

Discussion Paper

First High-Level Follow-up Dialogue on Financing for Development in Asia and the Pacific

Incheon, Republic of Korea
30-31 March 2016

CLIMATE FINANCE IN AND BEYOND THE PARIS AGREEMENT: IMPLEMENTING CLIMATE FINANCE COMMITMENTS IN ASIA AND THE PACIFIC

DP/14

March 2016

Yuqing Yu



FINANCE IN AND BEYOND THE PARIS AGREEMENT: IMPLEMENTING CLIMATE FINANCE COMMITMENTS IN ASIA AND THE PACIFIC

Yuqing Ariel Yu

Institute for Global Environmental Strategies



For more information, contact:

Macroeconomic Policy and Financing for Development Division (MPFD)

Economic and Social Commission for Asia and the Pacific
United Nations Building, Rajadamnern Nok Avenue, Bangkok 10200, Thailand
Email: escap-mpdd@un.org

Dr. Aynul Hasan
Director
Macroeconomic Policy and Financing for Development Division

Contents

I.	Introduction	2
II.	The Paris Agreement.....	3
	A. Overview of the Paris Agreement	3
	B. Climate finance in the Paris Agreement	5
	C. Markets and mechanisms in the Paris Agreement	6
	D. Next steps	7
III.	Intended Nationally Determined Contributions.....	8
	A. Ambition level of the communicated INDCs	8
	B. Financial needs for implementing INDCs in Asia and the Pacific	10
	C. Positions on the use of market mechanisms in Asia and the Pacific	11
IV.	Enhanced action prior 2020.....	12
	A. Pledges toward the USD 100 billion commitment.....	12
	B. Landscape of global and regional climate finance	14
	C. Climate public expenditure of selected countries in Asia and the Pacific	14
	D. Best practice in tracking climate finance	21
	E. Best practice in mobilizing climate finance	22
V.	Way forward.....	27
	A. Timeline for implementing climate finance commitments	27
	B. Challenges ahead	29

Discussion Paper

Macroeconomic Policy and Financing for Development Division

Climate Finance in and Beyond the Paris Agreement: Implementing Climate Finance Commitments in the Asia and the Pacific region

by

Yuqing Ariel Yu

March 2016

The views expressed in this discussion paper are those of the author(s) and should not necessarily be considered as reflecting the views or carrying the endorsement of the United Nations. Discussion papers describe research in progress by the author(s) and are published to elicit comments and to further debate. This publication has been issued without formal editing.

Abstract

The Paris Agreement concluded a decade-long struggle to agree on a comprehensive global climate agreement, and for the first time ever, all the 195 Parties to the UNFCCC signed on to it. The Agreement sends a clear signal to make all financial flows consistent with a pathway towards low-carbon, climate-resilient development and to shift investments away from activities that are incompatible with achieving the temperature goals. Although the Paris Agreement makes significant progress, lots of work remains. Recognizing this, this paper answers the following question: In what ways will the Paris Agreement bring out opportunities and challenges of implementing climate finance commitments in the Asia and the Pacific region? This paper discusses planned action prior to 2020, the landscape of climate finance, climate public expenditure in selected countries, and best practices of mobilizing climate finance in the region. The paper concludes with a timeline proposal for implementing climate finance commitments in the region.

Keywords: Climate finance, the Paris Agreement, nationally determined contribution.

Authors' e-mail address: yu@iges.or.jp.

I. Introduction

The 2030 Agenda for Sustainable Development was adopted as United Nations General Assembly resolution A/RES/70/1 in 2015 and its Goal 13 recognizes that taking urgent action to combat climate change and its impacts is one of the key measures to transform our world and achieve sustainable development (UN, 2015a). The Addis Ababa Action Agenda adopted at the Third International Conference on Financing for Development in 2015 affirms strong political commitment to address the challenge of financing and creating an enabling environment at all levels for sustainable development in the spirit of global partnership and solidarity (UN, 2015b). The Sendai Framework for Disaster Risk Reduction adopted at the Third UN World Conference in 2015 sets the goal of achieving substantial reduction of disaster risk and losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries over the next 15 years (UN, 2015c). The adoption of these important UN resolutions in 2015 set the backdrop of the negotiation for a global climate agreement at the 21st session of the Conference of the Parties (COP) in Paris.

The Paris Agreement concluded a decade-long struggle to agree on a comprehensive global climate agreement, and for the first time ever, all the 195 Parties to the UNFCCC signed on to it. The Paris Agreement aims to achieve sustainable development through the limitation of global temperature increase. It pursues the limitation in global temperature increase well below 2°C (and strengthening this limitation to 1.5°C) by peaking emissions as soon as possible, rapidly reducing emissions in line with science, and reaching a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases (GHGs) in the second half of this century. It aims to react to global temperature increase in a way that enhances adaptive capacity, strengthens climate resilience, and reduces vulnerability. The Paris Agreement aims to enable the paradigm shift towards low-carbon and climate-resilient development by making all financial flows consistent with these goals.

The countries in Asia and the Pacific are most vulnerable to the impacts of climate change. In the past decade, about three million people in the region have been affected by natural disasters and almost 900,000 lost their lives (ESCAP, 2015a). The rising trend of economic losses from natural disasters continued in 2014 and overall economic losses from natural disasters totalled approximately USD 60 billion in 2014 in the region (ESCAP, 2015b). In addition, the Asia and the Pacific region is already the most flood-prone region in the world, with floods in 2012 affecting 78 percent of the population in the region; and if current climate change patterns continue, by 2100, hundreds of millions of people in the region, most of them in the coastal areas, are predicted to be displaced by coastal flooding (IPCC, 2014). At the same time, the Asia and the Pacific region was responsible for more than half of total global GHG emissions in 1990-2012 and this contribution is projected to increase over the next decade (ESCAP, 2015c).

The countries in the region are taking concrete national actions to address negative economic-social-environmental impacts of climate change. This discussion paper serves as a background paper to facilitate the discussions at the First High-Level Follow-up Dialogue on Financing for Development in Asia and the Pacific, to be held on 30-31 March, 2016 in Incheon, Korea and aims to address the following question: In what way will the Paris Agreement bring out opportunities and challenges of

implementing climate finance commitments in the Asia and the Pacific region?

This paper is organized as follows: Session 2 provides an overview of the Paris Agreement, with an in-depth discussion on climate finance and market and non-market mechanisms in the Paris Agreement. Session 3 summarizes the communicated Intended Nationally Determined Contributions (INDCs) of countries in the region, estimates the financial needs for implementing INDCs, and describes the positions on the use of market mechanisms of countries in the region. Session 4 discusses enhanced action prior 2020 and focuses on the topics of the current pledges toward the USD 100 billion commitment, the landscape of climate finance worldwide and in the region, climate public expenditure in selected countries (Bangladesh, Cambodia, Indonesia, Nepal, Samoa, Thailand, and Viet Nam), and best practices of mobilizing climate finance in the region. Finally, this paper concludes by Session 5 with a proposal of the timeline of implementing climate finance commitments in the Asia and the Pacific region.

II. The Paris Agreement

A. Overview of the Paris Agreement

In its basic architecture, the Paris Agreement is entirely built around voluntary country pledges and abandoned the Kyoto approach of setting up legally binding GHG emissions targets through multilaterally negotiated processes. A failure to deliver the Paris Agreement would have been devastating and the significance of it can be manifested in several ways.

The acceptance of the 1.5°C long-term goal can be considered as one of the most positive outcomes of the Paris negotiations. The Paris Agreement stipulates to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change” (Article 2.1a). Small Island States and African nations had demanded for years to limit the temperature increase to 1.5°C so as to prevent the severe impacts that could threaten their peoples and the IPCC’s Fifth Assessment Report indicated the disappearance of Small Island States even if the 2°C goal was achieved (IPCC, 2014). The Paris Agreement answered to these calls and included the reference to 1.5°C as the new ceiling of global temperature increase.

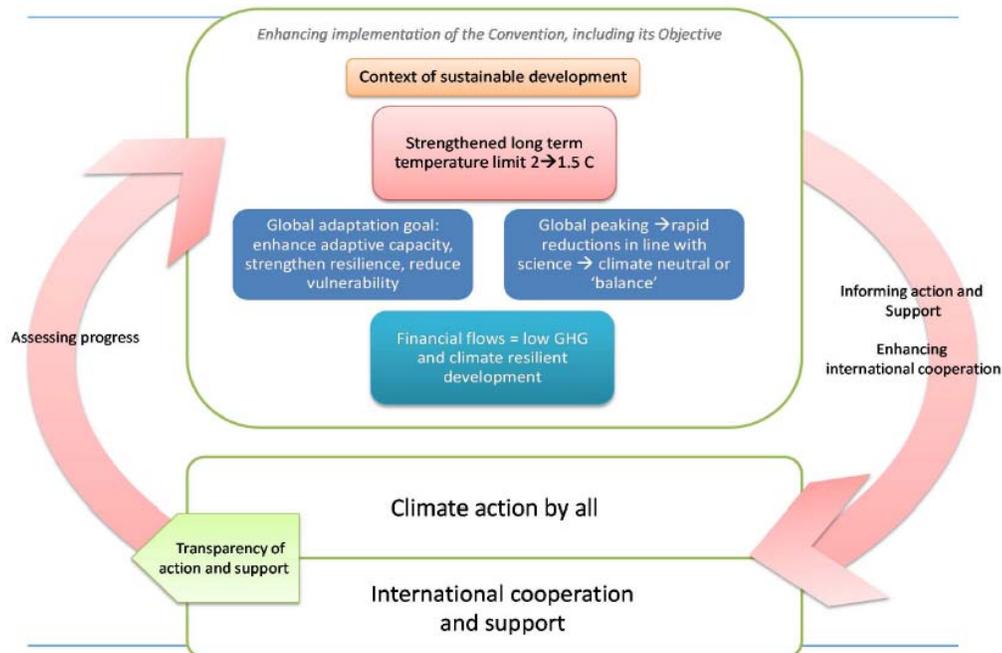
In addition, the Paris Agreement requires Parties to “reach global peaking of greenhouse gas emissions as soon as possible....to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century...” (Article 4.1). Although the Paris Agreement does not specify a quantified emissions reduction objective, most scientists interpret this provision as a target of achieving global zero emissions by 2060 to 2080 (Clemencon, 2016). The vision of achieving zero-emissions is another new target written into an international climate agreement for the first time.

Furthermore, although country pledges under the Paris Agreement are voluntary, the process to periodically review nationally determined contribution is legally binding. The

Paris Agreement requests that each party “shall communicate a nationally determined contribution every five years” (Article 4.9) and “each Party’s successive nationally determined contribution will represent a progression beyond the Party’s then current nationally determined contribution and reflect its highest possible ambition” (Article 4.3). These provisions indicate that Parties have to submit new or renewed pledges in 2020 for the second time and do so every five years thereafter. These important provisions will improve the transparency of how Parties account for and report on their emissions and will enforce the implementation of country pledges (Clemencon, 2016).

In the context of sustainable development, the Paris Agreement calls for the strengthening of long term global temperature limitation from 2°C to 1.5°C. It sets up the global adaption goal of enhancing adaptive capacity, strengthening resilience, and reducing vulnerability as well as the mitigation goal of achieving global peaking as soon as possible, rapidly reducing emissions in line with science, and reaching climate neutral in the second half of this century. Enhancing the implementation of the Convention, including its objective, will build upon climate action taken by all and informed action through enhanced international cooperation and support, and the transparency of action and support will subsequently enable the assessment of progress towards the operationalization of the Paris Agreement. Figure 1 explains the operation framework of the Paris Agreement.

Figure 1. The operation framework of the Paris Agreement



Source: Adapted from Barry (2016)

However, what was avoided under the Paris Agreement cannot cover up what is missing in it. While most people felt relieved as an agreement is better than no agreement, it is worth noting that the Paris Agreement has not addressed the fundamental problems of relying on fossil fuels for economic growth and has not provided a blueprint for achieving the long-term goals of 2°C and 1.5°C. The Paris Agreement does not define legally binding targets, neither does it include an emissions peak year, specific emissions

reduction timeline, or a liability provision that links financial compensation to loss and damage. Article 9 related to climate finance, which will be interpreted in-depth in section 2.2, is also weak.

B. Climate finance in the Paris Agreement

One of the critical features of climate finance in the Paris Agreement is to make all financial flows consistent with the goal of enabling the paradigm shift towards low-carbon and climate-resilient development. The new and additional mobilization of financial resources provided to developing countries should enhance the implementation of their policies, strategies, regulations and their climate change actions with respect to both mitigation and adaptation to contribute to the achievement of sustainable development goals.

It should be noted that the Paris Agreement is strong when all pieces are united together and its strength is greatly diminished if it is not treated in a holistic way. This is the case for climate finance when climate finance is analyzed separately as a single component. If each provision of Article 9 is to be checked against the existing finance obligations under the UNFCCC, it seems that the Paris Agreement is weak on climate finance.

With regard to the provision of financial support, the Paris Agreement requires developed countries to “provide financial resources to assist developing country Parties” (Article 9.1) and to “take the lead in mobilizing climate finance” (Article 9.3). These obligations are simply a rehashing of the existing commitments of developed countries under the UNFCCC. However, developing countries are “encouraged to provide or continue to provide such support voluntarily (Article 9.2). Many developing countries opposed this new provision, concerning that the new obligation of developing countries—voluntary or not—will dilute developed countries’ existing obligations under the UNFCCC. Such concern is demonstrated by China’s approach of making climate finance contributions: Instead of contributing to the Green Climate Fund (GCF), China will deliver its USD 3.1 billion south-south pledge through its own development programs.

With regard to the predictability of future climate finance, the Paris Agreement only includes a general provision that the “mobilization of climate finance should represent a progression beyond previous efforts” (Article 9.3). Instead, the Paris Decision that accompanies the Paris Agreement decides to extend the USD 100 billion commitment through to 2025 and stipulates to set “a new collective quantified goal from a floor of USD 100 billion per year” (FCCC/CP/2015/L.9/Rev. 1, Para. 54). This new collective quantified goal seems to be a one-off one, as neither the Agreement nor the Decision indicates the intention of establishing cycles for setting quantified goals for the provision of climate finance, as asked for by many developing countries.

Although the Paris Agreement notes the significant role of public funds (Article 9.3), the use of grants is only referred in the context of “public and grant-based resources for adaptation” (Article 9.4). The significance of the GCF is also shadowed in both the Paris Agreement and the Decision. The Paris Agreement does not go beyond than simply recognizing the GCF as an operating entity of the Financial Mechanism of the Convention (Article 9.8); and the Paris Decision merely recognizes it as one of multilateral sources and encourages the coordination of support from it

(FCCC/CP/2015/L.9/Rev. 1, Para. 55). Non-public finance flows therefore presumably will assume a larger role in the future provision of climate finance acceptable under the Paris Agreement.

Although the lack of sufficient finance for adaptation is one of the biggest concerns of climate negotiations, the Paris Agreement uses a non-committal language and merely asks the provision of scaled-up financial resources to “achieve a balance between adaptation and mitigation” (Article 9.4). In addition, the Paris Decision does not mention post 2020 adaptation finance; rather, the Decision urges to “significantly increase adaptation finance from current levels” prior 2020 (FCCC/CP/2015/L.9/Rev. 1, Para. 115).

In terms of the transparency of financial flows, the Paris Agreement makes a step forward in improving financial reporting. The Paris Decision requests the Subsidiary Body for Scientific and Technological Advice (SBSTA) to develop modalities for the accounting of financial resources provided and mobilized through public interventions (FCCC/CP/2015/L.9/Rev. 1, Para. 58); and decides to initiate, at COP 22, a process to identify the information to be provided by Parties (FCCC/CP/2015/L.9/Rev. 1, Para. 55). Developed countries should keep communicating biennially information on support provided, including, as available, projected levels of public financial resources (Article 9.5). Developing countries are encouraged to communicate biennially such information on a voluntary basis (Article 9.5). However, the Paris Agreement and the Decision do not specify how private finance will be accounted and reported, and neither clear is the way to measure the results and outcomes of climate finance.

C. Markets and mechanisms in the Paris Agreement

Article 6 related to markets and mechanisms in the Paris Agreement delivers three key messages: (1) Parties are allowed to cooperate; (2) authorized entities are allowed to directly engage; and (3) a range of mechanisms can be connected and integrated.

The Paris Agreement recognizes that some Parties would like to cooperate with each other in the implementation of their climate actions, using market or non-market based mechanisms (Article 6.1). Cooperative approaches are voluntary (Article 6.3), and shall promote sustainable development and environment integrity and apply robust accounting to avoid double counting (Article 6.2). Cooperative approaches are allowed to use internationally transferred mitigation outcomes (ITMOs), which indicates that the linkage of emission trading schemes and the facilitation of crediting mechanisms may be encouraged under the Paris Agreement.

A mechanism for sustainable development will be established under a supervisory body. This mechanism will promote mitigation by private and public entities, deliver net mitigation and sustainable development, and is not restricted to project-level activities (Article 6.4). The basic conditions for this new mechanism are very similar to the requirements under the Clean Development Mechanism (CDM); however, it has one important and new requirement—the delivery of an overall mitigation in global emissions (Article 6.4d). This new provision indicates that the new mechanism cannot be a pure offsetting mechanism, as pure offsetting mechanisms will not have a net impact on global GHG emissions and GHG emissions reductions achieved in host countries are 100% used by buying countries. This further implies that a part of

emissions reductions shall be cancelled and is not counted towards the fulfilment of NDCs of either the buying or selling Party.

The Paris Agreement also recognizes the significance of non-market mechanisms, as these mechanisms will promote ambition, facilitate the public and private participation in implementing NDCs, and enhance coordination across instruments (Article 6.8). The provisions of non-market mechanisms indicate the opportunity for recognition of the roles and efforts of non-Party stakeholders as well as the cohesion in the operation of the financial and technology mechanisms.

D. Next steps

The Paris Agreement provides a framework and mandate for action, but many aspects need to be further worked out. The facilitative dialogue in 2018 will offer another opportunity to address the gaps in providing financial support to developing countries, as the facilitative dialogue is scheduled to include the identification of relevant opportunities to enhance the provision and mobilization of financial support and enabling environments (FCCC/CP/2015/L.9/Rev. 1, Para. 116). The first global stocktake, scheduled to take place in 2023, will also take into account the relevant information on efforts related to climate finance (Article 9.6), and will likely include the negotiation of the new quantified climate finance goal for 2025 and beyond.

Countries also need to take steps to make the Paris Agreement take effect. Figure 2 summarizes the timeline for signature, ratification, and entry into force of the Paris Agreement. More specifically, the Paris Agreement will enter into force, only after at least 55 Parties to the UNFCCC accounting in total for at least an estimated 55 percent of the total global GHG emissions have signed on it and indicated their consent to be bound by it (Article 21.1). Heads of States are encouraged to sign the Paris Agreement at the United Nations Headquarters in New York City from 22 April 2016 to 21 April 2017. Parties can still join the Paris Agreement after the deadline in 2017 by accession. After signature, countries must deposit their instruments of ratification, acceptance, approval or accession, indicating their consent to join and be bound by it.

Figure 2. Timeline for signature, ratification and entry into force



Meanwhile, a new group—the Ad Hoc Working Group on the Paris Agreement (APA)—has been established to fill in the numerous gaps left by the Paris negotiations. The APA will be responsible for developing guidance on the information to be submitted in the next round submission of NDCs. The APA also has the responsibility of improving existing accounting rules to ensure that each country’s pledge is subject to consistent guidelines. In addition to the APA, the Subsidiary Body for Scientific and Technological Advice (SBSTA) is tasked to develop guidance for international carbon markets and a framework for non-market approaches. The SBSTA is also responsible for developing modalities for the accounting of financial resources provided and mobilized through public interventions, elaborating the technology framework, and providing advice on how the IPCC can inform the global stocktake. Furthermore, the Adaption Committee, has the task of developing methods to recognize the adaptation efforts of developing countries and facilitate the mobilization of financial support for adaptation.

III. Intended Nationally Determined Contributions

A. Ambition level of the communicated INDCs

According to the synthesis of the 119 INDCs presented up to 1 October from 147 Parties that cover 80 percent of global emissions in 2010, global average per capita emissions are expected to be 6.8 (6.5 to 7.1) CO_{2-eq} per capita in 2025 and 6.7 (6.4 to 7.2) CO_{2-eq} per capita in 2030. The global emission level resulting from the implementation of the communicated INDCs is expected to amount to 55.2 (52.0 to 56.9) Gt CO_{2-eq} in 2025 and 56.7 (53.1 to 58.6) Gt CO_{2-eq} in 2030 (UNFCCC, 2015). In contrast, the global emission level consistent with having a likely chance (>66 percent) of staying below 2°C temperature rise is 42 Gt CO_{2-eq} in 2030 (UNEP, 2015). This indicates that global emissions in 2030 would be 15 GtCO_{2e} above the allowance for limiting temperature increase within 2°C, putting the world on track to temperature rise of around 3°C by 2100 (Climate Action Track, 2015; UNEP, 2015).

Moreover, the implementation of the communicated INDCs do not fall with the range of least-cost 2°C scenarios (UNFCCC, 2015). The emission differences towards least-cost trajectories have three implications. First, the enhancement of INDCs or additional mitigation effort on top of that currently indicated in the INDCs are required to bridge these emission differences. Second, greater reductions in the aggregate global emissions than those presented in the INDCs will be required for the period after 2025 and 2030 to hold temperature rise below 2°C, as higher emissions in the near term would have to be offset by lower emissions in the long term to achieve the same climate targets with the same likelihood. Finally, the world might face higher costs in the long term, given that least-cost emission trajectories indicate the cost-optimality of enhanced near-term mitigation action (UNFCCC, 2015).

In the ESCAP region, three countries (North Korea, Timor-Leste, and Uzbekistan) have not submitted INDCs as of 24 February, 2016. There are 41 submissions from non-Annex I Parties and 7 submissions from Annex I Parties¹. Table 1 summarizes INDC targets of the countries in the ESCAP region. Specifically, three countries used

¹ France, Netherlands, and the United Kingdom are included in the EU-28 submission and are considered as one submission.

carbon intensity targets, 16 countries proposed their INDC targets against BAU scenarios, 19 countries communicated their INDCs in terms of absolute reductions, and the remaining 12 countries presented their INDCs in various other ways.

Table 1. INDC targets in the ESCAP region

INDC type	Country	Target	Base year
Carbon intensity	China	60-65% carbon intensity reduction	2005
	Malaysia	45% GHG intensity reduction	2005
	India	33-35% carbon intensity reduction	2005
	South Korea	37%	BAU
	Mongolia	14%	BAU
	Indonesia	29% unconditional, 41% conditional	BAU
	Philippines	70% conditional	BAU
	Thailand	20% unconditional, 25% conditional	BAU
	Viet Nam	8% unconditional, 25% conditional	BAU
	Afghanistan	13.6%	BAU
BAU	Bangladesh	5% unconditional, 15% conditional	BAU
	Iran	4% unconditional, 12% conditional	BAU
	Maldives	10% unconditional, 24% conditional	BAU
	Sri Lanka	7% unconditional, 23% conditional	BAU
	Turkey	21%	BAU
	Georgia	15% unconditional, 25% conditional	BAU
	Kyrgyzstan	11.49-13.75% unconditional	BAU
	Fiji	30% in the energy sector	BAU
	Kiribati	12.8% unconditional, 61.85% conditional	BAU
	Japan	26%	2013
	Singapore	36%	2005
	Cambodia	27%	2010
	Azerbaijan	35%	1990
	Kazakhstan	15% unconditional, 25% conditional	1990
	Russia	25-30%	1990
	Tajikistan	10-20% unconditional, 25-35% conditional	1990
	Absolute reduction	Marshall islands	32%
Micronesia		28% unconditional, 35% conditional	2000
Palau		22% energy sector emissions reduction	2005
Solomon islands		30% unconditional, 45% conditional	2015
Tuvalu		60% emissions reduction	2010
Vanuatu		100% reduction for the power sector, 30% reduction for the energy sector	2012
Australia		26-28%	2005
New Zealand		30%	2005
France, Netherlands, UK		40%	1990
United States		26-28%	2005
Others	Brunei	Sets out 3 sectoral targets	N/A
	Lao PDR	Set outs a number of sectoral measures	N/A

INDC type	Country	Target	Base year
Not submitted	Myanmar	Will present in future INDC revision	N/A
	Bhutan	Remain carbon neutral	N/A
	Nepal	Does not set out any specific target	N/A
	Pakistan	Does not set out any specific target	N/A
	Armenia	Total emissions won't exceed 663MtCO _{2-eq} and 189 tonnes per capita	N/A
	Turkmenistan	Stabilization of emissions by 2030	N/A
	Nauru	Sets a number of measures in the energy sector	N/A
	Papua New Guinea	Carbon neutrality by 2030	N/A
	Samoa	100% renewable energy generation	N/A
	Tonga	Sets out a number of sectoral targets	N/A
	N. Korea	—	—
	Timor Leste	—	—
	Uzbekistan	—	—

Source: INDCs as communicated by Parties

B. Financial needs for implementing INDCs in Asia and the Pacific

There are 8 submission indicating costs or requested support for mitigation, and 13 submission including data on requested support or costs for adaptation. According to the submissions with data, total financial need for mitigation during 2015 to 2030 is USD 39.8 billion and for adaptation is USD 275.3 billion in the Asia and the Pacific region (Table 2).

Table 2. Financial needs indicated in INDC submissions

Sub-region	Country	Financial needs (USD billion)		Population (thousand)
		Mitigation	Adaptation	
East and Northeast Asia	Mongolia	2.8	2.7	2959
Southeast Asia	Cambodia	No data	1.3	15578
	Lao PDR	1.4	1	6802
South and Southwest Asia	Afghanistan	6.6	10.8	32527
	Bangladesh	27	40	160 996
	India	No data	206	1 311 051
	Sri Lanka	No data	0.4	20 715
North and Central Asia	Georgia	No data	0.6	4 000
	Kyrgyzstan	1.2	1.6	5 940
	Turkmenistan	No data	10.5	5 374
The Pacific	Fiji	0.5	No data	892
	Kiribati	No data	0.07	112
	Solomon islands	0.2	0.1	584
	Vanuatu	0.2	0	265
Total		39.8	275.3	—

Source: INDCs as communicated by Parties

If these values are scaled up to the total population in the non-Annex I countries in the ESCAP region, it is estimated that an annual financial need for mitigation is USD 50 billion and for adaptation is USD 47 billion during 2015 to 2030 in the Asia and the Pacific region. More specifically, the sum of population in 2015 in the countries that submitted data on mitigation financial needs is 210,964,000; while the total 2015 population in all non-Annex I countries in this region is 4,005,399,000, representing 19 times larger in scale compared with the population with data on finance. Therefore, scaling up mitigation financial needs with data (USD 39.8 billion) by a ratio of 19 reaches to the total mitigation financial need of USD 756 billion. The annualized financial need for mitigation during 2015 to 2030 hence amounts to USD 50 billion. In a similar way, the annualized financial need for adaptation is USD 47 billion. This estimation implies a need for balancing the provision of financial resources between mitigation and adaptation. These figures also imply that the commitment of USD 100 billion per year worldwide is not sufficient for implementing INDCs in developing countries.

It is worth noting that some countries indicated the total costs of implementing INDCs, while other countries included requested support for their INDCs. The mixed use of the costs and requested support therefore leads to large uncertainties of financial estimates. To take a conservative approach, this paper therefore considers that these figures represent financial needs and does not differentiate between domestic and international financial resources. In other words, if these figures are interpreted as requested support, these estimates are probably close to the upper bound of the real costs of implementing INDCs. In addition, it should be noted that these figures do not take into account national circumstances and priorities and are indicative in nature for the sake of understanding financial scale only. The assumption that financial needs can be scaled-up according to population is simplified and can lead to large uncertainties. Finally, the mix use of data on various years also contributes to the inaccuracy of these estimates.

C. Positions on the use of market mechanisms in Asia and the Pacific

It should be noted that the inclusion of the positions on the use of market mechanism in INDCs was not specifically mentioned in Decision 1/CP. 20 and no reference to market mechanism does not imply that these Parties are not interested in or do not intend to use market mechanisms. The lack of reference to market mechanisms may simply result from the fact that the COP did not mention market mechanisms in its decision.

Among the countries with reference to market mechanisms, 23 countries indicated a positive position on the use of international carbon credits (Table 3). References to market mechanisms were made in various ways, including the continuous use of the Clean Development Mechanism (CDM) to the participation in regional, bilateral, international, and voluntary market schemes. Among the 23 countries, only New Zealand and Japan are developed countries which have the potential to buy credits. The remaining Parties are all in the developing world, including several least-developed countries (LDCs), which consider market mechanisms as a way to receiving funding for mitigation action to meet their unconditional or conditional goals.

Table 3. Positions on the use of market mechanisms

		International carbon credits	Domestic markets
Reference to market mechanisms	Positive position	South Korea, Mongolia, Indonesia, Singapore, Brunei, Cambodia, Lao PDR, Myanmar, Thailand, Viet Nam, Bangladesh, Bhutan, Iran, Nepal, Turkey, Armenia, Kazakhstan, Fiji, Kiribati, Samoa, Solomon Islands, New Zealand, Japan Malaysia, Russia, Marshall Islands, Micronesia, Palau,	China, South Korea, India, France, Netherlands, United Kingdom, Iran
	Negative position	Tuvalu, France, Netherlands, United Kingdom, United States	
No reference to market mechanisms		Philippines, Afghanistan, Maldives, Pakistan, Sri Lanka, Azerbaijan, Georgia, Kyrgyzstan, Tajikistan, Turkmenistan, Nauru, Papua New Guinea, Tonga, Vanuatu, Australia	

Source: INDCs as communicated by Parties

In contrast, 10 Parties explicitly mentioned that they will not consider the use of international market mechanisms in achieving INDC targets. These countries include Annex I countries, such as three member states of the European Union (France, Netherlands, the United Kingdom), the United States, and the Russian Federation, as well as several non-Annex I countries. Interestingly, Malaysia is the only Asian country that is explicit about not using international market mechanisms and the remaining non-Annex I (Marshall Islands, Micronesia, Palau, and Tuvalu) countries are all from the Pacific region.

It is also worth noting that although EU member countries will not buy credits from international carbon markets, they will keep using the EU emission trading system (EU-ETS) to achieve INDC targets. In a similar way, although China did not specify its position on the use of international carbon markets, a nation-wide ETS will be China's key instrument to achieve its 60-65% carbon intensity reduction target. GHG emissions reductions achieved by domestic carbon markets will not be transferred internationally and will count towards the achievement of host countries' own INDCs. In contrast, although India mentioned market mechanisms in its INDC, India's market mechanisms are not carbon markets, but energy efficiency trading schemes.

IV. Enhanced action prior 2020

A. Pledges toward the USD 100 billion commitment

Based on donor countries' information and reports from multilateral development banks (MDBs), it is estimated that climate finance mobilized by developed countries for developing countries reached USD 62 billion in 2014, up from USD 52 billion in 2013, with an average for the two years of USD 57 billion per year in 2013-14 (OECD, 2015). This aggregate figure does not include finance related to coal projects, although Japan

and Australia consider that financing for high efficiency coal plants should be considered as a form of climate finance (OECD, 2015).

More specifically, the average estimate for 2013-14 comprises USD 40.7 billion of public finance (71% of the total), USD 14.7 billion of mobilized private finance (26%), and USD 1.6 billion of finance associated with export credits (3%) (OECD, 2015). Due to data limitation and a partial estimate of private finance, it is not possible to draw general conclusions regarding the overall ability of public finance to mobilize private finance (OECD, 2015).

However, OECD's report received many critics. For example, the Indian Ministry of Finance (2015) considers that OECD's report lacks credible facts, because the report used inconsistent methodologies to assess individual countries' financial flows and there lacked an independent verification process as this report is purely based on self-reported numbers from donor countries' reporting to the UNFCCC. Indeed, the Indian Ministry of Finance (2015) estimates that the actual cross-border climate finance from developed to developing countries is only USD 2.2 billion.

Moreover, the OECD report is criticized for the inclusion of funding for projects where climate change is not the principal objective but one among several objectives (Oxfam, 2015). If only those projects with climate change as the principal objective were counted, it seems that bilateral public finance in 2013 was USD 14.5 billion, indicating an overestimation of USD 8 billion in OECD's report (Oxfam, 2015). In addition, it is hard to accept that OECD included concessional loans and non-concessional financing that requires payback from developing countries, in particular in the case of adaptation (Oxfam, 2015). According to OECD, adaptation finance accounted for 16% of the average aggregate estimate, or USD 9.12 billion annually, in 2013-2014. In contrast, if only grant financing for adaptation was calculated, adaptation finance in 2013 amounted to only USD 1.5 billion, indicating an overestimate of USD 7.62 billion (Oxfam, 2015).

Finally, the inclusion of export credits is weird. Although there is no agreed definition of export credits as an instrument for international climate finance, the definition accepted by donor countries is very simple: When the transaction and projects are in a green sector, such as the renewable energy sector, export credits become climate finance (EKF, 2014). However, a closer examination implies that such definition violates the basic additionality principle of climate finance. According to the additionality principle, projects that would occur in the absence of climate finance should not be counted (ODI, 2011). Export credits do not mobilize additional finance, but simply provide trade financing to domestic companies for their international activities. Therefore, USD 1.6 billion of export credits should not be counted.

Aggregating the overestimates from bilateral public finance, adaptation finance, and export credits shows that OECD's figures were exaggerated by USD 17.22 billion annually in 2013-14. Correcting these overestimates shows that the current level of financial flows from developed to developing countries is at the scale of USD 40 billion, close to the low end of the Standing Committee on Finance's estimation of between USD 40-175 billion each year in 2010-12 (SCF, 2014).

B. Landscape of global and regional climate finance

In 2014, climate finance invested around the world increased from USD 331 billion in 2013 to an estimated USD 391 billion (CPI, 2015). Public finance reached USD 148 billion, up 8% from 2013; and private investment remained the largest source of global climate finance, reaching USD 243 billion—or 62% of total flows captured. Mitigation accounted for 93% of total climate finance in 2014 and 81% of mitigation finance went toward renewable energy. It should be noted that due to serious data limitations at the project level concerning energy efficiency, forestry, and other mitigation activities, private data of these estimates refer to renewable energy investments only. In fact, annual private investments in mitigation activities other than renewable energy are not negligible. For example, private investments in forestry are estimated to be around USD 4.2 billion annually (Falcon et al., 2015) and global investments in energy efficiency are estimated to be in the range of USD 90 to 365 billion (IEA, 2015).

In 2014, East Asia and the Pacific remained the largest destination of climate finance flows, accounting for 31% of the total or USD 119 billion, up by 22% from the 2013 level; and South Asia experienced a 33% increase in climate finance investments from 2013, amounting to USD 17 billion (CPI, 2015). In addition, the East Asia and the Pacific region attracted USD 12 billion, accounting for 46% of total adaptation finance, to address climate change vulnerabilities in 2014.

C. Climate public expenditure of selected countries in Asia and the Pacific

Estimates of climate public expenditure in selected countries (Bangladesh, Cambodia, Indonesia, Nepal, Samoa, Thailand, and Viet Nam) show a large variation in the proportion of public expenditure that are defined as being relevant to climate change (Table 4). The proportion of climate public expenditure in total government expenditure was in a wide range from 0.4% in Indonesia to 18% in Viet Nam. Caution therefore should be taken in making cross-country comparison given the methodological differences adopted by different countries.

Countries used different methodologies and data scope for making the estimates of climate public expenditure. For example, Cambodia and Samoa included donor support in their climate public expenditure, whereas the other countries focused on only domestic expenditure. In addition, some countries relied mostly on budgetary funding for financing climate relevant programs, while other countries used both budgetary and extra-budgetary funding. For example, the Energy Conservation of Thailand is an extra-budgetary fund and has an annual funding scale of USD 226 million, which is equivalent to 0.3% of total budgeted expenditure in Thailand. The exclusion of extra-budgetary funding hence led to a low proportion of climate expenditure in total budget expenditure in Thailand.

Table 4. Climate public expenditure of selected countries in Asia and the Pacific

		Bangladesh	Cambodia	Indonesia	Nepal	Samoa	Thailand	Vietnam
Caveats		37 ministries	All govt' programmes covered and donor support included	Only climate specific finance and realized expenditure	10 ministries and donor support included	All govt' programmes covered and donor support included	14 ministries	5 ministries
	Annual climate finance	Domestic In 2013/2014: BDT 141.6 bn (USD 1.8 bn)	In 2011: IDR 5,526 bn (USD 627mn)	In 2011: IDR 5,526 bn (USD 627mn)	In 2011/12: USD 320 mn	In 2011/2012: USD 45 mn	Average of 2009-2011: BAHT 52.4 billion (USD 1.63 bn)	In 2013: VND 3,800 bn (USD 0.17 bn)
Climate expenditure	Donors	Not included	90% of the total	Not included	55% of the total	100%	Not included	Not included
	as % of total budget as % of GDP	5.3%-7.5%	14.9%-16.9%	0.4%	6.7%	15%	2.7%	18%
Top three programmes of high relevant climate spending		1.17%	0.86-1.29%	0.07%	1.8%	6%	0.53%	0.1%
		Local government division: 22%; Agriculture:20%; Disaster management and relief division: 18%	Public works and transport: 27%; Water resources and meteorology: 13%; Ministry of health: 10%	Forestry: 54%; Agriculture: 15%; Transport: 9%	Local development: 30%; Physical planning and works: 24%; Irrigation: 15%	Land transport authority: 20%; Electricity and petroleum corporation: 17%; MONRE: 15%	Ministry of agriculture: 55%; MONRE: 29%; Ministry of education: 6%	Food/water security: 63%; International cooperation: 11%; Forestry: 7%

Sources: CPI (2014); UNDP (2015a); UNDP (2015b); Viet Nam MPI (2015).

However, the wide range of estimates across countries is unlikely to be attributable to differences in methodologies and data alone. Real differences in national priorities may also influence the scale of climate relevant expenditure. For example, Cambodia considered that road infrastructure has a medium level relevance to climate change and took into account those road building programs that did not show explicit evidence on climate proofing in the design. In contrast, the rest countries considered that investments in road infrastructure have a marginal relevance to climate change and generally did not include road investments in their estimates of climate expenditure.

Moreover, it is observed that the size and distribution of climate relevant expenditure is not seemingly being affected first and foremost by considerations of climate change policies, but rather more generally by the overall composition of the overall government budget (UNDP, 2012). For example, a large proportion of climate public expenditure in Bangladesh and Thailand was channeled to recurrent expenditure, which comprises spending such as social sector wages, pension commitments, public debt payments and security expenditure that are not deemed relevant to climate change. In contrast, the proportion of recurrent expenditure in Cambodia's climate expenditure was much lower, given that Cambodia had a higher level of dependence on externally financed projects.

Finally, economy development leads to a shift away from a reliance on public financing towards a greater role of private finance. In Thailand, for example, large investments in renewable energy or metropolitan public transport networks are made through public-private partnerships and would not be captured in government budget. In Samoa, on the other hand, the government relies upon donor funding to finance renewable energy project. Therefore, the proportion of climate expenditure in Samoa is significantly higher than that in Thailand.

1. Bangladesh

In 2013/2014, the Government of Bangladesh spent BDT 141.6 billion (USD 1.8 billion) on six themes of climate activities. These themes include (1) food security, social protection and health, accounting for 30% of the total; (2) comprehensive disaster management, accounting for 16.1 of the total; (3) infrastructure, accounting for 16% of the total; (4) research and knowledge management, accounting for 7.4% of the total; (5) mitigation and low-carbon development, accounting for 5.1% of the total; and (6) capacity building and institutional strengthening, accounting for 25.4% of the total. On average, Bangladesh's climate expenditure as a percent of the total budget varied from 5.3-5.7%, or about 1-1.4% of GDP, over the period of 2011 to 2014. It should be noted that not all spending was equally dedicated to addressing climate change. Indeed, slightly more than half of the total was not spent on activities that were tagged as strongly or significantly relevant to climate change (Bangladesh, 2014).

Bangladesh mobilizes finance for climate change according to five institutional mechanisms—the budgets for annual development programmes (ADP budget), non-development budgets, the Bangladesh Climate Change Trust Fund (BCCTF), the Bangladesh Climate Change Resilience Fund (BCCRF), and the Strategic Programme for Climate Resilience (SPCR). Among the five mechanisms, the first three are supported by state budgets and the latter two are based on donor funding.

The Government of Bangladesh has invested over USD 10 billion (at 2007 constant prices) to make the country more climate resilient and less vulnerable to natural disasters (Bangladesh, 2015). Bangladesh has established two innovative funds: the Bangladesh Climate Change Trust Fund (BCCTF) from the Government's own budget and the Bangladesh Climate Change Resilience Fund (BCCRF) with support from international development partners.

As of June 2015, the BCCTF has funded over 236 projects, of which 41 have been implemented (Bangladesh, 2015). These projects include construction of embankments and river bank protective works; building cyclone resilient houses, excavation and re-excavation of canals; construction of water control infrastructure including regulators and sluice gates; waste management and drainage infrastructure; stress tolerant crop varieties and seeds; afforestation; and installation of solar panels. The BCCRF, established in 2010 with support from Denmark, the EU, the United Kingdom, Switzerland, Australia and the United States, is enabling the Government of Bangladesh to channel in over USD 188 million grant funds. The BCCRF disbursed USD 32.7 million to five projects and completed analytical and advisory activities of five approved projects by the end of December, 2014.

2. Cambodia

Cambodia's climate expenditure included both domestic funding and donor support. The proportion of public expenditure in climate related activities grew from 14.9% in 2009 to 16.9% in 2011. The total climate expenditure in 2011 amounted to KHR 7000 billion (equivalent to USD 1.7 billion). The largest share, or 33%, of climate expenditure was used for building rural roads. The vast majority of climate expenditure came from donor countries, with domestic funding accounting for only 10% in 2011.

Cambodia has made explicit efforts in mainstreaming climate change into national and sub-national planning. For example, Cambodia has developed and implemented the Climate Change Strategic Plan 2014-2023 (CCCSP), and associated action plans developed by each relevant ministry. These plans are Cambodia's first ever comprehensive national policy documents that illustrate not only the country's prioritized adaptation needs, but also provide roadmaps for the decarbonization of key economic sectors and the enhancement of carbon sinks (Kingdom of Cambodia, 2015). Cambodia has also developed a Green Growth Policy and Roadmap and set pathways to stimulating the economy through low carbon options, savings and creating jobs, protecting vulnerable groups, and improving environmental sustainability.

Cambodia has made progress in integrating climate change in budgeting through the development of a climate change financing framework (Kingdom of Cambodia, 2015). In addition, Cambodia has produced regular climate public expenditure reviews and has improved tracking of climate finance in the ODA database. The Cambodian government is undertaking ongoing work in priority sectors to strengthen climate related budget submissions and in integrating climate change in their monitoring and evaluation systems. Climate finance modules are also being integrated in the public financial management training courses provided for government officials (Kingdom of Cambodia, 2015).

3. Indonesia

Indonesia's landscape includes only climate specific finance and excludes a broader set of climate relevant capital flows that may reduce emissions but may also contribute to emissions growth. It should be noted that the snapshot of Indonesia's landscape in 2011 used realized expenditure data; in contrast, the magnitude of Bangladesh's domestic public climate finance in 2013/2014 was based on budgeted expenditure as actual expenditure was not available at the time of study.

In 2011, the Government of Indonesia disbursed at least IDR 5,526 billion (USD 627 million) on climate change. Almost three quarters of the total were used to support indirect activities, including policy development, research and development, establishment of measuring, reporting and verification systems, and other enabling environments. It should be highlighted that the high proportion of indirect activities was expected in this period as national policy frameworks were established, but could be expected to reduce in the medium term (CPI, 2014). The forestry sector (IDR 2,786 bn/USD 317 mn) received more than half of the total, mainly spent on two indirect activities—Planning, Implementation, Institutional Development and Evaluation of Watershed; and Development and Management of National Parks. Direct actions accounted for 27% of the total and targeted several key sectors, including transport, waste and waste-water, agriculture and livestock management, and energy. Notably, while state budget for indirect activities in the forestry sector was high, expenditure for direct activities in the forestry sector was modest. Overall, Indonesia's state budget for climate expenditure accounted for a much smaller proportion as compared to total budget (0.4%), or GDP (0.07%), in contrast with other countries.

In addition, the Indonesia Climate Change Trust Fund (ICCTF), a financial instrument that is government led but does not feature in the state budget, receives non-refundable contributions from bilateral and multilateral donors. The total fund capitalization of ICCTF was USD 11 million, indicating that the amount of funding available to and disbursements from the ICCTF was modest. The ICCTF has three prioritized financing windows—land-based mitigation, energy, and adaptation and resilience—and has supported 13 projects. The ICCTF is currently in the process of transitioning to a national trustee. UNDP acted as an interim trustee until 2013/2014 and this responsibility has been transferred to Bank Mandiri, a state-owned bank, to enable the ICCTF to become a nationally managed trust fund. The ICCTF is an accredited National Implementing Entity (NIE) to the Adaptation Fund and may be pursuing a similar status for direct access to the Green Climate Fund.

4. Nepal

Annual expenditure on all climate related activities in Nepal constituted approximately 2% of GDP, or USD 320 million in 2010/11, and around 6% of total government expenditure. Highly climate relevant budgeted expenditure represented around 30% of all Nepal's climate related expenditure. Around three quarters of climate expenditure in Nepal related to adaptation activities and around 60% of climate expenditure was executed directly by central government agencies, with 40% of nationally controlled budget being executed through local agencies of ministries. Local spending was largely driven by unconditional capital grants and programmes in the Ministry of Local Government.

A large portion (55%) of Nepal's climate public expenditure came from donors, which is higher than the donor proportion in overall government expenditure (25%). The trend of Nepal's climate expenditure is moving towards increased donor funding (Government of Nepal, 2011). It should be noted that a significant sum of technical assistance, in the order of USD 13 million per year, was not included in the current estimate because this amount was not budgeted. Moreover, the lack of a common reporting or monitoring system across central government, local governments and donors makes it challenging to identify the actual amount of climate finance in the country. The significant amount of external funding also calls for the establishment of a long term financing framework.

5. Samoa

Samoa has relied heavily on external assistance to fund its climate related projects and programmes. The current level of external support is about USD 45 million, one third of which has mid-high relevance to climate change and two thirds have a low relevance to climate change. The climate expenditure accounted for 15% of public expenditure and 6% of GDP in Samoa.

Over the past five years, the largest two programmes—the water sector support programme and the power sector expansion programme—accounted for half of climate relevant expenditure. Adaptation accounted for approximately 80% of total climate expenditure in 2007/2008, and has dropped to 70% in recent years.

Samoa is committed to reducing GHG emissions from the electricity sub-sector through the adoption of a 100% renewable energy target for electricity generation through 2025. This commitment is conditional on reaching the 100% renewable electricity generation target in 2017 and receiving international assistance to maintain this contribution through to 2025. Substantial progress has been made in achieving the target set out for the electricity sector through investment in renewable energy projects, energy efficiency programs and policy reforms. However, international support is necessary to ensure the 2025 target is to be achieved (Samoa, 2015).

6. Thailand

Thailand classified national budget expenditure for 2009, 2010, and 2011 according to whether the purpose of the expenditure was related to climate change based on four thematic areas—mitigation, adaptation, capacity building, and technology transfer. Subsequently, all relevant expenditure line items were ranked according to climate relevance. The analysis shows that around 20% of budget expenditure was allocated to highly relevant climate change activities, whilst around 60% of the expenditure was had a medium level of relevance to climate change (Thailand, 2012).

Over the period of 2009 to 2011, Thailand spent an annual average of BAHT 52.4 billion (USD 1.63 billion) on climate related activities, representing 0.5% of GDP and 2.7% of the government budget (Thailand, 2012). The Ministry of Agriculture and Cooperatives and the Ministry of Natural Resources and Environment (MoNRE) were the two key ministries in terms of climate budget allocations and accounted for 55% and 29% respectively of the total climate budget during this period.

In terms of climate change activities, the top 10 activities accounted for 63% of the total budget allocated, including activities undertaken by three major agencies—the Royal Irrigation Department, the National Parks, and Wildlife and Plant Conservation Department. Specifically, water management activities—including water distribution; water storage and irrigated; and water resource conservation, development—accounted for more than 40% of the climate budget allocated in the period reviewed. In general, adaptation accounted for 68% of the total budget allocated, mitigation represented 21% of the total, capacity building was allocated for 9% of the total, and technology transfer accounted for 2% of the total.

Thailand has not established a national climate fund. Currently, the Energy Conservation Promotion (ENCON) Fund is the most significant extra-budgetary source for supporting mitigation actions. ENCON’s annual revenue is approximately BAHT 7 billion, sourced from levies on petroleum products. The ENCON includes a revolving fund that provides soft loans, with a maximum interest rate of 4% for a loan period of up to seven years. In addition, an energy service company (ESCO) fund that targets SMEs and small projects provide a range of financial services to energy efficiency and renewable energy projects, including equity investment and venture capital, equipment leasing, a carbon credit facility, a credit guarantee facility, and technical assistance.

7. Viet Nam

Viet Nam’s climate change response (CC-response) allocations consist of investment projects that have climate resilience co-benefits and the majority of these projects only have indirect adaptation and mitigation benefits. Specifically, only 34% of CC-response projects (and 20% of CC-response allocations) could be classified as having “high CC-relevance” or “complete CC-relevance” and 58% of CC-response projects (or 42% of the annual CC-response allocations) were characterized as having low or marginal relevance to climate change (Viet Nam MPI, 2015).

The share of CC-response spending from the total budgets of the five line ministries in Viet Nam is significant (18%) and has remained fairly constant from 2010 to 2013, while the total amount of the studied allocations has decreased by 11% in real terms during the same period of time due to the tightening of public investments and an enhanced focus on priority projects to raise the effectiveness of public investments. CC-response spending budgeted during this time period from the five line ministries is equal to around 0.1% of Viet Nam’s GDP. CC-response spending is primarily focused on adaptation (accounting for 88% of CC-response spending), but a growing amount of financing is being directed towards mitigation. The share of tasks directed towards mitigation increased from 2.6% to 3.9% in 2013 and about 10% of CC-response allocations have dual benefits of both mitigation and adaptation.

Although Viet Nam has not established a national climate fund, it has several climate-related funds. To support the implementation of GGS and its Action Plan, a Green Growth Facility (GGS Facility) was established in January 2014. While the GGS Facility will be involved in the mobilization, allocation and administration of funds, the primary basis for its establishment is the effective coordination and management by MPI of existing and new programming in green growth. The GGS Facility has already received EUR 5.5 million including Belgian contribution of EUR 5.0 million and contribution

from the national budget of EUR 0.5 million. According to MPI, to implement Green Growth Strategy, about USD 30 billion will be needed by 2020 of which 70% would come from non-public sources. Demand for green finance in the cement sector is estimated at USD 725 million.

D. Best practice in tracking climate finance

1. Climate fiscal and financing frameworks

Bangladesh developed a full-fledged Climate Fiscal Framework (CFF) in 2014 to improve the management of financial resources and link them to the national budget process. Bangladesh's CFF provides guidelines for estimating long term financing needs to address climate change and elaborate the role of the Government of Bangladesh towards managing climate finance. The Climate Fiscal Framework proposes a climate expenditure tracking framework (CETF) as a parallel module attached to the budget system to facilitate the tracking of climate expenditure. The CETF would be applied to all line ministries' budget submissions and also tag on-budget ODA (Ministry of Finance, Bangladesh, 2014). On-budget ODA would then be tracked in the same way as domestic expenditure, including the weight of climate relevance and the relevance to BCCSAP thematic priorities (Ministry of Finance, Bangladesh, 2014).

Cambodia developed a Climate Change Financing Framework (CCFF) in 2015 to facilitate the implementation of National Strategic Development Plan 2014-2018. The CCFF identifies current sources of climate finance and potential trends over the next five to ten years, and uses these estimates to propose a realistic costing of climate change response (National Council for Sustainable Development, Cambodia, 2015). The CCFF provides a first estimate of the impacts of climate change on Cambodia's economy and analyses how climate smart investments can help reduce the negative impacts of climate change. The CCFF also provides guidance on next steps to improve the mobilization and management of climate finance, from both domestic and international sources.

2. Climate budget tagging

Countries in the Asia and the Pacific region have institutionalized expenditure analysis and have tracked their "on-budget" climate finance by introducing tagging systems within their budgeting and/or accounting systems. Generally, a climate budget tagging (CBT) system consists of four components, including defining climate activities, classifying climate expenditure, weighing climate relevance, and designing the tagging procedure (UNDP, 2015b).

The Philippines mandated CBT in national budget submissions for all government entities in FY 2015 and has pilot climate tagging in Annual Investment Plan for local government units (LGU) before upscaling to all LGUs in FY 2016. In Indonesia, the mitigation budget tagging (Low Emission Budget Tagging and Scoring System—LESS) has been introduced in key ministries to track resources spent to achieve the national emission reduction target of 26% by 2020. In 2014, the LESS was also implemented in three central provinces in Indonesia to pilot mitigation and expenditure tagging at the local level. In addition, Nepal has incorporated CBT to the budget system, at programme level, and classified expenditure by the level of climate relevance since 2012. The CBT

has generated more comprehensive data on climate spending and has enabled the Nepal government to achieve the target of allocating at least 80% of total budget to local levels (UNDP, 2015b).

3. Integrating climate change impact assessment into the budgeting process

Thailand began implementing the program—Strengthening Thailand’s Capacity to Link Climate Policy and Public Finance—in 2013. The program, led by Office of Natural Resources and Environmental Policy and Planning (ONEP) with the other three key agencies, namely the National Economic and Social Development Board (NESDB), the Fiscal Policy Office (FPO), and the Bureau of Budget (BoB), supports Thailand in integrating climate change impacts into the budgeting process and hence enables it to allocate and use its public finance more effectively and efficiently to achieve national objectives on climate change and green growth. Considering that the Ministry of Agriculture and Cooperatives (MoAC) received more than half of climate relevant budget allocations in Thailand, a pilot study—the MoAC Climate Change Planning and Budgeting Pilot Analysis—was carried out in 2014. The pilot analysis improves the effectiveness of MoAC expenditure to include consideration of climate change implications and allows MoAC to make stronger proposals to the BoB. The pilot study also showcases how the existing Strategic Performance Based Budgeting system can be used to improve Thailand’s climate actions and will assist other line ministries in improving climate change planning and budgeting.

In a similar way, given the importance of agriculture and natural resources management in Cambodia, the Ministry of Agriculture, Forestry and Fisheries (MAFF) of Cambodia has developed a five-year Climate Change Strategy and Action Plan (2014-2018) and put in place a dedicated Working Group on Climate Change to coordinate its response. The ongoing efforts aim to improve the efficiency and effectiveness of climate public expenditure under MAFF and to support the mobilization of corresponding resources through the strengthening of MAFF capacities and skills. The climate change dimension has been considered explicitly in MAFF’s budget planning process.

E. Best practice in mobilizing climate finance

1. Green banking frameworks and policies

The engagement of the financial sector is critical for scaling up climate finance. Policies and instruments that match the supply and demand side of finance should be aligned with climate objectives and enable the paradigm shift towards low-carbon and climate-resilient development. In the Asia and the Pacific region, Bangladesh, China, Indonesia, and Viet Nam established green banking regulations that require banks and financial organizations to mandatorily apply green credit risk management and reporting requirements in their businesses (Table 5). In contrast, India took a corporate-social-responsibility (CSR) approach and requested banks to rely on voluntary codes of conduct as they concern the integration of sustainability issues into their businesses. In a similar way, Japan and Mongolia did not take a regulative approach, but issued voluntary sustainable banking principles.

In addition, the Republic of Korea issued a Framework Act on Low Carbon Green

Growth in 2009, including sustainable production and consumption, green businesses, sustainable infrastructure, and fiscal incentives, although the role of banking or industry regulation is little mentioned in the Framework. The key priorities identified in the Framework show that the role of tax incentives, green bonds and savings, investment from pension schemes, and incentives for energy efficiency and renewable energy investments are key strategies for green growth in the Republic of Korea.

2. Carbon pricing

Placing an adequate price on GHG emissions—through an emissions reduction scheme (ETS) or carbon tax—helps mobilize the financial investments to support climate actions and can increase the involvement of the private sector and the cost-effectiveness of their actions. Currently, about 40 national jurisdictions and over 20 cities, states, and regions—representing almost a quarter of global GHG emissions—are putting a price on carbon. See Box 1 for the differences between ETS and carbon tax

Box 1 Differences between ETS and carbon tax

Although both ETS and carbon tax place a price on carbon, these two instruments differ significantly. One of the key differences is the level uncertainty associated with the carbon price and emission reductions that will be achieved. A carbon tax provides price certainty; however, it is not certain whether carbon tax will realize emissions reduction, as a tax in general is not directly related to an emission reduction target. On the other hand, an ETS will surely deliver emissions reductions, but cannot provide a price certainty since the price signal given by an ETS arises from a restriction on the quantity of emission allowances and economic cycles. ETS and carbon tax also differ in administrative complexity. Carbon tax is generally easier to implement as it can build on existing taxation infrastructure, for example, through the expansion of an energy taxation policy. The implementation of EST is more complicated because it requires the creation and allocation of emission allowances and the establishment of a market for trading.

Often, the choice of instrument is not only motivated by the characteristics of these instruments, but also by specific national circumstance. For example, the EU used an ETS rather than a carbon tax partly because the EU legislative remit does not cover fiscal policies such as carbon taxation. Certainly, ETS and carbon tax can also be deployed together. For example, carbon taxes in France, Ireland, Portugal and Sweden are applicable to selected, non-EU ETS sectors.

Source: World Bank (2015)

In the ESCAP region, China, the Republic of Korea, New Zealand, Kazakhstan, the United States, and three member states of the EU (France, Netherlands, and the United Kingdom) are the countries that have implemented national or sub-national ETS; Japan, France, and the United Kingdom have implemented carbon tax; and Thailand has implemented a voluntary carbon market.

Table 5 Overview of green banking frameworks in the Asia and the Pacific region

Country	Date	Policy framework	Type	Scope	Targeted constituency	Responsibility for implementation
Bangladesh	2011	Policy Guidelines for Green Banking	Mandatory regulation	Environmental and social risk (ESR) management	Banks and financial organizations under the Financial Institutions Act	BB established the Green Banking and CSR Department as the supervision department.
Indonesia	2014	Green Banking Regulations	Mandatory regulation	TBD	All Indonesian banks	OJK
Indonesia	2014	the Roadmap for Sustainable Finance (2015-2019)	TBD	TBD	Banks and non-bank financial institutions	OJK
Viet Nam	2015	On Promoting Green Credit Growth and Environmental-Social Risks Management in Credit Granting Activity (03/CT-NHNN)	Mandatory regulation	ESR management	Units under the State Bank of Viet Nam and commercial banks, finance companies, financial leasing companies, cooperative banks, and foreign bank branches	State Bank of Viet Nam
China	2007	Green Credit Policy	Mandatory regulation	<ul style="list-style-type: none"> • ESR management; 	Banks and non-bank financial institutions	Statistics and Research Department of the China Banking Regulatory Commission
China	2012	Green Credit Guideline	Mandatory regulation	<ul style="list-style-type: none"> • Internal management and management structure; • Information disclosure 		
India	2007	Corporate Social Responsibility, Sustainable Development and Non-financial Reporting	Non-mandatory	<ul style="list-style-type: none"> • Triple bottom-line reporting • Resource management • Corporate social responsibility 	Commercial banks	N/A
India	2014	Companies Act 2013 (amendment to Companies Act 1956)	Mandatory regulation	Investments in CSR activities (including environmental sustainability)	All large Indian corporations	Ministry of Corporate Affairs
Japan	2011	Principle for Financial Action	Voluntary guidelines	<ul style="list-style-type: none"> • ESR; • Supporting SMEs, society's environmental performance and disaster readiness 	All Japanese financial institutions	N/A
Mongolia	2014	Sustainable Banking Principles	Voluntary	TBD	Mongolian Banking Association and 14 leading commercial banks	N/A

Source: UNEP Finance Initiative (2014).

The Republic Korea launched its ETS on January 1, 2015, which covers 23 subsectors, including steel, cement, petro-chemicals, refinery, power, building, waste, and aviation. In the first phase (2015-2017), no auctioning is foreseen and all allowances will be given out free of charge based on the average 2011-2013 GHG emissions of participating entities as well as the national GHG reduction target. Companies can also use CDM CERs for up to 10 percent of their compliance obligation.

The seven pilot ETSs in China combined form the largest national carbon pricing initiative in the world in terms of volume, putting a cap on 1.3 GtCO₂ (World Bank, 2015). At the national level, a nationwide ETS may be launched by the end of 2016 and fully implemented in 2019. The national ETS should cover power generation, metallurgy and non-ferrous metals, building materials, chemicals, and aviation.

In Kazakhstan, full enforcement of regulations and trading started in 2014, with a low trade volume of 35 transactions totalling 1.3 MtCO₂e. Although the pilot phase of the Kazakhstan ETS completed in 2013, the ETS is still facing challenges with the MRV of GHG emissions, in particular verification.

Japan is the only country in Asia and the Pacific that has placed carbon tax. Since 2012, Japan's tax for Climate Change Mitigation has covered the use of all fossil fuels such as oil, natural gas, and coal, depending on their CO₂ emissions. By using a CO₂ emission factor for each sector, the tax rate per unit quantity is set so that each tax burden is equal to USD 2/tCO₂.

3. Green bonds

Green bonds are any type of bond instruments where the proceeds will be exclusively applied to finance or re-finance in part or in full new and/or existing eligible green projects and which follows the four Green Bond Principles (ICMA, 2015). Green projects are defined as project and activities that will promote progress on environmentally sustainable activities as defined by the issuer and in line with the issuer's project process for evaluation and selection. The management of green bond proceeds should be traceable within the issuing organization and issuers should report at least annually on the use of proceeds.

The development of the green bond market across Asia has been fragmented; however, the sign of strong development has been showed since 2014. While Asia accounted for only 1% of global green bond volumes in 2014, Asian issuers accounted for 11% of global volumes in 2015 (Darcy et al., 2015). Table 6 summarizes the green bonds that have been issued in Asia, with a total volume of USD 3.7 billion.

Table 6. Green bond issuances in Asia

Country	Company	Volume	Purpose	Year
Korea	Export-Import Bank of Korea	USD 500 mn	Promote the transition to low carbon and climate resilient growth	2013
	Advanced Semiconductor Engineering	USD 300 mn	Position itself as a low-carbon, climate-friendly company	2013
Japan	Development Bank of Japan	EUR 250 mn (USD 315 mn)	Green buildings	2014
	Yet Bank	INR 10 bn (USD 161mn)	Renewable energy	2015
India	Export-Import Bank of India	USD 500 mn	Renewable energy and transport in Bangladesh and Sri Lanka	2015
	CLP Wind Farms	INR 2 bn (USD 32 mn)	Capex and refinancing wind power assets	2015
Regional	Asian Development Bank	USD 500 mn	Fund ADB projects that promote low-carbon and climate-resilient economic growth and development in developing Asia	2015
	Xinjiang Goldwind Science and Technology	USD 300 mn	Capex and refinancing wind projects	2015
China	Agricultural Bank of China	USD 1 bn	Environmental protection, energy conservation, GHG reductions and specified eligible green projects	2015
Thailand	Bangchak Petroleum Public Company Limited	BAHT 3 bn (USD 80 mn)	Expand renewable energy operations	2015

Source: Darcy et al. (2015)

The investment needs for sustainable development across the Asia and the Pacific region are vast and market participants have seen green bonds as a significant source of future funding. However, given that green bonds and normal bonds do not have noticeable price differences, some issuers do not see the benefit in incurring additional costs for verification and reporting. On the other hand, potential investors have concerned about transparency and corporate governance with Asian issuers, as some of the green bonds issued to date lack transparency and third-party assurance opinion. The continual development of green bonds therefore will largely depend on clearer standards for verification and independent review from experts.

4. Sustainability reporting at stock exchanges

The Stock Exchange of Thailand (SET) announced the list of 51 stocks—so called Thai sustainable investment—that have passed the criteria specified by economic, social and environment indicators in 2015. The list of companies with outstanding corporate sustainable development practices will be available to the public to be used as an investment for investors who want to invest in quality securities with sustainable business practices as well as those that can create positive impact on society and environment (SET, 2015). The sustainability assessment of stocks is based on the data provided to SET by listed companies voluntarily. Such data involve the policy, vision and participation in promoting sustainability of the organization, including the company's performance on environmental, social and governance aspects during the year (SET, 2015).

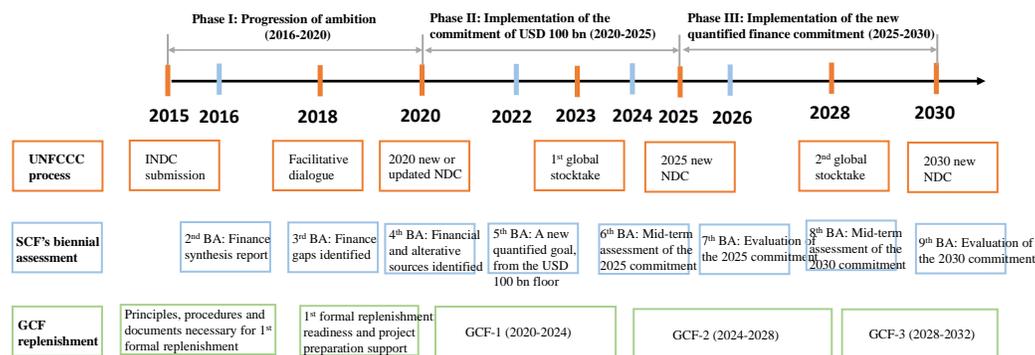
The Taiwan stock exchange announced that specified listed companies will have to comply with mandatory CSR reporting annually from 2015 and adhere to Global Reporting Initiative G4 principles (Eco-business, 2015). Meanwhile, the Singapore Exchange (SGX) targets to implement mandatory sustainability reporting on a compliance or explanation basis from 2017. Under this regime, companies that do not follow SGX's guidelines will be expected to explain why.

V. Way forward

A. Timeline for implementing climate finance commitments

The Paris Agreement establishes an ongoing, regular process to increase action by all countries. Under the UNFCCC process, a facilitative dialogue will take place in 2018 and Parties are required to submit a new or updated NDC in 2020. Subsequently, the first global stocktake will take place in 2023 and Parties are requested to submit a new NDC in 2025. A similar procedure will replicate in the period of 2026 to 2030. To match with the ambition mechanism in the Paris Agreement, we therefore propose the following three-phase timeline for implementing climate finance commitments, with a special focus on the role of SCF, the UNFCCC entity that assists the COP in relation to the Financial Mechanism of the Convention, as well as the Green Climate Fund (GCF), one of the operating entities of the Financial Mechanism of the Convention (Figure 3).

Figure 3. Timeline for implementing climate finance commitments



Source: Adapted from Tamura and Yu (2015).

Phase I (2016-2020): Progress of ambition

2016: The SCF, in its second BA, should develop a finance synthesis report, in a similar way that the UNFCCC Secretariat prepared the INDC synthesis report, and link the finance synthesis report with the INDC synthesis report to provide an analytical backing of the financial needs for implementing INDCs communicated by all developing countries.

Developed countries should communicate their strategies and roadmap to meet the USD 100 billion commitment in their Biennial Reports (BRs) and developing countries should communicate their strategies to scale up domestic climate finance in their Biennial Update Reports (BURs).

Meanwhile, the GCF should expedite the process of making decisions on policies, procedures and documents necessary for the first formal replenishment process. The GCF is ready to provide USD 15 million for immediate programming of readiness support and has approved a Project Preparation Fund, which allows the allocation of 10% of the total project cost for project preparation and has a cap of USD 1.5 million per project. The GCF has received 37 funding proposals, totalling USD 1.5 billion, and 8 proposals has been submitted to the GCF Board, totalling USD 168 million.

2018: The third BA of the SCF should provide the foundation for the facilitative dialogue and identify relevant opportunities to enhance the provision of financial resources, including for technology development and transfer and capacity building support.

Based on SCF's BAs, developed countries should communicate their intended financial contributions for a new quantitative financial commitment from the floor of USD 100 billion as well as their intended distribution channels in their Biennial BRs. Developing countries should communicate the amount of international support needed by 2025 and 2030 in their BURs.

The GCF should trigger its first replenishment process and start the implementation of projects and programmes.

2020: The SCF, in its fourth BA, should investigate the alternative financial sources that can bridge the finance gaps, if these finance gaps continue to exist after developed countries increase their contribution level and developing countries enhance their domestic finance strategies.

Developed countries should communicate their plans for funding disbursement for 2020-2025 in their BRs and developing countries should identify priority sectors, develop project pipelines, and communicate their investment plans in their BURs.

The GCF should formally implement programmes, activities and actions during the GCF-1 period.

Phase II (2021-2025): Implementation of the commitment of USD 100 billion

2022: The SCF, in its fifth BA, should provide the foundation for the negotiation of a new quantified financial goal, from the floor of USD 100 billion.

Developed countries should update the progress towards the implementation of the USD 100 billion commitment and developing countries should communicate the receipt and use of finance.

2023: A new quantified financial goal from the floor of USD 100 billion should be negotiated at the first global stocktake to be held in 2023.

2024: The SCF, in its sixth BA, should provide a mid-term assessment of the implementation of the USD 100 billion commitment. Developed countries and developing countries should keep updating the progress towards the USD 100 billion goal.

Phase III (2026-2030): Implementation of the new quantified financial goal

2026: The SCF should undertake its seventh BA, taking into consideration of inputs from the ex-post assessment of 2020-2025 NDCs and assess the implementation and effectiveness of the delivery of the USD 100 billion commitment.

Developed countries should report their delivery of the USD 100 billion commitment and finalize their 2030 contributions. Developing countries should report finance received, the use of finance, and domestic climate finance during 2020-2025.

2028: The SCF, its eighth BA, should provide an overview of finance flows and give a preliminary assessment of resulting impacts and outcomes.

Developed countries should update the progress towards the implementation of the new quantified financial goal and developing countries should communicate the receipt and use of finance.

2030: The SCF, in its ninth BA, should assess the implementation and effectiveness of the new quantified goal.

Developed countries should report their delivery of the new quantified financial goal and developing countries should report finance received, the use of finance, and domestic climate finance during 2025-2030.

B. Challenges ahead

The Paris Agreement sends a clear signal to make all financial flows consistent with a pathway towards low-carbon, climate-resilient development and to shift investments away from activities that are incompatible with achieving the temperature goals. Governments also agreed to set a new collective finance goal from the floor of USD 100 billion prior to 2025. Although the Paris Agreement makes significant progress, lots of work remains. In particular, all countries will need to work together to support developing countries to determine the finance needs for implementing INDCs and to ensure funds are used effectively. Developed countries are urged to provide a concrete roadmap for scaling up climate finance and ensure that the level of climate finance delivered to developing countries is aligned with mitigation ambition of developing countries. Finally, countries need to agree on information to be included in tracking the progress on announced pledges and developing clearer accounting processes.

About Economic and Social Commission for Asia and the Pacific (ESCAP)

ESCAP is the regional development arm of the United Nations and serves as the main economic and social development centre for the United Nations in Asia and the Pacific. Its mandate is to foster cooperation between its 53 members and 9 associate members. ESCAP provides the strategic link between global and country-level programmes and issues. It supports Government of countries in the region in consolidation regional positions and advocates regional approaches to meeting the region's unique socio-economic challenges in a globalizing world. The ESCAP office is located in Bangkok, Thailand.

WWW.UNESCAP.ORG

TWITTER.COM/UNESCAP

FACEBOOK.COM/UNESCAP

YOUTUBE.COM/UNESCAP