends in spending and enable stakeholders to see how climate change affects expenditure. The importance of classification, however, could be considered directly proportional to its difficulty, as there are no universally accepted standards or definitions for them.

27. Agreeing on definitions and classifications, and ensuring that stakeholders across sectors and agencies have a common understanding of climate change expenditures and their classifications will reduce the likelihood of confusion and increase accuracy in the monitoring and assessment of trends in climate spending. Included in this is the identification of trends in relation to climate expenditures at varying degrees of climate relevance.

28. According to the UNDP's *Guidance Note on Climate Change Financing Frameworks*,[14] it has been found that most countries begin by conducting an overview of all expenditure items as a screening and awareness-raising exercise, followed by an assessment of the items' climate relevance – whether these are high, medium, or low in relevance. In addition, most of the CCFF-related work that has taken place focuses on public expenditure from a central, national or provincial level, and usually includes on- and off-budget expenditures from domestic and international sources. Continued practice and greater familiarity with the process, however, often leads to more refined methods of classification, which can expand the scope of climate expenditure screening to include local governments, the private sector, parastatals and other agencies.

29. Expenditure tracking and the development of a climate financing plan complete the process of a CCFF in relation to ensuring a cohesive, integrated and evidence-based response to climate change. Expenditure tracking consists of analysing past expenditures in order to gain an understanding of whether climate spending has increased or decreased, and of how climate change related work has been prioritized previously. With this in mind, future scenarios can be developed and incorporated into the planning and budgeting processes. Often, before a CCFF is crafted and workflows are engaged in, a CPEIR is undertaken, which consists of a comprehensive review of climate change plans, policies, financial structures and public expenditures. Expenditure tracking under this component and CPEIR are not mutually exclusive, and can be combined in some aspects in order to arrive at more comprehensive analyses and, consequently, more robust future scenarios.

30. Finally, a climate financing plan brings together the assessment of climate vulnerabilities, risks, needs, loss and damage, as well as classifications and trends in expenditure, in order to produce more realistic and achievable climate change strategies. The assessed level of risk and vulnerability to the adverse impacts of climate change, viewed in relation to observed financing scenarios, would ensure the accuracy and sustainability of financing plans. This would serve to minimize as much as possible the occurrence of gaps in financing, which would lead to difficulties in achieving climate change targets and objectives.

(b) Budget mainstreaming

31. This aspect of CCFF development and implementation concerns adjustments to budget processes to allow the programmatic incorporation of climate change actions and objectives into government processes as a whole. To accomplish this, it is necessary to create financing scenarios, provide formal guidance on the incorporation of climate change responses to the relevant agencies, and take climate change into account during budget negotiation and approval processes.

14 Nicholson K, Beloe T and Hodes G. 2018. *Hard Choices Integrated Approaches: A Guidance Note on Climate Change Financing Frameworks.* UNDP. Available at https://reliefweb.int/sites/reliefweb.int/files/resources/Hard%20Choices%20-%20Integrated%20Approaches.pdf.

32. Financing scenarios are meant to indicate the level of resources that are likely to be available for climate change when taking into consideration certain conditions or parameters. These resources include both domestic and international sources of finance. Using financing scenarios that have been developed, governments are placed in a better position to identify achievable climate targets and actions, and further explore ways in which finance gaps can be covered or minimized.

33. In regard to the provision of formal guidance to relevant agencies in the incorporation of climate change targets and actions into their proposed budgets, it is suggested that the budget strategy paper, or whichever similar instrument is utilized, instructs them to identify priorities, objectives and updates in relation to climate change. It should also include detailed instructions on how to take climate change considerations into account in the budget, with climate finance considered as a core macro-fiscal issue. It is important to emphasize at this point that relevant government entities or agencies must utilize evidence-based methods to assess and include climate expenditures in their budgets. In case these considerations cannot be included in the main budget strategy paper, a supplementary budget circular – or something of the same nature – may be provided instead.

34. In the approval of proposed agency budgets, it is important to first ensure that the instructions provided in the budget guidance document have been observed. Given that budget negotiations and discussions are part and parcel of the budget approval process, conversations and decisions must be based on actual data and evidence. In addition, they should not only address climate change concerns, but also be compatible with the principles of sustainable development.

(c) Mobilizing funds

35. The mobilization of funds builds on budget mainstreaming workflows by incorporating elements of: (a) CCSA, (b) budget submissions, (c) access to international climate finance, and (d) accessing climate finance through national funds.

36. A critical aspect of this component is climate change screening and appraisal, wherein investment options and budget items are filtered according to their vulnerability to climate change, and their appropriateness given climate change considerations. Through CCSA, the degree of risk and sensitivity of bankability resulting from climate impacts are taken into account. It also ensures that projects or activities that further exacerbate climate change, which could come in the form of false solutions, maladaptation, or malmitigation, are weeded out of the budget.

37. Ideally, CCSA includes among its parameters the ability of climate-appropriate undertakings or budget items to provide additional economic, social and/or environmental benefits. For instance, specific criteria relevant to gender equality or other objectives aimed at further promoting equity may be added.

38. Budget submissions produced by national ministries should reflect the outcomes of the CCSA, making use of appraised targets, projects and activities in the determination of their expenditure allocations.

39. Accessing resources for climate actions through international climate finance and national funds helps in achieving climate targets and objectives, although a number of considerations must be taken into account in determining which sources to access, and for which undertaking. To access international climate funds, proponents must comply with the funds' own rules, processes and practices, which may require specialized skills and additional resources to accomplish. Accessing national funds, on the other hand, would require going through national budget processes, and is subject to national priorities, which might not include climate change as a key priority. These considerations can help government actors more accurately assess the needs and capacities of relevant agencies in pursuing funds from either of these sources, and further inform financing scenarios.

(d) Monitoring and evaluation

40. M&E requires the identification of indicators to assess expected impact and actual effectiveness of climate responses. These indicators likely include targets identified in countries' NDCs and other international submissions, as well as measurable outcomes related to national plans, strategies and other policy documents. Given that a CCFF is ideally expected to result in a whole-of-government strategic financing plan that is annexed or fully integrated into an MTEF, it is important to ensure that indicators are understood and interpreted across government entities. If not, the actual progress and effectiveness of relevant undertakings will not be properly assessed.

41. CCFFs normally require periodic progress reports in order to facilitate the proper assessment of the impacts and outcomes of climate change plans and strategies. These progress reports are a rich source of lessons learned, which are helpful in deepening evidence bases and refining policies, plans and strategies.

42. Another important aspect of M&E, apart from indicators and periodic progress reports, is transparency within and among government entities. Transparency should extend to accountability actors, which may or may not be from government, and other stakeholders as well. Strong political commitments for regular monitoring and the clear identification of responsible entities or institutions are useful for the consolidation of monitoring activities and outcomes.

(e) Stakeholders in the development of a climate change financing framework

43. A truly comprehensive CCFF necessitates the inclusion of all identified components, as well as the conduct of capacity-building and consultation among stakeholders. It is important to note, however, that it is not necessary to immediately dive into the formulation of a comprehensive CCFF. A country may choose to first conduct a fairly simple overview process in order to gain a proper appreciation of the nature of a comprehensive CCFF, or maybe focus on a few components to start with. It is up to the country, on the basis of its own national circumstances and respective capabilities, to determine the best way forward for itself. In general, however, undertaking the development of a CCFF depends on the progress in relation to a country's climate change strategies and action plans, as well as the ways in which a CCFF would realistically benefit the formulation of financing plans and strategies.

44. However a country decides to begin the process of developing a CCFF, engaging stakeholders within and outside government is unavoidable. Included among key stakeholders are climate change policy bodies, ministries of finance, ministries of planning and investment, line ministries and investment agencies, and accountability actors. These government bodies act in accordance with their mandates and national policies and processes.

45. Non-government stakeholders may also include, as mentioned above, accountability actors. Technical support is also often provided to governments by non-government entities or individuals, whether directly or indirectly. For instance, in improving data collection, the triangulation of data sources is particularly important to ensure the accuracy and robustness of resulting assessments. Resources include studies undertaken by institutions, think tanks and specialist CSOs; project appraisal and evaluation studies; and simulation modelling work. Specialist CSOs in particular have become more active in the valuation of climate effects.

3. Climate finance readiness

46. Keeping in mind the establishment of a CCFF as a form of financial architecture to improve a country's capacity to absorb climate finance, countries can assess their overall capacity by observing the 'readiness' of their institutional, policy/regulatory, and knowledge and learning dimensions vis-à-vis climate finance. Climate finance readiness is a term that has been increasingly used in the international sphere, referring to the ability of countries to access, allocate/distribute and utilize climate change finance, particularly from international donors.

47. A number of proposed indicators relating to institutional and policy readiness, as well as those related to knowledge and learning readiness, and a list of common problems pertaining to climate finance readiness are evaluated in annex III.

B. Needs assessment tools for finance, capacity-building and technology

48. In general, needs assessments may be classified into those that assist in identifying, among others, financial, capacity-building and technology needs, with each classification having different available identification processes to choose from.

49. For example, methodologies that are developed specifically to estimate the financial needs of climate change are still limited, and such methodologies vary depending on the country. Methodologies usually applied for mitigation actions at the project level include levelized cost and marginal abatement cost curves, while the determination of financial needs at the national level may include budget tagging systems such as the OECD Rio markers, the CPEIR, and other international tagging methodologies to identify financial gaps and needs. A national system for climate finance MRV will also enable the identification of financial needs in a systematic manner.

50. Adaptation financial needs, meanwhile, may be translated from existing plans, although more rigorous needs assessments would require either econometric analysis or simulation modelling, which then involves extensive data inputs and proper calibration.

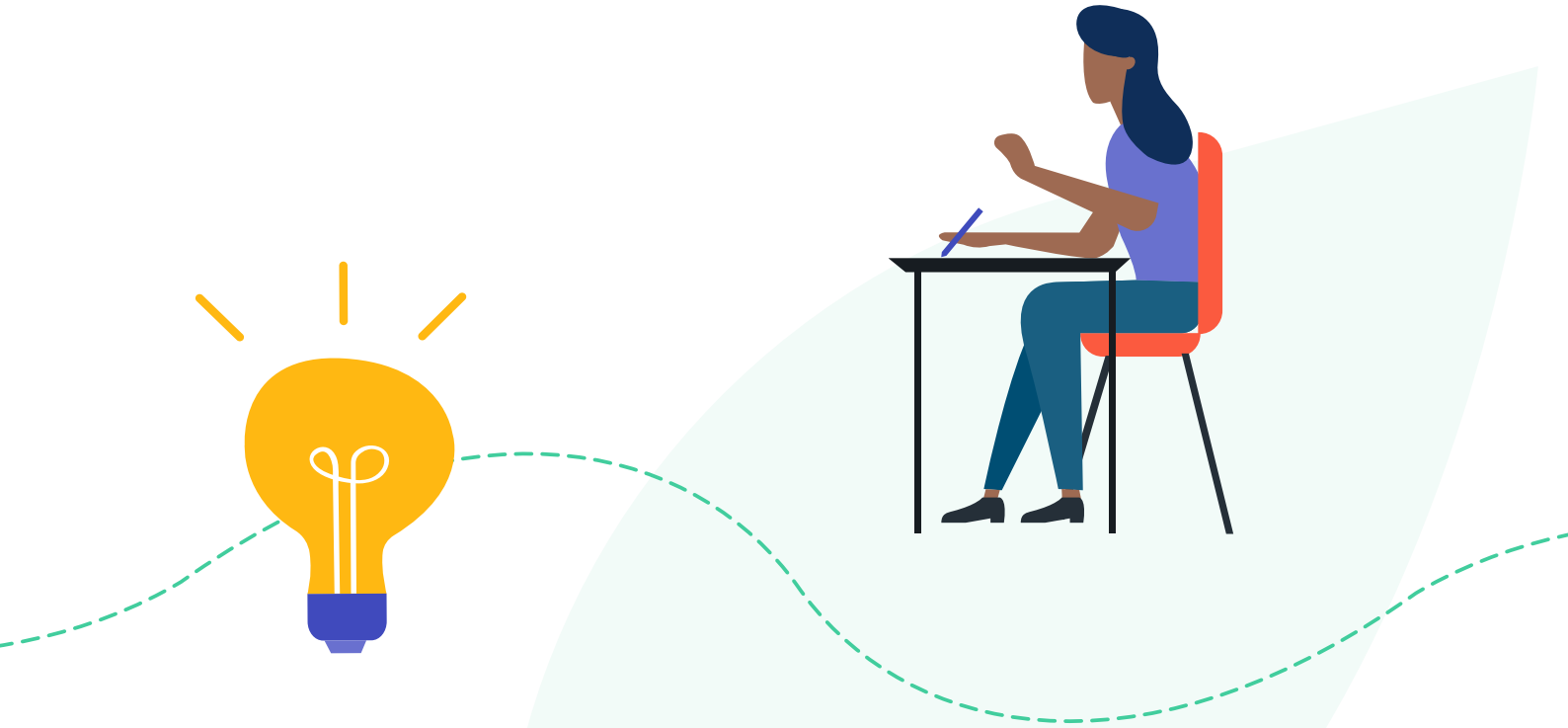
51. Capacity-building needs assessments in general consist of an analysis of current capacity, the determination of the desired capacity, and the identification of the capacity gaps. An action plan should then be developed with the purpose of filling in the identified capacity gaps. In this regard, the UNFCCC PCCB has developed a toolkit[15] for countries to assess their capacity-building needs in relation to the implementation of the Paris Agreement.

52. TNAs refer to a set of country-driven activities that identify and determine the mitigation and adaptation technology priorities of Parties. Included activities may address soft and hard technologies, identify regulatory options, and develop fiscal and financial incentives and build capacity.

53. In conducting a TNA, processes include: (a) developing a workplan, deciding on a national team structure, and organizing stakeholder engagement; (b) understanding and clustering development priorities; (c) prioritizing subsectors; (d) identifying and assessing technologies through multi-criteria decision analysis; and (e) constructing a national strategy and action plan.

54. A review of these existing resources, such as NCs, BURs, NAPs, NAPAs, NDCs and ACs, along with national development priorities and relevant existing policies, plans and strategies related to climate change, can be used as a fairly comprehensive starting point for any needs assessment process. The integration of climate change into other national planning processes may then also be considered as an overall complementary objective, which would increase alignment, avoid duplication and improve efficiency in the accomplishment of climate goals.

55. To achieve harmonization between different processes, strong coordination between national planning efforts is required. Concrete examples of harmonization and integration may include: utilizing outputs from the TNA as an input for developing NDC updates, and linking implementation and development of NDC adaptation components with the NAP process to inform and reinforce each other. The former has been the case with Thailand, where the results of its TNA are directly referenced in the NDC to inform the country's technology needs, which can be met through technology transfer from the international community.



15 Available at https://unfccc.int/sites/default/files/resource/220126_BLS21379%20UCC%20PCCB%20Toolkit.v04.pdf.

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V. Sources and instruments of climate finance

A. Sources of climate finance

56. This subsection provides an overview and discussion of sources of climate finance available for ASEAN countries. Sources are divided into two categories: (1) sources that originate from the public sector and are directed primarily at public sector projects, although, as it will be noted, some public sources of climate finance also target private sector projects ("public sources"); and (2) sources that originate from the private sector and are directed at climate-related private sector projects and companies ("private sources"). To guide the reader through the section, table 1 lists all sources analysed.

Table 1
Private and public sources of climate finance analysed (entities and instruments)

Private sources of climate finance	Public sources of climate finance
Commercial banks	Multilateral climate funds
Private equity funds	MDBs
Incubators, accelerators and VC funds	Bilateral development/donor agencies National budgets National climate funds Carbon pricing

1. Public sources of climate finance

57. This section analyses a range of public international and domestic sources of climate finance table 2. Many sources of public finance are channelled through national governments to implement climate change mitigation and/or adaptation projects, in addition to government resources generated from tax income. As opposed to presenting a generic "government funding" source, the analysis below breaks down these "upstream" sources at a granular level.

Table 2
Public sources of climate finance

Category	Origin of source	Source	Description	Potential applicants
Public	International	Multilateral climate funds	Multilateral climate funds are institutions funded by multiple donor countries to support projects and policies in the areas of climate change mitigation and adaptation. Each multilateral climate fund has its own governance, geographic and/or sectoral priorities and suite of financial instruments. Multilateral climate funds offer primarily grants; some also offer concessional loans, guarantees and equity.	Applicants vary by fund; Some multilateral climate funds require proposals to be submitted by accredited entities such as United Nations agencies or development banks; Some also allow direct access to accredited national authorities, as well as private sector and non-governmental entities.
		MDBs	MDBs, including their private sector arms, are increasing their allocations to projects with a climate change mitigation or adaptation angle. The finances channelled and spent through government ministries or implementing agencies is considered to be part of public finance. They offer a variety of instruments including loans, grants, guarantees and equity. MDBs also provide project and policy advisory services.[a]	Central and local governments; State-owned enterprises; Private sector corporates and financial institutions.
		Bilateral climate finance	Climate finance provided bilaterally by developed countries to developing ones, usually through existing bilateral development implementing agencies, relevant government ministries and other government entities, and embassies. Grants and concessional loans are the primary instruments, along with other financial instruments such as investment capital and equity depending on the nature of agencies; Bilateral climate finance also includes trust funds bilaterally supported by non-ASEAN partners to assist implementation of cross-country ASEAN activities stipulated under the AWGCC (e.g. JAIF Trust Fund and ASEAN–Korea Cooperation Fund).	For loans and guarantees, primarily the recipient country's government (national or subnational) or State-owned enterprises; For grants, a variety of recipients including government entities, NGOs, academic and research institutions and the private sector.

Table 2 (continued)
Public sources of climate finance

Category	Origin of source	Source	Description	Potential applicants
Public	Domestic	National budgets	Governments increasingly devote a portion of their national budgets to addressing the climate change mitigation and adaptation needs of their country in the form of investment and as a recurrent element of the budget.	Primarily central and local government authorities and other government entities.
		National climate funds	Government-controlled entities dedicated to funding a range of climate change projects in the respective countries. Funding can come from the government budget, international donors, proceeds from environmental levies (such as fuel taxes) and other contributions.	Local government institutions, other government agencies and SOEs; Private sector companies; Individuals; Educational institutions; Non-profit organizations.
		Carbon pricing	Carbon pricing curbs GHG emissions by placing a fee on emitting and/or offering an incentive for emitting less.[b] The two main carbon pricing mechanisms are carbon taxes and national and regional cap-and-trade schemes, such as the European ETS. The former hold emitters accountable for the impacts of their activities. The latter also reward those that reduce the emissions of their activities. Revenues can be dedicated by governments to climate change-specific uses through a variety of spending formats. In addition, voluntary carbon markets may also be used to support funding of specific mitigation projects or project pipelines.	The policies establishing carbon pricing schemes will determine the potential recipients or beneficiaries of carbon pricing revenues, including public or private sector entities, specific economic sectors and specific uses.

[a] The financial flows by MDBs under this head will be considered as private sector finance.
[b] Available at https://unfccc.int/about-us/regional-collaboration-centres/the-ci-aca-initiative/about-carbon-pricing#eq-1.

58. International climate finance flowing through public sector channels consists mostly of concessional loans (sources such as multilateral development banks envisage no return of capital by the recipient or, if they do, they accept sub-market returns) but also includes some commercial sources that expect to realize market returns. The latter are the DFIs, defined as the private sector arms of MDBs or equivalent bilateral development agencies. Examples include the IFC unit of the WB Group and, at the bilateral level, entities such as the United States International Development Finance Corporation, Proparco and FMO (the DFIs of the United States of America, France and the Netherlands, respectively).

59. Public concessional loans prioritize non-revenue-generating, public good projects (e.g. disaster-resilience infrastructure). They can also provide concessional capital to revenue-generating projects in order to attract commercial investors by improving the risk/reward profile of the investment, for instance through grants, concessional loans or guarantees; these arrangements, are known as "blended finance". Further information on the applicability of public concessional finance to climate change sectors can be found on table 3.

60. Public commercial sources (DFIs) play the same role as private equity and infrastructure funds (when they provide equity) and commercial banks (when they provide corporate or project loans), making investment or lending decisions on the basis of market return expectations while also complying with impact mandates and ESG criteria. They target only private sector investments.

Table 3
Applicability of public concessional finance to climate change sectors

Area	Sector	Number of ASEAN classifying the sector as a priority	Applicability of public concessional finance	Examples
Mitigation	Energy	10	High	Renewable energy projects (concessional or blended)
	Forestry and other land-use	8	High	Land conservation, reforestation projects
	Transport	7	High	Public transport (concessional or blended)
	Waste management	6	High	Waste management (concessional or blended)
	Industrial processes	4	Low	Direct private sector beneficiaries call for very limited use of concessional finance
	Agriculture	3	Medium	Many agriculture applications obtain subsidies and incentives in many countries (including developed ones)
Adaptation	Food security (agriculture, livestock and fisheries)	10	Medium	Many agriculture applications obtain subsidies and incentives in many countries (including developed ones)
	Water supply and sanitation	8	High	Water supply and distribution PPPs (blended) and in pure public good format (many communities reluctant to pay for water delivery)
	Public health	8	High	Hard to charge for medical services, especially targeting low-income communities
	Biodiversity, forestry and watershed management	8	High	Biodiversity conservation, forestry management, watershed restoration
	Coastal zone protection and marine resources	8	High	Coastal protection infrastructure, marine protected areas, ecosystem-based solutions (e.g. mangrove reforestation)
	Critical infrastructure and spatial planning	5	High	Critical public infrastructure projects
	Disaster risk reduction	3	High	Risk reduction public infrastructure projects
	Energy	3	High	Renewable energy projects, distributed generation (concessional or blended)
	Transport and urban development	2	High	Public transport (concessional or blended)
	Tourism	2	Low	Direct private sector beneficiaries call for very limited use of concessional finance

Source: UNFCCC. 2021. Technical Assessment of Climate Finance in South-east Asia: Annex to the South-east Asia Climate Finance Access and Mobilization Strategy. Bonn: UNFCCC. Available at https://unfccc.int/documents/616524.

(a) International sources of climate finance

(i) Bilateral climate finance or bilateral development/ donor agencies

61. A significant share of public climate finance is provided bilaterally by developed countries to developing ones. Funding is usually provided through existing bilateral development agencies, government ministries in charge of international development or other climate-related thematic areas, and other government entities. Grants and concessional loans are the primary instruments, the latter usually having a much larger individual size. According to OECD data, in 2019 bilateral climate-related development finance amounted to USD 35.5 billion globally.[16] ASEAN countries received USD 3.2 billion, or 9% of the total amount.

62. Bilateral climate finance has several attractive features for project proponents (see table 4 for a full description of relevant features):

(a) Some donor countries have extensive presence on the ground, understanding of the local context and long-standing relationships with recipient country governments;

(b) Some donor countries devote large budgets to their international development activities, with an increasing focus on climate finance;

(c) Bilateral climate finance is usually at concessional terms;

(d) No formal accreditation is necessary to request bilateral climate finance;

(e) In addition to finance, bilateral donors often provide technical assistance and advisory services throughout the project life cycle to meet the capacity-building needs of the beneficiary;

(f) Bilateral donors usually apply rigorous ESG and impact evaluation criteria.

63. At the same time, some trade-offs must be considered when applying for bilateral climate finance:

(a) Donor countries are likely to place their climate finance in the context of their foreign policy priorities, commercial interests and comparative advantages with regard to a certain country or region;

(b) Donors' climate and development finance budgets are affected by their overall fiscal situation as well as the political cycle;

(c) Bilateral climate finance in the form of loans, albeit at concessional rates, counts towards sovereign debt ratios and affects a country's creditworthiness;

(d) Bilateral climate finance institutions provide capital primarily in hard currency, which could be an issue for borrowers with limited foreign exchange reserves;

(e) The project approval process can be time-consuming and bureaucratic. Policy conditionality may be attached to bilateral climate finance.

16 Available at https://oecd.org/dac/financing-sustainable-development/development-finance-topics/climate-change.htm.

Table 4
Key features of bilateral climate finance

Feature	Description
Financial instruments provided	Grants; Concessional loans; Guarantees.
Climate finance projects funded	Wide range of mitigation and adaptation projects; Climate finance is an increasing area of focus for many developed donor countries.
Eligible applicants	For concessional loans and guarantees, primarily the recipient country's government (national or subnational) or; State-owned enterprises; For private investment capital, primarily the private sector/enterprises; For grants, a wide range of recipients including government entities, NGOs, academic and research institutions and the private sector.
Financing process	Varies by donor and, within a given donor, the extending entity, but generally follows the norms of ODA and standard steps and procedures. OECD member States follow OECD DAC principles and norms; Donor decisions likely to be linked to the donor's foreign policy priorities; Approval process similar to those of multilateral climate funds and MDBs, including the following steps: (a) project preparation and discussions with government of partner country or other prospective recipients; (b) official project proposal examined by donor's extending entity; (c) project approval by senior leadership of extending entity; (d) negotiation of grant or loan agreement and associated documentation; (e) disbursement according to project milestones; Projects are usually subject to formal evaluation by donors during and post-implementation.

Box 1
Examples of different support schemes
(Japan International Cooperation Agency projects in ASEAN countries)

Support Scheme 1: Concessional loan
The PDSL assists the Philippines to ensure that contingency funds are available to respond to the financial demands of post-disaster recovery at the time of natural disaster – enabling immediate rescue, relief and rehabilitation. The PDSL was initially launched in response to damage caused by Typhoon Yolanda in 2013, and recently entered into Phase 2 in 2021 with an additional PHP 4.7 billion to assist recovery from the recent Typhoons Quinta, Rolly and Ulysses. The scope of the PDSL was expanded to support recovery efforts from public health threats of the COVID-19 pandemic following the extension of the declared state of calamity throughout the country in 2020.

Support Scheme 2: Private sector investment - Project finance (cash-flow based lending)
The USD 25 million Quang Tri Province Onshore Wind Power Project[a] in Viet Nam signed in 2021, with a total capacity of 144 MW, epitomizes project finance using the Private Sector Investment Scheme, where financial loans are directly channelled to a consortium of local private enterprises for installation and operationalization with independent power producers. The Project is co-financed by the ADB and Export Finance Australia, and supports the private sector's efforts to contribute to the country's decarbonization efforts and NDC.

Support Scheme 3: Technical assistance
In line with forest and ecosystem conservation and management support initiatives put in place in Cambodia, Indonesia, the Lao People's Democratic Republic and the Philippines, and, the Project for SNRM 2 of Viet Nam offers nature-based solutions by supporting the enhancement of national and municipal capacity for sustainable natural resource management to maximize multiple benefits. SNRM 2 entails, inter alia, upstream policy implementation, implementation of the REDD+ Action Plan to enhance access to finance, and promoting forest monitoring.

Technical assistance can also take in the form of triangular/South-South cooperation, as witnessed by the Project for Capacity Development to Accelerate Low Carbon and Resilient Society Realization in the South-east Asia Region.[b]
The Project harnessed and empowered the Climate Change International Training Center of Thailand Greenhouse Gas Management Organization as the platform to address the broad capacity needs of ASEAN stakeholders by offering hands-on joint trainings on mitigation and GHG inventory, adaptation and M&E, and circular economy, as well as on-site concept note writing workshops to enhance access to finance, facilitating cross-learning among member States.

Support Scheme 4: Scientific Analysis to Support Policy Formulation
The 5-year programme entitled Advancing Co-Design of Integrated Strategies with Adaptation to Climate Change in Thailand (ADAP-T)[c] exemplifies inter-agency scientific research collaboration to consolidate scientific evidence required to design robust, resilient and sustainable solutions to climate change, especially flood management in Thailand. ADAP-T harnessed various simulation models and data assessments to predict climate patterns, delivered a climate knowledge base, and identified appropriate adaptation measures for the coastal, forestry, water, urban, rural and sediment sectors and policy recommendations, which fed into the country's policy formulation such as the NAP - thus contributing to identify climate finance needs for adaptation.

Sources: JICA. 2021a. *JICA announces second disbursement of Post Disaster Standby Loan Phase 2 to aid typhoon recovery in Philippines.* Available at https://jica.go.jp/philippine/english/office/topics/news/210106_01.html.
[a] JICA. 2021b. *Signing of a loan agreement for the Quang Tri Province onshore wind power project in Vietnam (Private Sector Investment Finance)*: JICA's first project finance loan for wind power project in Vietnam. Available at https://www.jica.go.jp/english/news/press/2021/20210521_10e.html.
[b] United Nations Office for South-South Cooperation. 2021. *South-South in Action: Capacity Building for Climate Actions in Southeast Asia*. New York: UNDP. Available at https://www.southsouth-galaxy.org/publications/south-south-in-action-capacity-building-for-climate-actions-in-southeast-asia/.
[c] Adapt-T webpage. Available at https://adapt.eng.ku.ac.th/cc/?page_id=95.

(ii) Multilateral climate funds

88. Multilateral climate funds are institutions funded by multiple donor countries for the purpose of advancing projects and policies in the areas of climate change mitigation and adaptation. Each multilateral climate fund has its own governance, geographic and/or sectoral priorities and suite of financial instruments. Grants are their primary instrument, but some multilateral climate funds also offer concessional loans, guarantees and equity. table 5 lists the major multilateral climate funds. In the global climate finance architecture under the leadership of the UNFCCC, the GCF has emerged as the main vehicle to channel funding for climate change related activities. The GCF received USD 9.9 billion in pledges from 31 donors during its first replenishment in November 2020.

Table 5
List of main multilateral climate funds

Fund	Description	Instruments	Available funding for climate change
GCF	The GCF became operational at the end of 2015. Like the GEF, it is an operating entity of the Financial Mechanism of the Convention and receives guidance from the COP. It is expected to become the primary channel of international public climate finance to developing countries over time. It committed to a 50:50 allocation of resources to mitigation and adaptation. Developing countries can access GCF both through MDBs, international commercial banks and United Nations agencies, and directly through accredited national, regional and subnational entities. By November 2020, the GCF had approved 159 projects globally with USD 7.3 billion in GCF funding commitments and USD 1.4 billion disbursed.	Grants; Concessional loans; Guarantees; Equity; REDD+ results-based payments; Project preparation grants.	USD 9.9 billion (pledged by 31 donors during the November 2020 replenishment).
GEF	Established in 1991, the GEF is an operating entity of the Financial Mechanism of the Convention. Resources are allocated to target multiple focal areas, including climate change. Both MDBs and United Nations agencies act as implementing entities for the GEF. As at December 2020, the GEF had approved over 834 projects globally in the focal area of climate change for a total funding commitment of USD 4.1 billion.	Grants	USD 700 million (out of USD 4.1 billion pledged by 30 donors for 2019–2022).[a]
CIF	CIF were established in 2008. They are administered by the WB but operate in partnership with regional development banks including, in Asia, the ADB. They include a Clean Technology Fund with USD 5.4 billion in contributions and USD 1.72 billion in cash transfers to projects to date, and a Strategic Climate Fund, with USD 2.65 billion in contributions and USD 975 million in cash transfers to projects as at December 2020. The Strategic Climate Fund is composed of the PPCR, the FIP, and the SREP.	Grants; Concessional loans.	CIF had a sunset clause that came into effect with the launch of the GCF. In 2019 this clause was indefinitely postponed, opening the door to a possible recapitalization of the CIF.
LDCF/SCCF	Two funds administered under the guidance of the UNFCCC COP. They support the development and implementation of NAPs, largely through smaller-scale projects (with a country ceiling for funding of USD 20 million). Both MDBs and United Nations agencies act as implementing entities for the LDCF and SCCF. As at December 2020, the LDCF had approved USD 1.3 billion for 285 projects and disbursed USD 534 million. The SCCF had approved USD 284 million for 72 projects and disbursed USD 181 million.	Grants	2022–2026 strategy to be announced in July 2022.
AF	Formally linked to the UNFCCC, the AF is exclusively focused on financing climate change adaptation. The AF allows direct access to climate finance for developing countries through accredited national implementing entities that meet agreed fiduciary as well as ESG standards, as opposed to working solely through United Nations agencies or MDBs. The AF has committed ~USD 1 billion to projects since 2009 and disbursed USD 454 million. Single country funding is capped to USD 20 million.	Grants	N/A[b]

Table 5 (continued)
List of main multilateral climate funds

Fund	Description	Instruments	Available funding for climate change
FCPC REDD+	FCPF, through its FCPF Readiness Fund and FCPF Carbon Fund, supports the implementation of REDD+, the UNFCCC-sanctioned framework through which countries, the private sector, multilateral funds and others stakeholders can pay countries to reduce deforestation and forest degradation and promote sustainable forest management. The FCPF Readiness Fund supports the design of national REDD+ strategies, the development of forest reference emission levels, the design of MRV systems and setting up of national REDD+ management arrangements, including proper ESS. The FCPF Carbon Fund pilots results-based payments to countries that have advanced through REDD+ readiness and implementation and have achieved verifiable emission reductions in their forest and broader land-use sectors.	Grants; Results-based payments.	FCPF Readiness Fund: USD 400 million; FCPF Carbon Fund: USD 900 million.

Source: Watson C and Schalatek L. 2021. The Global Climate Finance Architecture. Overseas Development Institute and Heinrich Heinrich Böll Stiftung. Available at https://climatefundsupdate.org/wp-content/uploads/2021/03/CFF2-ENG-2020-Digital.pdf.

[a] The remainder is dedicated to other focal areas such as biodiversity and land degradation. Funding for climate change decreased in the 2019–2022 replenishment, reflecting the growing role of the GCF as a climate change finance vehicle.

[b] The AF was financed through a 2% levy on the sale of certified emission reductions from the CDM of the Kyoto Protocol. Now mandated to serve the Paris Agreement, a similar automated funding source from a new carbon market mechanism is being considered. In the meantime, the AF is increasingly reliant on developed country grant contributions.

64. Multilateral climate fund finance has several attractive features for project proponents (see table 6 for a full description of relevant features):

(a) Most multilateral climate funds are well-established and accredited entities such as United Nations agencies and MDBs are familiar with their evaluation processes and criteria;

(b) Multilateral climate funds already have a track record in most developing countries;

(c) As multilateral entities, their agendas are not affected by specific donor countries;

(d) They offer concessional funds that can be used to finance activities of a public good nature but also to crowd in private capital through blended solutions;

(e) They are a sizeable source of finance and an increasingly important component of the climate finance architecture (especially the GCF).

65. At the same time, some trade-offs must be considered when applying for multilateral climate fund finance:

(a) The application is competitive, with most funds juggling long pipelines of proposals;

(b) The application process can be cumbersome and time-consuming. United Nations agencies and other accredited institutions can help governments navigate the various stages of the application process and offer project preparation support;

(c) For national entities that wish to request direct accreditation, that process is also time-consuming and should be weighed against the probability of having projects ultimately approved by a multilateral climate fund.

Table 6
Key features of multilateral climate funds

Feature	Description
Financial instruments provided	Instruments vary by fund; Grants are the predominant instrument; The GCF also offers concessional loans, guarantees, equity and REDD+ results-based payments; Some funds also offer project preparation funding.
Climate finance projects funded	Wide range of mitigation, adaptation and cross-cutting projects. REDD+ windows, albeit still small, fund the reduction of deforestation and forest degradation and promotion of sustainable forest management; Mitigation has catalysed the majority of multilateral climate fund finance to date. However, the GCF is committed to a 50:50 portfolio of mitigation and adaptation. The much smaller AF is exclusively focused on adaptation.
Eligible applicants	Applicants vary by fund; Most funds require that funding proposals are submitted by accredited entities such as United Nations agencies or MDBs. The accreditation process varies by fund and can be time-consuming; Some funds (such as the GCF and AF) also allow direct access to accredited national and subnational authorities; The GCF also allows access to accredited private sector entities (such as international commercial banks) and impact funds or philanthropic organizations.
Financing process	Usually a multi-step process, starting with concept notes followed by full funding proposals and a comprehensive set of accompanying documents (feasibility studies, economic and financial analysis, budgets and procurement plans, social and environmental safeguard assessments, legal arrangements, etc.); Funding proposals can be subject to different levels of technical and non-technical screening, with different units within a multilateral climate fund involved; Projects are usually evaluated on the basis of multiple parameters. For instance, the GCF has six evaluation criteria: (i) impact potential (e.g. project lifetime emission reductions for mitigation projects); (ii) paradigm shift potential (how a project can catalyse impact beyond a one-off investment); (iii) sustainable development potential (economic, social, environmental and gender co-benefits); (iv) needs of the recipient (the country's financial, economic, social and institutional needs and barriers to accessing alternative sources of finance); (v) country ownership (alignment with NDCs and other relevant national policies); and (vi) efficiency and effectiveness (based on metrics such as cost per tonne of CO_2 eq, co-financing ratio and rate of return, as well as application of best practices);[a] Process from concept to approval is time- and resource-intensive.

[a] GCF. 2019. *Investment Criteria Indicators*. Available at https://greenclimate.fund/document/investment-criteria-indicators.

66. Please refer to annex II for the list of GCF projects approved in ASEAN countries to date.

(iii) Multilateral development banks

67. MDB climate finance refers to the financial resources committed by MDBs to development operations or components of operations with a climate change mitigation and/or adaptation objective. Financial resources can be from the MDBs' own accounts or MDB-managed external resources. MDBs have become prominent sources of climate finance worldwide. A joint report published by nine leading MDBs (the "MDB joint report")[17] found that these institutions committed USD 66,045 million in climate finance globally in 2020. Of this, 76% was dedicated to climate change mitigation and 24% to climate change adaptation. 71% of the nine MDBs' climate finance was directed to public recipients or borrowers and 29% to private recipients or borrowers. The EIB and WB Group were by far the largest contributors, representing approximately USD 50 billion in combined commitments. The two Asian MDBs surveyed – the ADB and AIIB – committed USD 5.3 billion and USD 1.2 billion, respectively. In addition, the nine MDBs mobilized co-finance from other public and private external parties worth USD 85,084 million.[18]

17 Through the IBRD and IDA units.
18 Available at https://eib.org/attachments/2020-joint-report-on-multilateral-development-banks-climate-finance.pdf.

68. Going forward, virtually all MDBs plan to increase the allocation of resources to climate finance. In Asia, the ADB aims to have at least 75% of the number of its committed operations (on a three-year rolling average, including sovereign and non-sovereign operations) in support of climate change mitigation and adaptation. Climate finance from the ADB's own resources is expected to reach USD 80 billion for the period 2019–2030, with priorities including the acceleration of low GHG emission development, building climate and disaster resilience, environmental sustainability and the water–food–energy security nexus. The AIIB aims to reach or surpass a 50% share of climate finance in its actual financing approvals by 2025. It prioritizes green infrastructure investments in sectors including renewable energy and low-carbon public transportation, water management and sanitation, pollution control and enhancing ecosystem services. The WB Group is aiming for an average of 35% of its financing to be climate finance over the period 2021–2025 (vs. 26% on average in 2016–2020); at least 50% of the WB Group's public climate financing[19,20] will support adaptation. The WB Group prioritizes 5 key systems that generate 90% of all GHG emissions and face significant adaptation challenges: energy; agriculture, food, water and land; cities; transport; and manufacturing.[21]

69. ASEAN countries are likely to benefit from the MDBs increasing their commitment to climate finance. East Asia and the Pacific received USD 6,445 million in financial commitments from the nine MDBs in 2020, almost exclusively directed at low- and middle-income countries. USD 4,157 million (64% of the total) was committed to climate change mitigation; of this, the largest beneficiary sectors were renewable energy; energy efficiency; transport; and agriculture, aquaculture, forestry and land use (see table 7). USD 2,288 million (36% of the total) was committed to climate change adaptation; of this, the largest beneficiary sectors were energy; transport and other infrastructure; agriculture; and cross-cutting sectors (see table 8).[22]

Table 7
Multilateral development bank mitigation finance in East Asia and the Pacific by sector, 2020

Sector	Commitments *(USD million)*	Percentage breakdown
Renewable energy	1 290	31%
Energy efficiency	846	20%
Transport	670	16%
Agriculture, aquaculture, forestry and land use	657	16%
Lower-carbon and efficient energy generation[a]	346	8%
Waste and wastewater	167	4%
Cross-cutting sectors	159	4%
Low-carbon technologies	20	~0%
Non-energy GHG emission reductions	1	~0%
Miscellaneous	1	~0%
Total	**4 157**	**–**

Source: AfDB, ADB, AIIB, et al. 2021. 2020 Joint report on MDBs' climate finance. Available at https://eib.org/attachments/2020-joint-report-on-multilateral-development-banks-climate-finance.pdf.
[a] For example, a thermal power plant retrofit to switch from a more GHG-intensive fuel to a different and less GHG-intensive type of fuel.

19 Available at https://aiib.org/en/about-aiib/who-we-are/infrastructure-for-tomorrow/green-infrastructure/index.html.
20 Aggregate data for ASEAN-only countries only is not provided in the MDBs' joint report.
21 Available at https://worldbank.org/en/news/infographic/2021/06/22/climate-change-action-plan-2021-2025.
22 See footnote 15 above.

Table 8
Multilateral development bank adaptation finance in East Asia and the Pacific by sector, 2020

Sector	Commitments *(USD million)*	Percentage breakdown
Cross-cutting sectors	739	32%
Energy, transport and other built environment and infrastructure	447	20%
Agricultural and ecological resources (excl. crop and food production)	309	13%
Institutional capacity support or technical assistance	215	9%
Water and wastewater systems	186	8%
Financial services	122	5%
Crop and food production	110	5%
Information and communications technology	103	4%
Coastal and riverine infrastructure	58	3%
Total	**2 289**	**–**

Source: AfDB, ADB, AIIB, et al. 2021. 2020 Joint report on MDBs' climate finance. Available at https://eib.org/attachments/2020-joint-report-on-multilateral-development-banks-climate-finance.pdf.

70. MDB climate finance has several attractive features for project proponents (see table 9) for a full description of relevant features):

(a) MDBs have large balance sheets and will likely devote an increasing share of their resources to climate finance going forward;

(b) They are present on the ground in client countries. This facilitates project identification, structuring and implementation, as well as interaction with relevant stakeholders;

(c) They offer a variety of financial instruments across the concessionality range, from grants to loans (most prevalent product) and equity;

(d) They finance projects in a variety of sectors, in mitigation and adaptation, and in the public and private sectors;

(e) In addition to finance, they often provide technical assistance and advisory services throughout the project life cycle (from preparation to implementation);

(f) As multilateral entities, their agendas are not driven by the interests of any specific donor country;

(g) They apply rigorous environmental and social safeguard policies and impact evaluation criteria. At the same time, some trade-offs must be considered when applying for MDB climate finance;

(h) MDB sovereign financing is usually conditional on long-term reforms to which the recipient must commit;

(i) MDB sovereign financing, albeit at concessional rates, counts towards sovereign debt ratios and affects a country's creditworthiness;

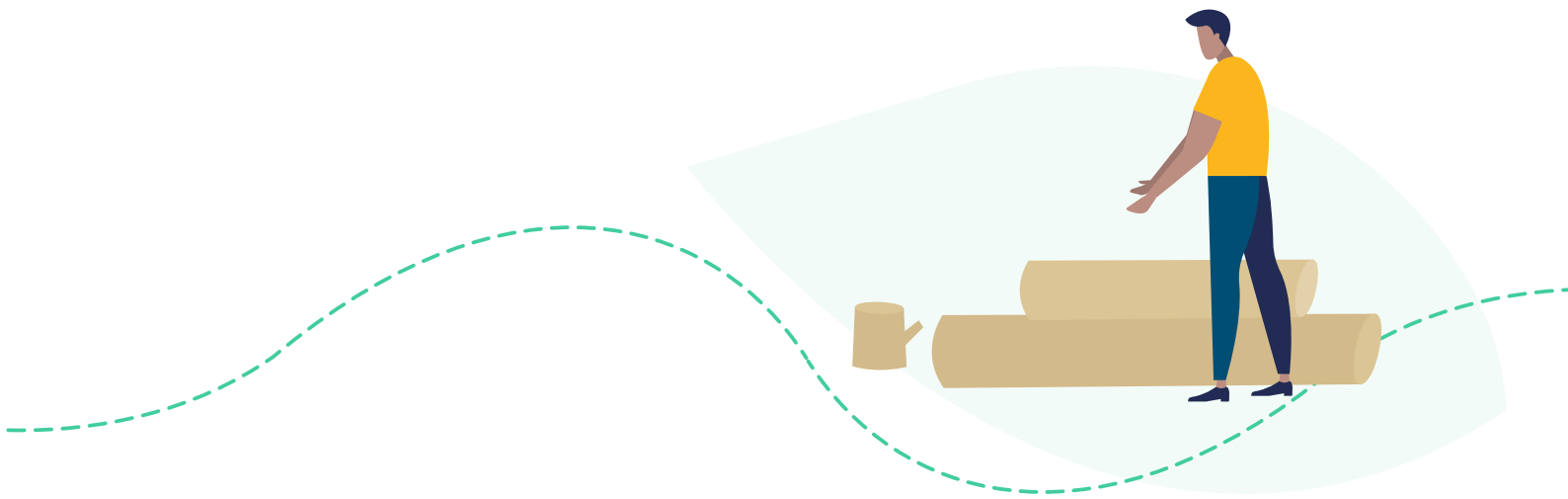
(j) MDBs provide financing primarily in hard currency, which could be an issue;

(k) MDB private sector financing is typically at commercial rates, similar to those offered by commercial banks (for loans) or private equity and infrastructure funds (for equity).

Table 9
Key features of multilateral development bank climate finance

Feature	Description
Financial instruments provided	Investment loans and lines of credit to public or private sector recipients to finance or refinance specific climate change related projects. These represented the large majority of MDB global climate finance commitments in 2020 (USD 50.5 billion out of the USD 66 billion total);[a] Policy-based loans: financing for a public borrower that supports a policy programme for a particular theme or sector of national policy; Results-based financing: loans that directly link the disbursement of funds to measurable results in a government-owned programme; Guarantees to support private sector investments, commercial borrowing by the sovereign for budget financing and to support reform programmes or commercial borrowing by state-owned enterprises; Grants; Equity investments in enterprises (including special-purpose project companies) addressing climate change needs; While not a financial instrument per se, MDBs often commit resources to provide advisory services to national and local governments as well as private sector actors on a variety of topics, for instance on how to improve a country's investment climate and strengthen its infrastructure.
Climate finance projects funded	As exemplified by tables 10 and 11, MDBs can finance a wide range of mitigation and adaptation projects and policies, both in the public and private sectors; The public sector is the predominant recipient of MDB climate change adaptation finance, due to the non-revenue-generating nature of most adaptation projects; The mix of public and private sector recipients is more balanced with regard to MDB climate change mitigation finance, since many mitigation projects (e.g. renewable energy production) are revenue-generating.
Eligible applicants	Central governments; Local governments; State-owned enterprises; Private sector corporates and financial institutions.
Financing process	Public sector recipients work jointly with MDBs to identify projects that can have the largest impact in the target policy area. Concept notes may be used to outline the basic elements of a project. A preparation and appraisal phase follows, during which all technical, economic, financial, institutional and procurement aspects are thoroughly analysed, together with project risks and ESS. Legal agreements are produced and submitted to the MDB's board of directors or similar body for approval. M&E procedures are established, including independent evaluations

[a] AfDB, ADB, AIIB, et al. 2021. 2020 Joint report on MDBs' climate finance. Available at https://eib.org/attachments/2020-joint-report-on-multilateral-development-banks-climate-finance.pdf.



Box 2
Asian Development Bank's climate change finance, 2020

The ADB approved USD 5.3 billion worth of climate finance operations in 2020. 86% of that amount came from the ADB's own resources. The remainder comprised external resources mobilized by the ADB.

Climate change mitigation projects received ~USD 4.6 billion (86% of ADB's total climate finance). Within mitigation, energy and transport were by far the largest beneficiary sectors, receiving 49% and 34% of ADB's mitigation finance, respectively. Other sectors benefiting from mitigation finance were financial services, water and other urban infrastructure and services, and agriculture and natural resources.

The remaining ~USD 0.7 billion was dedicated to climate change adaptation. The adaptation portfolio was more equally spread among a variety of sectors including (in descending order): financial services, water and other urban infrastructure and services, agriculture and natural resources, energy and transport.

Geographically, South-east Asia received close to USD 1.2 billion worth of ADB climate finance approvals in 2020 (22% of ADB's total mitigation and adaptation finance). East Asia received an almost identical amount, while South Asia was the largest recipient (43% of the total). The remainder was split among Central and West Asia, the Pacific and regional initiatives.

The vast majority of the ADB's climate finance in 2020 was in the form of loans (93% of the total). Grants represented close to 5% of the total. The remainder includes technical assistance and other instruments.

Source: Available at https://data.adb.org/dashboard/climate-change-financing-adb.

(b) Domestic sources of climate finance

71. The government revenues that feed the national budgets and national climate funds may originate from different taxes, including environmental taxes (e.g. fuel taxes, carbon taxes, industrial emissions tax, tourism taxes, etc.), user fees (e.g. toll roads, transport ticket sales, electricity sales, etc.), tradable permits (e.g. emission permits, green certificates) and fines.

(i) National budgets

72. Governments increasingly devote a portion of their national budgets to addressing the climate change mitigation and adaptation needs of their countries. Over the past decade, CPEIRs and climate budget tagging have made it possible to track budget allocations to climate change initiatives in several countries. A CPEIR is a systematic qualitative and quantitative analysis of a country's public expenditures and how they relate to climate change. The analysis, conducted with technical assistance from UNDP and other development agencies, is tailored to each country based on a consultative process and national priorities.[23]

73. Since 2011, many countries in Asia-Pacific region undertook CPEIRs, including five in ASEAN countries: Cambodia, Indonesia, the Philippines, Thailand and Viet Nam.[24] Indonesia and the Philippines also have a budget tagging system in place which provides information on climate-related allocations and expenditures on an annual basis. It is hard to discern a budget allocation trend common to all ASEAN countries or predict future trends, besides general commitments of all countries to tackle climate change. Budget allocations reflect a country's economic and political situation and fiscal priorities in a given year. For instance, budget allocations to climate expenditures in Indonesia decreased by 20% from 2019 to 2020 as the Government prioritized addressing the COVID-19 crisis.[25] Similar swings were observed in different years in other countries.[26] Some climate expenditures result from one-off investments rather the recurring costs, which further contributes to inter-annual variability. The level of economic development of a country also affects its budget allocation to climate-related activities. For instance, public budget funding of renewable energy projects is likely to be lower in middle-income economies with relatively well-developed private finance markets.[27] Finally, the capacities of different governments to incorporate cross-cutting climate issues into their public finance management and budgeting processes can also affect climate budget allocations.

23 Available at https://climatefinance-developmenteffectiveness.org/about/what-cpeir.

24 See footnote 17 above.

25 Climate Policy Initiative, EU, EFI, et. al. 2021. *Domestic Climate Finance Mapping and Planning:Challenges and Opportunities*. Available at https://climatepolicyinitiative.org/wp-content/uploads/2021/01/Domestic-Tracking-Workshop-I-Presentation-Slides.pdf.

26 For instance, Cambodia's budget allocation to climate decreased from 4.3% in 2015 to 3.2% in 2016 and 2017. Available at https://ncsd.moe.gov.kh/sites/default/files/2019-06/Climate%20Public%20Expenditure%20Review%202017_Jan%202019_FINAL_0.pdf.

27 Miller M. 2012. *Climate Public Expenditure and Institutional Reviews (CPEIRs) in the Asia-Pacific Region. What Have We Learnt?*. UNDP. Available at https://undp.org/content/dam/rbap/docs/Research%20&%20Publications/democratic_governance/APRC-DG-2012-CPEIR-LessonsLearnt.pdf.

Table 10
National budget allocations to climate change

Country	Year	Amount (USD billion)[a]	% of budget	Use of proceeds	Source of budget finance (domestic vs. ODA)
Cambodia	2019	0.5	7.0%	93% adaptation, 7% mitigation	42% domestic, 58% ODA
Indonesia	2020	5.5	4.1%[b]	57% mitigation, 43% adaptation	N/A
Philippines	2021	5.6	6.3%	97% adaptation, 3% mitigation	N/A
Thailand	2011	1.8	2.7%[c]	68% adaptation, 21% mitigation, 11% capacity-building and other	N/A
Viet Nam	2020	0.6 (ministerial budget) 1.1 (provincial budget)	26.2% (ministerial budget) 20.9% (provincial budget)	Ministerial budget: 85% adaptation, 7% mitigation, 8% cross-cutting Provincial budget: 92% adaptation, 1% mitigation, 7% cross-cutting	Ministerial budget sources: 81% domestic, 19% ODA Provincial budget sources: 54% domestic, 46% ODA

Sources: Cambodia's Ministry of Economy and Finance. 2020. Climate Public Expenditure Review 2019; Climate Policy Initiative, EU, EFI, et. al. 2021. Domestic Climate Finance Mapping and Planning: Challenges and Opportunities; Philippine Climate Change Commission. 2021. Philippines' Climate Budget Brief FY 2021; Thailand Government. 2011. Climate Public Expenditure and Institutional Review; Ministry of Planning and Investment of Viet Nam and UNDP. 2022. Climate Public Expenditure and Institutional Review of Viet Nam.

[a] Based on USD exchange rates at the beginning of September 2021.

[b] Average allocation between 2016 and 2020.

[c] Average allocation between 2009 and 2011.

74. National budget finance has several attractive features for project proponents (see table 11 for a full description of relevant features):

(a) The national budget is the first port of call for central and local government entities that need to finance climate change mitigation and adaptation projects, especially for public good projects in which private or blended finance can be ruled out upfront;

(b) In most cases, central and local government authorities will already be familiar with the procedures to access national budgets;

(c) Procedures for the identification and tagging of climate-related projects are already established in ASEAN countries that have produced CPEIRs. International agencies such as UNDP can support additional countries in the implementation of CPEIRs.

75. At the same time, some trade-offs must be considered when accessing the national budget finance:

(a) Budget capacity is limited and varies with the economic and fiscal cycle. Allocations to climate projects compete with other government priorities, such as supporting the economy during the COVID-19 crisis in 2020. If a project presents the potential for private sector engagement, the drain on the national budget can be limited by considering blended finance solutions to crowd in private capital;

(b) All budget allocations, including climate-related ones, are affected by the political cycle and reflect the priorities of the parties in power. Civil society and public opinion can also have an impact on budget decisions;

(c) Budget procedures may be slow in some countries, resulting in lengthy project application, funding and implementation timelines;

(d) Project governance and MRV procedures must be carefully considered, especially in countries with a poor track record of transparency and high levels of corruption.

Table 11
Key features of national budget finance

Feature	Description
Financial instruments provided	Public budget appropriations
Climate finance projects funded	In principle, all projects the government decides to get involved in; However, preference should be given to public good projects where involvement of the private sector is impossible or very difficult; When the private sector can play a role, the government should consider blended finance solutions rather than full public funding; Among the ASEAN countries that produced CPEIRs, climate change adaptation appears to be the prevailing use of proceeds (see table 10), reflecting the public good nature of many adaptation projects.
Eligible applicants	Primarily central and local government authorities and other government entities
Financing process	The budget expenditure process in force in each country

Box 3
The Philippines' national budget

The climate budget for the Philippines in the fiscal year 2021 amounts to PHP 282 billion (USD 5.6 billion),[a] which corresponds to about 6.3% of the total national budget. The amount represents a 21% increase compared with the previous fiscal year's budget, reflecting the Government's commitment to fighting climate change even as the country battles the COVID-19 pandemic.

Thirty-four agencies identified climate change-tagged programmes, activities and projects, totalling 15 178 interventions across the country. The Department of Public Works and Highways received 85% of the climate budget, followed by the Department of Agriculture (7%), the Department of Environment and Natural Resources (3%) and the Metropolitan Manila Development Authority (2%).

The vast majority of the 2021 climate budget (97%, in line with the previous fiscal year) was allocated to climate change adaptation, reflecting the country's high exposure to severe weather events and natural disasters. Climate change adaptation budgets are mainly directed to the construction and maintenance of flood mitigation structures and drainage systems. Further adaptation interventions focus on resilient buildings, government facilities and food systems (e.g. climate-resilient crops, livestock and fisheries).

Climate change mitigation investments – representing only 3% of the climate budget, in the light of the Philippines' small carbon footprint – include forest protection programmes, promotion of renewable energy and energy efficiency, and traffic management to reduce GHG emissions.

Source: Philippine Climate Change Commission. 2021. *Philippines' Climate Budget Brief FY 2021.* Available at https://climate.gov.ph/public/ckfinder/userfiles/files/Must%20See/CBB-GAA%20v2_1.pdf.

[a] Based on USD exchange rates at the beginning of September 2021.

(ii) National climate funds

76. National climate funds are government-controlled entities dedicated to funding a range of climate change projects in the respective countries. Their characteristics – governance, funding sources, target sectors, types of applicants and financial tools deployed – vary significantly. For instance, funding can come from the government budget, international donors, proceeds from environmental levies (such as fuel taxes) and other contributions. Uses of funds reflect the countries' climate change priorities. Eligible applicants include local government institutions and other government agencies, SOEs, private sector companies, individuals, educational institutions and non-profit organizations. While grants are often the main tool, some funds provide loans or equity. Application and project approval procedures also vary by fund.

77. Five ASEAN countries have launched climate funds: Indonesia, Lao People's Democratic Republic, Philippines, Singapore and Thailand (see table 12). The Cambodian Government is also investigating the launch of a financial institution that would lend to businesses or projects with a green mandate, funded by domestic and international sources.[28] Singapore's USD 3.7 billion Coastal and Flood Protection Fund, launched in 2020, is by far the largest, followed by Thailand's Energy Conservation and Promotional Fund. Other funds are much smaller, with capital allocations of less than USD 100 million. Several ASEAN countries also have substantial AuM in SWF whose mandate, however, is much broader than climate finance (see box 5 for an overview).

Table 12
National climate funds in ASEAN countries (USD million)

Country	Fund	Size[a]	Sources of funds	Use of funds
Indonesia	Indonesia Climate Change Trust Fund	N/A	Grants from development partners	Three priorities: (i) reduce emissions from deforestation and forest degradation; (ii) improve energy security and reduce emissions from the energy sector; and (iii) climate change adaptation. Proposals can be submitted by government institutions such as ministries, government agencies and local governments. They may partner with other institutions including universities and CSOs to implement the project.
Lao People's Democratic Republic	Lao Energy Promotion and Development Fund	N/A	State budget, grants and loans, donations from individuals and the energy sector, interest raised from deposited money, and energy administration and service fees	Provide loans for renewable energy development (solar, wind, biofuel and mini hydropower). Finance the expansion and maintenance of electricity supply in rural areas. Fund surveys, research, project and human resource development and public awareness campaigns. Cover the fund's own administrative costs
Philippines	People's Survival Fund	20 (annual allocation)	Annual allocation of at least PHP 1 billion, which can be augmented through donations, endowments, grants and contributions	Provide long-term finance for adaptation projects of local government units and local/community organizations.
Singapore	CFPF	3 700 (initial allocation)	Government budget. Initial allocation to be topped whenever fiscal situation allows	Fund coastal protection measures and drainage infrastructure to enhance Singapore's flood resilience

28 Available at https://greenclimate.fund/sites/default/files/document/readiness-proposals-cambodia-mekong-strategic-partners-strategic-frameworks_1.pdf.

Table 12 (continued)
National climate funds in ASEAN countries

Country	Fund	Size[a]	Sources of funds	Use of funds
Thailand	ENCON	730	Levy on the sale of fuel and other oil products	Energy efficiency and renewable energy investments made by government agencies, SOEs, educational institutions and non-profit organizations
	ESCO Revolving Fund	N/A	Funding provided by ENCON	Facilitate private sector investments in financially viable renewable energy and energy efficiency projects
	EERF	91 (most recent funding window)	Funding provided by ENCON	Provide soft loans for energy efficiency projects and support technical assistance activities such as energy audits and feasibility studies
	Environmental Fund	74	Contributions from Thailand's oil fund, public and private sector entities, other government revolving funds and the Environmental Fund's investment profits	Subsidies and concessional loans to government agencies, local administrations, SOEs, private sector companies and individuals for investments in wastewater and waste disposal, and reduction of air pollution
	Thailand Science Research and Innovation Fund	N/A	Government budget	Provide grants to researchers and educational institutions
Viet Nam	VEPF	N/A[b]	Government budget and other domestic sources, international sources	Provide concessional loans, grants and interest rate support for programmes, projects and activities dealing with climate change and not included in the national budget plan.

Sources: Indonesia Climate Change Trust Fund. *Fund Flow Management*. Available at https://icctf.or.id/fund-flow-management/; Climate Funds Update. *Indonesia Climate Change Trust Fund*. Available at https://climatefundsupdate.org/the-funds/indonesia-climate-change-trust-fund/; Times Reporters. 2020. *Govt creates fund to promote renewable energy*. Vientiane Times. 8 October. Available at https://vientianetimes.org.la/freeContent/FreeConten_Govt196.php; Philippines' Climate Change Commission. *People's Survival Fund*. Available at https://climate.gov.ph/our-programs/climate-finance/peoples-survival-fund; Public Utility Board. 2021. *Strengthening Singapore Coastal Defences*. PUB. Available at https://pub.gov.sg/news/pressreleases/20210304strengtheningsingaporescoastaldefence; Viet Nam Environment Protection Fund. 2014. *Functions and Obligations*. VEPF. Available at https://vepf.vn/en/functions-and-obligations-vepfohzakn.html.
Abbreviations: CFPF = Coastal and Flood Protection Fund, ENCON = Energy Conservation and Promotional Fund, EERF = Energy Efficiency Revolving Fund, VEPF = Viet Nam Environmental Protection Fund.
[a] Based on USD exchange rates at the beginning of September 2021.
[b] Approximately USD 120 million in loans outstanding for 275 projects as of year-end 2019. The remaining financial capacity of the fund is not disclosed.

78. National climate funds have several attractive features for project proponents (see table 13 for a full description of relevant features):

(a) The budget of national climate funds is, by definition, fully dedicated to domestic projects. In contrast, allocations by multilateral climate funds and MDBs reflect portfolio balance considerations with regard to the many recipient countries;

(b) National climate funds are well positioned to understand the local challenges addressed by proposed projects, assess the effectiveness of the proposed solutions and evaluate the socioeconomic context of climate projects;

(c) Some national climate funds target small projects, for instance at the local community or company level, which large multilateral climate funds and MDBs would likely disregard owing to the high transaction costs, relative to the small amounts disbursed, or limited perceived systemic impact;

(d) Depending on their staffing and capacity, some national climate funds can also assist with project appraisal and preparation in order to speed up the approval and the implementation post-approval.

79. At the same time, some trade-offs must be considered when presenting projects to national climate funds:

(a) Budgets vary considerably by fund and over time. Some funds are backed by the national budget, which varies reflecting macroeconomic and political circumstances. Funds that rely on international donors will be affected by the evolving donor priorities. Funds that provide loans or equity may see their financial capacity shrink if the performance of previous investments proved disappointing; Thailand's ESCO Revolving Fund, for instance, was discontinued in 2017 as a result of disappointing financial performance;[29]

(b) Some funds are specifically earmarked for climate change (e.g. the Indonesia Climate Change Trust Fund) but others have a broader scope, which may make it difficult for them to clearly prioritize climate change;

(c) Complex eligibility criteria as well as application and review procedures may result in a high number of proposals rejected or sent back for further enhancement and lengthy approval timelines. For instance, since receiving its first annual budget allocation in 2015, the Philippines' People's Survival Fund only approved 6 projects out of 172 proposals from 129 proponents (local government units and local community organizations). Most of the proposals submitted to the People's Survival Fund failed to pass the initial screening owing to incomplete documents or because the project activities were not eligible. The COVID-19 pandemic, natural disasters affecting project sites and the conduct of national elections also affected the slow disbursement;[30]

(d) Some funds have only been recently launched and have limited or no track record of project approval and funding. The Lao Energy Promotion and Development Fund, for instance, was only approved by ministerial decree in mid-2020. It is unclear if the fund has been capitalized yet.[31] Singapore's CFPF was announced by the Government in 2020, with an initial capitalization of some USD 3.7 billion;[32]

(e) Some funds may not have adequate staff, resources and governance procedures in place to efficiently and transparently evaluate, fund and monitor a large number of projects.

Table 13
Key features of national climate funds

Feature	Description
Financial instruments provided	Varies by fund; Usually grants, but some funds also offer loans and equity.
Climate finance projects funded	Priorities vary by country; Financing of renewable energy or country-specific adaptation projects are frequent uses of funds.
Eligible applicants	Varies by fund, including: government institutions such as ministries, government agencies and local governments, private sector companies, individuals, research and academic institutions, and non-profit organizations.
Financing process	Varies by fund; Often multiple rounds of project screening, from application to final approval; Funds may offer assistance in project appraisal to speed up applications.

29 Needs-based climate finance project for the ASEAN webinar report. 2020. Available at https://unfccc.int/sites/default/files/resource/ASEAN%20TechWS%200n%20CF_WebReport.pdf.

30 Philippines' Department of Finance. 2020. *People's Survival Fund Seeks to Find Solution to Climate Crisis*. DOF: Available at https://dof.gov.ph/peoples-survival-fund-seeks-to-find-solution-to-climate-crisis/.

31 Times Reporters. 2020. *Govt creates fund to promote renewable energy*. Vientiane Times. 8 October. Available at https://vientianetimes.org.la/freeContent/FreeConten_Govt196.php.

32 Public Utility Board. 2021. *Strengthening Singapore Coastal Defences*. PUB. Available at https://pub.gov.sg/news/pressreleases/20210304strengtheningsingaporescoastaldefence.

Box 4
Public climate funds in Thailand

Five domestic public funds are available in Thailand to support climate-related projects and activities. Below is a description of their key features.

Energy Conservation and Promotional Fund
ENCON was established in 1992 as an extra-budgetary national revolving fund to provide subsidies for energy efficiency and renewable energy investments made by government agencies, SOEs, educational institutions and non-profit organizations. As at May 2020, the fund had an accumulated budget of THB 24 billion (~USD 730 million).[a] ENCON is funded through a levy on the sale of fuel and other oil products, estimated to generate some THB 4 billion in revenues each year. Private sector entities do not have direct access to ENCON funding. However, public sector and non-profit entities funded by ENCON can subsequently channel funds to the private sector. ENCON funding is in the form of grants. Eligible uses of funds include research and development, project management, investment and interest rate subsidies (e.g. for solar PV installation or energy-efficient building retrofits) and capacity-building.

Energy Service Companies Revolving Fund
The ESCO Fund was established in 2008 to facilitate private sector investments in financially viable renewable energy and energy efficiency projects. Despite the use of the word "revolving" in its official name, the ESCO Fund is not a revolving mechanism. It was established and is operated by the Department of Alternative Energy Development and Efficiency. Funding was provided by ENCON. Eligible applicants are entrepreneurs or energy service companies (ESCOs) looking to finance energy efficiency or renewable energy projects. The ESCO Fund can provide equity, equipment leasing, guarantees and technical assistance. The fund was effectively discontinued after 2017 as a result of disappointing financial performance.

Energy Efficiency Revolving Fund
Similar to the ESCO Fund, EERF is not a revolving mechanism but a fund established and managed by the Department of Alternative Energy Development and Efficiency with resources provided by ENCON. EERF provides soft loans for energy efficiency projects and supports technical assistance activities such as energy audits and feasibility studies. Eligible applicants are designated factory and new building owners and ESCO companies. Soft loans are channelled through participating banks, which retain sole discretion over credit decisions. Loans are capped to THB 50 million (~USD 1.5 million) per project, have a 3.5% interest rate and a maximum maturity of 5 years. EERF disbursed THB 3 billion (~USD 91 million) in its most recent window. The launch of a new funding window has not been approved yet.

Environmental Fund
EF was established in 1992 as a national revolving fund under the management of the Ministry of Finance. EF provides subsidies and concessional loans to government agencies, local administrations, SOEs, private sector companies and individuals. Eligible projects vary by applicant category and include investments in wastewater and waste disposal systems, reduction of air pollution, air treatment and environmental conservation. Loan terms also vary by applicant type. EF's sources of income include contributions from Thailand's oil fund, public and private sector contributions, contributions from other government revolving funds and EF's investment profits. As at 30 September 2018, EF had total assets of THB 2.4 billion (~USD 74 million).

Thailand Science Research and Innovation Fund
TSRI was established and is funded by the homonymous government agency for the purpose of supporting national research and innovation in many fields including science and technology. TSRI provides grants to researchers and research and educational institutions, after the submission of a concept proposal. Proposals submitted in the fiscal year 2021 and selected by TSRI will receive funding in 2021–2023.

Source: Needs-based climate finance project for the ASEAN webinar report. 2020. Available at https://unfccc.int/sites/default/files/resource/ASEAN%20TechWS%20on%20CF_WebReport.pdf.
[a] Exchange rate of 1 USD = 33 THB, as of beginning of August 2021.

Box 5
ASEAN sovereign wealth funds

SWFs are State-owned investment funds or entities usually established from balance of payments surpluses, official foreign currency operations, privatization proceeds, governmental transfer payments, fiscal surpluses and/or receipts resulting from resource exports. They are established for a variety of purposes including stabilization of the economy, diversification from non-renewable commodity exports, increase savings for future generations and promotion of national economic or development goals. They invest in a wide variety of asset classes with the objective of achieving positive risk-adjusted returns.[a]

SWFs are latecomers to green investing. Only 19% of the 98 SWFs tracked by Preqin have a stated ESG commitment.[b] There are indications, however, that interest for climate investing is increasing. A recent survey by the International Forum of Sovereign Wealth Funds, a global network of almost 40 sovereign wealth funds, in partnership with One Planet Sovereign Wealth Funds, found broad consensus among SWFs on the need to urgently tackle climate change. 93% of funds surveyed recognized that climate change is a risk or opportunity for their portfolios, and 85% claimed to take climate change into account in their investment processes, although with varying degrees of sophistication. The survey also indicates that many SWFs are seeking investment opportunities in renewable energy generation, energy efficiency projects and low-emission transport.[c]

Seven ASEAN SWFs manage over USD 1.1 trillion in assets, although only a portion of it is dedicated to domestic investments. The two Singapore SWFs, GIC and Temasek, are by far the largest among ASEAN countries. Green and sustainable investing are increasingly targeted by some of these funds. GIC and Khazanah (Malaysian SWF), for instance, have recently expressed their commitments in this respect.[d]

SWF	Country	AuM *(USD billion)*
GIC	Singapore	744
Temasek	Singapore	283
BIA	Brunei Darussalam	49
KWAP	Malaysia	34
Khazanah	Malaysia	31
INA	Indonesia	8
SCIC	Viet Nam	2
Total		**1 151**

Source: Available at https://globalswf.com/top-100.
Abbreviations: GIC = Government of Singapore Investment Corporation, BIA = Brunei Investment Energy, KWAP = Kumpulan Wang Amanah Persaraan, INA = Indonesia Investment Authority, SCIC = State Capital Investment Corporation.
[a] Available at https://swfinstitute.org/research/sovereign-wealth-fund.
[b] Murgatroyd G. 2021. *Sovereign Wealth Funds: Building Back Better.* Preqin. Available at https://preqin.com/insights/research/blogs/sovereign-wealth-funds-building-back-better.
[c] International Forum of Sovereign Wealth Funds. 2021. *Sovereign wealth funds report material action on climate change.* IFSWF. Available at https://ifswf.org/general-news/sovereign-wealth-funds-report-material-action-climate-change.
[d] Reuters Staff. 2021. *Pushed for refreshed mandates, Malaysia's state-linked funds to increase sustainable investments.* Reuters. 12 August. Available at https://reuters.com/article/malaysia-khazanah/update-1-pushed-for-refreshed-mandates-malaysias-state-linked-funds-to-increase-sustainable-investments-idINL1N2PJ0R8; Ting C. 2021. GIC increasing focus on sustainable investments. Straits Times. 23 July. Available at https://straitstimes.com/business/gic-increasing-focus-on-sustainable-investments.

(c) Carbon Pricing

80. Carbon pricing curbs GHG emissions by placing a fee on emitting and/or offering an incentive for emitting less.[33] The two main carbon pricing mechanisms are carbon taxes and ETS. The former hold emitters accountable for the impacts of their activities. The latter also reward those that reduce the emissions of their activities. Specifically:

(a) A carbon tax creates a cost for emitting by setting a fixed carbon price, providing emitters with an economic incentive to transition to clean energy and improve their energy efficiency. Carbon taxes can be applied at the national level or target specific goods or sectors. In addition to affecting production and consumption patterns in favour of low-carbon alternatives, carbon taxes can provide a relatively predictable revenue stream for governments, which may use them to pursue a sustainable development objective;

(b) An ETS, also known as a cap-and-trade system, (i) sets a legally-binding limit on the GHG emissions allowed from certain economic sectors ("cap"), and (ii) distributes tradable emissions permits to emitters (mainly large firms) through an initial auction or allocation. Companies must have a permit for each unit of emissions they create and can trade such permits: heavy emitters can buy additional permits from firms that are able to reduce their emissions quickly. ETS allow market forces to determine a price for emissions: for instance, when there is high demand for and low supply of permits, the permit price rises, increasing the financial burden on emitters. Governments raise funds through permit auctions.

81. Carbon pricing has gained ground in many economies and could be a prominent climate finance source. It also has a certain level of progress in ASEAN countries. Singapore has formally adopted a carbon tax (see box 6). Indonesia launched a trial national ETS covering the power sector (about 80 coal-fired power plants joined the scheme) in March 2021 that initially run until August 2021. Viet Nam is considering an ETS for the steel sector and market-based instruments for the waste sector. The Philippines' House of Representatives Committee on Climate Change conditionally approved a cap-and-trade bill in February 2020.[34] Indonesia drafted a proposal for a carbon tax in 2021.[35] Thailand piloted different carbon pricing mechanisms and voluntary programmes but has yet to adopt a nationwide system.[36] Indonesia, Thailand and Viet Nam are currently being supported by the WB's Partnership for Market Implementation – a programme that assists participant countries to design, pilot and implement explicit carbon pricing instruments aligned with domestic development priorities.[37]

82. Carbon pricing offers great potential to reduce emissions in ASEAN countries. A recent study by the IEA, for instance, has found that carbon pricing could incentivize emission reductions in Thailand's power sector by shifting generation from coal to less emission-intensive gas plants. IEA models indicate that a carbon price of USD 40/t CO2 could incentivize a shift of 23 TWh from coal to gas power plants, and reduce emissions from electricity generation by 11% (13 Mt CO2) in 2030. The IEA further suggests that carbon pricing revenues should be used to limit the impact of potentially higher electricity prices on consumers and support clean energy deployment.[38]

83. Carbon pricing has several attractive features as a source of climate finance (see table 14 for a full description of relevant features):

(a) It complies with the "polluter pays principle", creating a financial liability for the parties directly responsible for emissions;

(b) It can be a sizeable source of revenues, depending on the sectoral scope of the carbon pricing scheme and carbon tax or permit price levels. For example, the Government of Singapore expects to collect USD 1 billion in the first five years following the introduction of the carbon pricing scheme in 2019;[39]

(c) Carbon pricing revenues can be dedicated by governments to climate change-specific uses through a variety of spending formats, including direct investments (e.g. in renewable generation capacity), subsidies (e.g, to households affected by higher consumer prices resulting from carbon pricing schemes) and the capitalization of national climate funds.

84. At the same time, some trade-offs must be considered when setting up carbon pricing systems:

(a) Carbon pricing can be politically sensitive as it increases the cost of doing business in traditional sectors that often employ large numbers of people (e.g. non-renewable energy production, heavy industries). In addition, the cost of carbon pricing may result in higher downstream consumer prices;

33 Available at https://unfccc.int/about-us/regional-collaboration-centres/the-ciaca-initiative/about-carbon-pricing#eq-1.

34 Duggal VK. 2020. *Background Note: Carbon Pricing.* ABD. Available at https://adb.org/sites/default/files/institutional-document/691951/ado2021bn-carbon-pricing-developing-asia.pdf.

35 Kurniawan W. 2021. *Indonesia considering carbon tax under major tax overhaul*. Reuters. 21 May. Available at https://reuters.com/business/sustainable-business/indonesia-considering-carbon-tax-under-major-tax-overhaul-document-2021-05-21/.

36 IEA. 2021. *The Potential Role of Carbon Pricing in Thailand's Power Sector*. France: IEA. Available at https://iea.org/reports/the-potential-role-of-carbon-pricing-in-thailands-power-sector.

37 Available at https://worldbank.org/en/topic/climatechange/brief/partnership-for-market-implementation.

38 See footnote 31 above.

39 Available at https://mse.gov.sg/resource-room/category/2021-07-05-written-reply-to-pq-on-carbon-tax/.

(b) Administratively, while carbon taxes are relatively straightforward, the setting up of ETS can be complicated and require a significant amount of planning;

(c) Government revenues from ETS can be minimal as an auction is rarely expected at the early stage of the ETS for a developing country, or the auction volume and auction price are expected to be low. Additionally, revenue from ETS can be volatile as auction volumes and auction prices for emission allowances vary. For example, the European Commission notes that rising carbon prices in the EU ETS since 2018 caused an increase in auction revenues, which amounted to EUR 14–16 billion annually in 2018–2020.[40] Under the current EU ETS rules, European Union member States are required to spend at least half of their auction revenues to support GHG emission reductions, deploy renewables and carbon capture and storage, and improve energy efficiency and district heating;[41]

(d) As previously noted, there are limited precedents of carbon pricing schemes in ASEAN countries to be used as potential templates in the future.

Table 14
Key features of carbon pricing

Feature	Description
Financial instruments provided	Governments raise funds by collecting carbon taxes or selling emission permits; The proceeds can be used by governments in any format allowed under local legislation, including direct expenditure or capitalization of government-sponsored investment vehicles.
Climate finance projects funded	Governments can spend carbon pricing revenues as part of the general budgetary process or dedicate the proceeds to climate change adaptation and mitigation uses (for instance by establishing national climate funds funded by carbon pricing proceeds).
Eligible applicants	The policies establishing carbon pricing schemes will determine the potential recipients or beneficiaries of carbon pricing revenues, including public or private sector entities, specific economic sectors and specific uses (e.g. capital investment, subsidies or research relevant to climate change mitigation and adaptation).
Financing process	The process for the expenditure of carbon pricing revenues depends on the use of such revenues determined by relevant government policies.

40 European Commission. 2021. Questions and Answers – Emissions Trading – Putting a Price on Carbon. Available at https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3542.

41 See footnote 34 above.

Box 6
Singapore's carbon tax

Singapore's Carbon Pricing Act No. 23 was adopted in 2018 and came into force in 2019 as the basis for implementing an economy-wide carbon tax. Singapore opted for a carbon tax over an ETS because the former provides price certainty, has lower implementation costs and a lower administrative burden for companies. The tax regulates the industrial facility that emits direct GHG emissions equal to or above 25 000 tCO2eq annually. About 50 emitters are covered, which contribute about 80% of Singapore's GHG emissions. The tax rate was set at SGD 5/tCO2e (around USD 3.7/tCO2e) in 2019, a level that will be in place until 2023, when the rate will be reviewed. The Government intends to increase the tax rate to SGD 10–15/tCO_2e by 2030. Gradually increasing the rate allows businesses to adjust their operations. The Government also provides rebates or refunds to help households adjust to the impacts of a carbon tax and avoid negatively impacting the most vulnerable consumers – poorer households that consume less electricity see a larger relative share of their utility bills refunded. Revenue from the carbon tax is recycled back to the economy, by providing support to companies to implement energy efficiency measures. The Government expects to collect USD 1 billion in the first five years following the introduction of the carbon tax in 2019.[a]

Source: Singapore National Environment Agency. *Carbon Tax.* Available at https://nea.gov.sg/our-services/climate-change-energy-efficiency/climate-change/carbon-tax.
Abbreviations: AC = Adaptation Committee, CMA = Conference of the Parties serving as the meeting of the Parties to the Paris Agreement, CTCN = Climate Technology Centre and Network.
[a] Singapore's Ministry of Sustainability and the Environment. 2021. Written reply by Ms. Grace Fu, Minister for Sustainability and the Environment, to a parliament question on carbon tax. Available at https://mse.gov.sg/resource-room/category/2021-07-05-written-reply-to-pq-on-carbon-tax/.

2. Private sources of climate finance

85. Private sources of climate finance, such as banks, bond investors and private equity funds, provide capital in the form of debt or equity with the expectation to realize market-level, risk-adjusted returns. Remuneration of debt investments comes primarily from the payment of interests. Remuneration of equity investments comes from dividends and/or capital gains from the sale of equity stakes. Borrowers include private or government-controlled companies – including special purpose vehicles set up to develop and run infrastructure concessions – as well as national and local governments. Equity recipients are confined to the corporate sector. The use of proceeds from a debt or equity investment varies by type of recipient: corporate recipients will typically invest in the growth of the business or refinance existing debt obligations that come due; sovereign recipients will finance their budget deficits or refinance existing debt maturities. This section focuses on the use of private finance for corporate-type applications.

86. A necessary condition for private finance is that climate projects have the potential for revenue generation or cost recovery. To date, these projects have fallen primarily under climate change mitigation. The most common example is debt or equity financing of renewable energy plants, which generate revenues by selling electricity into the power grid or to specific off-takers. While climate change adaptation projects are often of a public good nature (e.g. financing of disaster-resilient infrastructure), some projects are also prone to private finance. Examples include water supply infrastructure with the ability to charge water tariffs, or financing of climate-resilient agriculture. Table 15 summarizes likely target sectors and examples of private climate finance in both mitigation and adaptation. Note that projects often involve aspects of mitigation and adaptation; for instance, a reforestation project has carbon capture benefits (mitigation) but may also protect areas threatened by floods and landslides due to increasingly severe precipitation patterns (adaptation). Private sources of finance are applicable to these cross-cutting projects as well.

Table 15
Applicability of private finance to climate change sectors

Area	Sector	Number of ASEAN classifying the sector as a priority	Applicability of public concessional finance	Project examples
Mitigation	Energy	10	High	Debt or equity finance to renewable energy and energy efficiency projects
	Forestry and other land use	8	Low	Debt or equity finance to agroforestry projects, eco-tourism
	Transport	7	High	Debt or equity finance to public transport PPPs
	Waste management	6	High	Debt or equity finance to waste management PPPs
	Industrial processes	4	High	Loans or equity investments in companies addressing climate change needs through their products and services
	Agriculture	3	Medium	Credit facilities for investments in climate-smart agriculture (especially large scale, less so for smallholder farmers)
Adaptation	Food security (agriculture, livestock and fisheries)	10	Medium	Debt or equity finance to irrigation PPPs, credit facilities for investments in climate-smart agriculture
	Water supply and sanitation	8	High	Debt or equity finance to water supply and distribution PPPs
	Public health	8	Low	Debt or equity finance to health-care PPPs
	Biodiversity, forestry and watershed management	8	Low	Debt or equity finance to forest management PPPs or related eco-tourism opportunities
	Coastal zone protection and marine resources	8	Low	Debt or equity finance to coastal protection and marine resource management PPPs or related eco-tourism opportunities
	Critical infrastructure and spatial planning	5	Low	Debt or equity finance to infrastructure PPPs (to the extent that tariffs are feasible for the use of such infrastructure)
	Disaster risk reduction	3	Low	Debt or equity finance to providers of disaster risk insurance
	Energy	3	High	Debt or equity finance to renewable energy and energy efficiency projects
	Transport and urban development	2	High	Debt or equity finance to public transport PPPs or sustainable real estate development
	Tourism	2	High	Debt or equity finance to eco-tourism operators

87. In some projects, full commercial structures may not be possible and "blended finance" solutions may be required. Specifically, concessional capital from public sources would be used to reduce the risk or enhance the return of the investment for the commercial capital provider. For example, renewable energy projects are in principle suitable for private sector investment, as capital investment and operating and financial expenses can be offset over time by revenues generated from the sale of electricity. In developing countries, affordable electricity tariffs may be too low to generate an attractive financial return for the project developer, in addition to covering project costs. In this case, blended solutions may include grants to partially cover the initial capital investment, concessional loans bearing lower interest than commercial ones or sovereign guarantees attached to commercial loans (resulting in lower interest charges as well). By mobilizing private capital, blended finance solutions also allow governments to reduce reliance on sovereign borrowing to fund their investment needs – an increasing priority for many ASEAN countries.

88. The following private sources of climate finance (see table 16) are analysed in detail in the following sections. Three comments are noteworthy:

(a) The focus of the table and analysis below is on sources of finance aimed at specific climate change related projects. As a result, pension funds and other institutional investors (e.g. insurance companies and endowments) are not covered as they are very unlikely to provide direct funding (debt or equity) at the project level. Institutional investors buy primarily listed securities such as bonds or stocks. Some of these securities may be issued by entities such as banks that subsequently deploy the proceeds in the form of direct loans. Some pension funds also allocate a small portion of their AuM to private equity funds, which in turn invest at the project level. Please see box 7 for a description of sustainable investing trends in the asset management industry;

(b) DFIs, defined as the private sector arms of development banks (e.g. the IFC unit of WB Group), invest equity in or lend to private sector companies at commercial terms, acting in a capacity that is very similar to that of private equity funds or commercial banks;

(c) Green bonds and loans have gained significant prominence in recent years and witnessed very high growth. However, they are securities, not sources of finance – the buyers of green bonds, such as the aforementioned institutional investors, would be the source of finance. As a result, green bonds and loans are treated separately.

Table 16
Private sources of climate finance

Category	Source	Description	Potential applicants
Private	Commercial banks	Commercial banks are the primary source of capital in ASEAN[a] countries and are increasingly focused on the climate agenda. They offer a wide range of loan instruments that could suit the needs of climate finance, including: (i) project finance loans (e.g. for renewable energy or water and waste treatment projects); (ii) loans to private sector companies (including SMEs) that address climate needs; (iii) consumer loans to support small-scale purchases of equipment (e.g. solar panels or energy-efficient devices); and (iv) loans to sovereigns or SOEs for large climate-related investments	Companies (including SMEs); Special purpose vehicles set up to implement infrastructure projects; Sovereigns or SOEs; Consumers.
	Private equity funds	Private equity funds invest in unlisted companies that need capital to fund growth or restructure their business. They target a wide range of industry sectors, including revenue-generating infrastructure, such as power generation and distribution. They make use of leverage and seek to exert control on portfolio companies	Private sector companies; Infrastructure project companies; Governments looking to fully or partially privatize assets.
	Incubators, accelerators and VC funds	Incubators, accelerators and VC funds provide early-stage funding as well as capacity-building and advisory services to start-ups, including those focused on climate technologies	Early-stage "climate tech" start-ups; For incubators/accelerators: teams looking for technology proof of concept, or with proven technology but no go-to-market strategy; For VCs: from start-ups that have achieved proof of concept and need to scale up, to mature start-ups in pre-IPO stage.

[a] Zurich Insurance Company Ltd Investment Management. 2021. *ASEAN: The resilience of banks*. Zurich: Zurich Insurance Group Ltd. Available at https://zurich.com/-/media/project/zurich/dotcom/economics-and-markets/docs/2021/topical-thoughts/asean-the-resilience-of-banks.pdf?rev=25c750cf3d5e4db3a8ca156091dea45a&hash=3E7E588659AF2862075BAF77D2ACC209.

Box 7
Sustainable investing in the asset management industry

The Global Sustainable Investment Alliance, an international collaboration of membership-based sustainable investment organizations, found that in 2020 sustainable AuM reached USD 35.3 trillion, equivalent to 36% of all professionally managed assets across Europe, the United States, Canada, Australasia and Japan, and an increase of 15% over the previous two years. Sustainable investing consists of a variety of strategies. ESG integration is the most common, followed by negative screening, corporate engagement and shareholder activism, norms-based screening and sustainability-themed investment. Asset managers in the United States and Europe held more than 80% of global sustainable investing assets in the 2018–2020 period.

Sustainable investing is gaining considerable traction in Asia-Pacific as well. The MSCI 2021 Global Institutional Investor Survey found that 79% of asset managers[a] surveyed in Asia-Pacific[b] increased ESG investments "significantly" or "moderately" in response to COVID-19, and 28% expect a significant increase in ESG investing and integration by the end of 2021. Within the latter time frame, 57% of Asia-Pacific asset managers surveyed expect to incorporate ESG issues into investment analysis and decision-making processes in their main fund "completely" or "to a large extent". 43% of Asia-Pacific asset managers surveyed already incorporate climate change considerations in their activities – the percentage increases to 50% looking only at asset managers from Asia-Pacific countries other than Australia, New Zealand and Japan.

Sources: Global Sustainable Investment Alliance. 2021. *Global Sustainable Investment Review 2020.* Available at http://gsi-alliance.org/; MSCI. 2021. *MSCI Investment Insights 2021. Global Institutional Investor Survey.* Available at https://msci.com/documents/1296102/22910163/MSCI-Investment-Insights-2021-Report.pdf.
[a] The demographics targeted by the MSCI survey included: insurance companies, public pension funds, SWF, defined-contribution pension schemes, corporate pension funds, endowments, foundations and other asset managers.
[b] Including Australia, New Zealand and Japan.

(a) Commercial banks

89. Commercial banks offer a wide range of loan products that could suit the needs of climate finance, including: (i) infrastructure loans (e.g. for renewable energy or water and waste treatment projects); (ii) corporate loans to companies that address climate needs; (iii) consumer and SME loans to support small-scale purchases of equipment (e.g. solar panels or energy-efficient devices); and (iv) loans to sovereigns or SOEs for large climate-related investments. Commercial bank loans are usually in local currency and vary by maturity, interest rates and collateral requirements. The availability and terms of bank loans depend on the bank's assessment of the creditworthiness of the borrower or, in the case of non-recourse project finance, the future cashflow profile of an infrastructure project.

90. The commercial banking sector is very large and can play a major role in climate finance. The IFC estimates a total of USD 29 trillion in climate investment opportunities in six urban sectors[42] in emerging market cities until 2030. Emerging market banks need to increase the share of climate lending in their portfolios from 7% in 2018 to 30% in 2030 to mobilize the necessary financing for these opportunities.[43]

Banks globally are under pressure to increase their exposure to climate finance and divest from emitting sectors such as carbon fuels. In this context, the IFC launched the Alliance for Green Commercial Banks, an initiative that brings together financial institutions, banking industry associations, research institutions and innovative technology providers to develop a community of green commercial banks across emerging markets to finance infrastructure and business solutions to address climate change. The Alliance started in Asia in cooperation with the Hong Kong Monetary Authority.[44]

91. The role of commercial banks in climate finance is particularly important in ASEAN countries, where corporate bond markets are still in their infancy. In excess of 80% of corporate funding in Indonesia, the Philippines and Viet Nam comes from bank loans. While bond markets are more developed in Malaysia, Singapore and Thailand, bank lending is the predominant financing source in these countries as well. ASEAN countries have experienced significant credit growth over the past decade. Median domestic credit to the private sector as a percentage of GDP rose from 30.5% in 2011 to 114.2% in 2019.

42 Green buildings, electric vehicles, public transport infrastructure, climate-smart water infrastructure, renewable energy and municipal solid waste management.
43 Available at https://ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/publications/publications_report_sbnnecessaryambition.
44 Available at https://ifc.org/wps/wcm/connect/industry_ext_content/ifc_external_corporate_site/financial%20institutions/priorities/climate_finance_sa/alliance%20for%20green%20commercial%20banks.

While future growth is hard to forecast in the light of macroeconomic volatility, it is worth noting that this statistic is lower than the equivalent figures for East Asia-Pacific and the world (167.1% and 146.7%, respectively, in 2020). Estimates of the share of climate loans in their portfolio are not available, but surveys indicate that ASEAN banks are putting an increasing emphasis on climate finance. The WWF's Sustainable Banking Assessment 2020 found that 11 out of 38 ASEAN banks surveyed are committed to increasing either the absolute amount or percentage of sustainable finance in their portfolios. 32 ASEAN banks recognized the challenges posed by climate change in 2020, compared to 19 banks the previous year, and the number of banks with a climate strategy more than quadrupled, from 2–9. 20 ASEAN banks engaged with their regulators on sustainable finance topics in 2020.[45]

92. Commercial bank finance has several attractive features for project proponents (see table 17 for a full description of relevant features):

(a) The commercial banking sector represents a very large pool of capital, is the primary capital provider to ASEAN economies, and is under increasing pressure to embrace climate finance and rigorous ESG practices;

(b) Commercial banks offer a wide variety of loan products, varying by sector, borrower and project type. Examples include senior and subordinated corporate loans, project finance loans and loans secured on assets such as real estate, vehicles and equipment. Lending decisions are based primarily on the financial merits of the project at hand, including its risk profile;

(c) Commercial bank lending to some climate finance sectors – in particular, renewable energy – is already an established instrument in many developed and developing countries;

(d) Commercial banks' lending decisions are likely quicker than those of public finance lenders, such as multilateral and national climate funds, MDBs and bilateral development agencies;

(e) Commercial banks usually lend in local currency, an advantage compared with international institutions that usually lend in hard currency.

93. At the same time, some trade-offs must be considered when applying for commercial bank finance:

(a) Some sectors and borrowers are considered inherently risky by commercial banks (e.g. agriculture, SMEs, unsecured consumer lending, greenfield infrastructure projects with no proven cashflows yet). Volatility of the borrower's cashflows, lack of collateral and difficulty in loan enforcement (for instance because of the lack of an established bankruptcy regime) contribute to risk aversion on the part of commercial banks;

(b) Macroeconomic considerations affect the availability of bank finance at a given moment, as well as lending terms. Economic downturns, for instance, usually coincide with a deterioration of the banks' existing loan books and a reduced willingness to lend further. High inflation usually triggers central bank interest rate hikes, which leads to high commercial bank rates;

(c) Commercial banks are passive capital providers. They do not get involved in project development and do not provide technical assistance or capacity-building. In the infrastructure sector, for instance, commercial banks are more likely to finance brownfield projects or shovel-ready greenfield projects (meaning projects for which the design phase is completed) rather than getting involved in earlier phases of project development;

(d) Commercial banks in many ASEAN countries lack the capacity to assess climate and other green projects and are risk averse as a result. This is particularly the case in countries such as Cambodia, Lao People's Democratic Republic and Myanmar where financial markets are at an early stage of development. MDBs and other actors such as the GCF have stepped in to provide support through technical assistance and de-risking instruments.

45 Available at https://susba.org/pdfs/report-2020.pdf.

Table 17
Key features of commercial bank finance (loans) bank lending for climate change projects

Feature	Description
Financial instruments provided	Corporate loans (including SMEs); Project finance loans (non-recourse to the borrower, serviced only out of the project's cashflows); Consumer loans; Sovereign or SOE loans; Terms (maturity, rates, collateral requirements) vary by borrower and project; Loans are usually in local currency.
Climate finance projects funded	Potentially a very wide array of climate change mitigation and adaptation projects, for example: project loans to renewable energy or water infrastructure projects; sovereign loans for public infrastructure projects addressing climate needs; loans to companies that embark on climate-related investments; SME or consumer loan programmes supporting small-scale investments in renewable energy or energy-efficient equipment and appliances; However, not all sectors are equally prone to bank lending. Lending to agriculture sector, for example, is notoriously difficult owing to the unpredictability of crop yields and prices.
Eligible applicants	Companies (including SMEs); Special purpose vehicles set up to implement infrastructure projects; Sovereigns or SOEs; Consumers.
Financing process	Banks conduct a thorough credit assessment based on internal evaluation and scoring criteria. If a borrower passes the credit evaluation, loan agreements and related documents are negotiated and signed, after which the bank disburses the loan principal; Evaluation criteria vary by borrower type: • For corporate and consumer loans: borrower's creditworthiness, previous credit record, familiarity with lender; • For project loans: project's cashflow profile, quality and track record of project developer, soundness of capital structure; • For sovereign loans: government creditworthiness, ratings, macroeconomic conditions. Compliance with ESG criteria is an increasingly important factor as commercial banks embrace sustainable finance; Availability of risk-mitigating solutions, such as credit guarantees provided by governments or development banks, can have a major influence on commercial banks' credit decisions.

(b) Private equity funds

94. Private equity funds invest in unlisted companies that need capital to fund growth or restructure their business. They target a wide range of industry sectors including revenue-generating infrastructure such as power generation and distribution. They invest equity and, to a lesser extent, subordinated debt with a typical time-horizon of five years or more (longer for infrastructure deals).

They usually leverage their deals through bank loans or other forms of debt. Private equity funds usually seek control of their portfolio companies or significant minority positions in order to exert influence on company management and strategy. They exit their investments by listing the portfolio companies on the stock market, selling them to industrial or financial (i.e. fellow private equity funds) buyers, or selling company stakes to deal co-investors.

Box 8
ASEAN banks with climate finance commitments

The WWF has tracked the climate finance activities of ASEAN banks, highlighting seven institutions with a particular focus on the sector:

- In Thailand, Kasikorn Bank was the first ASEAN commercial bank to be selected as a member of the Dow Jones Sustainability Index and financed solar power plants; Siam Commercial Bank acted as financial adviser and lead arranger for the financing of a large-scale solar power plant, and financed the majority of wind power plant construction in the country. In 2021, Kasikorn Bank announced that it will allocate up to THB 200 billion (USD 6 billion) to sustainable financing and investment by 2030.[a]
- In the Philippines, Banco de Oro Unibank (the largest bank in the country) has exposures of more than USD 500 million to the renewable energy sector in the country, including solar. Banco de Oro has also expanded its activities beyond renewable energy to include energy efficiency, climate-smart agriculture, green infrastructure, and clean transportation.[b] Another institution, the Bank of the Philippine Islands, financed renewable energy projects in partnership with the IFC and funded other solar and geothermal projects.
- In Singapore, United Overseas Bank funded a series of domestic solar projects but is also active in other ASEAN countries, for instance supporting a hydropower developer in Viet Nam. In 2020, United Overseas Bank launched a Smart City Sustainable Finance Framework to facilitate access to its loans by businesses that demonstrate how their activities promote a better quality of life for residents through the use of renewable energy, green building construction, improved energy efficiency, green transportation, sustainable water and waste management and/or climate change adaptation.[c]
- In Malaysia, Maybank has financed renewable energy projects including solar, biomass and hydropower, not only domestically but also in Indonesia. In 2021 Maybank announced a 5-year plan to commit USD 12 billion to sustainable financing, together with its exit from coal financing activities.[d]
- In Indonesia, Bank Mandiri (the largest in the country by assets) has financed renewable energy projects, including hydropower and biomass, through credit lines it received from bilateral development banks and MDBs such as Agence Française de Développement and the ADB.

Source: Technical workshop on climate finance in the ASEAN. 2019. Available at https://unfccc.int/sites/default/files/resource/Tongson_UNFCC_30Oct2019.pdf.
[a] Reuters staff. 2021. *Thailand's Kasikornbank plans up to $6 bln in sustainable finance by 2030.* Reuters. 29 October. Available at https://reuters.com/article/kasikornbank-strategy-idUKL1N2RP0U1.
[b] Cuaresma B. 2021. *BDO reaffirms pledge for low-carbon regime.* Business Mirror. 11 August. Available at https://businessmirror.com.ph/2021/08/11/bdo-reaffirms-pledge-for-low-carbon-regime/.
[c] PR Newswire. 2020. *UOB launches its Smart City Sustainable Finance Framework, the first by a bank in Asia to help more companies advance responsibly.* Business Insider. 24 November Available at https://markets.businessinsider.com/news/stocks/uob-launches-its-smart-city-sustainable-finance-framework-the-first-by-a-bank-in-asia-to-help-more-companies-advance-responsibly-1029832446.
[d] Reuters staff. *2021 Malaysia's Maybank to stop financing new coal activities.* Reuters. 6 May 2021. Available at https://reuters.com/article/malaysia-maybank-idUSL4N2MT2PF.

95. As at September 2019, according to Preqin, private equity funds (excluding infrastructure and real estate) in South-east Asia had record AuM of USD 20.2 billion, after several years of growth. Of this, USD 8.4 billion was still available for investment ("dry powder"), more than twice the amount available at the end of 2018. The total value of private equity deals closed in 2018 was USD 3.7 billion. The COVID-19 crisis caused a slowdown in private equity fundraising and investing. No capital was raised by ASEAN-focused private equity funds in the first quarter of 2020 and the fundraising environment remained soft throughout the year.[46] The value of private equity deals closed in 2020 was 16% lower than the 2015–2019 average.[47] The percentage of private equity assets devoted to climate finance in South-east Asia is not disclosed. The trend, however, is towards an increasing focus on investments that address environmental and social needs. For instance, of all private equity deals in the first half of 2019, 56% involved companies that met some sustainability criteria.[48]

46 Preqin. 2020. *Preqin Markets in Focus: Private Equity & Venture Capital in Southeast Asia's Digital Evolution*. Available at https://preqin.com/insights/research/reports/preqin-markets-in-focus-private-equity-and-venture-capital-in-southeast-asias-digital-evolution.
47 Yang K, Campagnoli A, Sit E, et al. 2021. *Asia-Pacific Private Equity 2021*. Massachusetts: Bain & Company. Available at https://bain.com/insights/asia-pacific-private-equity-2021/.
48 Bain & Company. 2019. Sustainability Wins as Investors in Southeast Asia Shift Focus. Available at https://bain.com/insights/sustainability-wins-as-investors-in-southeast-asia-shift-focus/.

96. Examples of private equity firms based in ASEAN countries include: Cambodia Investors Capital Partners in Cambodia; Quvat Capital Partners and North Star in Indonesia; Navis Capital Partners, Creador Management Company and COPE Private Equity in Malaysia; PMM Partners, Anthem Asia and Golden Rock Capital in Myanmar; PINAI in the Philippines; Northstar Group, Gateway Partners, Makara Capital Partners, UOB Venture Management, Templeton Asset Management, SEAVI Advent and Novo Tellus Capital Partners in Singapore; Lakeshore Capital and Finansa Asset Management in Thailand; and Mekong Capital and Viet Nam Investments Group in Viet Nam.[49]

97. Globally, investor interest in renewable energy investments has grown significantly in recent years, driven by the sector's growth, the desire of investors to capitalize on the shift to clean energy and private equity fund managers' increasing focus on ESG-compliant investments. In 2020, private equity fund managers raised USD 52.2 billion across 55 renewable energy funds worldwide, a 17% increase over the USD 44.6 billion raised across 73 funds in 2019. An additional USD 29.9 billion was raised by 27 funds in the first half of 2021.[50] Data on the prospective capital allocation to investments in Asia are not available, but the continent is targeted by several funds.

98. Private equity finance has several attractive features for project proponents (see table 18 for a full description of relevant features):

(a) Private equity funds can evaluate, structure and execute deals quickly. They operate on a purely commercial basis and are unhindered by the bureaucratic procedures and policy agendas of public capital providers;

(b) By leveraging their deals, private equity funds catalyse other sources of capital in addition to their equity investments, including commercial banks and possibly bond investors. This allows them to engage in large investments, often in the range of billions of United States dollars;

(c) Private equity funds are active owners who instil managerial and financial discipline in the companies in which they invest;

(d) Private equity funds are under increasing pressure from their own investors (e.g. pension funds, endowments, insurance companies) to comply with rigorous ESG standards, which is likely to steer them increasingly towards climate-related investments.

99. At the same time, some trade-offs must be considered when applying for private equity finance:

(a) Private equity funds invest primarily in countries with an established regulatory and business enabling environment. For instance, infrastructure-focused funds will seek stable regulation as it pertains to infrastructure concessions or public–private partnerships. The ability to enforce contracts (e.g. shareholder agreements with co-investors in a portfolio company) is critical. In addition, some of the exit options pursued by private equity funds, such as IPOs, require a reasonable degree of maturity of local capital markets. Finally, limitations to foreign investment may keep offshore-domiciled funds at bay;

(b) Volatile macroeconomic and financial conditions, reflected for instance in exchange rate volatility or high inflation, can have a significant negative impact on the investment appetite of private equity funds. This is particularly true of foreign funds that may have limited familiarity with the domestic situation of a developing country;

(c) Private equity funds do not usually engage in early-stage project preparation. Infrastructure-focused funds, for instance, prefer to invest in brownfield, revenue-generating assets or "shovel-ready" projects (fully designed and ready for construction as soon as capital is provided). Concessional project preparation facilities offered by MDBs may help countries overcome this barrier;[51]

49 Preqin. 2019. *Top of the Table: ASEAN PE and VC*. Available at https://docs.preqin.com/reports/Top-of-the-Table-ASEAN-Private-Equity-and-Venture-Capital.pdf;
Macquarie. 31 July 2012. *Macquarie Infrastructure and Real Assets announces close of US$625 million Philippines Infrastructure Fund*. Available at https://macquarie.com/au/en/about/news/2012/macquarie-infrastructure-and-real-assets-announces-close-of-usd625-million-philippines-infrastructure-fund.html;
Private Equity International. 10 July 2019. *Vietnamese Private Equity: A Beginner's Guide*. Available at https://privateequityinternational.com/vietnam-beginners-guide/;
Private Equity List available at https://privateequitylist.com/investor-directory/country/Thailand#;
Bain & Company. 2011. *Private Equity in Southeast Asia*. Link: https://bain.com/contentassets/dc91866c912d4a1a85ee96687ab48414/pe_in_se_asia.pdf;
Capital Cambodia. 12 July 2019. *Private equity firms to supervise collective investment schemes*. Available at https://capitalcambodia.com/private-equity-firms-to-supervise-collective-investment-schemes/.
INSEAD (date not specified). *Private Equity in Myanmar: The Next Frontier?* Available at https://insead.edu/sites/default/files/assets/dept/centres/gpei/docs/insead-student-private-equity-in-myanmar-june-2015.pdf.

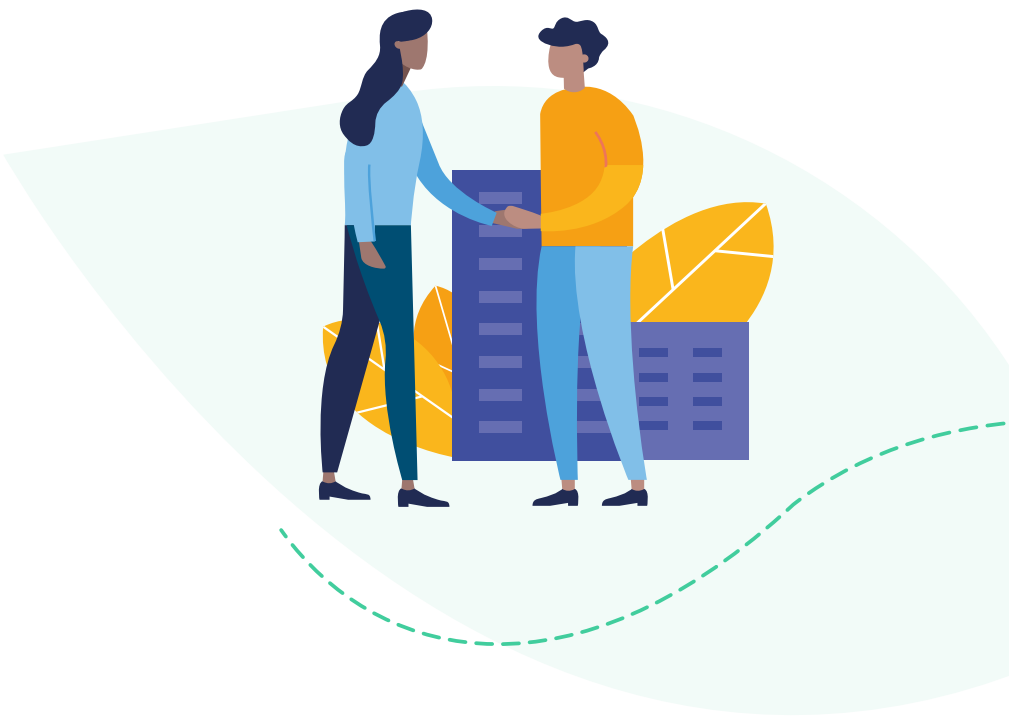
50 Garcia L. 2021. *Stonepeak Raises $2.75 Billion for Debut Renewable-Energy Fund*. The Wall Street Journal. 14 July. Available at https://wsj.com/articles/stonepeak-raises-2-75-billion-for-debut-renewable-energy-fund-11626260401.

51 The IFC's Scaling Solar programme, for instance, supports the design and preparation of solar power projects in developing countries. Available at https://scalingsolar.org/#toggle-id-9.

(d) Public stakeholders and civil society may be opposed to for-profit ownership of certain businesses and infrastructure projects that are perceived to be of a public good nature. For-profit water infrastructure investments, for instance, may be difficult owing to public opposition to high water tariffs.

Table 18
Key features of private equity and infrastructure funds

Feature	Description
Financial instruments provided	Equity; Mezzanine debt.
Climate finance projects funded	Infrastructure-type investments in renewable energy projects (solar, wind, hydro, biomass); Other climate-resilient infrastructure investments, for instance in the transport and water and waste sectors; Equity investments in a wide range of growth companies addressing climate change issues.
Eligible applicants	Private sector companies; Project companies managing newly developed or existing infrastructure assets; Governments looking to fully or partially privatize assets (e.g. state-owned renewable energy providers).
Financing process	The typical investment process includes a due diligence and valuation phase, negotiation of deal documentation, structuring of the financing package (including identification of debt providers and negotiation of terms) and closing. Private equity funds move quickly and can close deals in a matter of weeks or months; Core investment criteria include: soundness of the business model and management team; projected cashflows and returns over the fund's investment period; exit options, including IPO and sale of the company to industrial or financial buyers; assessment of investment risks and mitigating solutions including blended finance (credit guarantees, insurance for breach of contract, etc.); Most private equity funds are under pressure from their own investors to apply rigorous ESG criteria.



Box 9
Examples of renewable energy and infrastructure funds targeting ASEAN countries

Berkeley Energy
Berkeley Energy is a renewable energy infrastructure fund manager focused on the emerging markets. It was founded in 2007 and has offices in London, Singapore, New Delhi and Manila. Berkeley has a hands-on approach to investing and provides technical and operational support to its portfolio companies, in addition to capital. Berkeley currently manages two Asia-focused funds: the REAF, which is fully deployed, and the REAF II, which is in the investment phase.

REAF has USD 100 million in AuM, fully invested across eight deals in three countries, including one hydroelectric, one wind and one landfill project in the Philippines and two wind projects in India.

REAF II has USD 200 million in AuM. It attracted among its investors DFIs including the IFC, Dutch development finance institution FMO and the EIB. REAF II invests in small hydro, wind, solar and biomass projects in Asian developing markets, with a focus on India, the Philippines and Indonesia. It has made 8 investments to date, including two solar and one hydroelectric project in Indonesia, one solar project in India and one hydroelectric project in the Philippines.

Philippine Investment Alliance for Infrastructure
PINAI is a fund dedicated to equity and quasi-equity investments in Philippine infrastructure projects and businesses. It was launched in July 2012 with PHP 26 billion (approximately USD 625 million at the time) in committed capital. PINAI is managed by MIRA, a global infrastructure asset manager, through an ad hoc management vehicle. Investors in the fund include the GSIS, the Philippines' State-owned pension fund for government employees, Dutch pension fund asset manager APG, the ADB and Macquarie Group. The fund was born out of efforts by the Government of the Philippines (with advisory by the ADB) to catalyse private sector investment in infrastructure. ADB and GSIS selected MIRA as the fund manager after a rigorous 6-month process.

While not exclusively focused on climate finance, PINAI made three investments in the renewable energy sector. It acquired two solar power developers with brownfield and greenfield capacity of 80 MW and 45 MW, respectively. It also acquired a 32% stake in a wind power developer in a joint venture with the Ayala Corporation (a publicly listed Philippine diversified group, 64% stake) and UPC Renewables (an international wind farm developer, 4% stake).

Sources: Berkeley Energy. Available at https://preventionweb.net/files/13122_UNDPStocktakingReportCCmainstreamin.pdf; ADB. July 2021. Proposed Equity Investment: Philippine Investment Alliance for Infrastructure Fund (Philippines). Available at https://niccdies.climate.gov.ph/files/documents/Climate%20Budget%20Brief-GAA%20v2.1.pdf; Mancheva M. 2015. *ThomasLloyd sheds stake in 45 MW of Philippine PV. Renewables Now.* Available at https://renewablesnow.com/news/thomaslloyd-sheds-stake-in-45-mw-of-philippine-pv-480723/; Olchandra, R. 2015. PINAI fund hikes investment in solar. Philippine Daily Inquirer. 2 November. Available at https://business.inquirer.net/201788/pinai-fund-hikes-investment-in-solar; InfraPPP by IMC Worldwide. *Ayala and PINAI fund sign joint venture for wind project in the Philippines.* Available at https://infrapppworld.com/news/ayala-and-pinai-fund-sign-joint-venture-for-wind-project-in-the-philippines.

(c) Capital market sources

Venture capital

100. Incubators, accelerators and VC funds provide early-stage funding as well as capacity-building and advisory services to start-ups, including those focused on climate technologies. There is no consensus definition of "incubator" and "accelerator". They are organizations that offer mentoring, peer-review and skills transfer services to entrepreneurs in a cohort setting, through programmes that last a few months. They usually operate at a physical location, provide business services such as legal advice, generate networking and marketing opportunities for participating entrepreneurs and connect to sources of finance and investment. Incubators support start-ups as early as in the ideation phase and are often connected to academic or research institutions, large corporations or public entities; they may or may not provide funding, often in the form of small grants. Accelerators focus on start-ups that have already achieved proof of concept for their technology and need to transform it into a business. They often provide seed funding to the start-up in exchange for an equity stake.[52]

101. The GCF Technology Executive Committee estimates that there are some 2,000 technology incubators and 150 accelerators worldwide. However, based on the limited data available, it is estimated that, of these, fewer than 70 focus on climate technology, and just 25 of the 70 are located in developing countries.

52 Available at https://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/incubators_index/ee343309e8854ab783e0dcae3ec2cfa6/c172d2f388234bdbbe3dd9ae60e4d7e9.pdf.

102. VC funds are investment vehicles that provide capital to new or growing businesses with perceived, long-term growth potential. They do not run formal mentoring programmes but act purely as investors, with investments that range from a few hundred thousand United States dollars in the seed stage to tens of millions of United States dollars in late-stage ventures (for instance pre-IPO).

103. While VC funds are traditionally focused on the information technology industry, there has been a recent increase in interest for "climate tech" start-up investments. In the first half of 2021, climate tech start-ups raised USD 16 billion globally in some 250 venture deals.[53] The number of climate tech deals in the second quarter of 2021 was 50% higher than in the same period in 2020 and deal sizes were much larger. Food and water, and mobility attracted the most investments and more than half of climate tech VCs are active in these two sectors.[54] The ASEAN VC industry has experienced significant growth over the past decade, with AuM of domestic VC fund managers growing from USD 2.7 billion in 2010 to USD 16 billion in 2020. Singapore is the VC capital of ASEAN, hosting the six largest ASEAN-focused VC funds, ranging between USD 150 million and USD 400 million in size. The region is also home to a number of "unicorn" start-ups (those with a valuation exceeding USD 1 billion), some of which have completed or are considering IPO in major Western stock exchanges.[55] While ASEAN VCs have targeted primarily the Internet sector, there are signs of increasing interest in climate tech start-ups. Impact data provider HolonIQ has compiled a list of the 50 most promising climate tech start-ups in South-east Asia. The largest sectors represented are agri-food (smart or vertical farming, plant-based and cell-cultured foods), environment (nature-based solutions, sustainable materials, circular economy) renewable energy and mobility (micro, road, rail, marine and aviation transport). Nearly 60% of these start-ups involve physical forms of technology and innovation rather than digital.[56] VC funds, incubators and accelerators focused on climate tech start-ups in ASEAN are also emerging. Box 10 describes the example of Wavemaker Impact, a new Singapore-based VC fund exclusively focused on climate tech and sustainable start-ups in ASEAN countries. The Canadian Technology Accelerator, an initiative of the Government of Canada, provides virtual acceleration programmes to start-ups that want to scale up cleantech or smart cities technologies in South-east Asia; the programme offers potential investments as well as business acceleration services.[57] In 2016–2018, New Energy Nexus South-east Asia, an initiative run by German development agency GIZ and funded by GIZ, the David Lucile Packard Foundation and the IKEA Foundation, also provided incubation and accelerator services to clean energy entrepreneurs in the region.

104. Incubator, accelerator and VC finance has several attractive features for climate start-ups (see table 19 for a full description of relevant features):

(a) They are the premier source of capital for innovation, have high tolerance for technological risk and offer patient, long-term funding;

(b) Incubators and accelerators provide business development and managerial support and mentorship, as well as contacts among VCs and later-stage investors. While VCs are not as involved in the day-to-day operations of a start-up, they do provide guidance and oversight through board representation and frequent interactions with management;

(c) VCs have in-house technical and industry expertise that allows them to come to an investment decision in a short time frame.

105. At the same time, some trade-offs must be considered when applying for finance from incubators, accelerators and VCs:

(a) The amount of capital that can be expected from an incubator or accelerator is very small. For instance, Y Combinator, the most successful Silicon Valley accelerator, only provides USD 125,000 to start-ups that are selected for its programmes and receives a 7% equity stake in exchange;

(b) VCs look for opportunities that are easily scalable with little upfront capital, which is not necessarily the case for many climate tech start-ups piloting capital-intensive technologies (for instance in the mobility sector);

(c) VC risk appetite can swing significantly based on macroeconomic and financial market conditions;

(d) Capital is not the only factor that can drive the growth of the climate tech start-up ecosystem. Other factors such as a high-quality academic and research sector and a favourable legal and enabling environment for entrepreneurs are equally important.

53 Purdom, S. and Zou, K. 2021. *Climate tech $16b mid-year investment action report*. Climate Tech VC. Available at https://climatetechvc.substack.com/p/-climate-tech-16b-mid-year-investment?s=r.

54 See footnote 47 above.

55 Business Times. 2012. AUM for Asean-focused PE, venture capital industry at US$37b, more than doubling in five years. Available at https://businesstimes.com.sg/asean-business/aum-for-asean-focused-pe-venture-capital-industry-at-us37b-more-than-doubling-in-five.

56 HolonIQ. 2021. *2021 Southeast Asia Climate Tech* 50. Available at https://holoniq.com/notes/2021-southeast-asia-climate-tech-50/.

57 Available at https://tradecommissioner.gc.ca/cta-atc/singapore-singapour.aspx?lang=eng.

Table 19
Key features of incubators, accelerators and venture capital funds

Feature	Description
Financial instruments provided	Convertible notes; Preferred equity; Ordinary equity.
Climate finance projects funded	Early-stage technology companies addressing climate change or environmental problems (e.g. electric mobility).
Eligible applicants	Depends on level of start-up development; For incubators/accelerators: teams looking for technology proof of concept, or with proven technology but no go-to-market strategy; For VCs: from revenue- but loss-making company to established pre-IPO business.
Financing process	Quick decision-making (months) based on thorough technical, business and financial due diligence; Soundness of technology, business model and management team, addressable market and potential to scale up are key investment factors; Investment compliance with the fund's ESG criteria is especially relevant for climate tech start-ups.

Box 10
Wavemaker Impact, a climate tech fund based in Singapore

In October 2021, Wavemaker Partners, a Singapore and Los Angeles-based VC firm with USD 600 million in AuM, announced the launch of Wavemaker Impact, a fund focused on climate tech and sustainability start-ups. Wavemaker Impact plans to raise USD 25 million for its first fund. It will act as a "venture builder", identifying potential business opportunities, finding experienced entrepreneurs to turn those ideas into start-ups and funding the ventures as they scale up. In addition to providing capital, Wavemaker Impact will act as a co-founder, helping entrepreneurs identify opportunities, acquire customers, build teams and develop scalable business models.

The fund will focus on "100x100 companies" – those with the potential to achieve USD 100 million in revenues while abating 100 million tonnes of CO_2 eq emissions. The team believes that South-east Asia presents many such investment opportunities and has identified 50 issues that start-ups could address in areas including land use and carbon sinks, agriculture and food, industrial processes and energy. The fund is currently prioritizing 20 such issues to match with entrepreneurs, including deforestation in Indonesia and direct-seeding rice crops, which can reduce emissions but have yet to gain ground in South-east Asia.

Source: Shu C. 2021. *Wavemaker Impact launches to help entrepreneurs build climate tech startups.* TechCrunch. Available at https://techcrunch.com/2021/10/27/wavemaker-impact-launches-to-help-entrepreneurs-build-climate-tech-startups/.

(d) Notes on indebtedness

106. There are several sources of climate finance, those that can decrease a country's ability to lend money, in other words those that increase its contingent liability or indebtedness and those sources that do not.

107. Most developing countries seek to secure climate finance on concessional terms or without conditions. Grants are preferred as they do not increase a country's indebtedness and are popular where the ability to take on debt (loans) is constrained. Sometimes, incurring debt in one ministry requires permission another such as the ministry of finance or equivalent. Generally, sources that do not increase indebtedness are welcomed by ministries of finance or equivalents and grants are preferred by ministries of environment or equivalents.

108. Here are some information on sources in relation to how they affect the contingent liability or indebtedness of a country:

(a) **Sources that do increase a country's indebtedness:**

(i) Commercial banks: commercial banks are the primary source of capital in ASEAN countries and are increasingly focused on the climate agenda. They offer a wide range of loan instruments that could suit the needs of climate finance, including: (i) project finance loans (e.g. for renewable energy or water and waste treatment projects); (ii) loans to private sector companies (including SMEs) that address climate needs; (iii) consumer loans to support small-scale purchases of equipment (e.g. solar panels or energy-efficient devices); and (iv) loans to sovereigns or SOEs for large climate-related investments. In the latter capacity, loans from commercial banks increase a country's indebtedness;

(b) **Sources that could potentially increase a country's indebtedness:**

(i) MDBs, including their private sector arms, are increasing their allocations to projects with a climate change mitigation or adaptation angle. The finances channelled and spent through government ministries or implementing agencies is considered to be part of public finance. They offer a variety of instruments including loans, grants, guarantees and equity. MDBs also provide project and policy advisory services. Loans and guarantees from MDBs increase sovereign debt, while grants and equity do not;

(ii) Multilateral climate funds are institutions funded by multiple donor countries to support projects and policies in the areas of climate change mitigation and adaptation. Each multilateral climate fund has its own governance, geographic and/or sectoral priorities and suite of financial instruments. Multilateral climate funds offer primarily grants; some also offer concessional loans, guarantees and equity. Multilateral climate funds' concessional loans could potentially increase a country's indebtedness;

(iii) Bilateral climate finance: climate finance provided bilaterally by developed countries to developing ones, usually through existing bilateral development implementing agencies, relevant government ministries and other government entities. Grants and concessional loans are the primary instruments, along with other financial instruments such as investment capital and equity depending on the nature of the agencies. Loans and guarantees from bilateral climate finance institutions increase sovereign debt, while grants and equity do not;

(iv) National budgets: governments increasingly devote a portion of their national budgets to addressing the climate change mitigation and adaptation needs of their countries in the form of investment and recurrent budget. If the country has a budget surplus, climate spending does not increase sovereign debt. If it has a budget deficit, the country needs to borrow to fund climate spending which is likely to increase sovereign debt;

(v) National climate funds: national climate funds are government-controlled entities dedicated to funding a range of climate change projects in the respective countries. Funding can come from the government budget, international donors, proceeds from environmental levies (such as fuel taxes) and other contributions. The national climate funds could increase sovereign debt if they are funded from budget contributions (many are) and the country has a budget deficit;

(c) **Sources that do not increase a country's indebtedness:**

(i) DFIs, defined as the private sector arms of development banks (e.g. the IFC unit of WB Group), invest equity in or lend to private sector companies at commercial terms, acting in a capacity that is very similar to that of private equity funds or commercial banks. Only if a DFI lends to an SOE could it increase sovereign debt. Bilateral climate finance also includes trust funds bilaterally supported by non-ASEAN partners to assist implementation of cross-country ASEAN activities stipulated under the AWGCC (e.g. JAIF Trust Fund and ASEAN–Korea Cooperation Fund);

(ii) Private equity funds: private equity funds invest in unlisted companies that need capital to fund growth or restructure their business. They target a wide range of industry sectors, including revenue-generating infrastructure, such as power generation and distribution. They make use of leverage and seek to exert control on portfolio companies;

(iii) Incubators, accelerators and VC funds: incubators, accelerators and VC funds provide early-stage funding as well as capacity-building and advisory services to start-ups, including those focused on climate technologies;

(iv) Sources in categories (a) and (b), except the specific instruments and borrowers identified, do not increase a country's indebtedness.

B. Instruments of climate finance

109. **Blended finance.** The OECD defines blended finance as finance that attracts commercial capital towards projects that contribute to sustainable development, while providing financial returns to investors.

110. In some projects, full commercial structures may not be possible and "blended finance" solutions may be required. Specifically, concessional capital from one of the public sources mentioned would be used to reduce the risk or enhance the return of the investment for the commercial capital provider. For example, renewable energy projects are in principle suitable to private sector investment, as capital investment and operating and financial expenses can be offset over time by revenues generated from the sale of electricity. In developing countries, affordable electricity tariffs may be too low to generate an attractive financial return for the project developer, in addition to covering project costs. In this case, blended solutions may include grants to partially cover the initial capital investment, concessional loans bearing lower interests than commercial ones or sovereign guarantees attached to commercial loans (resulting in lower interest charges as well). By mobilizing private capital, blended finance solutions also allow governments to reduce reliance on sovereign borrowing to fund their investment needs – an increasing priority for many ASEAN countries.

111. **Grants.** A grant is an award, usually financial, given by one entity to an individual or a company to achieve a goal or incentivize performance. Grants are essentially donations that do not have to be paid back, under most conditions. Main sources of grants to address climate change are multilateral climate funds, MDBs, bilateral climate finance, national climate funds and philanthropic foundations.

112. **Equity.** Equity represents ownership shares in a corporation. Private sources of climate finance, such as private equity funds, VC funds and incubators/accelerators, provide capital in the form of equity with the expectation of realizing market-level, risk-adjusted returns. Remuneration from equity investments comes from dividends and/or capital gains from the sale of equity stakes. Equity recipients include private or government-controlled companies – including special purpose vehicles set up to develop and run infrastructure concessions. Equity is used typically to invest in the growth of the business or reduce existing debt obligations that come due. Public commercial sources (DFIs) play the same role as private equity and infrastructure funds (when they provide equity), making investment based on market return expectations while also complying with impact mandates and ESG criteria. They target only private sector investments.

113. **Debt.** is a transfer of money (principal) from one party (creditor) to another (debtor) with the contractual obligation for the debtor to repay the principal (or other agreed-upon value) to the creditor in the future according to an agreed schedule. In addition to the return of the principal, the creditor is rewarded for the risk assumed through the payment by the debtor of contractually-agreed interests. As a deferred repayment, or series of repayments, debt is differentiated from an immediate purchase. Debt may be owed by a sovereign state, local government, company, or an individual.

114. Debt can take the form of loans or bonds, which are debt securities that can be traded in the financial markets.

Loans

115. **Loans** are often secured by a collateral (asset-based lending), such as an asset (for instance, a building if the loan was used to build or purchase such building) or recourse to the business and assets of a company. Unsecured loans rely solely on the cashflows of the debtor for repayment (cash-flow based lending), such as cashflows generated by a company during the course of business or salaries and other personal income in the case of unsecured consumer loans (e.g. credit card debt). Bonds can also be secured or unsecured.

116. Loans can be commercial (non-concessional) or concessional. The OECD defines concessional loans as loans that are extended on terms substantially more generous than market loans. The concessionality is achieved either through interest rates below those available on the market by grace periods, or long maturities that would not be customarily offered by commercial lenders, or a combination of these. Concessional loans typically have long grace periods. Multilateral climate funds, multilateral development banks and bilateral climate finance offer concessional loans.

117. Non-concessional loans are loans with a market-based interest rate and substantially less generous terms than concessional loans. In the OECD DAC Creditor Reporting System database, they are classified as OOFs. Commercial banks are the primary source of commercial loans in ASEAN countries and are increasingly focused on the climate agenda. They offer a wide range of loan instruments that could suit the needs of climate finance, including: (i) project finance loans (e.g. for renewable energy or water and waste treatment projects); (ii) loans to private sector companies (including SMEs) that address climate needs; (iii) consumer loans to support small-scale purchases of equipment (e.g. solar panels or energy-efficient devices); and (iv) loans to sovereigns or SOEs for large climate-related investments.

118. **Project finance.** In project finance (typically loan), the debtor borrows capital for the development of a specific project and the loan is provided solely based on that project's risks and on expected future returns generated by the project (cash-flow based creditworthiness). The project sponsor does not assume liability for the debts of the individual project. All cash obligations must be met from the cash-flow generated by the project. Therefore, an essential factor for the lending decision is for the project cash-flows to be stable and predictable enough to repay the borrowed capital and pay interest. Project finance transactions usually require numerous contracts for the allocation of risks to different partners. For this reason, project finance is time consuming and has high transaction costs. Consequently, it is used

primarily for medium to large projects only - examples include large infrastructure projects in the energy and transport sectors.

Bonds

119. **Plain Vanilla.** A plain vanilla bond is the simplest form of bond. It comes with predefined features such as maturity date, coupon rate, issue price and face value and does not offer any special features. The term "plain vanilla" refers to the simplicity of the financial instrument. Proceeds from plain vanilla bond issuance can be used for climate purposes even if the bond it not officially defined as green.

120. **Green.** Green bonds are debt instruments used to finance projects, assets and activities that support climate change adaptation and mitigation. They can be issued by governments, municipalities, banks and non-financial corporates. The definition of green bond can be used for any bond format, including private placement, securitization, covered bond and sukuk.

Box 11
Green bonds, loans and sukuks

Green bonds and loans are debt instruments used to finance projects, assets and activities that support climate change adaptation and mitigation. They can be issued by governments, municipalities, banks and non-financial corporates. The definition of green bond can be used for any bond format, including private placement, securitization, covered bond and sukuk. There is no universally accepted standard or definition of green bonds and loans. However, to prevent the risk of "greenwashing" (i.e. labelling as "green" financial products that do not strictly fulfil a green purpose), several voluntary initiatives have emerged that seek to define common principles and procedures. The most prominent example is the Green Bond Principles published by the International Capital Market Association.[a] They consist of four components: (i) use of proceeds, (ii) process for project evaluation and selection, (iii) management of proceeds and (iv) reporting. The Green Bond Principles list ten project categories eligible for green bond issuance: renewable energy, energy efficiency, pollution prevention and control, environmentally sustainable management of living natural resources and land use, terrestrial and aquatic biodiversity, clean transportation, sustainable water and wastewater management, climate change adaptation, circular economy products and processes, and green buildings. The Loan Market Association's Green Loan Principles mirror and adapt the Green Bond Principles to loans.[b] Another prominent set of standards is the Climate Bonds Initiative's Climate Bonds Standards, which build on the Green Bond Principles adding mandatory reporting and a mandatory external review of the use of proceeds by accredited verifiers, as well as a more detailed, sector-by-sector taxonomy of eligible projects.[c] Similarly, several countries and regions have developed or are developing their own standards, often more stringent or detailed (at least in some respects) than the Green Bond Principles. Notably, the ASEAN Capital Markets Forum, which comprises capital market regulators from ASEAN countries, published its own Green Bond Standards in 2018.[d]

Green bonds have gained significant prominence in global capital markets in recent years. Cumulative green bond issuance reached USD 1 trillion globally in 2020, since market inception in 2007.[e] Green bonds and loans have made significant progress in ASEAN countries too, as noted by the Climate Bonds Initiative in its ASEAN Green Finance State of the Market 2020.[f] This study found that:

- ASEAN countries had had 75 issuers of green bonds and loans[g] between 2016, when the first ASEAN green bond was issued by Philippines-based AP Renewables and 2020. Green issuance in 2020 reached USD 9.3 billion (54% green bonds, 46% green loans). The number of green bonds (21) and loans (19) issued increased to 40 in 2020 from 32 in 2019. The number of issuers increased from 20 in 2019 to 30 in 2020.
- From a country perspective, cumulatively to 2020, Indonesia was the largest green bond issuer by issuance size (USD 5 billion), followed by the Philippines and Singapore. Green bonds or loans were also issued in Thailand, Malaysia and Viet Nam. Singapore had the largest green bond issuance in ASEAN countries in 2020 (53% share). Singapore is by far the largest market for green loans – small deals also took place in Viet Nam, Malaysia and Myanmar.
- Non-financial corporates dominated the ASEAN green bond market in 2020 (73% of total issuance), followed by sovereigns (including sovereign-backed entities) and financial institutions. Green loan borrowers included only financial and non-financial corporates.
- In terms of use of proceeds, green buildings and energy were the dominant sectors, absorbing 49% and 31%, respectively, of issuance in 2020, followed by transport (6%) and water (6%). Waste, land use, information and communications technology, and other sectors cover the remainder. Issuance by government-backed entities focuses heavily on green buildings, while development banks and governments have a more balanced allocation of proceeds.
- In the private sector, non-financial corporates focused on the energy sector, while financial corporates have a diversified exposure.
- With regard to currency mix, Vietnamese, Indonesian and Philippine green issuers favoured United States dollars. Issuers in Singapore adopted a variety of currencies, with a predominance of the Singapore dollar. Thai and Malaysian transactions were largely denominated in domestic currency.

Box 11 (continued)
Green bonds, loans and sukuks

- The prevailing maturities for ASEAN green bonds and loans were in the 5–10 year and 10–20 year range (36% and 38% of the cumulative volume, respectively). A further 19% had a term of less than five years, while transactions with tenors in excess of 20 years comprised only 4% of the cumulative volume.
- The average size of ASEAN green bonds and loans was between USD 200 and 250 million, higher than the global average of USD 171 million for 2020.[h]
- Loans and senior unsecured bonds were the prevailing green instruments (25% and 24% shares, respectively), followed by sukuk (reflecting the strong focus of Indonesia and Malaysia on Islamic finance) at 19% and term loans at 17%.

Notable transactions in 2020 included:[i]

- The largest South-east Asian green loan to date: MS Commercial Pte Ltd of Singapore borrowed SGD 1.95 billion (USD 1.44 billion) to refinance the Marina One green building projects.
- A USD 790 million green bond issued by the Indonesia-headquartered Star Energy Geothermal (Dajarat II) Ltd, which was 3.5 times oversubscribed, demonstrating keen investor interest in supporting environmentally sustainable development.
- The issuance of the first ASEAN green sustainable and responsible investment sukuk of MYR 260 million (USD 61 million) by Malaysia's Leader Energy to part-finance the development of two solar photovoltaic power projects with a combined capacity of 49 MW. The sukuk was assigned an AA-IS rating by Malaysian Rating Corporation Berhad and also aligned with the ICMA Green Bond Principles, the ASEAN Green Bond Standards and the Securities Commission Malaysia's SRI Framework. It has the lowest weighted average cost of financing among AA3/AA- solar power project financing sukuk issuances ever.

Growth in the thematic (i.e. green, social and sustainable)[j] bond market continued unabated in 2021, showing the high and increasing investor interest for these products. Moody's expected thematic bond issuance globally to hit a new record of USD 650 billion in 2021, a 32% increase over 2020. USD 375 billion of this was forecast to come from green bonds, with the remainder split between social and sustainable bonds (USD 150 billion and USD 125 billion, respectively).[k] As at June 2021, Asia-Pacific borrowers had more than doubled the issuance of thematic bonds to a record USD 69 billion, 70% of which was from green bonds and 20% from sustainable bonds; 51% of issuance was from Chinese entities and 21% from entities in the Republic of Korea.[l]

[a] International Capital Market Association. 2021. *Green Bond Principles. Voluntary Process Guidelines for Issuing Green Bonds.* Paris: The Green Bond Principles. Available at https://icmagroup.org/assets/documents/Sustainable-finance/2021-updates/Green-Bond-Principles-June-2021-140621.pdf.
[b] Asia Pacific Loan Market Association, Loan Market Association and Loan Syndications & Trading Association. 2021. *Green Loan Principles: Supporting environmentally sustainable economic activity.* Available at https://www.lma.eu.com/.
[c] Climate Bonds Initiative. 2019. *Climate Bonds Standard Version 3.0.* Available at https://climatebonds.net/climate-bonds-standard-v3.
[d] ASEAN Capital Markets Forum. 2018. *ASEAN Green Bond Standards.* Available at https://sc.com.my/api/documentms/download.ashx?id=75136194-3ce3-43a2-b562-3952b04b93f4.
[e] Jones L. 2020. *$1Trillion Mark Reached in Global Cumulative Green Issuance: Climate Bond Data Intelligence Reports: Latest Figures*. Available at https://climatebonds.net/2020/12/1trillion-mark-reached-global-cumulative-green-issuance-climate-bonds-data-intelligence.
[f] Nguyet PTM, Nabilla G, Tukiainen K, et al. 2021. *ASEAN Sustainable Finance State of the Market 2020.* Climate Bonds Initiative. Available at https://climatebonds.net/files/reports/asean-sotm-2020.pdf.
[g] 44 issuers of green bonds and 31 green loan borrowers.
[h] Harrison C and Muething, L. 2021. *Sustainable Debt Global State of the Market 2020.* Climate Bonds Initiative. Available at https://climatebonds.net/files/reports/cbi_sd_sotm_2020_04d.pdf.
[i] Nguyet PTM, Nabilla G, Tukiainen K, et al. 2021. *ASEAN Sustainable Finance State of the Market 2020.* Climate Bonds Initiative. Available at https://climatebonds.net/files/reports/asean-sotm-2020.pdf.
[j] Under ICMA's definition, sustainable bonds address both green and social needs.
[k] Environmental Finance. 2021. *Sustainable Bonds Insights 2021.* Available at https://environmental-finance.com/assets/files/research/sustainable-bonds-insight-2021.pdf.
[l] Murdoch S. 2021. *Asia's ESG bond issuances hit record $69 bln this year, no let-up seen.* Reuters. 7 June. Available at https://reuters.com/business/sustainable-business/asias-esg-bond-issuances-hit-record-69-bln-this-year-no-let-up-seen-2021-06-07/.

121. **Guarantees**. Guarantees cover defaults of debt service payments and could be granted for public sector or private sector projects[58] Guarantees could be powerful catalysts to attract commercial debt financing for strong development outcomes that support economic growth and improve public services in developing countries. MDBs provide guarantees to support private sector investments, commercial borrowing by the sovereign for budget financing and to support reform programmes or commercial borrowing by State-owned enterprises.

122. **Debt swaps**. OECD summarizes that debt swaps provide opportunities for raising capital in low-income countries to address environmental and other policy challenges and support green growth. The rationale of debt swaps is that debt can be acquired at a discount. When creditors do not expect to recover the full nominal value of debts, in exchange for (partial) cancellation of the debt, the debtor government is prepared to mobilize the equivalent of the reduced amount in local currency for agreed purposes on agreed terms. Agreed purposes could include climate change-related and biodiversity investments. There is also a range of risks and management issues that need to be addressed if debt swaps are to achieve their objectives – the use of these instruments is quite complex.

123. **Just transition finance (grant and debt) (e.g. for coal phase-out)**: An emerging asset class is that of transition bonds and loans, which are instruments used specifically to finance "just transition" projects, defined by ILO as projects that green the economy in a way that is as fair and inclusive as possible to everyone concerned, creating decent work opportunities and leaving no one behind. The just transition, embedded in the Paris Agreement, is recognized worldwide as a critical enabling factor for the shift to net-zero, and will be required for coal workers and their communities. The MDBs are the major player to finance just transition. The MDB Support for a Just Transition principles were agreed in 2021, and published in October 2021. They build on the reference to just transition in the Paris Agreement and articulate how MDBs will support a just transition. They provide high-level guidance to ensure that MDBs consistently, credibly and transparently contribute to the aims of a just transition, while acknowledging that there is no 'one size fits all' approach, and allowing flexibility for tailored operational definitions and approaches that reflect MDB mandates and strategies, and country priorities.

124. **Results-based finance (non-market approaches)**: Results-based climate finance refers to payments made for achieving agreed-upon climate-related results, particularly for reducing carbon emissions. This approach appeals to project donors as they only pay for results achieved. It offers recipient countries another funding stream outside of already-pinched national budgets and traditional development assistance that prioritizes and scales up climate action. It can offer a source of liquidity at this critical moment and support a resilient, equitable, low-carbon recovery. It could also provide incentives to spur local communities, private sector players, and other stakeholders to participate in and benefit from climate-smart activities.

58 WB's definition found in this guidance note: See https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/PPPCCSA_WBGGuarantees_Final%20_%20English%20_Printed%20Oct%202016.pdf.

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VI. Project development process

A. What is climate project development?

125. Development projects and climate projects may appear intertwined, as development projects can contribute to mitigation and/or adaptation, and mitigation and/or adaptation projects may likewise have development benefits. However, these two projects are not the same, and conceptually they can be difficult to categorize.

126. While at present there exists no explicit definition of "climate actions" under international law, reference can be made to Article 4 of the Convention, which maps out the different commitments of Parties. One such commitment under the Convention is to take climate change considerations into account in relevant social, economic and environmental policies and actions. Parties further commit to employ methods that will minimize the adverse effects on the environment of projects or measures undertaken by them to mitigate or adapt to climate change.[59]

127. What differentiates a climate project from other projects is the inclusion of mitigation or adaptation actions or both as a result. Sometimes, that may pertain more to the way a project is executed than to the nature of the project. There may be no way to build a coal power plant for mitigation but there are ways to make steel or cement that lower their process emissions.

128. Unfortunately, the lack of a clear definition has made it difficult to draw the line between development projects and climate projects in practice. This issue was seen in the case of a withdrawn GCF project proposal on "Enhancing Women and Girls' Adaptive Capacity to Climate Change". This proposal was met with resistance from GCF Board members despite it being organized to help women from high-risk coastal regions adapt to climate change, because of the concern that the diversification of income sources ran "more along the lines of classical development policies rather than adaptation to climate change". The resistance and uncertainty were based on the fact that projects would often blend characteristics of both classical development and climate adaptation. Hence, some believed that it would be inappropriate to allocate resources designated for climate finance when other instruments for development cooperation were available.[60]

129. The development of a climate project may appear to follow a more general project development process, but has climate change aspects at the core of its design. General project development processes vary among institutions, but tend to have in common a series of steps, namely:

(a) Screening;

(b) Assessing investor criteria;

(c) Identifying adaptation and mitigation options;

(d) Conducting situation, sensitivity and project risk analyses;

(e) Selecting a course of action;

(f) Developing an implementation plan;

(g) Project implementation;

(h) Monitoring, evaluation and reporting;

(i) Evaluating project sustainability.

130. Different country contexts often lead to variations in the development of a climate project. The complexity of the process, and the number of stakeholders from within and outside government that are involved, often require its customization in order to accommodate the circumstances surrounding the project development process. These different approaches to project pipeline development may be stakeholder-led, or driven by country priorities or climate data. Each kind of approach has its strengths and weaknesses, but a common critical factor observed across the board is the project's alignment with country priorities.

131. It must be noted that the processes mentioned above are meant to facilitate the development of climate projects that are aimed at accessing international financial support.

B. Determining the bankability of a climate project

132. Factors that investors – or fund providers, in this case – often look into before participating in projects include:

(a) Strength and experience of the project sponsors and the government department or parastatal currently responsible for the function;

(b) Project fundamentals and economics, which include critical ratios such as liquidity, leverage, activity and profitability;

(c) The credit of project participants;

(d) Contractual arrangements;

(e) Competition;

59 See Article 4 of the Convention.

60 GCF document GCF/B.15/13/Add.05.

(f) Risks in implementation, operations, procurement and maintenance;

(g) Financial covenants;

(h) Other covenants;

(i) Added value;

(j) The legislative environment and available incentives with regard to taxes, regulatory requirements, the legal structure and implementation arrangements, and legal due diligence. The bankability of the project is thus a critical consideration for fund providers.

133. Broadly, bankability refers to the attractiveness of a financial proposal to a fund provider. More specifically, it refers to a project with a risk/return profile that falls within the desired range of the "Bank", Fund or Grantor. A bankable project should have:

(a) A return sufficient to service debt or to provide market yields;

(b) Associated risks that can be mitigated to a level that is acceptable to the fund provider.

134. In a more general terms, enhancing bankability can be achieved by:

(a) Designing the project in ways that minimize risk;

(b) Sharing the risks that the project can reasonably carry;

(c) Securing enhancements such as financial guarantees or insurance. The measures undertaken will in great part depend on the risk assessment and security requirements of the fund provider.

135. However, it must be noted that the ability to attract funding for a climate change project goes beyond the broad definition of bankability explained above. In the context of climate finance, the "returns" (outputs) expected of project proponents in such cases consist of the meeting of climate targets and other socioeconomic benefits, as required. For example, an adaptation project that does not generate revenues may prevent or reduce future heavy loss and damage costs and generate a benefit for society that can be translated into a clear case for investment from an economic perspective, even if not immediately from a financial perspective, requiring effort to build a mix of financing instruments that can deliver a capital structure specifically to make that project viable or "bankable". The reduction of risks in this case is often addressed through a risk assessment and mitigation process, which encourages – if not requires, in the case of some funders – robust safeguards in the design and implementation of projects.

136. It is important to highlight that the mix of financing instruments that can deliver the capital necessary for a given project will depend on the nature of the project, its size and risk profile – the latter is highly dependent on the country context. Sound projects that have a clear positive cost-benefit for society, even if the financial analysis is initially negative, may be able to secure funding as long as they are in line with governmental policies and adequate financing instruments are sought to gather the necessary capital.

137. The bankability concept, or rather the requirements to access funding, will also differ according to the different type of funder. For example, international climate funds mostly seek projects that propel transformational change and paradigm shift, in alignment with the country's priorities. Hence, sufficient understanding of the specific investment criteria of potential funders and incorporating them appropriately into the project design will increase the bankability of the project.

C. Project design considerations

138. Funding application should be tailored to address the specific requirements and concerns of the potential funders you will approach. If you are seeking a loan from a commercial bank, you may need to present your project's business plan. If you are seeking an international climate finance grant, this section will give you an overview of important aspects to consider. Funders, public or private, will have their own specific forms, checklists and templates that will guide you through the application process.

139. Towards designing a bankable climate project, there are a number of common and important design considerations that determine the project's viability, appropriateness and effectiveness. In the climate change context, these design considerations include the project's:

(a) Climate rationale;

(b) Theory of change;

(c) Alignment with national priorities;

(d) Risks and mitigation measures;

(e) Environmental and social safeguards;

(f) Gender mainstreaming;

(g) Indigenous peoples policies;

(h) Stakeholder consultation and engagement;

(i) A grievance and redress mechanism;

(j) Co-financing.

1. Climate rationale

140. Climate rationale refers to the climate-related scientific basis of a proposed project. In order to arrive at a climate rationale, it is necessary to identify a problem that is meant to be addressed, and the role that climate change plays in causing or exacerbating it. This must be supported by the best available climate data and science. It may be difficult to distinguish between developmental issues and their climate components, but a number of methods may be utilized in order to provide clarity to this, such as root cause analysis tools. Once the problem – and its root cause – has been properly identified, it should then be validated. There are different ways to do this: for mitigation problems, identifying a country's and/or sector's GHG emissions trajectory is necessary in order to establish a baseline from which a potential low-emission pathway may be based. For adaptation problems, on the other hand, climate impacts,

vulnerabilities, exposure and hazards must be identified and assessed. The most appropriate and effective solutions to the problem must be identified after it is validated. A set of interventions may be proposed by the project proponent in order to properly address the problem, taking into consideration existing data and potential impacts on certain sectors or vulnerable groups.

2. Theory of change

141. A TOC answers the question of how change can be made to happen through the project being designed or proposed. It is a statement or narrative that takes the funder through the process of how project activities lead to outcomes that support or achieve the accomplishment of the project's long-term goal. In the case of climate change projects, a theory of change takes the climate rationale and explains how the activities included in the proposal would place the country/sector on a low-carbon development pathway, towards climate-resilient development, or both.

142. Bringing a strong TOC into the project narrative is key to strengthen a project proposal for funding consideration. A robust TOC must take into account impacts, outcomes, outputs, activities, barriers, risks and assumptions. As with the climate rationale, the TOC must describe the problem that the proponents intend to address. Proponents are then expected to identify barriers to the resolution of the problem given the status quo. Barriers to the resolution of the problem may be ecological, financial, gender-based, institutional, regulatory, social or technological, among others. The identification of these barriers is critical to the determination of appropriate actions needed to resolve the problem in question.

143. A critical component of the TOC is a long-term vision or the project's ultimate goal/objective. Having identified the barriers to the resolution of the problem, the long-term vision is a mission statement that explains how the project means to address the problem and result in a shift towards low-carbon and/or climate-resilient development. Once this is in place, a progression from the problem to the long-term vision is mapped out.

144. Such a progression may be developed using tools or methods like backcasting, which works backwards from the long-term vision, to necessary outcomes in order to achieve the long-term vision, to barriers that need to be addressed, all the way back to the problem at hand. Throughout this mapping process, the activities that are meant to lead towards the outcomes should be determined. Assumptions that have led the project proponent to believe that the TOC and the pathway or progression it puts forward should also be identified to provide more clarity as to the reasoning of the proponents. Risks that could prevent the accomplishment of the outcomes and/or activities should also be indicated.

145. Many of the international funding sources are interested in investing in projects that are able to bring about transformational change or a paradigm shift. In this case, a paradigm shift refers to the degree to which the proposed activity can catalyse impact beyond a one-off investment and results in medium- to long-term change. The possible pathways to transformational change will be very specific to each sector. The GCF has recently published a number of sectoral guidance documents for a number of themes including:

(a) Cities, buildings and urban systems;[61]

(b) Agriculture and food security;[62]

(c) Forest and land use;[63]

(d) Ecosystems and ecosystem services.[64]

3. Robust monitoring and evaluation framework

146. Building on the TOC, a robust project- or programme-level M&E framework is needed. This framework usually requires certain indicators such as a baseline, mid-term targets and final targets to assess the achievement of project or programme goals overtime. There are many approaches to M&E that are commonly used in climate change projects, and this include a results-based M&E (RBM) framework which is based on the results-based management theory and the logical framework analysis or approach which was developed by USAID. A good M&E framework will allow adaptive management of challenges faced on the ground as well as documentation of the lessons learned throughout the project or programme's lifetime.

4. Alignment with national priorities

147. Earlier in this guidebook, the need for an integrated, evidence-based response to climate change was emphasized; using this as a basis for the development of a climate financing plan would ensure more realistic and achievable climate change strategies. The determination of national climate priorities and strategies should likewise be based on an integrated, evidence-based assessment of a country's climate vulnerabilities, risks and needs in order to ensure the development of truly effective climate change responses. It is assumed that the existence of identified national priorities indicated in national policies and strategies is based on evidence-based assessments. It therefore follows that a truly effective climate change project should align with national climate priorities and strategies, including the country's UNFCCC reporting such as NDCs, NAPs and other related documents.

148. Fund providers, more often than not, require proponents to indicate how their projects relate to national priorities, policies and/or strategies on climate change. When done well, this assures funders that the prospective project falls within a country's climate agenda, and that it contributes to the country's efforts to ably respond to

61 GCF. 2021a. *Sectoral Guide Consultation Version 1: Cities, buildings and urban systems*. Available at Sectoral guide: Cities, buildings and urban systems | Green Climate Fund.
62 GCF. 2021b. *Sectoral Guide Consultation Version 1: Agriculture and food security*. Available at Sectoral guide: Agriculture and food security | Green Climate Fund.
63 GCF. 2021c. *Sectoral Guide Consultation Version 1: Forests and land use*. Available at Sectoral guide: Forests and land use | Green Climate Fund.
64 GCF. 2021d. *Sectoral Guide Consultation Version 1: Ecosystems & ecosystem services*. Available at Sectoral guide: Ecosystems and ecosystem services | Green Climate Fund.

climate change. It also assures funders of government ownership or buy in, which is needed to ensure project sustainability and the effectiveness of its outcomes.

149. Alignment with development priorities or national development goals and strategies is most often important to funders. Ensuring that a proposed project falls within this broader policy framework while at the same time addressing climate needs and priorities would not only greatly strengthen the viability of a proposal; it would also clearly contribute to the accomplishment of important development goals and promote a synergistic approach to achieving national targets.

5. Risks and mitigation measures

150. Taking the various components of the proposed project into consideration, proponents must then assess and identify the possible substantial risks that may be encountered during the project's implementation. The risks identified may then be classified into categories (i.e. governance, legal, reputational, operational, etc.) and assessed as to their likelihood and severity of impact. Once this is done, measures to address these risks should be determined. These measures – referred to as mitigation measures – may be preventive in that their objective is to avoid the risks occurring entirely, or may be mitigative in that they reduce the impact of a risk should it occur. Response or contingency measures may also be encompassed within this broad range of mitigation measures; these actions are to be undertaken should a risk occur.

6. Environmental and social safeguards

151. ESS are very closely tied to the determination of risks and mitigation measures. These safeguards are meant to reduce – if not entirely avoid – negative environmental and social impacts on the stakeholders, vulnerable communities, marginalized groups and environment arising from the implementation of the project. These safeguards must be built into the project's design and implementation.

152. For the GCF, in particular, project proponents are required to take into account the IFC Performance Standards, which serve as the Fund's interim ESS framework. The IFC Performance Standards are considered as one of the most comprehensive ESS frameworks available. They consists of one overarching performance standard that is further fleshed out by seven supporting performance standards. Performance Standard (PS 1) pertains to the assessment and management of environmental and social risks and impacts in general, while the others go deeper into labour and working conditions (PS 2); resource efficiency and pollution prevention (PS 3); community health, safety and security (PS 4); land acquisition and involuntary resettlement (PS 5); biodiversity conservation and the sustainable management of living natural resources (PS 6); indigenous peoples (PS 7); and cultural heritage (PS 8).

7. Gender mainstreaming

153. Gender equality is a serious consideration for most, if not all, fund providers. Existing problems such as gender-based violence and inequality are exacerbated by climate change; studies have consistently shown that women and girls are especially vulnerable to the adverse effects of climate change as a result of climate impacts compounding existing social, cultural and institutional issues. Fund providers have therefore actively begun requiring the inclusion of gender components and objectives into project proposals, with the intention of closing the gender gap and promoting gender equality. As part of the project proposal, project proponents may be required to submit gender-related documents such as a gender assessment, gender action plan and evidence of how the gender elements are mainstreamed throughout the project cycles.

8. Indigenous peoples policies

154. Indigenous peoples are often disadvantaged and marginalized during the pursuit of economic development as it is traditionally understood. Actions or activities that promote low-carbon and climate-resilient development may also pose social and economic threats to indigenous peoples and other vulnerable communities. Proper consent, consultation and participation of indigenous peoples and vulnerable communities are therefore critical in the design and implementation of climate projects. This is supported not only by legal instruments such as the Paris Agreement, but also the United Nations Declaration on the Rights of Indigenous Peoples and Convention No. 169 of the International Labour Organization, among others.

155. Depending on the scope of the project proposed, project proponents and implementers may be required to secure free, prior, and informed consent, which is achieved through a detailed and rigorous process that ensures indigenous peoples' participation in the design and implementation of the project. In addition to this, safeguards are put in place to make sure that concerns or grievances may be properly communicated and addressed. The IFC Performance Standards, for instance, include numerous requirements and indicators to safeguard the rights of indigenous peoples in PS 7, as well as across a number of other relevant performance standards.

9. Stakeholder consultation and engagement

156. Stakeholder consultation and engagement seeks to ensure that all parties affected, whether actually or potentially, by the implementation of a project are properly and meaningfully consulted and engaged with. This requires a thoroughly involved process through which stakeholders are allowed to take part in the design of the project, its implementation, and the determination and achievement of its long-term objective.

157. A well-designed and executed stakeholder consultation and engagement plan makes room for more nuanced, realistic and even practical solutions to actual issues on the ground, while at the same time feeding into a broader climate-responsive development trajectory. In order to accomplish this, the GCF puts forward five key principles for a stakeholder engagement plan, namely:

(a) Transparency;

(b) Accountability;

(c) Inclusiveness;

(d) Non-discrimination;

(e) "Do no harm".

10. Grievance and redress mechanism

158. While not all fund providers require comprehensive grievance and redress mechanisms for projects, most if not all require the inclusion of a means through which issues or concerns arising from the implementation of projects may be addressed. This necessarily includes a way for issues and concerns to be communicated to project managers and decision makers, as well as a process that allows responsible stakeholders to take action and respond to the concerns raised.

159. A grievance and redress mechanism is often built into components or processes that involve greater consultation, involvement and participation, especially in relation to vulnerable/marginalized sectors or communities. Indigenous peoples policies, for instance, as well as policies that require or encourage stakeholder consultation and engagement, would need to include components of a grievance and redress mechanism in order to be considered truly robust and effective. In addition, redress mechanisms must maintain a degree of independence from project management and decision makers, in order to ensure equity and avoid conflict of interest.

11. Co-financing

160. Co-financing on the part of project proponents is often encouraged by grant providers; some require it, and a number of those who do may name a certain amount or percentage of co-financing that must be met. The idea behind co-financing is the demonstration by project proponents of greater intent and interest in the objectives, implementation and outcomes of the project. In relation to developing countries, fund providers see co-financing as proof of an alignment of priorities and interests, which implies heightened levels of country buy-in and ownership. This is expected to promote the continuation of efforts towards the achievement of long-term goals even beyond the lifespan of the project.

161. Co-financing can take various forms; it can be provided or met through grants, loans, guarantees and equities, or a combination of these types of financing. In some cases, co-financing may also be provided in-kind, such as through the provision of goods and/or services.

D. Project cycles

162. A project cycle is the division of the project process by the project proponent, manager and/or implementer into manageable stages. Each stage would then have its own identified goals and deliverables, which allows for better control of the project and the quality of its outputs.

163. It is also important to keep in mind that there is a wide variety of project cycles. These cycles differ depending on the entities involved; each fund provider could have its own project cycle based on its nature, policies, needs and priorities, just as each project proponent does. Both cycles, however, can be taken together and incorporated into a single timeline. While project cycles may vary in detail and complexity, the steps and processes involved can be divided into two main phases – pre-approval and post-approval.

164. The pre-approval phase for project proponents could include the decision to submit a concept note or proposal, all the way down to the planning, design, drafting and submission of a full proposal package. The post-approval phase, on the other hand, assumes that a project is approved for financing. This phase covers the negotiation stage, if any, the completion of legal and institutional arrangements, and the implementation of the project to its closure. These two phases, when parsed through, indicate specific steps or stages to be undertaken by the project proponent, the fund provider, or both, depending on the actions to be taken and/or decisions to be made. To illustrate, annex I provides a comparison of the project cycles of the operating entities and funds under the Financial Mechanism of the Convention.

165. It must be noted that the different stages in project cycles often do overlap with the process of securing project preparation support, as well as steps in the project development process. The overlap of steps or stages does not cancel out the steps or stages in question; rather, this provides greater detail to the process by illustrating possible subcomponents to each step, and gives project developers more insight into the complexity of project development.

Box 12
First Green Climate Fund project approved by a direct access entity in an ASEAN country

Project title: Multi-Hazard Impact-Based Forecasting and Early Warning System for the Philippines
Country: Philippines

National designated authority: Climate Change Commission

Accredited entity: Land Bank of the Philippines

Executing entity: Department of Science and Technology – Philippine Atmospheric Geophysical and Astronomical Services Administration

Co-executing entities: Department of Environment and Natural Resources – Mines and Geosciences Bureau; Department of the Interior and Local Government; Office of Civil Defense; Tuguegarao City LGU; Legazpi City LGU; Palo, Leyte LGU; New Bataan, Davao de Oro LGU; World Food Programme

The Philippines is highly vulnerable to climate hazards; it experiences an average of 19 tropical cyclones annually, with studies projecting an increase in their intensity over time. An increase in the vulnerability of both physical and social infrastructure is expected as well, consisting of increasing casualties, significant property and infrastructure damage, and prolonged adverse socioeconomic impacts on people, businesses and industry. This project is meant to address the urgent need for more proactive and inclusive climate risk management in the Philippines, anchored on people-centred multi-hazard impact-based forecasting, and early warning systems for floods, landslides, severe winds and storm surges. The project is being implemented at both the national and local levels, with different output packages for each.

In this case, the process from the submission of the concept note until the execution of the FAA took approximately 1 129 days, with the pipeline from the receipt of the concept note to its clearing taking 255 days, and approval by the GCF Board to FAA execution taking 874 days. It consists of public sector financing, and is characterized as a small grant by the GCF. Co-financing is at 50.5%, with USD 10.2 million of the USD 20.2 million being provided in-kind.

Source: More information is available at https://greenclimate.fund/project/sap010#documents.
Abbreviations: LGU = Local Government Unit, FAA = Funded Activity Agreement.

E. Project preparation support

166. Given that designing a 'bankable' climate change project for international funding requires a considerable upfront cost, particularly for entities or project developers that might not be experienced or familiar with the intricacies of the requirements, there are facilities that were established to support the development of project ideas or concept notes into a full-fledged project proposal.

167. These facilities may provide support in the form of funding (grants) or even technical assistance for developing required documents as part of a full-fledged project proposal. These may include funding for the development of feasibility studies, logical framework, or documents related to ESS.

168. Project preparation support facilities that may provide funding for projects originating in South-east Asia may include, but are not limited to;

(a) Green Climate Fund's Project Preparation Facility;

(b) Adaptation Fund's Project Formulation Grants;

(c) Asian Development Bank's Project Readiness Improvement Trust Fund and Asia Pacific Project Preparation Facility;

(d) International Development Finance Club's Climate Finance Facility (pilot phase);

(e) C40 Cities Finance Facility;

(f) Asian Infrastructure Investment Bank's Project Preparation Special Fund.

F. Step-by-step project development process

169. As mentioned in the preceding sections, project development processes vary across institutions and organizations for a number of reasons, such as the country context, the approach to project pipeline development, and the nature and organizational structure of a particular entity. While by no means comprehensive or applicable to all, what follows is a sample step-by-step process that could be utilized or built upon by project proponents or developers.

1. Screening

170. The project development process generally begins at the screening phase, which encompasses the selection of thematic areas in climate projects, and identification of initial screening points. These thematic areas include: (a) climate change adaptation; (b) climate change mitigation; (c) loss and damage; and (d) cross-cutting issues.

171. Climate change adaptation refers to reducing vulnerability to, and increasing resilience against, the adverse impacts of climate change. This thematic area may therefore pertain to actions relating to: (a) water supply and sanitation, which includes designing and maintaining systems for increased and sustainable access to fresh water resources and enhancing knowledge on surface and groundwater management and water distribution and network efficiency; (b) public health, or strengthening the capacity of national health system institutions in responding to and managing long-term climate change-sensitive health risks; (c) biodiversity, forestry and watershed management; (d) food security, which can be accomplished by introducing irrigation technologies, combating soil erosion, and processing and conserving agricultural products; (e) researching and applying climate-resilient crop varieties and production methods; and (f) coastal zone protection and marine resources, which includes responding to the impacts of sea level rise by creating artificial underwater reefs and ensuring beach nourishment.

172. On the other hand, areas of work under climate change mitigation – or the reduction of greenhouse gases in the atmosphere – include: (a) fostering an enabling environment for the development and use of renewable energy technologies and energy-efficient appliances, building the capacity of the private sector in relation to energy efficiency, developing technical capacity, and introducing standards for energy-efficient buildings; (b) developing a nationally appropriate mitigation action for the transport sector, introducing more efficient vehicles, and improving and expanding public transportation; and (c) expanding sustainable forest management and reforestation efforts, reducing deforestation, strengthening degraded land rehabilitation and peat restoration, and designing and setting up an MRV mechanism.

173. Areas under loss and damage, which include extreme weather events and slow onset climate impacts, can refer to actions such as: (a) enhanced cooperation and facilitation in relation to slow onset events; (b) enhanced cooperation and facilitation in relation to non-economic losses; (c) comprehensive risk management approaches (including assessment, reduction, transfer and retention) to address and build long-term resilience of countries, vulnerable populations and communities to loss and damage, including in relation to extreme and slow onset events; (d) emergency preparedness, including early warning systems; (e) measures to enhance recovery and rehabilitation and build back/forward better; (f) social protection instruments including social safety nets; (g) transformational approaches; (h) enhanced cooperation and facilitation in relation to human mobility, including migration, displacement and planned relocation; and (i) enhanced cooperation and facilitation in relation to action and support, including finance, technology and capacity-building, to address loss and damage associated with the adverse effects of climate change.

174. A cross-cutting approach addresses deficiencies in traditional issue-based approaches to environmental assessments. This approach often covers health frameworks and gender approaches.

175. Health frameworks that could support a cross-cutting approach include: (a) political ecology of health; (b) environmental justice; (c) eco-health; (d) one health; (e) ecological public health; and (f) planetary health. These frameworks represent a shift towards a fuller understanding of the links between human health and well-being and the natural environment.

176. A gender approach, on the other hand, looks at the state of the environment through the lens of social relationships and how they are reflected in human–environment interactions. This approach therefore places particular emphasis on different dimensions of human–environment relationships. Incorporating this approach would require the utilization of methodological tools and approaches, as well as gender-disaggregated data.

177. Initial risk screening efforts may be incorporated into this step as well, providing bases for a more robust analysis at the outset. Risk screening efforts can be categorized according to the following: (i) specific climate risk screening tools, providing methodologies to assess particular programmes and projects using a 'climate lens'; (ii) generic guidance documents, targeting the entire mainstreaming process, but also including specific subcomponents on climate risk screening; and (iii) portfolio screening exercises, conducted by some donors to systematically examine their programmes and/or projects applying a climate change lens. In addition to intrinsic differences, risk screening in these three areas may also differ in terms of the aim, approach, level of analysis and target groups. Examples of these tools are listed in figure 1.

Figure 1
Examples of climate risk screening tools, climate change adaptation and mainstreaming guidance, and systematic donor portfolio screenings

Screening tools	Generic guidance documents	Systematic portfolio screening
• ADAPT (WB) • CRISTAL (SDC, IISD, SEI, IUCN) • Climate-FIRST (ADB) • ORCHID (DFID) • CRISP (DFID) • NAPAssess (SEI) • Adaptation Wizard (United Kingdom Climate Impacts Programme) • DANIDA climate change screening matrix	• USAID Climate Change Adaptation Guidance Manual • OECD policy guidance • Adaptation Policy Framework for climate change (UNDP, GEF) • UNDP Quality Standards for Integrating Climate Change Adaptation (CCA Quality Standards Draft) • Red Cross/ Red Crescent Climate Guide	• GTZ • Norad • OECD • Swiss Agency for Development Assistance • WB • ADB • DFID • DANIDA

Source: Olhoff A and Schaer C. 2010. *Screening Tools and Guidelines to Support the MainstreamingClimate Change Adaptation into Development Assistance – A Stocktaking Report.* New York: UNDP. Available at https://preventionweb.net/files/13122_UNDPStocktakingReportCCmainstreamin.pdf.
Abbreviations: DANIDA = Danish International Development Agency, DFID = Department for International Development, GTZ = Deutsche Gesellschaft für Technische Zusammenarbeit, IISD = International Institute for Sustainable Development, IUCN = International Union for Conservation of Nature, SDC = Swiss Development Cooperation, SEI = Stockholm Environment Institute, USAID = United States Agency for International Development.

2. Assessment of investor criteria

178. This step refers to taking into consideration the nature and requirements of potential investors or funders. It touches on the bankability of projects and involves the assessment of whether or not the project developer or the project being developed would meet the requirements posed by potential funders or investors.

179. Factors that investors often look into before participating in projects include: (a) the strength and experience of the project sponsors and the government department or parastatal currently responsible for the function; (b) project fundamentals and economics, which include critical ratios such as liquidity, leverage, activity and profitability; (c) the credit of project participants; (d) contractual arrangements; (e) competition; (f) risks in implementation, operations, procurement and maintenance; (g) financial covenants; (h) other covenants; (i) added value; and (j) the legislative environment and available incentives with regard to taxes, regulatory requirements, the legal structure and implementation arrangements, and legal due diligence.

3. Identification of adaptation and mitigation options

180. Adaptation and mitigation options available to project proponents may either be: (i) structural, (ii) social, or (iii) institutional.[65]

181. Structural options include: (a) adaptation options that are discrete, with clear outputs and outcomes that are well defined in scope, space and time; (b) structural and engineering options, the application of discrete technologies, the use of ecosystems and their services to serve adaptation needs, and the delivery of specific services at the national, regional and local levels; and (c) "concrete activities" that reflect the priorities of the funds, where the focus is on discrete activities with collective objectives and concrete outcomes and outputs that are more narrowly defined in scope, space and time.

182. Social options target the vulnerability of disadvantaged groups, including targeting vulnerability reduction and social inequities.

183. Institutional options encompass measures that can range from economic instruments such as taxes, subsidies and insurance arrangements to social policies and regulations.

184. Further, considerations that must be taken into account in selecting adaptation and/or mitigation options include: (a) the effectiveness in reducing vulnerability and increasing resilience; (b) efficiency; (c) equitability, especially to vulnerable groups; (d) mainstreaming with broader social goals, programmes and activities; (e) stakeholder participation, engagement and support; (f) legitimacy and social acceptability; (g) environmental and institutional sustainability; (h) flexibility and responsiveness to feedback and learning; (i) designed for an appropriate scope and time frame; (j) likely to avoid maladaptive traps; (k) robust against a wide range of climate and social scenarios; (l) available resources; (m) the need for transformative changes considered; and (n) coherence and synergy with other objectives.

185. However, there exist constraining factors that have potential implications for adaptation and mitigation options. These may refer to: (a) adverse externalities of population growth and urbanization; (b) deficits of knowledge, education, and human capital; (c) divergences in social and cultural attitudes, values and behaviours; (d) challenges in governance and institutional arrangements; (e) lack of access to national and international climate finance; (f) inadequate technology; (g) the insufficient quality and/or quantity of natural resources; (h) adaptation and development credits; and (i) inequality. These factors, along with their corresponding implications on adaptation and mitigation, are listed in figure 2.

65 Available at https://ipcc.ch/site/assets/uploads/2018/02/WGIIAR5-Chap14_FINAL.pdf.

Figure 2
Constraining factors and potential implications for mitigation and adaptation actions

Constraining factor	Potential implications for adaptation	Potential implications for mitigation
Adverse externalities of population growth and urbanization	Increases exposure of human populations to climate variability and change as well as demands for, and pressures on, natural resources and ecosystem services	Drives economic growth, energy demand and energy consumption, resulting in increases in greenhouse gas emissions
Deficits of knowledge, education and human capital	Reduces national, institutional and individual perceptions of the risks posed by climate change as well as the costs and benefits of different adaptation options	Reduces national, institutional and individual risk perception, willingness to change behavioural patterns and practices, and to adopt social and technological innovations to reduce emissions
Divergences in social and cultural attitudes, values and behaviours	Reduces societal consensus regarding climate risk and therefore demand for specific adaptation policies and measures	Influences emission patterns, societal perceptions of the utility of mitigation policies and technologies, and willingness to pursue sustainable behaviours and technologies.
Challenges in governance and institutional arrangements	Reduces the ability to coordinate adaptation policies and measures and to build capacity to actors to plan and implement adaptation	Undermines policies, incentives and cooperation regarding the development of mitigation policies and the implementation of efficient, carbon-neutral and renewable energy technologies
Lack of access to national and international climate finance	Reduces the scale of investment in adaptation policies and measures and therefore their effectiveness	Reduces the capacity of developed and, particularly, developing countries to pursue policies and technologies that reduce emissions
Inadequate technology	Reduces the range of available adaptation options as well as their effectiveness in reducing or avoiding risk from increasing rates or magnitudes of climate change	Slows the rate at which society can reduce the carbon intensity of energy services and transition towards low-carbon and carbon-neutral technologies
Insufficient quality and/or quantity of natural resources	Reduces the coping range of actors, vulnerability to non-climatic factors and potential competition for resources that enhances vulnerability	Reduces the long-term sustainability or different energy technologies
Adaptation and development deficits	Increases vulnerability to current climate variability as well as future climate change	Reduces mitigative capacity and undermines international cooperative efforts on climate owing to a contentious legacy of cooperation on development
Inequality	Places the impacts of climate change and the burden of adaptation disproportionately on the most vulnerable and/or transfers them to future generations	Constrains the ability for developing countries with low income levels, or different communities or sectors within countries, to contribute to GHG mitigation

Source: IPCC. 2014. *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. R.K. Pachauri and L.A. Meyer (eds.). IPCC: Geneva. Available at https://ar5-syr.ipcc.ch/topic_adaptation.php.

4. Conduct of situation, sensitivity and project risk analyses

186. In this phase, climate indicators are identified and assessed by project proponents. These indicators may take into consideration: (a) climate classification and description (e.g. Köppen classification); (b) determinants of climate (e.g. topography, ocean currents, global atmospheric circulation); (c) general description of natural hazards; and (d) future projections. The projections require proponents to ask questions such as: what models are used? What maps are available? What scenarios are used and how are they used?[66]

187. After accounting for these indicators, proponents can then conduct a situation analysis. Doing so requires proponents to identify indirect threats and opportunities behind all critical threats and degraded targets. This is done through hypothesized linkages showing where intervention would have the most impact. Moreover, it is also important to identify key stakeholders in the context of situation analysis.

188. A sensitivity analysis may also be conducted. This type of analysis is increasingly being used in environmental modelling for uncertainty assessment, model calibration and diagnostic evaluation, dominant control analysis, and robust decision-making. Questions to be asked under this type of analysis are: what sorts of changes are relatively certain will take place? What changes are more speculative?

189. Finally, a project risk analysis may also be helpful in identifying external and internal risks that may greatly impact the project. These involve factors that are: (a) political (e.g. political unrest, lack of transparency, political interference in allocation of resources); (b) institutional (e.g. lack of coordination between implementing agencies, lack of capacity to manage project implementation, staff turnover, lack of participation from relevant stakeholders); (c) financial (e.g. sustainability of financing for project outputs/outcomes, cost overruns); or (d) technical (failure to obtain data and information relevant to the project).

5. Selection of a course of action

6. Development of an implementation plan

190. Developing an implementation plan covers steps such as: (a) redesigning the project in order to integrate climate variability and change; (b) seeking the necessary approvals; (c) developing the capacity needed to implement the project; (d) investing the necessary financial resources; and (e) selecting strategies in climate project development.

7. Project implementation

8. Monitoring, evaluation and reporting

191. The process of monitoring the project begins with establishing an approach for evaluation, such as a results-based framework or a framework that applies the theory of change. It is also important to select indicators that the proponent can use within the framework. Most funders require the identification of indicators prior to project approval, that is, as part of the project proposal.

192. The logical framework for indicators covers: (a) what is to be monitored and evaluated; (b) the activities needed to monitor and evaluate; (c) persons responsible for M&E activities; (d) when M&E activities are planned; (e) how M&E is carried out; and (f) what resources are required and where they are committed.

193. In terms of guidance, proponents can: (a) define indicators based on reporting needs; (b) decide on the level of aggregation needed to meet reporting requirements; (c) create and define indicators through stakeholder engagement; (d) develop a mini logic frame for each indicator to test the assumption that the indicator provides evidence of performance; (e) review existing data-collection efforts; (f) establish a baseline for each indicator and identify a process for updating it in defined increments of time; (g) create packages with a mix of quantitative and qualitative indicators for the essential elements of the adaptation plan; and (h) develop an indicator reference sheet.

194. Moreover, proponents must also consider establishing a data collection, storage and use plan which includes: (a) sources of data; (b) data-collection tools; (c) frequency of data collection; (d) responsibility for data collection; (e) data quality standards; (f) data validation; and (g) definition of the data output collection.

195. It is also important to design an internal and external reporting structure centred on the purpose of the project, the need for learning and transparency. There is a need to align reporting with project development.

196. Finally, the proponent must define the evaluation through the use of: (a) evaluation triggers; (b) evaluation purpose and expected use; (c) evaluation type (formative, summative, economic evaluation, impact evaluation) and methodology; (d) timing and frequency; (e) estimated budget; and (f) the names of stakeholders.

66 Available at https://climatelinks.org/sites/default/files/asset/document/2017_USAID%20Adapt%20Asia-Pacific_Guide%20for%20Preparation%20of%20Climate%20Change%20Adaptation%20Projects.pdf.

9. Evaluation of project sustainability

197. In evaluating the sustainability of the project, the proponent must ensure ownership by the beneficiaries, whether they are government entities, non-governmental organizations, or civil society organizations, or beneficiaries from other sectors or communities. Such ownership encourages the continuation of the project or further support for the maintenance of its accomplishments/outputs even after the project period.

198. Sources of funding, staffing and administration, the operation and maintenance plan with estimated costs, and the cost-recovery plan must also be accounted for during evaluation. In addition, the proponent may consider the associations and organizations established or expanded by the project.

199. Maintenance and monitoring capacity, replicability and scalability, and management of data and information are also important in determining whether the project is sustainable.

10. Dismantling of the project

200. Under the GCF, project closure usually centres on the proper recording and archiving of project documentation, recording and handing over/disposing of project assets, making final payments, releasing project staff and reimbursing any unutilized resources to the GCF. A final project audit is required to confirm the proper utilization of funds.

201. Accredited entities are also required to: (a) confirm that the project activities were executed and completed in line with project objectives and FAA requirements; (b) submit a project completion report or final annual performance report; (c) complete any procurements and related payments, cancel any supplier contracts, reimburse any unutilized resources to GCF and release project staff and consultants; (d) inform stakeholders of the closure of the project; (e) execute the exit strategy as per the FAA, including handing over assets to the beneficiaries or as per the relevant legal agreements with the GCF; (f) ensure that all required documents are finalized and properly archived; (g) submit the project audit report; and (h) complete the exit strategy.[67]

202. It would also be helpful to take note of how other climate projects are decommissioned. For example, wind farm projects often have a lifespan of 20–25 years. During the design and planning stage, proponents must consider how to ease and reduce decommissioning costs. In most jurisdictions, this is done by executing a report that specifies how decommissioning will be carried out. However, there still exists a large amount of uncertainty in decommissioning projects, which is largely influenced by the life expectancy of the project.[68]

203. Another example of decommissioning is seen in projects that cover man-made infrastructures on marine ecosystems, which include oil and gas structures and offshore wind installations. It has been observed that in many places, decommissioning options are restricted to complete removal, with no consideration for alternative options.

204. It must be noted that strategies for decommissioning that may result in benefits to some stakeholders may also be detrimental to others. There is therefore a need for "evidence-based decision-making and management based on robust methodologies and on reliable and comprehensive evidence-bases, in order to provide the best possible advice to policy- and decision makers, and optimize the trade-offs of the chosen management options".[69] Decommissioning strategies should be considered in the light of the best current understanding and quantification of their effects on ecosystem functions and services.

67 Available at https://greenclimate.fund/sites/default/files/document/gcf-programming-manual.pdf.
68 Available at https://sciencedirect.com/science/article/pii/S0960148116309430.
69 Available at https://environmentalevidencejournal.biomedcentral.com/articles/10.1186/s13750-021-00218-y.

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Annex I

Project cycles of major climate funds

Green Climate Fund	Global Environment Facility	Adaptation Fund	Least Developed Countries Fund	Special Climate Change Fund
Pre-approval				
Strategy origination and structuring **Stage 1:** • Country and entity work programmes – An overview of the envisaged partnership between the AE and GCF and the overall climate finance landscape, strategies and plans to address climate change, comparative advantages of the AE, areas of work and priority sectors of the AE, and alignment with country programmes and country programming processes as well as GCF sectoral guidance on the eight GCF results areas – Information on the AE's experience in implementing projects and programmes across the eight GCF results areas – Indicative projects / programmes and an outline of an action plan for engagement with GCF for each GCF replenishment period covering four years	*Full-sized projects* **Stage 1:** • Project concept development – A project proponent approaches an agency which provides advice on the GEF eligibility of the proposal and information about the agency's own processing requirements. – An agency seeks a concept agreement by submitting a concept document to the GEF secretariat and other implementing agencies – The GEF secretariat reviews the proposal against the project review criteria that are relevant for that type of project and applies the criteria for conceptual conformity	**Stage 1:** • Project identification (mandatory consultation and alignment with national priorities) – The NIE, with support from the designated authority, identifies key national adaptation projects for development – The NIE opens a call for proposals, and best ideas are selected for developing proposals to submit to the AF as individual projects – The NIE opens a call for proposals, and best ideas are selected for developing a programme to submit to the AF	**Stage 0:** • Choosing an implementing agency – A country can choose freely among the 10 GEF agencies for the implementation of its projects – The choice of GEF agencies should be based on its comparative advantage in relation to the specific issues addressed by the project implemented **Stage 1.1:** • PIF approval – Project framework – Budget – Project justification	*Full-sized projects (above USD 1 million)* **Stage 1:** • Project idea – The proponent of the project – a government, NGO or CBO entity from a non-Annex I Party – pursues a partnership with one of ten GEF agencies and GEF Operational Focal Point endorsement of the project concept – Submission of the concept in PIF to the GEF secretariat – A PPG request can also be submitted at this stage

Green Climate Fund	Global Environment Facility	Adaptation Fund	Least Developed Countries Fund	Special Climate Change Fund
Pre-approval				
Stage 2: • Targeted project generation – Issuance of targeted requests for proposals – Generation of bankable project ideas through dedicated platforms and innovative partnerships between the GCF secretariat and other non-accredited organizations **Stage 3:** • Concept note submission – A brief climate context and baseline – A project description, including project components – The project size, suggested financial instruments and other financial information – Brief information on how the concept note meets the GCF investment criteria – Information on engagement with the NDA(s) and relevant stakeholders *Technical review and appraisal* **Stage 4:** • Funding proposal development – Check accreditation scope and ESS category – Define project scope/ activities – Conduct stakeholder engagement – Obtain no-objection letter – Select executing entity – Set financial structure	**Stage 2:** • Project preparation – The agency manages the preparation of a project (including medium-sized projects or enabling activity projects requesting no more than USD 450 000 under expedited procedures) in the GEF pipeline **Stage 3:** • Project appraisal – The agency appraises the project – This only applies to those projects that received GEF Council approval for work programme inclusion, such as regular projects and enabling activity projects requesting more than USD 450 000	**Stage 2:** • Submission of the project or programme proposal – Implementing entities have to use the project proposal materials – Project/programme proposals (and endorsement letters) are submitted by accredited implementing entities to the AFB secretariat – Implementing entities can submit proposals twice a year, for consideration at the respective biannual Board meetings **Stage 3:** • Technical review by the AFB secretariat – Reviews are done using review criteria (including ESP/ gender-related policies) such as: – Concrete projects – Social, economic and environmental benefits – Alignment with climate change policies, strategies and plans – Cost-effectiveness and sustainability – Social and environmental risk identification and management – Consultation processes with all stakeholders – Gender analysis		*Medium-sized projects (USD 1 million and below)* Option 1 **Stage 1:** • Project idea – The proponent of the project pursues a partnership with one of the ten GEF agencies and GEF Operational Focal Point endorsement of the project concept Option 2 **Stage 1:** • The proponent of the project – a person or entity – pursues a partnership with one of the ten GEF Agencies and GEF Operational Focal Point endorsement of the project concept • Submission of the concept in PIF if a request for a PPG is being submitted (a PPG cannot be granted before a PIF is approved)

Green Climate Fund	Global Environment Facility	Adaptation Fund	Least Developed Countries Fund	Special Climate Change Fund
Pre-approval				
• Funding proposal review – The GCF secretariat reviews and assesses the funding proposals in the order in which they are received – During the review process, the proposals are reviewed in the following order: • Revisions and resubmissions of complete funding proposals (completed funding proposal template with all necessary annexes, including no-objection letters and draft term sheet) • New complete funding proposals with a previous concept note endorsed • New complete funding proposals originated or supported through readiness, strategic programming approaches, the Project Preparation Facility(PPF) and requests for proposals • New complete funding proposals without a prior concept note; • Incomplete funding proposals		– Demonstration of non-duplication with other projects **Stage 4:** • Review by the Project and Programme Committee – Considers and reviews projects and programmes submitted to the Board, and technical reviews prepared by the AFB secretariat, and makes recommendations **Stage 5:** • Decision-making by the AFB – Takes decision on project approval, following recommendation by the PPRC		

Green Climate Fund	Global Environment Facility	Adaptation Fund	Least Developed Countries Fund	Special Climate Change Fund
Post-approval				
Approval and legal arrangements **Stage 6:** • Board approval **Stage 7:** • Legal arrangements – Each approved funding proposal will have one or more FAAs entered into between the AE and the GCF – Each FAA contains standard schedules and annexes depending on the type of the FAA (e.g. FAA for a grant or for a loan). Most of the schedules reflect the terms and conditions of the approved funding proposal and term sheet	• An agency seeks the CEO's endorsement of a project approved for inclusion in the work programme by the GEF Council on the basis of the final project document for the overall project (including the non-GEF financed components) that it would submit for its own internal final approval • The agency would submit the project for approval to its board or equivalent authorizing body as the case may be • Approval procedures differ between organizations and between project types • No final approval should be sought for part of the project through the organization's regular approval process (such as their executive board) nor any commitment made before the CEO has endorsed the project document	• For all projects/programmes there is a choice of a one-step (full proposal) or two-step process (concept approval and project/programme document) • For regional projects and programmes, there is an additional choice of a three-step process (pre-concept, concept endorsement and project/programme document)	• The PIF is then submitted to the GEF secretariat for processing. • The GEF secretariat reviews and clears the PIF for further processing, then posts the PIF on the GEF web page	*Full-sized projects (above USD 1 million)* • The GEF secretariat technically reviews the PIF. The GEF has a service standard of 10 business days for this stage • If the GEF secretariat recommends the PIF, it is web-posted for the LDCF/SCCF Council • The LDCF/SCCF Council has 4 weeks to review the PIF prior to the Council meeting on the work programme. Approval is granted on a no-objection basis • If a PPG request has been approved, the PPG funding is released *Medium-sized projects (USD 1 million and below)* Option 1 • Submission of the full project document. The GEF CEO approves the project, and implementation/disbursement may begin Option 2 • The GEF has a service standard of 10 business days for this stage. After a technical review, the GEF CEO approves the PIF and PPG, or they are returned for revisions or rejected, if ineligible. Once approved, the PPG funding is released

Green Climate Fund	Global Environment Facility	Adaptation Fund	Least Developed Countries Fund	Special Climate Change Fund
Implementation **Stage 8:** • Monitoring for performance and compliance – FAA effectiveness – Disbursements – APR and financial reports – Interim evaluation **Stage 9:** • Adaptive management – Ad hoc, adaptive and investigation missions – Major/non-major changes **Stage 10:** • Evaluation, learning and project closure – Final APR/ project completion report – Final evaluation – Learning reviews – Project disbursements closure	**Stage 4: Project implementation** • the agency will supervise the implementation of the project, and submit to the GEF secretariat annual project implementation review reports, or evaluations conducted, for the annual project implementation review carried out by the M&E Team **Stage 5:** Project evaluation • All projects upon completion should have terminal evaluation reports which should be made public	**Stage 6:** • Contracting by the AFB – Eligibility – Adaptation reasoning and concreteness – Cost-effectiveness – Environmental and social risks – Gender policy requirements **Stage 7:** • Project implementation **Stage 8:** • Monitoring/reporting by the implementing entity – The results framework includes realistic, quantified expected results with indicators and targets that are gender responsive and disaggregated by sex as appropriate – The project results framework must include at least two core impact indicators ("Number of beneficiaries including estimations for direct and indirect beneficiaries") and a second one depending on the type of activities selected – Arrangements for M&E should include budgeted M&E plans. The M&E framework should include a breakdown of how the implementing entity fee will be utilized	**Stage 1.2 (optional):** • PPG approval – The PPG proposal should describe a logical process towards developing the full project proposal (CEO endorsement), including a reasonable budget and a detailed schedule of preparation activities to be implemented **Stage 2:** • CEO endorsement – Elaborates on and describes the technical rationale of the project (how the proposed activities will reduce vulnerability and increase adaptive capacity in the targeted sector(s)). – Clearly demonstrates that all details of project implementation have been established and that the project is ready for implementation	*SCCF project cycle: full-sized projects (above USD 1 million)* **Stage 2:** • Project preparation – Project preparation is expected to be completed as soon as possible, and no later than 18 months from the LDCF/SCCF Council PIF approval date *Full-sized projects (above USD 1 million)* Option 2 **Stage 2:** • Project preparation – Project preparation is expected to be completed as soon as possible, and no later than 12 months from the LDCF/SCCF Council PIF approval date

Sources: GCF. 2020. GCF Programming Manual: An introduction to the Green Climate Fund project cycle and project development tools for full-sized projects. Incheon: GCF. Available at https://greenclimate.fund/sites/default/files/document/gcf-programming-manual.pdf; AF. 2021. Portfolio Development: Project Cycle and Review Criteria: Readiness Workshop for Asia/Pacific and Eastern Europe Countries. Available at https://adaptation-fund.org/wp-content/uploads/2021/07/Presentation1.pdf; Climate Funds Update. *Special Climate Change Fund: Summary*. Available at https://climatefundsupdate.org/the-funds/special-climate-change-fund/; GEF. *Step-by-step Guide to the LDCF Project Cycle*. Available at https://thegef.org/sites/default/files/council-meeting-documents/Step-by-Step_Guide_to_the_LDCF_Project_Cycle.pdf.

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Annex II

Green Climate Fund - approved single country projects in ASEAN countries as of December 2022

Country or region	Year approved	Area	Project title	GCF funding (USD million)	Funding instrument
Cambodia	2018	Adaptation Mitigation	Climate-Friendly Agribusiness Value Chains Sector Project	40	Grant Loan
Indonesia	2020	Mitigation	Indonesia REDD+ RBP for results period 2014–2016	104	Results-based payment
Indonesia	2018	Mitigation	Indonesia Geothermal Resource Risk Mitigation Project	100	Grant Loan
Indonesia	2022	Mitigation	Supporting Innovative Mechanisms for Industrial Energy Efficiency Financing in Indonesia with Lessons for Replication in other ASEAN member states	105	Loan
Lao People's Democratic Republic	2019	Adaptation	Building resilience of urban populations with ecosystem-based solutions in Lao PDR	10	Grant
Lao People's Democratic Republic	2019	Mitigation	Implementation of the Lao PDR Emission Reductions Program through improved governance and sustainable forest landscape management	18	Grant
Philippines (direct access)	2019	Adaptation	Multi-Hazard Impact-Based Forecasting and Early Warning (SAP project)	10	Grant
Thailand	2021	Adaptation	Enhancing climate resilience in Thailand through effective water management and sustainable agriculture	18	Grant
Viet Nam	2020	Adaptation	Strengthening the resilience of smallholder agriculture to climate change-induced water insecurity in the Central Highlands and South-Central Coast regions of Viet Nam	20	Grant
Viet Nam	2018	Mitigation	Scaling Up Energy Efficiency for Industrial Enterprises in Viet Nam	86	Grant Guarantee
Viet Nam	2016	Adaptation Mitigation	Improving the resilience of vulnerable coastal communities to climate change related impacts in Viet Nam	30	Grant
ASEAN	2021	Mitigation	ASEAN Catalytic Green Finance Facility: Green Recovery Program	300	Grant Loan

Source: GCF website (https://greenclimate.fund/countries). Global programmes that include some ASEAN countries are excluded.

Annex III

Climate finance readiness indicators

(A) Readiness dimensions and proposed indicators

Readiness dimension	Proposed indicator
Institutions and policies	1. A national entity has been accredited by the GCF or the AF. 2. A coordination mechanism for development partners/donors for climate change related funding, dialogue and programming exists. 3. A coordination mechanism between other conventions relevant to climate change exists. 4. A national strategy or plan to implement national climate change priorities exists. 5. Climate change priorities are mentioned explicitly in the national climate policy. 6. There is routine political engagement at the national and provincial levels. 7. There is a national strategy on how to meet the risks and opportunities of climate change. 8. There is a legal framework with incentives and compliance mechanisms that reflect climate change priorities. 9. The core functions and roles of national institutions relating to climate change are explicitly mentioned. 10. Collaboration with non-traditional stakeholders exists. 11. Climate change related acts and policies have been approved and endorsed by the national law-making body. 12. A national climate change committee has been set up. 13. There is a formal mechanism whereby all relevant stakeholders meet to discuss a range of climate change issues. 14. Climate change focal points have been established at the national, subnational and community levels. 15. National guidelines, which advise planning authorities on how to integrate climate change in their planning processes, have been established. 16. A specialized climate change department has been set up. 17. The climate change department is adequately funded and staffed. 18. Long-term programme and project planning mechanisms that can respond to the risks and opportunities of climate change have been established. 19. Frameworks to manage planning of climate change programming at the national level exist. 20. Frameworks to manage planning of climate change programming at the provincial level exist.
Knowledge management and learning	1. Climate change knowledge is generated and codified at the national and local levels. 2. Climate change knowledge is shared and accessible through appropriate media/platforms. 3. Local governments and stakeholders have access to national and/or regional sources of expertise on climate change. 4. Global and regional learning have been adapted to the national context. 5. Global, regional, or national good practices have been contextualized to address the community context.

Source: Samuwai J and Hills JM. 2018. Assessing Climate Finance Readiness in the Asia-Pacific Region. *Sustainability*. 10(4): p.8. Available at https://unfccc.int/sites/default/files/resource/sustainability-10-01192%20%281%29.pdf.

(B) Common climate finance readiness problems derived from the climate public expenditure and institutional,=

Policies/laws/regulations Delays in climate change related policies/plans/ strategies being endorsed and approved by cabinet.	**Inclusive decision-making** Minimal engagement/ consultations with the private sector, civil societies and communities.	**Power structure** Fragmented institutional settings.	Weak fiscal policy environment.
Climate change policies/ plans/strategies are still being developed or in draft form.	Lack of structured systems/ processes in place to engage all relevant stakeholders.	Uncertain institutional arrangements due to a volatile political environment.	Lack of long-term budget projection.
Existing climate change related policies/plans/ strategies are too broad and unclear.	Non-traditional stakeholders are not adequately represented in the decision-making bodies.	Weak institutional links between central line ministries and other bodies.	Weakness of accountability mechanism in place.
Existing climate change related policies/plans/ strategies are out of date.	Climate change related materials are not easily accessible by the public.	Over-governance: too many committees with similar roles and responsibilities.	Lack of a structured approach to holistically capture and classify climate change expenditure in national budgets.
Key climate change policies/ legislation are missing.	**Coordination** Inconsistent flow of information among key line ministries.	Lack of clear mandates on roles and responsibilities.	**Evidence-based decision-making** Lack of reliable, complete and up-to-date data.
Knowledge management Lack of technical and specialized knowledge within line ministries and agencies.	Critical climate change policies/plans/strategies are not harmonized and linked.	Existing climate change related decision-making bodies lack leadership and political backing.	Lack of formal data management system to support evidence-based policymaking.
Lack of systematic training needs assessment within line ministries and agencies.	Mainstreaming/integrating climate change into existing strategies/plans/policies is difficult.	**Public finance management** No/narrow national definition of climate finance.	Lack of a formal procedure on data-sharing among government, donors and other stakeholders.
High staff turnover.	Lack of a formalized planning process.	Lack of budget support received.	Lack of systematic M&E systems and established indicators at all levels to assess performance of projects.
Heavy reliance on international consultants.	Misalignment between climate change policies and allocated resources.	Heavy dependence on a single bilateral donor.	Lack of formal data management systems to capture and store funding from other sources.
Lack of human capacity within key line ministries and agencies.	Lack of coordination among central climate change line ministries during climate change project life cycles.	Weak PFM in place.	Responsibilities for M&E not clear among line ministries.
Lack of long-term plan and financial commitments to build capacity at all levels.	Lack of awareness across line ministries on climate change related issues.	Frequent delays in disbursement of funds through national systems.	Disparate collection/storage of data and monitoring among key line ministries and agencies.
Lack of knowledge at the community level.	Infrequent and inconsistent meetings of key national climate change committees responsible for coordinating climate change issues.	Fragmented budgeting structure and process.	Unclear and broad climate change related targets being set.

Source: Samuwai J and Hills JM. 2018. Assessing Climate Finance Readiness in the Asia-Pacific Region. *Sustainability*. 10(4): p.8. Available at https://unfccc.int/sites/default/files/resource/sustainability-10-01192%20%281%29.pdf.


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