CLIMATE CHANGE OPERATIONAL FRAMEWORK 2017–2030

Enhanced Actions for Low Greenhouse Gas Emissions and Climate-Resilient Development

ASIAN DEVELOPMENT BANK

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ABBREVIATIONS

ADB	–	Asian Development Bank
ANR	–	agriculture and natural resources
BAU	–	business-as-usual
BPMSD	–	Budget, Personnel and Management Systems Department
CCDRM	–	Climate Change and Disaster Risk Management
CCOF2030	–	Climate Change Operational Framework 2017–2030
CIF	–	Climate Investment Fund
CO_2	–	carbon dioxide
COP21	–	21st Conference of the Parties to the United Nations Framework Convention on Climate Change
CPS	–	country partnership strategy
DMC	–	developing member country
DRM	–	disaster risk management
ETS	–	emissions trading system
GCF	–	Green Climate Fund
GDP	–	gross domestic product
GEF	–	Global Environment Facility
GHG	–	greenhouse gas
ICT	–	information and communication technology
INDC	–	intended nationally determined contribution
MDB	–	multilateral development bank
MRV	–	monitoring, reporting, and verification
NDC	–	nationally determined contribution
ODA	–	official development assistance
PPP	–	public–private partnership
PSOD	–	Private Sector Operations Department
PRC	–	People's Republic of China
RPG	–	regional public good
SDCC	–	Sustainable Development and Climate Change Department
SDCD	–	Climate Change and Disaster Risk Management Division, SDCC
SDG	–	Sustainable Development Goal
SPD	–	Strategy, Policy and Review Department
TA	–	technical assistance
tCO_2e	–	ton of carbon dioxide equivalent
TVET	–	technical and vocational education and training

EXECUTIVE SUMMARY

Background and Context

Climate change is already imposing significant costs in Asia and the Pacific—costs that will increase over the coming years, and that translate directly into adaptation needs. The Asia and Pacific region has the largest number of climate-vulnerable people worldwide, women being among the most vulnerable. The region already experiences average daily losses of $200 million per day as a consequence of disasters, and climate change is increasingly contributing to rising losses. Expected future climate change impact threatens recent development gains and progress toward the Sustainable Development Goals (SDGs). Noteworthy steps have been taken to adapt to climate change, but significant challenges demanding an urgent response lie ahead.

The region is a major and growing source of greenhouse gas (GHG) emissions. Future climate change will be less severe only if such emissions are reduced. Because of rapid urbanization and economic and industrial growth, more energy is consumed and GHG emissions are rising. However, since much of the needed infrastructure in the region is yet to be built, low GHG emissions and climate-resilient development still presents a great opportunity.

Most developing member countries (DMCs) of the Asian Development Bank (ADB) have ratified the Paris Agreement to hold the increase in the global average temperature to less than 2°C above pre-industrial levels, while aspiring to limit warming to 1.5°C. ADB will support its DMCs in meeting their commitments under the Paris Agreement and in increasing their levels of ambition over time.

Many countries have already embarked on a low GHG emissions and climate-resilient development path. Many DMCs are engaging in climate mitigation and adaptation interventions in line with their national climate plans and strategies, and most have outlined their post-2020 nationally determined contributions (NDCs) under the Paris Agreement. Some recent revisions in investment approaches, notably the significant acceleration into investment in renewable energy, underscore the fact that positive change is already happening, but not yet at the required scale or pace. However, most mitigation targets set in the DMCs' NDCs generally depend, at least in part, on external financial and technical support for their achievement.

ADB Agenda for Low Greenhouse Gas Emissions and Climate-Resilient Development

ADB is developing Strategy 2030, a corporate strategy for the period up to 2030. Strategy 2030 will position ADB to meet the emerging needs of its diverse DMC clientele by (i) eliminating poverty, (ii) promoting prosperity, (iii) deepening inclusion, (iv) strengthening sustainability, and (v) building resilience. Given the central role of integrated climate change action in achieving both the SDGs and Strategy 2030 objectives, ADB has identified the need for **a Climate Change Operational Framework 2017–2030 (CCOF2030).**

The CCOF2030 is intended to provide broad direction and guidance for enhancing resilience and strengthening climate actions in ADB's operations and business processes, including its country partnership strategies, country operations business plans, sector and thematic strategies, DMC programs and projects, technical assistance, and knowledge support; in accordance with the goal to deliver stronger, better, and faster support to its DMCs as "One ADB."

The CCOF2030 positions ADB to facilitate, collaboratively and proactively, a regional shift toward a low GHG emissions and climate-resilient development path. The ultimate intent is to support this transition, in line with the Paris Agreement, by making finance flows consistent with a pathway toward low GHG emissions and climate-resilient development. The CCOF2030 also recognizes and supports the heterogeneity of DMCs and their

national climate and development aspirations. In particular, ADB acknowledges their different starting points and their varying levels of capacity for implementation, and will tailor its support to reflect those distinctions.

The CCOF2030 outlines areas where ADB's own capacity for public and private sector lending, knowledge, and experience can best be leveraged to support climate-smart actions and where it provides scope for significant mobilization of external financial resources. The estimated costs of mitigation and adaptation exceed the funding capacity of the public sector, in view of the many demands on its resources, making private sector financing crucial.

The CCOF2030 provides guidance across all ADB sector and thematic groups, with varying degrees of emphasis on mitigation and adaptation. Multisector approaches, incorporating disaster risk management, are also promoted, as are social, gender, and environmental benefits.

The CCOF2030 supports climate adaptation actions, primarily in the water, agriculture and natural resources, urban development, and social development sectors. ADB already integrates climate change risk screening into project design, and will build on and intensify this effort by looking at climate change and disaster risk from programmatic, country, and regional perspectives. This augmented approach will help strengthen resilience by encouraging broader solutions, both in spatial terms and along crosscutting themes to improve sectoral coordination and reduce costs. The approach will also improve ADB's capacity to develop new types and sources of financing for climate resilience, including identifying opportunities to leverage private sector participation.

The CCOF2030 supports climate mitigation actions, primarily in the energy, transport, and urban sectors, the region's major sources of GHG emissions, which are among the world's largest and fastest growing (at both the national and city levels). The CCOF2030 guides ADB in scaling up its lending for low-GHG-emitting technologies, through its public and private sector windows, in a way that will reduce the economic costs of emission reduction and foster sustained economic growth. Technical assistance complementing the low GHG emission investments will address policy, local capacity, and other barriers to the scaling up of new technologies.

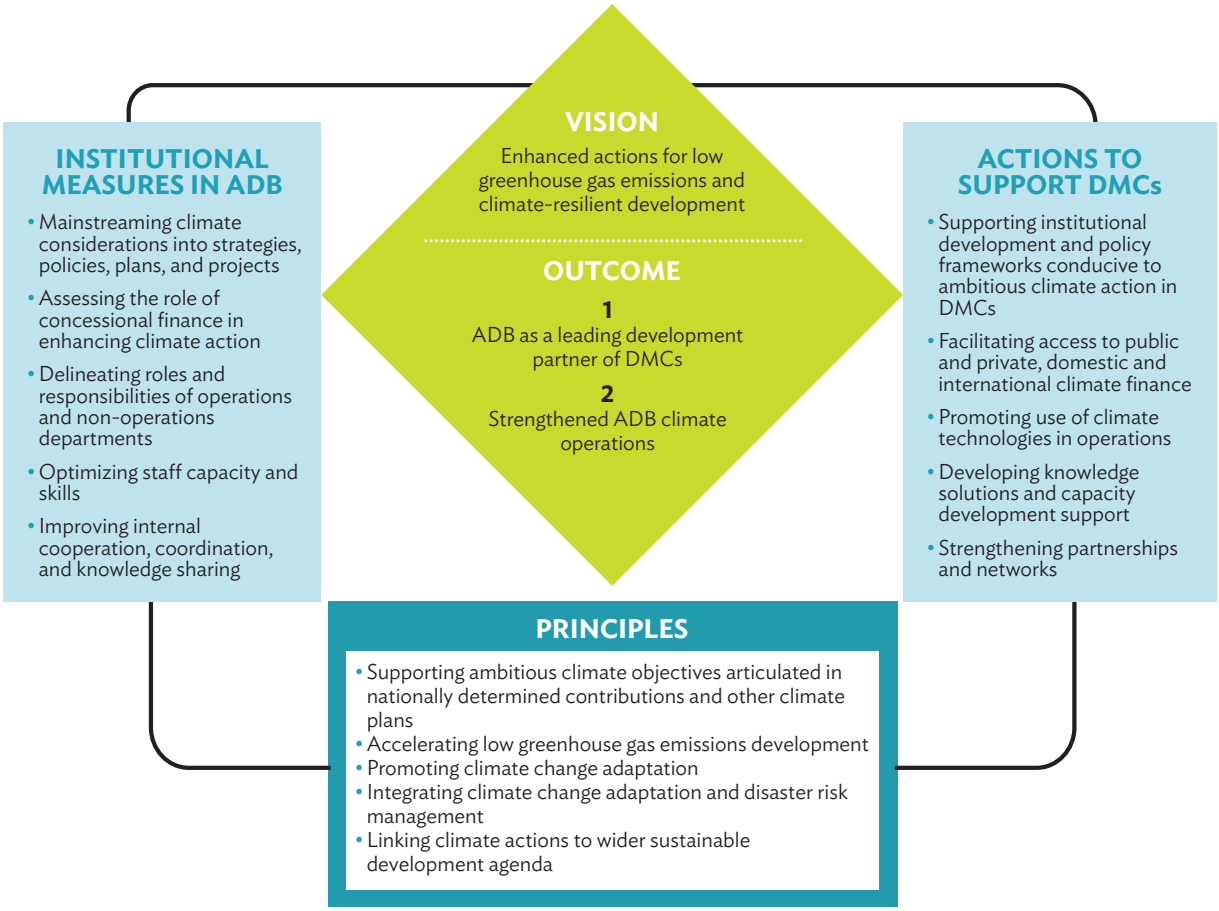
The CCOF2030 provides ADB with a framework for supporting DMCs in translating their NDC aspirations into climate change action investment plans, and implementing those plans. Beyond national-level actions, the CCOF2030 will also facilitate regional cooperation as well as aid in the downscaling of mitigation and adaptation measures to the subnational and community levels.

The CCOF2030 gives continuity to ADB's climate change program and guides ADB in operationalizing its 2015 commitment to provide at least $6 billion per year in climate change financing from its own resources by 2020. The CCOF2030 is aligned with important global initiatives for sustainable development, including the SDGs, the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction 2015–2030 (Sendai Framework). The CCOF2030 was also designed to be flexible, to allow it to integrate new mechanisms such as emissions trading and carbon tax measures, should these be introduced at scale.

Operationalizing the Climate Change Operational Framework 2017–2030

The vision of the CCOF2030 is enhanced actions for low GHG emissions and climate-resilient development in Asia and the Pacific, to which ADB contributes as a leading development partner of its DMCs through its reinforced portfolio of public and private climate operations. This goal is in support of the objective of the Paris Agreement to limit average temperature increase to below 2°C, with aspirations of limiting to 1.5°C. To achieve this outcome, the CCOF2030 is structured around a series of linked principles, actions, and institutional measures (see chart).

Climate Change Operational Framework 2017–2030



ADB = Asian Development Bank, DMC = developing member country.
Source: ADB.

CCOF2030 is guided by the following principles, which underpin all climate-related activities of ADB:

- **Supporting ambitious climate objectives articulated in nationally determined contributions and other climate plans.** Through their NDCs, the DMCs have pledged to contribute to global GHG emission reduction and outlined their adaptation priorities, and have laid out the financial, technical, and capacity-building support required for NDC implementation. The NDC process commits the DMCs to put forward increasingly ambitious NDCs over time, and ADB will be responsive in supporting the DMCs in fulfilling their NDCs.
- **Accelerating low greenhouse gas emissions development.** Transitioning to low emission development paths requires the implementation of low GHG emission, energy, transport, and urban transformation strategies, as well as finance flows aligned with these strategies. ADB will enable this change by prioritizing scaled-up investments to decarbonize the DMC economies.
- **Promoting climate change adaptation.** Given the need to scale up investment and promote customized, systemic, and cross-sector approaches in climate-vulnerable sectors such as agriculture and natural resources, water, urban development, health, and social development, the DMCs will require ADB's support in developing approaches to strengthening climate resilience across built infrastructure and ecosystems, and at the community level. Furthermore, ADB will also go beyond simply ensuring that the infrastructure it finances is climate proof and prioritize projects specifically targeted at climate adaptation.
- **Integrating climate change adaptation and disaster risk management.** Recognizing the close links between

climate change and disaster risk management (DRM), ADB will further align its DRM and climate change adaptation efforts, including measures that address extreme weather events, in the design and implementation of its investment projects, programs, capacity building–related assistance, and knowledge products, to help counteract the increase in the frequency and intensity of natural hazards arising from climate change.

- **Linking climate actions to the wider sustainable development agenda.** ADB will take a proactive strategic approach to achieving the SDGs in tandem with climate actions and DRM. This approach will be achieved by designing policies and operations to optimize the multiple benefits of actions taken in response to the Paris Agreement, the SDGs, and the Sendai Framework. Regional and sector strategies must include approaches to optimizing multiple benefits by design.

CCOF2030 is centered in the following actions:

- **Supporting institutional development and policy frameworks conducive to ambitious climate action in developing member countries.** ADB will promote the mainstreaming of climate actions into DMC development planning; help translate NDCs and other climate plans into climate investment plans; support policy reform and harmonization, including support to private sector investment; build institutional capacity at all levels; and assist its DMCs in making positive policy choices for climate action.
- **Facilitating access to public and private, domestic and international climate finance.** ADB will scale up climate financing from its own sources; deploy managed fund resources for integrated climate and DRM investment; promote access to external climate finance; develop innovative approaches and build stronger partnerships to deliver blended climate finance; help the DMCs mobilize domestic finance; mobilize institutional investment; support the use of carbon market mechanisms; support the integration of climate and DRM considerations during project preparation; provide transaction advisory services and use trust funds for structuring bankable projects; and expand from traditional project lending to financial aggregation.
- **Promoting the use of climate technologies in operations.** ADB will make use of its procurement systems to facilitate DMC access to climate technologies in ADB projects and support investment in green skills.
- **Developing knowledge solutions and capacity development support.** ADB will help improve access to climate-relevant knowledge and information, including country-level data on climate impact, policy, finance, and projects; refine understanding of the economic impact and benefits of climate mitigation and adaptation; enhance readiness for accessing external climate finance; capture and disseminate lessons from the scale-up of climate finance; and implement targeted training and awareness-raising programs in climate change.
- **Strengthening partnerships and networks.** ADB will support knowledge and action networks; promote regional dialogue on climate issues; coordinate support for NDC implementation with other development partners; support international climate policy processes; improve collaboration and coordination among multilateral development banks (MDBs); and develop new forms of collaboration with non-state actors, the academe, and other stakeholders.

ADB must continue to implement internal practices to step up its climate response and deliver stronger, better, and faster climate action as "One ADB." ADB must therefore ensure that

- **climate change considerations are fully mainstreamed** into corporate strategies and policies, sector and thematic operational plans, country programming, and project design, implementation, monitoring, and evaluation, in line with planning directions;
- **the role of concessional finance in enhancing climate action is assessed** through more strategic fund-raising for, and effective and cohesive management of, trust funds and other mechanisms;
- **roles and responsibilities for the implementation of ADB's climate change agenda are clearly delineated across the institution,** through such means as the establishment of accountability among ADB departments for the delivery of ADB's climate program;
- **ADB's staffing and organizational structure is optimized for delivery and its staff is equipped with adequate skills, tools, and incentives;** and

- **internal cooperation, coordination, and knowledge sharing are improved, to optimize delivery of solutions,** including modalities to work across sectors, themes, and geographies, and establishment of ADB-wide information systems on climate impact, policy, finance, and projects in the DMCs.

In pursuit of this outcome, the CCOF2030 will be implemented in two operational phases:

- **Phase 1, from 2017 to 2023,** will support an acceleration in climate change investments and serve as a learning opportunity as ADB scales up climate finance to meet the $6 billion target by 2020. Phase 1 will be based on (i) the need and demand for ADB support from the DMCs, in line with their NDCs, and their institutional mandates and structures; (ii) a stock-taking of output and achievements so far; (iii) current and expected operations; and (iv) available financial, technical, and human resources.
- **Phase 2, from 2024 to 2030,** will allow ADB to apply the lessons learned from climate operations up to and during phase 1 in supporting NDC updating by the DMCs to comply with the Paris Agreement. Phase 2 will respond to the scaled-up expectations of the DMCs as they proceed along the low GHG emission and climate-resilient development paths laid out in their second-generation NDCs and other relevant strategies and plans, taking into account the latest climate science as well as economic and technological developments.

A two-phase approach is deemed appropriate for several reasons: (i) the DMCs plan to conduct the first global stocktaking of NDCs and to devise new and more ambitious NDCs, in 2023; (ii) ADB can carry out a midterm review of the CCOF2030 at that time and, if necessary, recalibrate the operational framework; (iii) a full set of country partnership strategies for all DMCs is likely to be formulated between 2017 and 2023; and (iv) the time period between 2020 and 2023 allows ADB to assess and adapt to lessons learned after reaching the $6 billion finance target for 2020.

The phased approach of CCOF2030 also recognizes the need for continuous feedback to enable ADB to respond to rapid and substantial changes in climate impact; economic, social, and environmental developments; and progress made in climate action and toward the SDGs.

Climate Change Operational Framework 2017–2030 Consultation, Rollout, and Implementation

The CCOF2030 development involved extensive consultation with internal and developing member country stakeholders. The consultations helped define the directions charted in the CCOF2030 and will promote stronger collaborative partnerships for effective implementation.

The Sustainable Development and Climate Change Department and the Climate Change and Disaster Risk Management Thematic Group will coordinate the CCOF2030 rollout and implementation. Each operational department and thematic and sector group will have specific roles and responsibilities in integrating and operationalizing the CCOF2030 into their respective areas of operations. A series of guidance documents will be developed to help operationalize the CCOF2030.

In view of the institutional measures, actions, and principles described above, ADB will give priority to the following areas of action:

- **Fully mainstreaming climate change considerations into ADB plans and operations:**
    - **Nationally determined contribution assistance.** Supporting the DMCs in refining and translating NDCs and other relevant climate plans into climate investment plans; embedding NDCs and climate considerations in all country partnership strategies and country operations business plans; and identifying and pilot-testing priority climate change projects.

- **Low greenhouse gas emissions development.** Developing marginal abatement cost curves (MACCs) for DMCs to identify specific opportunities for low carbon development programming; focusing on low-cost renewable energy and energy efficiency opportunities; pilot-testing clean and advanced technology; supporting a dedicated fund or risk mitigation vehicle; and using ADB procurement systems to enable the deployment of clean and advanced technologies.
- **Climate and disaster risk management.** Embedding climate and disaster risk screening and assessment in country analysis and project preparation; developing standardized approaches to minimizing risk and increasing resilience in projects and programs in agriculture, natural resource management, water, and urban development; and promoting ecosystem-based adaptation, and forest and coastal management and rehabilitation.
- **Spotlight on cities.** Cataloging emissions, energy use, and risk indices for major cities for appropriate investments; identifying small- and medium-sized cities with high growth potential, for green and climate-smart investments that focus on vulnerable segments; and developing a multisector model for sustainable urban development, integrating resilience and transition to low GHG emissions development.
- **Focus on vulnerable segments.** Facilitating improved understanding, collaboration, and alignment with social development, gender mainstreaming, poverty reduction, and other guidelines and agendas.
- **Focus on regional public goods.** Preparing subregional partnerships for climate action.
- **Other ADB-specific initiatives.** Instituting a mechanism for GHG accounting of ADB's own operations, and establishing a baseline and mechanism for measuring progress toward bending the GHG emission curve of the ADB portfolio.

- **Mobilizing and leveraging climate finance to maximum extent.** Facilitating access to external public and private climate finance; convening partners to mobilize finance; supporting the rollout of carbon finance and carbon pricing initiatives; and supporting carbon market development.

- **Delineating roles and responsibilities clearly.** Establishing internal accountability.

- **Optimizing staffing and organizational structure.** Undertaking a skills assessment exercise and providing trainings in climate change and climate finance.

- **Improving internal cooperation, coordination, and knowledge sharing.** In accordance with the "One ADB" approach, improving internal coordination and synergy, and developing or enhancing tools and databases.

A results framework compatible with ADB's corporate results framework and containing baseline and target performance indicators will guide measurements of progress toward key CCOF2030 milestones.

I. RATIONALE

A. Introduction

1. Over the last 50 years, the Asian Development Bank (ADB) has been instrumental in the economic growth of the Asia and Pacific region and in the dramatic reduction of poverty in the region. To continue in that leading role, ADB is developing Strategy 2030, its long-term corporate strategy for the period up to 2030. Strategy 2030 will position ADB to meet the emerging needs of its diverse clientele by supporting prosperous, inclusive, and resilient development. Its primary concerns are (i) eliminating poverty, (ii) promoting prosperity, (iii) deepening inclusion, (iv) strengthening sustainability, and (v) building resilience.

2. To a significant extent, climate change will determine the sustainability of development in ADB's developing member countries (DMCs). Asia and the Pacific, which has the largest number of climate-vulnerable people and the highest overall potential for reducing greenhouse gas (GHG) emissions, could spearhead climate action. The region could help bring about a global transformation in line with the Sustainable Development Goals (SDGs), the Paris Agreement, and the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework) to avoid the worst effects of climate change.

3. Strategy 2030 must therefore have climate change as a core issue. ADB could then use its increased lending capacity, its knowledge and experience in mobilizing concessional finance and catalyzing private sector investment, and related financing mechanisms to promote low GHG emissions and climate-resilient development in its DMCs.

4. Given the central role of integrated climate change action in achieving the SDGs and the objectives of Strategy 2030,[1] ADB has identified the need for a complementary **Climate Change Operational Framework 2017–2030 (CCOF2030).**

5. The CCOF2030 outlines ADB's climate response over the 2017–2030 period, building on the considerable progress it has achieved so far in the region and differentiating between future interventions according to the circumstances specific to a DMC or a group of DMCs. ADB's response will be shaped by the following:

(i) **Growth in greenhouse gas emissions.** Globally, about 70% of all GHG emissions come from the top-10 country emitters, three of which are DMCs: the People's Republic of China (PRC), India, and Indonesia. Nearly half of global GHG emissions—47.6 gigatons of carbon dioxide equivalent ($GtCO_2e$)—are from countries in Asia (23.3 $GtCO_2e$).[2] GHG emissions are set to increase in step with economic growth, as urbanization progresses, consumption patterns change, and fossil fuel–based energy generation and transportation expands further.

(ii) **Heterogeneity of developing member countries.** Small island and low-lying countries, or those with large population concentrations along river deltas or sea coasts, face climate challenges that are very different from those that landlocked, mountainous DMCs must contend with. Some DMCs have significant potential for GHG emission reduction; in others, per capita GHG emissions are among the world's lowest. Many DMCs, and specific regions within DMCs, are highly vulnerable to natural hazards, including climate-related impact. Over 60% of the region's population works in agriculture, fisheries, and forestry—the productive sectors considered most at risk from climate change. Climate change threatens food security, as Asia and the Pacific is home to over 550 million, two-thirds of the world's hungry population. Development partners' response to climate risks and opportunities will be tailored to meet these needs, taking into account the heterogeneity across subregions, countries, and cities.

[1] Strategy 2030 gives high priority to supporting the DMCs in achieving the SDGs, among other objectives. Achieving the SDGs depends largely on the success of climate action.

[2] According to the World Resources Institute's Climate Analysis Indicators Tool (CAIT) data for 2012, the most recent year with globally consistent data. CAIT analysis is based on land use, land use change, and forestry data.

(iii) **Variations in developing member country commitment to climate action and capacity to implement demand-differentiated responses.** In pursuing their overall development objectives, the DMCs are addressing climate change in individual ways. Many have made substantial progress. Through the nationally determined contributions (NDCs), most DMCs have made commitments for 2020–2030 relating to actions supporting low GHG emissions and climate-resilient development.[3] Priorities, needs, and capacities vary greatly between DMCs, particularly between least-developed countries, countries in fragile and conflict-affected situations, and lower- and upper-middle-income countries.

(iv) **Evolution of the international climate and development policy agenda.** The 2030 development agenda is driven by the SDGs. Thirteen of the 17 SDGs, including goal 13 (climate action), are directly linked to climate mitigation and adaptation efforts. Conversely, climate actions must support wider development objectives. The Paris Agreement, which took effect in November 2016, requires countries to set increasingly higher climate mitigation goals over time, articulate their climate adaptation priorities more clearly, and find greater consistency between finance flows and low GHG emissions and climate-resilient development. The Sendai Framework, adopted in March 2015, calls for more investment in disaster risk reduction for resilience.

(v) **Evolution of the climate change financing and stakeholder landscape.** There is increasing evidence of a general shift from climate action led primarily by national governments and international institutions toward actions by a multitude of non-state actors, including subnational and city governments, the private sector, and civil society. Given the constraints on public sector budgets in both developing and developed countries, on the one hand, and the ready availability of investment capital, on the other, the private sector is expected to assume a more significant role in climate action over time. New networks and coalitions of actors implementing climate actions across different countries, regions, and sectors are also emerging.

(vi) **Emergence of innovative low emission technological and business models.** Technology developments, rapid economic shifts, and new business models and distribution channels are creating opportunities for technological leapfrogging and mass diffusion.

6. The CCOF2030 is intended as a foundation for building on, and strengthening, ADB's current climate change and disaster risk management (DRM) operations,[4] and for determining and developing new directions for ADB in the coming years up to 2030, in response to rapid changes in the region's economic, social, and environmental setting. In September 2015, ADB committed itself to increasing climate financing from its own resources to $6 billion yearly by 2020—$4 billion for mitigation in sectors such as renewable energy, energy efficiency, sustainable transport, and urban development, and $2 billion for adaptation in areas such as urban resilience and agriculture and land use.[5] Of the $6 billion total, up to $2 billion will be for ADB's concessional assistance countries.[6] While the need for, and urgency of, adaptation funding would appear to justify a larger share of overall climate financing, absorptive capacity will have to be strengthened. Increasing ADB investments in climate adaptation from $1 billion in 2016 to $2 billion by 2020 will require concerted effort, which the CCOF2030 intends to support. The $6 billion target corresponds to around 30% of ADB's projected corporate pipeline by 2020, and the CCOF2030 is supportive of efforts to maintain or increase this share after 2020.

7. The CCOF2030 sets near- and long-term directions for ADB support for DMCs efforts to improve climate resilience and shift to low GHG emissions development (Table 1). The CCOF2030 has two operational phases. Phase 1, from 2017 to 2023, will generate, capture, and disseminate lessons and knowledge from current and near-term operations undertaken to meet ADB's commitment to provide at least $6 billion in climate change financing by 2020. Phase 1 may also identify where and how the project investment pipeline up to 2023 can be modified to

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[3] NDCs outline the GHG emission reduction and climate change adaptation measures to be undertaken by countries that sign the Paris Agreement. Some NDCs have transitioned from the intended nationally determined contributions (INDCs) voluntarily submitted by the Parties to the United Nations Framework Convention on Climate Change, following the meeting of requirements and entry into force of the Paris Agreement. As of June 2017, all 40 DMCs receiving ADB assistance had announced their INDCs, and 35 had ratified the Paris Agreement.

[4] The Operational Plan for Integrated Disaster Risk Management, 2014–2020, recognizes the importance of reducing disaster risk in both the immediate and the long term, taking the possible effects of climate change into account.

[5] ADB. 2015. ADB to Double Annual Climate Financing to $6 Billion for Asia-Pacific by 2020. News release. https://www.adb.org/news/adb-double-annual-climate-financing-6-billion-asia-pacific-2020

[6] ADB. 2015. Closing Remarks at the Asian Development Fund Replenishment Meeting – Takehiko Nakao. News release. https://www.adb.org/news/speeches/closing-remarks-adf-12-replenishment-meeting-takehiko-nakao

contribute further to climate-resilient and low GHG emissions development, in support of the early implementation of NDCs and similar DMC climate action plans. Phase 2, coinciding with NDC revision and implementation from 2024 to 2030, will concern itself in particular with meeting the anticipated growth in demand from the DMCs for ADB support for climate action as they embark on low emission and climate-resilient development until 2030. Phase 2 will also coincide with the anticipated scale-up of ADB private sector operations and the mobilization of new financing modalities to mobilize substantial private capital. Climate investments are expected to take up a growing share of ADB's private sector operations. Taking into account the comparative advantage in supporting regional and subregional integration and cooperation and that climate change is a regional public good as well as a global public good, the CCOF2030 adopts a regional perspective. ADB is well positioned to support regional actions that complement and strengthen the outcomes of national and global actions.

Table 1: ADB Response to Developing Member Country and Global Context

Level of Action	CCOF2030 Phase 1		CCOF2030 Phase 2
	2017–2020	2020–2023	2024–2030
DMCs	Incorporate climate mitigation and adaptation in national development objectives Prepare first generation NDCs by 2020	Translate climate plans, including NDCs, into climate investment plans Mobilize domestic climate financing resources Prepare second generation NDCs by 2023	Implement second generation NDCs Scale up domestic climate financing resources
ADB	Provide $6 billion climate finance by 2020 Climate-proof projects in the pipeline Review operational modalities, institutional structures, new financing and TA mechanisms Work with operational departments to provide upstream support aligned with DMC national development and climate objectives Prepare Strategy 2030	Review progress, assess lessons from reaching 2020 targets, and outline delivery plan for more ambitious targets Pilot-test innovative, climate-smart approaches (technology, finance, business models)	Apply lessons from phase 1 Reflect DMC expectations in second-generation NDCs and other relevant strategies and plans, including regional approaches Reassess operational modalities, institutional structures, new financing (e.g., investment bank, impact investing) and TA mechanisms Revisit analytical and other actions to help DMCs confirm opportunities for climate action in support of national development objectives
Global	Sustainable Development Goals (SDGs) Paris Agreement, 2°C warming limit (aspiration: 1.5°C) Sendai Framework for Disaster Risk Reduction Reach $100 billion annually in global climate finance by 2020	Conduct global stock taking of NDCs Monitor progress toward achievement of SDGs and Sendai Framework for Disaster Risk Reduction	Achieve SDGs by 2030 Achieve Sendai Framework for Disaster Risk Reduction by 2030 Be on target for keeping global warming at, or below, 2°C

ADB = Asian Development Bank, CCOF2030 = Climate Change Operational Framework 2017–2030, COBP = country operations business plan, CPS = country partnership strategy, DMC = developing member country, NDC = nationally determined contribution, TA = technical asssistance.
Source: ADB.

B. The Climate Change Challenge

8. In the Asia and Pacific region, 300 million people still live on less than $1.90 a day (2011 purchasing power parity)[7] and are highly vulnerable to economic and environmental shocks, and natural hazards. Women are particularly at risk because of social and economic inequality and limited access to resources. Six of the 10 countries that are most vulnerable to the impact of extreme weather events globally are DMCs—Bangladesh, Myanmar, Pakistan, the Philippines, Thailand, and Viet Nam.[8]

9. High rates of loss clearly manifest the significant vulnerability and exposure of the Asia and Pacific region to natural hazards. Over the 10-year period from 2006 to 2015, infrastructure and other asset losses in the region resulting from floods, earthquakes, and tropical cyclones averaged $73 billion yearly (56% of the global total) and $199 million per day.[9] Available disaster risk models indicate an average annual loss over the long term equivalent to more than 2% of gross domestic product (GDP) for 11 DMCs,[10] and over 1% of GDP for 21 DMCs. The poorest populations are disproportionately affected, such that climate change itself will be making economic growth less inclusive. Unless urgent action is taken to strengthen resilience, climate change could drive up the losses even further.

10. The impact of a changing climate would be most severe on water resources, according to recent studies. Inadequate water resources could reduce economic growth by up to 6% of GDP. Climate change affects water resources in several ways. As climate change disrupts the hydrologic cycle, water evaporation from the oceans leads to unprecedented rainfall and more severe storms; more extreme coastal, fluvial (or riverine), and pluvial floods; and deeper and longer droughts. The resulting water-related disasters can drastically reduce crop yield and intensify water stress. Water flows in watersheds, as well as the quality of aquatic and marine ecosystems, are affected. Accumulated climate change has a large impact on water quantity, quality, and distribution, and therefore the livelihood of people. The coastal areas of a number of DMCs are particularly prone to storms and storm surges, coastal flooding, and salinity intrusion of increasing frequency and magnitude. Several coastal cities and communities are already suffering the consequences. Other parts of the region are highly vulnerable to more frequent, longer-duration, and more intense heat waves, extreme precipitation, and droughts. Despite all this, few countries and cities have made the necessary investments in infrastructure and institutions to adapt to such risks or even to manage existing disaster risk.

11. Some large, heavily populated subregions are likely to experience unprecedented changes in access to water and in agricultural input and productivity. Across much of Asia, communities that rely on snow- and glacier-fed rivers will experience dramatic changes in water availability and flooding. Warm and dry years will lead to significantly lower discharge, with fewer glaciers present in the headwaters, and the implications for reservoirs, irrigation, agriculture, power plants, and drinking water systems are potentially severe. Reservoirs risk running low in the early growing season, when they are most needed. On the other hand, more intense precipitation, falling as torrential rain, and less water stored as ice in the headwaters of the region's major river systems will also increase flood risk. The combination of excessive meltwater and intense rainfall will cause more severe flooding. Adaptation strategies will need to address the loss of natural storage capacity by improving resilience to both water scarcity and flooding.

12. Agricultural productivity is affected by the increased variability of surface water supply. Although higher temperatures in combination with increased carbon dioxide (CO_2) levels might have a positive impact on crop yield in parts of the world, in general, climate change will have a negative impact on the production of the main traditional food crops. In Asia and the Pacific where agriculture contributes strongly to GDP growth in several of the most vulnerable countries, and continues to be critical to subsistence in many areas, the effects are predicted to be mostly adverse. Warmer temperatures can cause more water to evaporate from landscapes, while changes in precipitation can lead to more intense individual downpours but can also bring drought. Agriculture is the

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7 ADB. 2016. *Key Indicators for Asia and the Pacific.* Manila. https://www.adb.org/sites/default/files/publication/204091/ki2016.pdf

8 S. Kreft D. Eckstein, and I. Melchior. 2016. Global Climate Risk Index 2017: Who Suffers Most From Extreme Weather Events? Weather-related Loss Events in 2015 and 1996 to 2015. Briefing paper. Bonn: Germanwatch.

9 Centre for Research on the Epidemiology of Disasters (CRED). n.d. EM-DAT: The USAID Office of Foreign Disaster Assistance (OFDA)/CRED International Disaster Database (www.emdat.be), Brussels: Université Catholique de Louvain.

10 Average annual loss is based on the average expected loss over thousands of years as a result of both historic and modeled potential disasters, ranging from high-frequency, low-intensity events to extremely low-impact, high-frequency events. Data on average annual losses are from Prevention Web. Global Assessment Report. http://www.preventionweb.net/english/hyogo/gar/2015/en/home/data.php?iso=PHL

human activity that consumes the most water; in some regions, it uses up to 90% of available water resources. In the context of agriculture, improving irrigation and drainage systems and rural development will play a key role in achieving rural water and food security under impending climate change. Given the already increasingly complex and interlinked challenges of rural development and food security under demographic change, and the overstretched state of environmental and natural resources, climate change is an added stressor. Furthermore, there is increased concern about the more intense extreme weather events that will result from climate change, affecting agricultural communities. The negative effects of climate change on coastal ecosystems and fisheries compound this threat to food security. The implications of climate change impact on food security are manifold. Women, who are responsible for the production of the majority of food for subsistence, will be adversely affected. The increased feminization of agricultural work in some countries in the region will require tailoring assistance programs, including the provision of new resources, technology and knowledge for managing climate-related impact on productivity, to implementation by women.

13. Urbanization is a defining phenomenon in Asia today. It is forecast that, by 2050, 122 cities worldwide will have populations of over 5 million; 97 will be in developing countries, and 43 of these will be in ADB's DMCs.[11] Today there are 51 such cities globally, including 30 in the DMCs. Moreover, a much larger number of small- and medium-sized cities in many DMCs are expected to grow even more rapidly. A major dilemma for the region over the coming 2 decades is directing its accelerating urbanization to support sustainable and inclusive economic growth. Burgeoning cities like Bangkok, Dhaka, Guangzhou, Ho Chi Minh City, Jakarta, Kolkata, Manila, Mumbai, Shanghai, and Yangon are among those most threatened by coastal flooding and related productivity losses, and in terms of food security, public health and other risks. Many cities in the region have very large informal settlements that are vulnerable to changes in the environment and already endure extremely poor environmental conditions, particularly high levels of exposure to air pollution. Prolonged heat waves, extreme precipitation, and typhoons can place an insurmountable burden on poor populations that have no resources to adapt to such changes, particularly in many slum areas with inadequate infrastructure.

14. Climate change will also affect human health, as rising temperatures contribute to increase in heat stress, air pollution, and the spread of vector-borne illnesses. Climate change affect agro-ecological systems and hydrology, impacting food security and water availability. Extreme events such as flooding or droughts will cost lives, destroy homes, degrade ecosystems, and damage health infrastructure.

15. As climate change impact intensifies—temperatures and sea levels rise, and floods and tropical storms become more frequent and severe—it is likely to have a greater role in migration decisions of people, particularly those from islands or low-lying areas prone to extreme as well as slow-onset climate events. Moreover, climate change may negatively affect crop yield, and intensify out-migration from rural areas into urban centers. All of these potential risks increase the likelihood that people in highly exposed regions will be displaced. These climate variability hot spots—including river deltas, and areas exposed to more flooding, droughts, windstorms, storm surges, or rising sea levels, and coastal cities—will each require different sets of responses.

16. Developing Asia can make a significant contribution to global efforts to reach the objective of the Paris Agreement, which is to restrict global warming to well below 2°C above pre-industrial levels and to pursue efforts even further to 1.5°C. Emissions from the region have risen rapidly, from 25% of the global total in 1990–1999 to 40% in 2012. Without strong climate policies, the region will generate nearly 50% of all GHG emissions by 2030, and these emissions will double in volume by 2050. Creating a global low-carbon economy is impossible without Asian engagement. Implementing the national emission reduction pledges can halve emissions from developing Asia by 2050 relative to a business-as-usual scenario in which the current paths of energy systems, land-use patterns, and industrial development evolve without mitigation measures. However, limiting warming to 2°C requires reducing emissions by three-quarters. As fossil fuels account for over two-thirds of developing Asia's emissions, the region's low-carbon transition must start with the energy sector. In the 2°C scenario, by 2050, the region can cut its emissions by nearly half through less carbon-intensive energy production, notably by deploying renewables such as wind, solar, and biomass, and through carbon capture and storage. An ambitious mitigation effort leaves little room for new coal capacity in Asia that does not include carbon capture and storage. Much of the potential for emission reduction can be realized through renewable energy, and technological progress is expected

[11] D. Hoornweg. 2016. *Cities and Sustainability: A New Approach.* Abingdon, United Kingdom: Routledge.

to offer further cost reductions. Another third of the region's emission reduction by 2050 toward the global 2°C goal can come from energy efficiency. Reducing emissions from forest destruction, land degradation, agriculture, and other non-energy activities can contribute nearly 20% of the mitigation in developing Asia's national emission reduction pledges to 2030.[12]

17. Addressing climate change mitigation and adaptation will add to the infrastructure bill. An ADB study released in 2017 gives an overview of Asia's infrastructure needs under plausible scenarios, e.g., future economic growth and the need to deal with climate change.[13] The study bases its evaluation of potential demands for infrastructure finance on an assessment of those needs, plus the critical regulatory and institutional issues that help determine how infrastructure projects should be planned, designed, and implemented. The study suggests that the region will need to invest around $26 trillion from 2016 to 2030, or around $1.7 trillion yearly, in transport, power, telecommunications, and water and sanitation. The baseline assumption is that economic growth will range from 3.1% to 6.5% across developing Asia's subregions. Should growth be one percentage point higher (or lower) in each economy, infrastructure investment needs would be $1.9 trillion yearly (for the high growth scenario) or $1.6 trillion yearly (for the low growth scenario). Yearly investments are likely to be around $200 billion for climate change mitigation and $41 billion more for infrastructure climate-proofing.

C. Global Response

18. The Paris Agreement is largely anchored in the implementation in 2020–2030 of the NDCs, which outline the countries' post-2020 climate actions to contribute to keeping the global warming limit well below 2°C above pre-industrial levels, and to pursue efforts even further to 1.5°C. In developing and implementing their NDCs, the countries generally depend on international support in the form of finance, technology transfer and development, and capacity building. Among the 40 ADB DMCs that have submitted their intended nationally determined contributions (INDCs),[14] 17 (43%) have made climate commitments that hinge on external support, while 21 (53%) have indicated commitments with components that are contingent on such support.[15]

19. Finance has a key role in advancing not just the Paris Agreement but also the SDGs. A study estimated that more than $4.4 trillion in total ($349 billion yearly) will be needed to implement the current INDCs.[16] ADB's initial estimates, based on the INDCs submitted by 17 DMCs, placed the financial resource requirement for these DMCs at $1.3 trillion. SDGs, on the other hand, will require financing of at least $1.5 trillion a year.[17] These figures highlight the critical need for massive resource mobilization, from domestic and international, public and private sources.

20. The multilateral development banks (MDBs)[18] are stepping up action in response to this need. At the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) in Paris, the MDBs reaffirmed their commitment to deliver scaled-up climate investment and related assistance to their client countries.[19] The MDBs are extending and deepening their collaboration to include issues such as tracking climate finance, providing access to climate finance sources such as the Climate Investment Funds (CIFs) and the Green Climate Fund (GCF), and dealing with key sectors and themes such as renewable energy and energy

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12 ADB. 2016. *Asian Development Outlook Update. Meeting the Low-Carbon Growth Challenge.* Manila. https://www.adb.org/publications/asian-development-outlook-2016-update

13 ADB. 2017. *Meeting Asia's Infrastructure Needs.* Manila. https://www.adb.org/publications/asia-infrastructure-needs

14 The 40 DMCs receiving ADB assistance.

15 ADB estimates as of June 2017. More information in: ADB. 2016. *Assessing the Intended Nationally Determined Contributions of ADB Developing Members.* http://www.adb.org/publications/assessing-indc-adb-developing-members

16 L. Weischer, L. Warland, D. Eckstein, S. Hoch, A. Michaelowa, M. Koehler, and S. Wehner. 2016. Investing in Ambition: Analysis of the Financial Aspects in (Intended) Nationally Determined Contributions. Briefing paper. Bonn: Germanwatch. Freiburg: Perspectives Climate Group. https://germanwatch.org/en/download/15226.pdf

17 Development Finance International and Oxfam International. 2015. *Financing the Sustainable Development Goals: Lessons from Government Spending on the MDGs.* Prepared by M. Martin and J. Walker. http://eurodad.org/files/pdf/1546383-financing-the-sustainable-development-goals-lessons-from-government-spending-on-the-mdgs.pdf

18 ADB, African Development Bank, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, and World Bank Group.

19 African Development Bank Group, ADB, European Bank for Reconstruction and Development, European Investment Bank, Inter-American Development Bank, and World Bank Group. 2015. Delivering Climate Change Action at Scale: Our Commitment to Implementation. Joint Statement by the Multilateral Development Banks at Paris, COP21. http://www.eib.org/attachments/press/joint-mdb-statement-climate_nov-28_final.pdf

efficiency, urban development, transport, and the greening of financial systems.[20] Through the NDC Partnership[21] and other mechanisms, the MDBs are also undertaking efforts to coordinate assistance to developing countries in NDC planning, financing, and implementation.

D. ADB Response

21. ADB has been providing integrated solutions to address the causes and consequences of climate change in the Asia and Pacific region since the late 1980s, and that support has been growing substantially since 2005. In *Addressing Climate Change in Asia and Pacific: Priorities for Action* (2010), ADB outlined action areas to guide its operational departments in developing tailor-made investment plans for climate change mitigation and adaptation in five priority areas: (i) scaling up clean energy; (ii) promoting sustainable transport and urban development; (iii) managing natural resources, particularly land use and forestry for carbon sequestration; (iv) building the climate resilience of the DMCs; and (v) strengthening related policies, governance, and institutions. In keeping with its "Finance++" approach, ADB is leveraging its knowledge and partnerships to supplement its investments in these five priority areas.[22] These objectives were reinforced by the midterm review of ADB's Strategy 2020 in 2014.[23] Climate change mitigation and adaptation was also recognized as a crosscutting topic in ADB's Environment Operational Directions 2013–2020.[24]

22. From 2011 to 2016, ADB climate finance reached more than $19 billion, including over $2 billion from external resources, such as multilateral funds (e.g., the CIFs and the Global Environment Facility) and special and trust funds managed by ADB (e.g., the Climate Change Fund, the Clean Energy Financing Partnership Facility, and carbon funds) (Figure 1). Part of ADB climate financing is technical assistance (TA) support for policy and institutional development and knowledge and capacity improvement to ensure the effectiveness and sustainability of climate investments. ADB's capacity development and project preparation TA facilities have been instrumental in supporting the successful scale-up of investments and capacity building for low GHG emission and climate-resilient development (Figure 2).

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20 See Box 13 for more information about the MDB collaboration.

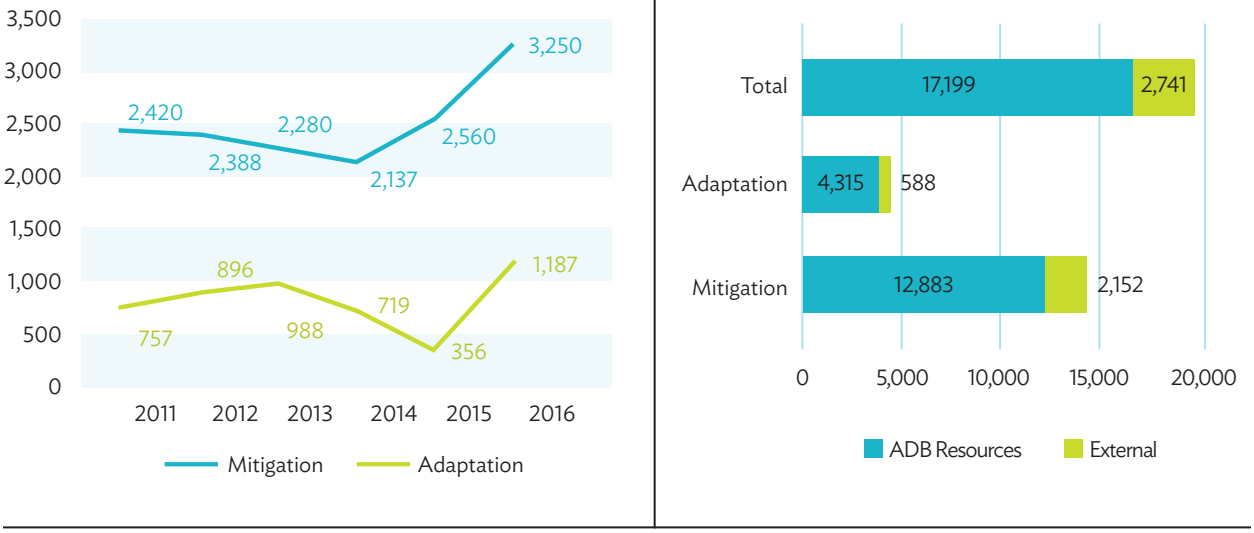
21 See http://www.ndcpartnership.org

22 The adoption of ADB's Knowledge Management Directions and Action Plan (2013–2015) in 2013 also formalized the "Finance ++" concept which calls on ADB to use its own financing to catalyze and leverage significant additional resources through partnerships (first plus) and to generate, capture and disseminate knowledge to its DMCs to maximize and accelerate development effectiveness (second plus). See ADB. 2013. *Knowledge Management Directions and Action Plan (2013–2015): Supporting "Finance ++" at the Asian Development Bank.* Manila. https://www.adb.org/sites/default/files/institutional-document/33863/files/knowledgemanagement-directions-2013-2015.pdf

23 ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific (R-Paper).* Manila. https://www.adb.org/sites/default/files/institutional-document/34149/files/midterm-review-strategy-2020-r-paper.pdf

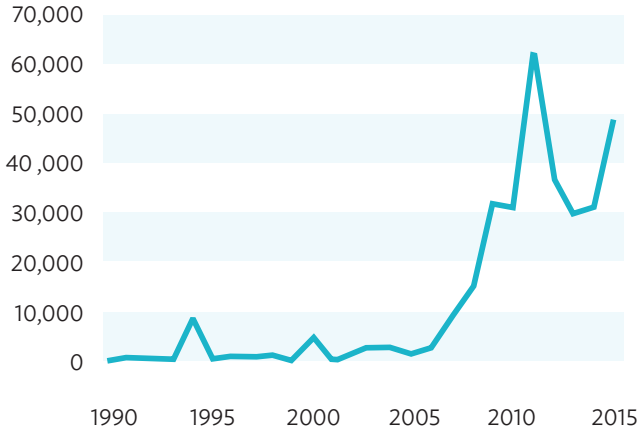
24 ADB. 2013. *Environment Operational Directions 2013–2020.* Manila. https://www.adb.org/documents/environment-operational-directions-2013-2020

Figure 1: ADB Climate Finance, including External Resources, 2011–2016 ($ million)



ADB = Asian Development Bank.
Source: ADB estimates.

Figure 2: ADB Technical Assistance for Climate Change, 1990–2015 ($ thousand)



ADB = Asian Development Bank.
Source: ADB estimates.

23. The launch of the Energy Efficiency Initiative (EEI) in 2005 increased ADB's clean energy[25] investments to $1 billion per year, starting in 2008. The Energy Policy approved in 2009 raised the target to $2 billion a year, starting in 2013. This target was reached in 2011, 2 years ahead of schedule. Since then, ADB has consistently delivered over $2 billion per year in clean energy financing.

24. In 2010, ADB established the Sustainable Transport Initiative to align its transport operations with Strategy 2020 and provide technical and other resources to build a portfolio of enhanced lending and TA for sustainable transport. The Sustainable Transport Operational Plan (2010) emphasizes the need to mainstream sustainability into ADB's road operations, which in 2010 constituted almost two-thirds of ADB's transport operations, and to scale up operations in (i) urban transport; (ii) climate change mitigation in transport, through railway and inland waterway transport expansion and other means; (iii) cross-border transport and logistics; and (iv) social sustainability and road safety.[26]

25. Besides providing financing, ADB has been developing and spreading knowledge and building capacity on effective responses to climate change. ADB has produced a range of guidelines and tools for climate risk screening, impact and vulnerability assessment, and adaptation, including approaches to climate-proofing projects.[27] Among the knowledge products that have received ADB support are analyses of (i) the economics of climate; (ii) the implications of climate change for the region's energy and agriculture sectors; (iii) the climate vulnerability of coastal megacities; and (iv) the social dimensions of climate change, such as migration, health, and gender mainstreaming in climate financing, adaptation, and mitigation. In partnership with renowned international and regional climate centers, ADB is facilitating the establishment of the Regional Climate Projections Consortium and Data Facility to prepare and deliver robust climate data and projections for effective climate risk management strategies.

26. **Corporate targets for environment and climate change.** ADB operations supporting environmental sustainability reached 57% in 2015, versus the target of 50% by 2016, in its results framework. The target for projects supporting climate change, set at 45% by 2016, was met early in 2015. In line with Strategy 2020, climate change is regarded as a subset of environmental sustainability.

27. In September 2015, ahead of the UN Sustainable Development Summit and COP21, and first among the MDBs, ADB committed to doubling climate financing from its own resources to $6 billion by 2020. It is broadly on track to meet this target. Estimates using the joint MDB methodology for climate finance tracking (see Box 13) show that ADB's own climate finance reached a record $3.7 billion in 2016—$2.7 billion for mitigation and over $1 billion for adaptation (Figure 1). In addition, ADB mobilized $660 million from external sources—$556 million for mitigation and $104 million for adaptation. Climate-related private sector investments amounted to $875 million. The ADB climate financing of $4.4 billion overall in 2016 was 51% higher than the $2.9 billion in 2015 ($2.6 billion for mitigation and $356 million for adaptation).

28. While the overall 2010 climate change directions remain generally valid, some basic fundamentals have changed dramatically. Most importantly, the DMCs generally have much greater awareness of climate risks, costs, and opportunities and have better outlined their own priorities and commitments for action through their participation in the Paris Agreement, the SDGs, and the Sendai Framework. A large number of DMCs have detailed

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[25] Because of methodological differences, not all clean energy investments can be considered climate investments. Clean energy investments can include some fossil fuel-related investments, such as natural gas infrastructure and efficiency improvements in fossil energy powered plants, which are excluded from the joint MDB methodology for climate finance tracking. ADB uses the latter to report on its climate-related investments.

[26] ADB. 2010. *Sustainable Transport Initiative Operational Plan.* Manila. https://www.adb.org/sites/default/files/institutional-document/31315/sustainable-transport-initiative.pdf

[27] ADB. 2014. *Climate Risk Management in ADB Projects.* Manila. https://www.adb.org/sites/default/files/publication/148796/climate-risk-management-adb-projects.pdf; ADB. 2016. Guidelines for *Climate Proofing Investment in the Water Sector: Water Supply and Sanitation.* Manila. https://www.adb.org/sites/default/files/institutional-document/219646/guidelines-climate-proofing-water.pdf; ADB. 2013. *Guidelines for Climate Proofing Investment in the Energy Sector.* Manila. https://www.adb.org/documents/guidelines-climate-proofing-investment-energy-sector; ADB. 2012. *Guidelines for Climate Proofing Investment in Agriculture, Rural Development, and Food Security.* Manila. https://www.adb.org/documents/guidelines-climate-proofing-investment-agriculture-rural-development-and-food-security. ADB. 2011. *Guidelines for Climate Proofing Investment in the Transport Sector: Road Infrastructure Projects.* https://www.adb.org/documents/guidelines-climate-proofing-investment-transport-sector-road-infrastructure-projects; ADB. 2005. *Climate Proofing: A Risk-based Approach to Adaptation.* https://www.adb.org/sites/default/files/publication/28796/climate-proofing.pdf.

action plans, many of which are outlined in their NDCs or other relevant national and subnational climate and development plans, setting the stage for longer-term commitments, and supporting actions by ADB, to 2030. Further, the flows of international climate finance have become more complex and challenging to navigate in the last few years, against a backdrop of falling bilateral official development assistance. Access to technology and the economics around key climate technologies, particularly those necessary for low GHG emission development, have been significantly improved. This recent evolution of the climate change landscape requires ADB to look beyond its current approach and prepare itself to be more proactive and responsive to help the DMCs across the region to achieve their low GHG emissions and climate-resilient development objectives.

II. DIRECTIONS: THE CLIMATE CHANGE OPERATIONAL FRAMEWORK 2017–2030

29. The Paris Agreement, which entered into force in November 2016, will have an important role in framing global climate policy and incentivizing climate action. As of June 2017, 148 countries, including most DMCs, had ratified the Paris Agreement, indicating overwhelming support for the 2°C target, and the aspirational target of 1.5°C. To meet the 2°C target, global GHG emissions will need to stop growing before 2030 and start to decrease, with emissions peaking in some developed countries before they do in developing countries. The NDCs outline the contributions of each country to GHG emission reduction, and collectively establish a framework for meeting the climate challenge. The NDCs also outline adaptation needs and priorities, as well as the needed financing, technology and capacity-building support required from external sources to implement the mitigation and adaptation actions. Aside from the NDCs, a range of other climate and development plans and commitments of the DMCs will require external support.

30. The CCOF2030 will help ADB support climate actions proposed by its DMCs as its contribution to national sustainable development and international efforts to address climate change, while improving resilience to climate impact. ADB will take a customized approach, tailoring support to individual DMC circumstances, needs, and demand. ADB will engage proactively with its DMCs, taking into account that assistance will be demand driven but that demand from some DMCs for climate-related support is still latent, and not yet explicit. By focusing on key areas such as policy, financing, technology, knowledge and capacity, and partnerships and networks, and putting the full range of its assistance modalities, knowledge, and experience at the disposal of its DMCs, ADB seeks to become an even more effective partner of its DMCs in their pursuit of sustainable development.

31. Given the fact that most of the world's climate-vulnerable people live in its DMCs, ADB will revise its approach to addressing climate change and disaster impact to decrease the acute and chronic impact of climate change and weather-related disasters. ADB recognizes that climate impact ranges from increasing frequency and intensity of extreme weather events, such as floods, tropical cyclones, and droughts, to slow-onset events, such as shifting precipitation patterns and rising sea levels. ADB is addressing this issue by ensuring that all its projects are climate sensitive and take climate risk into account in project design.[28] ADB will enhance this effort by strengthening assessments of both climate and disaster risk from the country and regional perspective, besides improving assessments at the project level. These measures will help in identifying common issues so that no-regret and low-regret solutions can be developed in a broader context, both in terms of spatial considerations and use of crosscutting approaches.

32. In keeping with the experience of the last few years, ADB expects demand from its DMCs for ADB assistance, including for private sector operations and public-private partnerships (PPPs), to increase rapidly and substantially because of the aforementioned increase in risks associated with climate change, and the commitments the DMCs have made under the Paris Agreement to contribute to climate action.

33. ADB has a comparative advantage in promoting regional cooperation and integration for its DMCs as financier, capacity builder, knowledge provider, and honest broker. These four roles in support of climate action are most distinctive, given the regional nature of the issue. In this manner, ADB will support regional responses and collective actions, particularly to improve policy coordination among DMC governments and the private sector, as well as partnership and networking among development partners, to increase the scale of GHG reduction efforts and the efficiency and effectiveness of adaptation measures.

[28] ADB's Climate Risk Management Framework provides for climate risk screening for all projects and more detailed climate risk vulnerability assessments for projects deemed to be of medium or high risk. ADB leads in this approach among development banks.

A. Vision and Outcome

34. The CCOF2030 is intended to provide broad direction and guidance for enhancing resilience and strengthening climate actions in ADB's operations and business processes, including country partnership strategies (CPSs), country operations business plans (COBPs), sector and thematic strategies, DMC programs and projects, TA, and knowledge and capacity-building support. The CCOF2030 gives ADB strategic guidance for climate action, while ensuring that ADB can remain responsive to the changes—climate impact; economic, social, and environmental developments; and progress on climate action and the SDGs—that are expected to take place in the region and at the global level in the 2020s, and are likely to be rapid and substantial.

35. The vision of CCOF2030 is enhanced action for low GHG emissions and climate-resilient development in ADB's DMCs, with ADB contributing as a leading development partner of its DMCs through its strengthened portfolio of public and private climate operations.[29] This vision is aligned with the three strategic agenda items under Strategy 2020—inclusive economic growth, environmentally sustainable development, and regional integration—and will be integrated with ADB's forthcoming Strategy 2030, which will guide ADB's mission to end poverty, promote prosperity, and build a more inclusive, sustainable, and resilient Asia and the Pacific.

36. The CCOF2030 builds on the substantial experience and progress of the DMCs in addressing climate change and ADB's own experience in scaling up climate-related assistance to its DMCs, particularly over the last decade. The analysis behind the CCOF2030 drew on ADB's rich knowledge base. Six supporting studies were undertaken: (i) a research study to improve understanding of climate risks across the region;[30] and (ii) five background papers intended to assess opportunities for ADB to improve resilience through its water resource investments, scale up low-emission energy investments; strengthen the integration of resilience and low-emission objectives through urban operations; strengthen and simplify rapid access to advanced clean technologies; and optimize the achievement of select SDGs through climate operations.[31] The actions and priorities outlined below benefited from consultations with various stakeholders during the preparation of the Strategy 2030, and a regional consultation workshop with the DMCs on the CCOF2030 held in March 2017.

B. Operational Principles

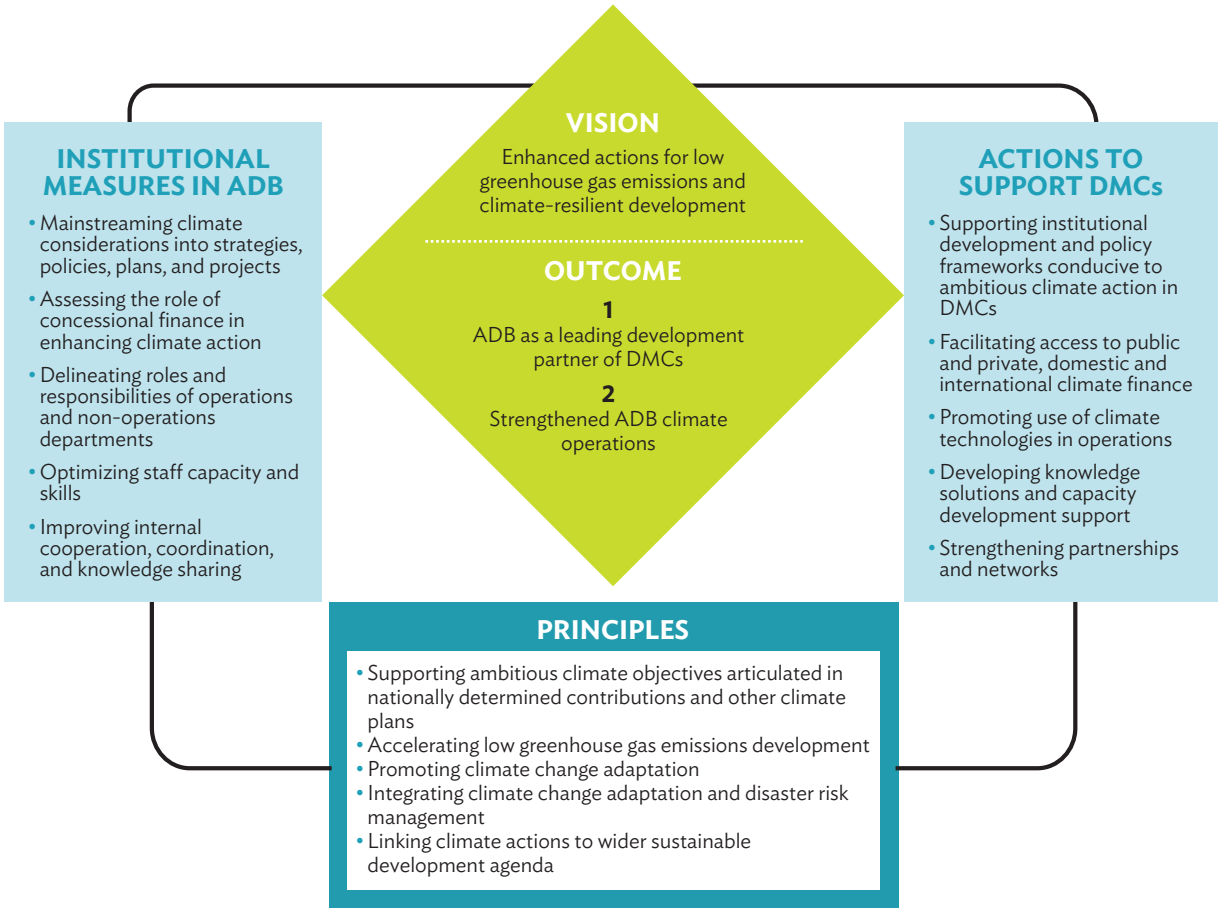
37. The CCOF2030 is grounded in five fundamental principles, which are intended to steer ADB programming and operational decisions in support of its target outcome (Figure 3):

[29] Resilience is the ability of a system and its component parts to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, through the preservation, restoration, or improvement of its essential basic structures and functions, or other means. (Intergovernmental Panel on Climate Change [IPCC]. 2012. *Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation.* Special Report of the IPCC. Geneva). Climate resilience is resilience to specific climate change impact, such as rising sea levels and temperatures, and extreme weather events.

[30] Please refer to ADB. 2017. *A Region at Risk: The Human Dimensions of Climate Change in Asia and the Pacific.* Manila.

[31] The background papers were prepared separately.

Figure 3: Climate Change Operational Framework 2017–2030



ADB = Asian Development Bank, DMC = developing member country.
Source: ADB.

1. Supporting Ambitious Climate Objectives Articulated in Nationally Determined Contributions and Other Climate Plans

38. **Ensure coherence of ADB policies, strategies, and sector and thematic plans with developing member country climate and development objectives.** Given the substantial and long-term efforts to address climate change, many DMCs have expressed the need for support in their strategic planning, policy making, and investment at the national, subnational, and sector levels. ADB will ensure that applicable ADB policies and strategies are reflective and supportive of DMC needs related to adaptation and mitigation, in line with their overarching development objectives and acknowledging the evolving priorities, capacities, and vulnerabilities of the DMCs. ADB sector and thematic operational plans will support climate change mitigation and adaptation, and disaster risk management, as will the departmental, divisional, and sector and thematic group work plans.

39. **Use country partnership strategies as important entry points for ensuring that ADB support is in line with developing member country climate priorities, including those articulated in the nationally determined contributions.** ADB will ensure that successive generations of CPSs are supportive of a long-term transition toward low GHG emissions and climate-resilient development paths in the DMCs. Robust diagnostics, including climate models and analyses of climate risk, and adaptation and mitigation needs and opportunities, must underpin the CPSs. These diagnostics will inform country programming and project prioritization and selection by ADB. While current ADB private sector operations do not follow a similar pattern of programming, country analytical work will give due attention to the importance of scaling up the private sector's role in mobilizing finance and investment.

40. **Create demand for climate-related support.** For a demand-driven institution like ADB, it is important to consider that many DMCs are still in the process of recognizing and articulating their climate needs and priorities, which may not be fully expressed in their current NDCs or climate and development plans. Some DMCs do not currently prioritize climate mitigation and adaptation in their interactions with ADB because of a lack of knowledge or sense of urgency, or for other reasons, including the historical role of ADB in the country or ADB's accustomed role as financier of conventional infrastructure projects. In these cases, ADB may employ a more proactive approach that transcends the traditional, demand-driven model of assistance. ADB can strengthen DMC demand for support for climate action through deeper engagement with the DMCs in dealing with climate risks and opportunities, backed by targeted analytical and capacity-building TA. ADB may develop new modalities for working with DMC decision makers to help them understand vulnerability to climate impact as well as mitigation opportunities, and formulate relevant requests for ADB support. There is growing recognition that it is not sufficient to limit climate change support to ensuring that ADB projects are climate proofed. ADB is well placed to help its DMCs identify and implement the programs, projects, and policy and institutional reforms that are most urgent and critical for an effective climate response.

2. Accelerating Low Greenhouse Gas Emissions Development

41. **Enable low-emission transformation.** The DMCs' NDCs recognize the need for low GHG emissions development. With the Paris Agreement now in force, the DMCs have agreed to ratchet up their emission reduction ambitions within the 2020–2030 time frame. Transitioning to low-emission development paths requires the implementation of low-emission urban, energy, and transport transformation strategies, and finance flows aligned with these strategies. ADB will enable this change by prioritizing scaled-up investments to decarbonize economies, making selective use of concessional finance for mitigation while increasing engagement through its private sector operations and supporting innovative PPPs, and promoting mitigation through multisector approaches, for example, low GHG emissions, climate-resilient urban development.

42. **Prioritize scaled-up investment in low greenhouse gas emission energy generation and energy efficiency.** This will require an approach to project selection and development that considers a project's compatibility with a low GHG emission development path alongside its development impact. Currently, a project's contribution to GHG mitigation is considered an upside, rather than a key project feature. As the sector with the largest share of GHG emissions, the energy sector continues to provide the largest mitigation potential. Renewable energy and energy efficiency in sectors such as transport, buildings, and industry can also contribute significantly to mitigation efforts. Though projects in these sectors are often economically and technically viable, a number of barriers can prevent energy investments from being realized. Overcoming these barriers may require ADB assistance.

43. **Make selective use of concessional finance for mitigation.** Recognizing that projects that mitigate GHG emissions often have higher upfront cost than conventional alternatives, and that concessional climate finance for mitigation is becoming increasingly scarce, ADB will focus on mobilizing concessional finance for mitigation projects that: (i) would become economically viable with the help of concessional financing; (ii) would not otherwise be implemented because of a lack of financial resources; or (iii) would not be implemented because of an information gap, mismatched incentives, or economic rigidity, such as the high transaction costs for small projects.

3. Promoting Climate Change Adaptation

44. **Identify opportunities to contribute to increased climate resilience beyond climate proofing.** The sectors with the greatest potential for scaling up adaptation investment are agriculture and natural resource management, and integrated water resources management in rural areas. Opportunities in urban settings commonly comprise interventions across multiple sectors, including drainage, flood risk management, water supply and sanitation, waste management, slum upgrading, housing, and transportation. Moreover, programs and projects in social development, such as investments in social protection and community-driven development, provide opportunities to deliver targeted support to the most vulnerable households and communities to strengthen resilience.

45. However, systematic approaches to optimizing such opportunities are not yet built into sector or multisector planning or lending operations. ADB currently has a relatively limited pipeline of projects in agriculture

and natural resource management. The water resources pipeline, somewhat dominated by irrigation upgrading, appears to be expanding to include more system-wide integrated water resources management programs. Key challenges will be to direct investments towards highly vulnerable areas and communities and to prepare sector plans and investment programs and projects that include improving climate resilience as a priority objective.

46. **Focus on urban resilience.** The region's growing cities concentrate many of the people most at risk from the impact of climate change. Some DMCs are made more vulnerable by informal settlements, lack of adequate infrastructure and public services, and limited institutional capacity. Given the urban growth expected in the region, particularly the rise of small- and medium-sized cities, much of the needed infrastructure is yet to be built, yielding significant opportunities for low GHG emissions, climate-resilient development from the outset. Cost-effective, large-scale solutions to adaptation are not going to be achieved through individual sector or technology solutions, but rather through systemic and cross-sectoral urban development strategies and investment.

47. **Promote climate-resilient development at the community level.** Since the impact of climate change and disaster risk is felt most by vulnerable communities, more investments targeted at the most vulnerable households and communities and encourage community-level solutions to strengthen resilience are required. Investments that adopt community-driven development approaches and operate according to the principles of local empowerment and demand responsiveness can support the needs identified by the communities, including the need to strengthen the resilience of community assets, diversify livelihood, implement ecosystem-based measures, and strengthen early warning systems. In fact, such investments allow the bundling of resilience-building measures at the community level with local development priorities, thereby making them more beneficial and capable of addressing the root causes of vulnerability and achieving multiple gains, including wider poverty reduction and socioeconomic development. Investments in social protection—social assistance, social insurance, and labor market programs—provide opportunities to deliver targeted support to communities to strengthen resilience, including support in recovering from the impact of extreme weather events.

48. **Provide customized responses in highly vulnerable countries.** In the Pacific and other highly vulnerable countries, there is a need to strengthening climate resilience by supporting knowledge of climate and disaster risk and related long-term development planning and institutional capacity, helping to establish integrated adaptation and DRM strategies, providing financing and access to technology and finance from concessional sources, promoting climate-resilient infrastructure through new construction and retrofitting (including energy, water supply and sanitation, housing, and transport), and furthering ecosystem-based and community-based adaptation.

4. Integrating Climate Change Adaptation and Disaster Risk Management

49. Climate change and DRM are closely linked. Climate change is expected to make extreme weather events more frequent and intense. The integration of DRM and climate change adaptation provides focus on action to reduce current and future risks, including planning for changes in the intensity and frequency of extreme weather events. Existing DRM methods and tools can also provide powerful templates for adaptation activities and increase resilience to anticipated climate change.

50. ADB is already employing an integrated approach to DRM and climate change adaptation. The Operational Plan for Integrated Disaster Risk Management 2014–2020 identifies the need to address the intersection between DRM and climate change adaptation as one of its three underlying principles.[32] This approach is being applied through interventions in agriculture and food security, the water sector, and environmental management, through measures such as crop insurance schemes, integrated water resources management, environmental management strengthening, and early warning systems improvement. ADB can further align DRM and climate change adaptation efforts, through measures such as those that address extreme weather events in the design and implementation of ADB's investment projects, programs, capacity building–related assistance and knowledge products, helping to counteract the increase in the frequency and intensity of natural hazards arising from climate change. Adaptation and DRM measures can be made a formal part of development processes and budgets and programmed into relevant sector projects, for example, in the design of settlements,

[32] ADB. 2014. *Operational Plan for Integrated Disaster Risk Management 2014–2020.* Manila. https://www.adb.org/sites/default/files/institutional-document/42764/files/integrated-disaster-risk-management-operational-plan.pdf

infrastructure, coastal zone development, and forest use, to achieve sustainable land management, avoid development in more hazard-prone areas, and build safe schools, hospitals, and other critical infrastructures.

5. Linking Climate Actions to Wider Sustainable Development Agenda

51. ADB will take a proactive strategic approach to achieving the SDGs in tandem with climate actions and DRM. It will achieve this by designing policies and operations to optimize multiple benefits from actions in response to the Paris Agreement, the SDGs and the Sendai Framework. This will require that regional and sector strategies include approaches to optimizing multiple benefits by design. Three examples of this approach are as follows:

(i) ADB will take a proactive approach to addressing climate protection as a regional public good to
  (a) complement national actions that cannot achieve intended results unilaterally, and
  (b) foster collective leadership to integrate global climate agreements into national development processes and raise their level of ambition over time.

(ii) ADB's support for climate change action by its DMCs will be gender responsive.[33] More climate change mitigation and adaptation, and DRM projects that directly target women as well as reduce gender gaps and disparities, will be required. Helping women strengthen their resilience to the impact of climate change, acknowledging their key role, and supporting their participation in climate change adaptation and mitigation is fundamental. Gender-responsive climate change action presents new and unique opportunities to accelerate the adoption of renewable energy, climate-smart agriculture, and sustainable transport and urban development, and to manage climate-related disaster risks.

(iii) The potential to generate environmental benefits will be explored fully at the pre-concept stage. For climate projects, this will include identifying ways to contribute to global climate change mitigation efforts as well as to local improvements in air, water, or soil quality that help to reduce public health risks. Ecosystem-based adaptation measures will be sought for both rural and urban resilience, with priority given to environmental productivity improvements and biodiversity protection and rehabilitation options.

52. In this context, it is important to recognize that actions benefiting the climate, particularly GHG reduction and increased resilience, are themselves a benefit of development efforts.

C. Actions to Support Developing Member Countries

1. Supporting Institutional Development and Policy Frameworks Conducive to Ambitious Climate Action in Developing Member Countries

53. **Promote the mainstreaming of climate actions into development planning (Box 1).** Many DMCs are already designing or implementing policy frameworks that encourage a shift toward low GHG emissions and climate-resilient development in line with their development needs and international climate commitments. Country strategic planning, at the national, subnational, local, or sector level, should be supportive of achieving overarching climate and development goals, and public budgets and fiscal policies must carefully integrate climate change and disaster risk management with other development concerns. The private sector will fund a large proportion of climate change investments, and changes in policy frameworks may in some cases be needed to incentivize such investments or remove barriers. Governments should also be supported to ensure that the pursuit of climate objectives contributes to national efforts to deliver on the SDGs.

[33] ADB. 2013. *Gender Equality and Women's Empowerment Operational Plan (2013-2020)*. https://www.adb.org/themes/gender/policy/operational-plan

Box 1: Climate Issues in Country Strategic Planning

Mainstreaming climate into development planning in Cambodia. The Asian Development Bank (ADB) is implementing an $11 million technical assistance (TA) project funded by the Strategic Climate Fund of the Climate Investment Funds and by the Nordic Development Fund to support sustained institutional and technical capacity to integrate climate adaptation concerns into development planning, at the national and subnational levels. The TA provides an overarching framework for seven investment projects included in Cambodia's Strategic Program for Climate Resilience, for which the Pilot Program for Climate Resilience of the Climate Investment Funds has allocated $50 million in grants and $36 million in concessional loans.

Supporting the integration of climate technology considerations into national planning. Under a $1.5 million TA project, Integration of Climate Technology Financing Needs into National Development Strategies, Plans and Investment Priorities, ADB has undertaken climate change risk profiling and climate technology assessments in Bangladesh, Bhutan, Mongolia, Pakistan, Papua New Guinea, and Viet Nam. In the People's Republic of China, climate technologies were assessed and integrated into the provincial investment and development plans of Hunan and Ningxia provinces under the TA, which also supported the preparation of background papers and recommendations on climate change as input to the formulation of the 13th Five Year Plan (2016–2020).

Harnessing climate change mitigation initiatives to benefit women. Implemented in Cambodia, the Lao People's Democratic Republic, and Viet Nam, this TA, with about $3.5 million in financing from the Nordic Development Fund and the Multi-Donor Trust Fund under the Water Financing Partnership Facility, supports human resource and technical capacity development for implementing agencies to integrate gender analysis into national and subnational climate change policy frameworks, strategies, and action plans and screening of emission reduction projects; for women's groups to gain co-benefits from appropriate emission reduction technologies; and for national and subnational ministries and agencies supporting gender mainstreaming to engage in and promote more equitable benefit distribution of climate change projects and finance in dialogue with government agencies managing national climate change responses. The TA also builds on existing donor partner and private sector investments and nongovernment organization interventions by pilot-testing a model for developing greenhouse gas (GHG) emission technology projects linked to gender-equality benefits. It has demonstrated how climate financing can provide benefits to women for their contribution to GHG reduction in addition to productive industries.

Sources: ADB. 2012. *Technical Assistance on Mainstreaming Climate Resilience into Development Planning in Cambodia.* Manila; ADB. 2011. *Regional Technical Assistance on Harnessing Climate Change Mitigation Initiatives to Benefit Women.* Manila; ADB. 2012. *Regional Technical Assistance on Integration of Climate Technology Financing Needs into National Development Strategies, Plans and Investment Priorities.* Manila.

54. **Help translate climate plans, including nationally determined contributions, into climate investment plans.** The DMCs have a range of climate and development plans, and most have submitted their NDCs outlining their climate mitigation contributions, climate adaptation priorities, and related requirements for financing, technical, and capacity-building assistance. Although quality and depth vary greatly between NDCs, most NDCs requiring international support for implementation cannot yet be acted on because they lack detailed information about financial costs and mechanisms. ADB has already begun to reflect NDCs in its country programming by ensuring that new CPSs reflect the priorities and actions outlined in NDCs. ADB can also assist its DMCs in making their NDCs more gender responsive and developing investments that are targeted at the most vulnerable. Working together with other development partners, including private sector stakeholders, and mindful that the DMCs will require customized support based on their characteristics and priorities, ADB can assess opportunities to support its DMCs in NDC implementation integrating these actions with related issues like disaster risk management, if doing so provides an opportunity to increase efficiency and effectiveness, accelerate implementation, or increase the scale of action. Helping the DMCs to achieve the objectives outlined in their initial NDCs, if possible at less cost than anticipated, would help to strengthen incentives to put forward more ambitious NDCs after the first global stocktaking of the implementation of the Paris Agreement, planned for 2023.

55. **Support policy reform.** Through policy-based lending and TA, ADB will support policy reform efforts in line with DMC development needs and climate priorities, including those articulated in the NDCs (sample in Box 2). This will entail deeper engagement with the DMCs to identify opportunities for sector transformation and implementation of related policy and investment support.

Box 2: ADB Policy-Based Loan for Air Pollution Control in the People's Republic of China

In 2015, the Asian Development Bank (ADB) provided its first policy-based loan of $300 million to the People's Republic of China (PRC) to help address the long-standing air pollution problem of the greater Beijing capital region. With ADB support, Hebei is making fundamental reforms in its energy and socioeconomic policies and establishing a solid basis for incremental reforms and investments in improving air quality and public health. These reforms include policy actions to switch from coal to cleaner energy, promote public transport in urban areas, and increase use of biomass for energy in rural areas. A monitoring and analysis system will also be developed and environmental regulatory enforcement will be strengthened. Job support and social protection will be provided to workers affected by industrial transformation.

Based on ADB estimates, these policy actions will help reduce Hebei's annual coal consumption by about 12.4 million tons, representing about 4% of the province's total coal consumption in 2012. They will also help cut air pollutants and greenhouse gas emissions substantially. Carbon dioxide emissions alone will be reduced by 18 million tons a year against 2012 levels.

In 2016, the Government of the PRC agreed with ADB on a multiyear lending program of about $500 million per year during 2016–2020 for air pollution reduction in the Beijing–Tianjin–Hebei region. ADB assistance over that period will focus on strengthening policies and the regulatory framework, developing financing approaches to unlock investment in areas in need, and leapfrogging technologies in key sectors.

Sources: ADB. 2015. *Report and Recommendation of the President to the Board of Directors on Proposed Policy-Based Loan People's Republic of China: Beijing-Tianjin-Hebei Air Quality Improvement-Hebei Policy Reforms Program.* Manila; ADB. 2016. ADB Approves Second Loan of €458 Million to Help PRC Improve Air Quality in Greater Beijing Area. News release. https://www.adb.org/news/adb-approves-second-loan-458-million-help-prc-improve-air-quality-greater-beijing-area

56. **Strengthen policy frameworks and harmonization.** ADB will support the DMCs in ensuring consistency and coherence of policies for climate action. For example, some governments employ policy measures that promote gasoline consumption while investing too little in mass transit. Governments should be assisted in phasing out fossil fuel–related subsidies and using the resources that are released to promote climate-friendly investment, while making sure that those affected by reductions in subsidies are not adversely affected. Regional and subregional collaboration to achieve policy harmonization will also be promoted in line with ADB's Operational Plan for Regional Cooperation and Integration (2016–2020). Box 3 presents an ADB study on fossil fuel subsidy reform.

Box 3: Analytics on Fossil Fuel Subsidy Reform

An Asian Development Bank study has shown that fossil fuel subsidies in India, Indonesia, and Thailand in 2012 were extensive at 2.7%, 4.1%, and 1.9% of gross domestic product, respectively, with low-priced petroleum products accounting for over half of these subsidies in each country. In all three countries, analyses of the immediate macroeconomic impact of fossil fuel subsidy reforms indicated that governments will need to use only a portion of savings to fully compensate households for direct and indirect impact, leaving funds for higher government expenditure or tax reduction and leaving the economy no worse off.

Source: ADB. 2016. *Fossil Fuel Subsidies in Asia, Trends Impacts, and Reforms: An Integrative Report.* Manila. https://www.adb.org/sites/default/files/publication/182255/fossil-fuel-subsidies-asia.pdf

57. **Help create supportive policy environments to drive private sector investment.** As financing for effective climate action will increasingly come from the private sector, ADB will help DMC governments put in place stable regulatory regimes and provide incentives for decarbonization that send long-term policy signals to the private sector. Subsidy reform, carbon taxes, and other carbon pricing mechanisms, including emissions trading systems (ETSs), can shift patterns of investment when deployed clearly, consistently, and coherently. The strengthening of legal and regulatory frameworks is critical and complementary to strengthening policy frameworks for creating an enabling environment for private investment.

58. **Build institutional capacity and support the coordination of government agencies, and subnational or local authorities.** Effective climate action will require strengthened institutional capacity and coordination, particularly as greater responsibility for implementation of climate action is increasingly delegated to decentralized government agencies, and subnational or local authorities. At the national level, decision making on climate issues is often located in ministries different from those with central authority for planning or budgeting, which are ADB's main counterparts in the DMCs. The NDC process in many DMCs has shown that interministerial coordination and collaboration on climate issues can still be improved in many cases, yielding weaknesses with regard to NDC planning, financing, and future implementation. At all levels, decision makers often require more technical capacity, access to actionable information about all aspects of climate risk and policy options for low emission and climate-resilient development, and better coordination with government and non-state actors, as well as development partners and other stakeholders, to deliver effective solutions. Through technical assistance and analytical support, ADB should help build capacity and coordination among relevant decision makers, including those in finance and planning ministries and in relevant line ministries and subnational authorities, to design and implement climate policies and actions, and integrate these with disaster risk management issues.

59. ADB will also review internal policies, strategies and operational practices, including procurement guidelines, to better facilitate support for climate-resilient, low GHG emissions development in its DMCs.

60. **Assist the developing member countries in making policy choices for effective greenhouse gas reduction.** To achieve the ambitions outlined in their respective NDCs, the DMCs will need to identify the most appropriate mix of domestic policy options suiting their national circumstances. There are a number of policy options for the DMCs to consider including carbon pricing mechanisms such as carbon taxes and ETSs. Carbon pricing can support the DMCs in achieving their overall emission reduction goals in a cost-effective manner by assigning a monetary value to GHG emission reduction and providing financial returns, thereby incentivizing the deployment of low GHG emission technologies. The formulation of NDC strategies by individual DMCs should bring greater policy certainty, which in turn will encourage investment in low GHG emission activities. As each of the policy options has its unique requirements and complexities for achieving desired national climate change outcomes, especially in the context of a continuously evolving international climate change policy framework, ADB will use its long-standing experience in carbon markets to assist the DMCs in assessing available options and making well-informed decisions on carbon pricing mechanisms for achieving ambitions articulated in their respective NDCs.

2. Facilitating Access to Public and Private, Domestic, and International Climate Finance

61. Many DMCs have expressed demand for international support—in terms of finance, technology transfer and development, and capacity building—for the development and implementation of NDCs. In their INDCs, a majority of the submitting DMCs have commitments that are solely or partially conditional on external support (para. 18). These highlight the need for substantial resource mobilization, both international and domestic, which ADB is well positioned to support.

62. **Scale up climate financing from ADB's own sources.** In September 2015, ahead of the UN Sustainable Development Summit, which adopted the SDGs, ADB committed itself to doubling climate finance from its own sources, from around $3 billion to $6 billion annually by 2020. This will require a scaling up of ADB operations in sectors such as energy, transport, urban development, water, agriculture and natural resource management, and finance, particularly in climate change adaptation. To ensure success, ADB operations in the regional and private sector departments should have clear and coordinated pathways and accountabilities for the delivery of climate

finance toward ADB's overall commitment, and ensure that projects and project components are adequately tagged as contributing to climate mitigation or adaptation, or both.

63. **Deploy managed fund resources to support integrated climate and disaster risk management investment.** ADB manages a range of special and trust funds that can support climate investment and technical assistance. ADB's Climate Change Fund is the main source of internal funds to support climate-related activities and is financed by periodic allocations from ADB's net income (Box 4).[34] Other funds are financed primarily by donor contributions, for instance, partnership facilities, which can address climate-related issues within their sector foci. ADB will seek to replenish these fund resources and prioritize support for climate change–related activities through these funds, if necessary by adjusting fund regulations.

Box 4: ADB's Internally Managed Climate Funds

Climate Change Fund. Established in 2008 to ensure that climate change components and considerations are effectively integrated into underlying Asian Development Bank (ADB) investments and climate financing is scaled up, the Climate Change Fund (CCF) was instrumental in enabling ADB's operational departments to support greater and more robust climate investments in the developing member countries (DMCs). CCF was established with an initial allocation of $40 million from ADB's net income. It has helped provide and leverage support toward the development of climate policies, build climate-related knowledge and capacities, mainstream climate risk management into investments, and increase the use of climate technologies in the Asia and Pacific region. The CCF has had a significant part in integrating climate change into ADB's operations supporting (i) ADB's annual clean energy investments; (ii) ADB's reengagement with forest and land use management activities, tied to carbon sequestration objectives; and (iii) building of a program of support for climate change adaptation in the DMCs. The CCF has helped to fortify climate resilience in ADB operations and played a key role in the implementation of the ADB climate risk management framework[a] by providing financial resources for the conduct of climate risk and vulnerability assessments (CRVAs) during the preparation of projects assessed to be at high or medium risk from climate change. The CCF is currently ADB's only dedicated source of CRVA financing. As of 31 March 2017, total CCF resources amounted to $60.5 million, of which $57.5 million had been allocated to projects (with $2.2 million in related fees). In May 2017, ADB approved a replenishment to CCF amounting to $15 million.

Canadian Climate Fund for the Private Sector in Asia. The Canadian Climate Fund for the Private Sector in Asia (CFPS) was established in 2013 under the Clean Energy Financing Partnership Facility with a Can$82.4 million contribution from the Government of Canada. The CFPS is aimed at catalyzing greater private investment in climate change mitigation and adaptation in Asia and the Pacific. A major part of the CFPS is for helping to overcome leading-edge technology risks and cost hurdles to initiating and scaling up projects that will reduce greenhouse gas emissions. There is a small set-aside for encouraging private sector participation in adaptation. Investments have so far focused on renewable energy generation, and transactions approved so far, including the Sarulla Geothermal Power Development Project in Indonesia and the Adjaristsqali Hydropower Project in Georgia, are expected to lead to annual emission reductions of 1.5 million tons of carbon dioxide equivalent per year at full operation. The combined capacity to be installed is 505 megawatts, delivering a total of about 3 terawatt-hours annually. In addition to this, the CFPS has supported various technical assistance projects, including climate-friendly agribusiness value chain development in the Greater Mekong Subregion, and institutional capacity building of Indonesia Eximbank. In March 2017, as follow-on to the CFPS, CFPS II was established with a Can$200 million contribution from the Government of Canada to provide concessional financing for ADB's nonsovereign climate adaptation and mitigation projects. The fund is aimed at increasing private sector participation by helping the sector overcome development risks (market, technology, financing, regulatory, and other risks), and offering financing on concessional terms and conditions for projects that would not proceed solely on a commercial basis. It is also aimed at improving the gender equality outcomes of projects.

Carbon Funds. Established under ADB's Carbon Market Program, the carbon funds are aimed at enhancing the competitiveness of low-carbon technologies and contributing to the greenhouse gas emission reduction efforts in Asia and the Pacific through the prepurchase of Certified Emission Reductions (CERs) from Clean Development

[34] At present, resources under the Climate Change Fund are from ADB's ordinary capital resources net income. ADB may accept, on an untied grant basis, contributions to the CCF from bilateral, multilateral, and individual sources, including companies and foundations.

Box 4 continued

Mechanism (CDM) projects hosted in the DMCs. The $152 million Asia Pacific Carbon Fund (APCF), launched in 2007, was established with participation from Fundo Português de Carbono (Portugal), the Swedish Energy Agency, the Grand Duchy of Luxembourg, the Climate Cent Foundation (Switzerland), the Ministry for Foreign Affairs of Finland, Belgium, and the Kingdom of Spain, for the purchase of CERs up to 2012. The Future Carbon Fund (FCF), which started operating in 2009 and has $115 million in funding, was established with financing from the Republic of Korea, Pohang Iron and Steel Company (POSCO, Republic of Korea), the Swedish Energy Agency, the Government of Finland, Participatiemaatschappij Vlaanderen NV (for the Flemish Region of Belgium), and Eneco Energy Trade (Netherlands). The APCF purchased CERs up to 2012 while FCF leverages post-2012 CERs. These funds contribute to climate change mitigation investments in the region while assisting participants in complying with their emission reduction commitments.

Japan Fund for the Joint Crediting Mechanism. Established in 2014, the Japan Fund for the Joint Crediting Mechanism (JFJCM), which has $51.7 million in funding, provides financial incentives for the adoption of advanced low-carbon technologies, offering grants to ADB-financed projects using the Joint Crediting Mechanism, a bilateral carbon credit mechanism initiated by the Government of Japan. It offers the opportunity for recipients to engage in projects with strong development characteristics and long-term climate change mitigation benefits.

Urban Climate Change Resilience Trust Fund. Established in 2013, the Urban Climate Change Resilience Trust Fund (UCCRTF) supports ADB's response to the huge unmet needs of the region for both basic and economic infrastructure, a core business area of operations under the Strategy 2020. The UCCRTF helps build resilience to the effects of climate variability and climate change within medium-sized cities in Asia, particularly to reduce the vulnerability of the urban poor. It uses a systems-centered approach that supports making climate change a central element of city planning. This will be linked to the implementation of infrastructure and policy or institutional interventions, as well as strong knowledge, capacity building, and networking components. As of 31 December 2016, total UCCRTF resources amounted to $128.4 million, with approved allocations of $51.7 million.

[a] See ADB. 2014. *Climate Risk Management in ADB Projects.* Manila. https://www.adb.org/publications/climate-risk-management-adb-projects

Sources: ADB. Climate Change Fund. https://www.adb.org/site/funds/funds/climate-change-fund; ADB. Canadian Climate Fund for the Private Sector in Asia. https://www.adb.org/site/funds/funds/canadian-climate-fund-for-the-private-sector-in-asia; ADB. Canadian Climate Fund for the Private Sector in Asia II. https://www.adb.org/site/funds/funds/canadian-climate-fund-for-the-private-sector-in-asia-2; ADB. 2010. *Carbon Market Program Brochure.* Manila. https://www.adb.org/publications/carbon-market-program-brochure; ADB. Asia Pacific Carbon Fund. https://www.adb.org/site/funds/funds/asia-pacific-carbon-fund-apcf; ADB. Japan Fund for the Joint Crediting Mechanism. https://www.adb.org/site/funds/funds/japan-fund-for-joint-crediting-mechanism; Urban Climate Change Resilience Trust Fund (UCCRTF). https://www.adb.org/site/funds/funds/urban-climate-change-resilience-trust-fund.

64. **Promote access to external climate finance.** ADB will increase efforts to facilitate DMC access to external public and private climate finance, including support for innovative financing mechanisms, building on ADB experience with the CIFs, the GCF, and other concessional sources (Box 5). In many cases, the DMCs do not have direct access to these resources and must work through accredited entities like ADB. To the extent feasible, ADB will maximize the use of these sources of finance for cofinancing investments and assist the DMCs in obtaining access to these sources. Lessons from cofinancing experience will help to guide the future scale-up of climate finance mobilization and the leveraging of ADB's own sources. ADB will increase DMC readiness for scaled-up climate finance from a variety of sources by enhancing DMC absorptive capacity through TA and pilot projects. ADB will work with donors, development partners, and the private sector to improve DMC access to funds while helping to increase transparency around climate finance flows and directing them to areas of maximum need and impact. With increasingly less development finance available through the traditional bilateral and official development assistance (ODA)–type fund mechanisms, particularly for middle-income countries, ADB must step up its engagement with new climate financiers, including the private sector, philanthropic institutions, foundations, and other non-state actors.

Box 5: Mobilizing External Climate Finance

Climate Investment Funds. Since the inception of Climate Investment Funds (CIFs), the Asian Development Bank (ADB) has participated in the preparation of 24 investment plans in 18 countries. Under these plans, ADB is administering about $1.4 billion in funding for 42 projects and programs across Asia and the Pacific, under CIFs' two funds: the Clean Technology Fund (CTF), with focus on low-carbon technologies; and the Strategic Climate Fund (SCF), with focus on pilot-testing new approaches with scaling-up potential and transformational climate change action. The CIFs have been a key mechanism for catalyzing climate-smart transformation in the region, through the "Finance Plus" approach (maximizing leveraging of additional financing and delivering knowledge, technologies and institution building).

Green Climate Fund. ADB has supported two projects to gain access to resources from the Green Climate Fund (GCF), a fund created to support a paradigm shift in the global response to climate change. In 2015, ADB's Fiji Urban Water Supply and Wastewater Management Project was one of the first projects to receive grant financing from the GCF. The grant, amounting to $31 million, was intended to ensure the resilience of the water supply system in Fiji's capital Suva to anticipated climate change impact. In 2016, the GCF also provided grant financing of $17 million in support of the Pacific Islands Renewable Energy Investment Program, which is aimed at facilitating a transformational shift away from fossil fuels and towards renewable energy systems. The program is expected to contribute to the reduction of 3 million tons of carbon dioxide equivalent, with 580,000 people benefiting from access to resilient and renewable power.

Global Environment Facility. ADB has facilitated access to resources under the Global Environment Fund (GEF), established in 1991 to ensure global environmental sustainability, with focus on biodiversity, climate change, international waters, land degradation, sustainable forest management, and chemicals management. ADB and the GEF work together to deliver transformational and innovative programs such as the Greater Mekong Subregion (GMS) Forests and Biodiversity Program, where ADB is the lead agency and which supports the sustainable management of high priority forest biodiversity areas, landscapes, corridors and critical watersheds and strengthens resilience to climate change in six GMS countries, with $20 million in financing from the GEF; and the Heart of Borneo Initiative which fosters climate change mitigation and adaptation through effective management of 1.36 million hectares of protected areas to sequester 3.2 billion tons of carbon.

Sources: ADB. 2014. *ADB and the Climate Investment Funds: Climate Change Innovation and Action in Asia and the Pacific.* Manila; ADB. 2015. ADB Project in Fiji Among Those First Financed by Green Climate Fund. News release. https://www.adb.org/news/adb-project-fiji-among-those-first-financed-green-climate-fund; GCF. Consideration of Funding Proposals – Addendum IX Funding proposal package for FP036. http://www.greenclimate.fund/documents/20182/490910/GCF_B.15_13_Add.09_-_Funding_proposal_package_for_FP036.pdf/bc1fd3e6-cb63-4a51-92fe-52afb46727a4; GEF. GMS-FBP Greater Mekong Subregion Forests and Biodiversity Program. Program Framework Document. https://www.thegef.org/sites/default/files/project_documents/ADB-WB%2520MFA%2520GMS-FBP%2520PFD%25207%2520Oct%25202011%2520Final.pdf; GEF. Sustainable Forest and Biodiversity Management in Borneo. CEO Endorsement Document.

65. **Develop innovative approaches to climate finance.** Depending on market conditions and incentives ADB will explore new and more innovative approaches to mobilizing climate finance. For example, in selective cases where access to concessionality may be necessary to achieve sufficient economic returns from public sector adaptation and mitigation actions, ADB may consider moderated loan pricing, while ensuring the overall risk and income profile for ADB.

66. **Build stronger partnerships to effectively deliver blended climate finance.** Public finance increasingly should be deployed in a way that helps to de-risk investment and "crowd in" private capital. Strong partnerships with the private sector are an essential component of a successful climate response because public budgets in developing countries are limited. Leading companies from across the business spectrum are stepping up to pledge scaled up action on climate, through significant financial pledges and other means. ADB will help its DMCs grasp these opportunities because increased engagement with the private sector on climate investment, including through PPPs, will be necessary to mobilize the needed capital at speed and at scale.

67. **Help the developing member countries mobilize domestic financing resources.** Domestic resources are already the most significant source of climate finance in most DMCs. Aside from international finance flows, ADB considers national and local sources of commercial and public finance in the DMCs as key to scaling up investments in mitigation and adaptation, and building resilience. Working with other financiers, ADB will leverage climate- and disaster-related funding through the joint development of suitable financial instruments, e.g., portfolio guarantees for lending for renewable energy and energy efficiency, risk guarantees to renewable energy off-takers, support for green bond issuances, and early-stage risk capital for climate projects.

68. **Green the financial sector.** Commercial and public financial institutions in the DMCs are significant potential catalysts for the mobilization of domestic resources and accessing external development and climate finance sources. ADB should integrate climate relevant components into finance sector projects, develop programs to support financial institutions in the development of new financial instruments to drive climate investment, and help build the readiness of financial institutions to scale up climate investment and access international climate finance.

69. **Support venture capital and impact investment.** Many private sector companies are developing clean technology solutions and business models with good potential for scale-up. To fully develop their technologies and bring them to the market, these companies often require start-up capital, which is provided by venture capitalists and entrepreneurs, including women entrepreneurs. ADB will support entrepreneurs willing to invest in technologies and business models for spreading climate solutions. ADB will also support firms that are developing novel ways of commercializing technology, particularly for consumers at the "base of the pyramid," as well as impact investors looking to create profitable businesses with a double or triple bottom line. For example, ADB is participating as a general partner in Asia Climate Partners, a $400 million joint venture that is making private equity investments in companies developing environment- and climate-friendly products and services.

70. **Mobilize institutional investors.** Institutional investors, including pension and investment funds, insurance companies, and sovereign wealth funds, hold $24 trillion in assets.[35] These investors seek long-term investment opportunities to match their long-term liabilities. However, to date, there has been very little investment in infrastructure overall by institutional investors, and even less investment in infrastructure for climate mitigation or adaptation. ADB will make greater use of instruments such as green and climate bonds to mobilize institutional investors (Box 6).

[35] Investor Group on Climate Change. 2014. COP21 Investor Events. Media release. http://www.igcc.org.au/resources/Documents/MR_COP21 Investor events_20141203.docx

Box 6: Mobilizing Institutional Investment through Green Bonds in the Philippines and India

In 2016, the Asian Development Bank (ADB) agreed to provide credit enhancement to the Philippine firm AP Renewables, Inc. (APRI), a subsidiary of AboitizPower Corporation (AboitizPower), for the Tiwi and MakBan geothermal energy facilities, the fourth and seventh largest in the world. The $225 million equivalent local currency bond comes in addition to a direct ADB local currency loan of $37.7 million equivalent. ADB's credit enhancement is in the form of a guarantee of 75% of principal and interest on the bond.

ADB's credit enhancement will be risk-participated by the Credit Guarantee Investment Facility (CGIF), a multilateral facility established by the Association of Southeast Asian Nations Plus Three (ASEAN+3) governments and ADB to develop bond markets in the ASEAN+3 region. The Tiwi-MakBan project is the first to benefit from CGIF support for project bonds and illustrates CGIF's growing role in contributing to local debt capital market development. Credit-enhanced project bonds offer an attractive alternative to bank financing, and by mobilizing cost-effective, long-term capital can help close the region's infrastructure gap.

The project bond has been certified as a climate bond by the Climate Bonds Initiative, the first in Asia and the Pacific to be thus certified and the first-ever climate bond for a single project in an emerging market.

In 2015, ADB and the India Infrastructure Finance Company Ltd. (IIFCL) jointly guaranteed a Rs4.51 billion ($68 million) project bond for ReNew Power Ventures Private Ltd., a New Delhi–based independent power producer. The bond, which will refinance bank loans taken to fund a wind power plant in western India, is the first issue under a Rs7.2 billion ($128 million) project bond guarantee facility set up in 2012 by ADB and IIFCL to draw more institutional investors into critical infrastructure projects in India.

Sources: ADB. 2016. ADB Backs First Climate Bond in Asia in Landmark $225 Million Philippines Deal. News release. https://www.adb.org/news/adb-backs-first-climate-bond-asia-landmark-225-million-philippines-deal, and ADB. 2015. First Bond Issue Under Guarantee Facility Can Be a Boon for Indian Infrastructure. Blog. https://blogs.adb.org/blog/first-bond-issue-under-guarantee-facility-can-be-boon-indian-infrastructure

71. **Support the use of carbon market mechanisms.** The Paris Agreement paves the way for the resurgence of carbon markets even though they are likely to be decentralized and diverse. Given the level of GHG emission reduction targets set by some DMCs and their interest in using market mechanisms[36] in achieving such targets, ADB will build on its established role as a key source of technical and financial support for the development and interlinking of carbon markets in the region. ADB will support carbon pricing initiatives across the region, including development of domestic ETSs in interested DMCs through TA projects and pilot programs to maximize opportunities to secure financial support from carbon markets. The development of ETSs, a new international carbon offset mechanism, as well as existing and future bilateral mechanisms, will strengthen the ability of such markets to grow and help the DMCs achieve ambitions set out in their respective NDCs by effectively accessing climate finance and adopting low emission technologies. Together with its development partners, ADB will support its DMCs in making policy choices for appropriate carbon pricing measures and in implementing these measures. ADB has included in its *Guidelines for the Economic Analysis of Projects* a shadow price for GHG emissions.[37]

[36] Various mechanisms, such as domestic, regional, or internationally linked ETS, could be used, besides existing as well as new offset mechanisms.

[37] ADB. 2017. *Guidelines for the Economic Analysis of Projects.* Manila. https://www.adb.org/sites/default/files/institutional-document/32256/economic-analysis-projects.pdf

72. **Support the integration of climate considerations and disaster risk management during project preparation.** ADB will support the early-stage integration of climate and DRM considerations during infrastructure project preparation and prepare stand-alone climate projects or projects with significant climate components. ADB has a number of project preparation facilities, such as the Asia Pacific Project Preparation Facility, established in 2014, which has provisions for prioritizing projects in sectors identified by the DMCs as contributing to climate resilience and sustainable development and regional economic integration. This is relevant for virtually all sectors, particularly when built infrastructure is being proposed.[38] Box 7 presents a trust fund established to enhance project readiness.

Box 7: Project Readiness Improvement Trust Fund

The multi-donor Project Readiness Improvement Trust Fund (PRI Fund) was established in June 2016 to strengthen the climate mitigation and adaptation components of investment projects and improve project preparedness, in terms of design and procurement, for dealing with climate change impact. The PRI Fund will complement existing financing modalities of the Asian Development Bank (ADB) for supporting project readiness and help to reduce start-up and implementation delays. The PRI Fund received an initial contribution of €7 million from the Nordic Development Fund and is targeted at developing member countries in Southeast Asia.

See ADB. n.d. ADB Project Readiness Improvement Trust Fund. https://www.adb.org/site/funds/funds/project-readiness-improvement-trust-fund

73. **Provide transaction advisory services and use trust funds for structuring bankable projects.** Apart from policy dialogue, program and project planning and management, financing and technical assistance, the DMCs will increasingly require advice on the structuring of climate mitigation and adaptation projects, which will keep growing in size and complexity. ADB is already developing new modalities to provide transaction advisory service in areas such as PPPs with high climate mitigation impact, for example, railway and energy efficiency projects. The Asia Pacific Project Preparation Facility, a donor trust fund, also provides support for the preparation and structuring of such PPP projects.

74. **Expand from traditional project lending to aggregation of finance.** Though set to grow in the future, climate financing by MDBs, including ADB, will continue to remain relatively small in comparison with DMC needs. To better support its DMCs, ADB should progressively shift from its current "project" focus toward a role as a finance aggregator, not dissimilar to that of an investment bank. An investment bank's normal role is to help clients (governments, public and private entities in the case of ADB) raise money in the capital markets (equity and debt) and structure investments, including helping to mitigate risks through guarantee and insurance mechanisms. In this role, ADB would also continue to provide direct loans and technical assistance to projects.

75. Over the coming years, ADB will build on its existing franchise and technical and financial capacity to explore and pilot-test solutions that channel large-scale institutional investment and retail savings into low GHG emission, climate-resilient infrastructure projects with as little application of ODA resources or other public credit as possible.

[38] While often left out of the discussion on mainstreaming climate resilience, ensuring climate proofing for the education and health sectors is critical. Further, ADB is well positioned to support climate-resilient education and health facilities in demonstrating good practice and providing education and skills to support other facilities (e.g., schools-cum-cyclone-shelters in Bangladesh, use of renewable energy, energy-efficient buildings). Universities and training centers can lead and demonstrate how such resilience can be applied to other facilities through research and development and training (e.g., centers of excellence focused on green skills training) and its translation into up-graded curricula and training across the education sector.

3. Promoting the Use of Climate Technologies in Operations

76. Climate-friendly technologies are a key solution to climate change. Climate actions outlined in the NDCs depend to a significant degree on access to needed technologies. The DMCs need to invest in areas like clean energy, sustainable cities, and climate-smart agricultural practices to meet their climate targets. According to International Energy Agency estimates, meeting the 2°C target of the Paris Agreement will require $7.7 trillion in cumulative investment in clean technology in the energy sector alone in the PRC, India, Japan, and Southeast Asia until 2035.

77. Current investment is far below what is required. Underinvestment in climate technologies stems primarily from their often unfavorable risk–return profile, as a result of their higher economic and up-front capital cost compared with incumbent technologies, and real or perceived risks.[39] For technologies with negative abatement costs, misaligned incentives, intangible benefits, high transaction costs and lack of standardization in the quantification of energy savings and other benefits frequently hamper their financing and uptake, in addition to their upfront capital cost (footnote 39). Compared with mitigation technologies, technologies for adaptation face further barriers, including the lack of revenue models for some technologies, the need for buy-in and involvement of large and complex groups of stakeholders in some cases, inadequate climate information, and uncertainty about the benefits of adaptation (footnote 39).

78. ADB will help its DMCs access the technology they need for low GHG emissions and climate-resilient development. This assistance will include using ADB procurement systems to give the DMCs access to the most advanced climate technology, and assisting the DMCs in accessing concessional finance to address the costs of implementing better technology. Aside from the intrinsic benefits, investment in climate technology has an important demonstration and development impact, which supports dissemination by reducing the risks and costs of subsequent projects.

79. **Promote uptake of advanced clean technology.** ADB has an internal directive[40] to promote investments by the DMCs in high technology, particularly for climate change–related operations.[41] ADB will work with partners to improve incentives for client countries and private sector partners to be sufficiently aligned to stimulate deployment at scale in an efficient and financially sustainable manner. To accelerate this practice, ADB will routinely explore opportunities to pilot-test or deploy high technologies at scale through its public and private sector operations. It will also identify and pursue opportunities to conduct pilot testing where innovative business models to finance these technologies are required. While the high technologies selected will usually have already been proven and operational in some global context, ADB will support projects that involve pilot-testing and demonstration of technologies and applicable business models in the DMCs. Sample projects promoting the uptake of advanced clean technologies are presented in Box 8.

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[39] United Nations Framework Convention on Climate Change. 2015. Technology Executive Committee (TEC): Enhancing Access to Climate Technology Financing. *TEC Brief #6*. Bonn: United Nations Climate Change Secretariat. http://unfccc.int/ttclear/misc_/StaticFiles/gnwoerk_static/TEC_documents/204f400573e647299c1a7971feec7ace/ea65db0ca9264cdbaefeb272dd30b34c.pdf

[40] ADB. 2016. Use of High-Level Technology in Projects. Memo from President to Vice Presidents and Managing Director General. 21 April.

[41] In April 2017, ADB established the High-Level Technology Fund, a multi-donor trust fund that provides grant financing to promote the integration of high-level technology and innovative solutions into ADB-financed and administered sovereign and nonsovereign projects.

Box 8: Promoting Uptake of Advanced Clean Technology

Promoting Hybrid Renewable Energy Systems in Sri Lanka. To support electricity supply reliability improvement in Sri Lanka, the Asian Development Bank (ADB) provided a $115 million loan, which includes the installation of hybrid renewable energy systems using a combination of wind, solar, and efficient diesel generation. Along with the installation of energy-storing long-life lithium–ion batteries, these systems will provide reliable electricity supply to communities on three isolated islands in the Jaffna area of the Northern Province. The project includes a micro-grid pilot scheme which will demonstrate cost-effective management of power resources and reduce the burden on the national grid. It is the first time this concept is being tried out in Sri Lanka. A $2 million grant from ADB's Japan Fund for Poverty Reduction will be used to help train rural community members in the safe use of electrical equipment and in potential livelihood opportunities arising from reliable power supply. Local community members will also be tapped to work in maintenance teams to carry out basic repairs and to operate and maintain the hybrid systems.

Simpa Networks on Off-Grid Pay-As-You-Go Solar Project. In 2012, ADB provided equity investment for an innovative pay-as-you-go payment and metering system for solar power, to help in developing energy delivery solutions and scaling up Simpa Network's operations in India. The project is expected to improve access to clean energy among new households while delivering adequate returns for private investors. The investment is also expected to have a positive demonstration effect leading to increased private equity and venture capital funding for off-grid energy services in India.

Sources: ADB. 2016. *Sri Lanka: Supporting Electricity Supply Reliability Improvement.* Manila; ADB. 2013. *India: Off Grid Pay-As-You-Go Solar Power.* Manila.

80. **Support investment in green skills.** The widespread introduction of climate technology will create new jobs as well as some short-term job losses. ADB must help its DMCs close the existing skills gap and anticipate the need for green skills and support the re-skilling of the workforce if the full benefits of a shift toward advanced climate technology, such as economic and social inclusion and poverty reduction, are to be felt. (A sample project is presented in Box 9.) There is a need to train the next generation of entry-level technicians, engineers, managers, and entrepreneurs, who can help countries reach their climate targets. At the same time, green skills needed must be integrated into wider training and skills programs so that the transition opportunities in manufacturing, installation, operations, maintenance and services can benefit all workers, in particular, women who are already under-represented in these sectors.

Box 9: Supporting Green Skills Development in Tajikistan

The Asian Development Bank (ADB) is implementing the Strengthening Technical and Vocational Education and Training (TVET) project in Tajikistan to help develop and implement industry-endorsed competency standards and competency-based training, train TVET teachers and masters, and strengthen governance and management of the TVET system. The project is targeted at priority skills needed in the market, some of which are green skills. The project is also upgrading the physical learning and teaching facilities in selected TVET institutions to incorporate energy-efficient features, including renewable energy generation equipment, energy efficient lighting, and water and space heating technologies. In this way, the TVET institutions themselves will become showcases of advanced technology.

Source: ADB. 2015. *Report and Recommendation of the President to the Board of Directors on the Proposed Loan, Grant, and Administration of Grant Republic of Tajikistan: Strengthening Technical and Vocational Education and Training Project.* Manila.

4. Developing Knowledge Solutions and Capacity Development Support

81. Access to knowledge and availability of capacity is fundamental to effective climate action. The DMCs require support to access relevant knowledge that enables the formulation of policies and projects supportive of their climate and development objectives, including gender-responsive climate change policies. The DMCs must also be assisted in strengthening their capacity to implement and manage policies and projects.

82. **Improve access to climate-relevant knowledge and information.** Decision makers in the DMCs often lack actionable information about climate-related issues, which is relevant to their context. This ranges from basic information about climate impact to relevant response strategies, policies, technology, and financing. ADB must continue to build partnerships with institutions in the region to help its clients get access to data and information needed for more informed policy making (Box 10).

Box 10: Examples of Knowledge Partnerships

The Asian Development Bank (ADB) has helped to establish a **Regional Climate Projections Consortium and Data Facility** to provide an expanded range of climate projections for the region. ADB is partnering with an Australian science agency (Commonwealth Scientific and Industrial Research Organisation, or CSIRO) and the meteorological agencies of Indonesia, the Philippines, and Thailand, to closely implement and coordinate activities related to this facility.

In 2015, ADB helped launch the **Climate Services for Resilient Development** initiative. It teams governments with multilateral development banks such as ADB, philanthropic institutions, and private sector companies in developing new tools, services, and approaches to boost the climate resilience of developing countries. This diverse partnership delivers a broad range of expertise through the involvement of institutions such as NASA, Google, and the Skoll Global Threats Fund.

Sources: ADB. 2013. *Technical Assistance on Regional Climate Projections Consortium and Data Facility in Asia and the Pacific.* Manila; ADB. 2015. Beyond Climate Finance: Technology, Partnerships and Knowledge. Op-ed/Opinion: Takehiko Nakao. https://www.adb.org/news/op-ed/beyond-climate-finance-technology-partnerships-and-knowledge-takehiko-nakao

83. **Improve access to country-level climate data and data on climate policy and finance.** All DMCs are implementing climate-relevant policies and financing climate projects on a highly dynamic basis. To better calibrate its assistance to its DMCs, ADB will track developments in climate policy and finance on the ground more rigorously and consistently. Existing trackers, such as Climatescope,[42] collate publicly available information about clean energy investment only. Others, such as Climate Action Tracker,[43] focus on domestic mitigation action in pursuit of the NDCs, but exclude adaptation actions. Since 2015, ADB's Asia Regional Integration Center has maintained a database on regional climate change initiatives, news, and research.[44] Taking advantage of its presence in the DMCs, ADB will build on this effort to create an information system that is as close to a real-time information system on DMC-level climate impact, policy, and finance.

84. **Refine understanding of the economic impact of climate change, and the benefits of mitigation and adaptation measures.** ADB has assessed the associated economic costs of climate change and concluded that the cost of inaction on climate change is greater than the cost of action (Box 11).[45] Adaptation can make a substantial contribution to reducing damages but would not be sufficient on its own. Minimizing the losses also requires GHG emission growth to slow and eventually reverse the accumulation of GHG in the atmosphere.[46] ADB will continue

[42] http://global-climatescope.org/en/
[43] http://climateactiontracker.org/
[44] Asia Regional Integration Center. n.d. Regional Public Goods: ADB Climate Change Program. https://aric.adb.org/initiative/adb-climate-change-program
[45] ADB. 2009. *The Economics of Climate Change in Southeast Asia: A Regional Review.* Manila. This also echoes the overall conclusions of the N. Stern. 2006. *Stern Review: The Economics of Climate Change.* Cambridge, United Kingdom: Cambridge University Press; and The Global Commission on the Economy and Climate. 2014. *Better Growth, Better Climate: The New Climate Economy Report*. Washington DC.
[46] M. Westphal, G. Hughes, and J. Brömmelhörster. 2013. *Economics of Climate Change in East Asia.* Manila: Asian Development Bank.

to support its DMCs in gaining a better understanding of the economics of climate impact and alternative actions to improve decision making under highly uncertain circumstances. As the cost of low GHG emission technologies continues to drop, the allocation of resources will need to be reevaluated regularly. Future work, much of which is likely to be carried out through existing and new partnerships, will focus on improving methodologies and tools, and associated capacity development so that they can be applied to improve decision making. By integrating climate change and disaster risk management considerations into project design, total costs can be reduced compared with separate, isolated interventions.

Box 11: Economics of Climate Change

In Central and West Asia, particularly in the Afghanistan, Kyrgyz Republic and Tajikistan (AKT) subregion, climate change is expected to impose accelerating costs, rising from an average of $200 million per year in 2020. Under a business-as-usual (BAU) scenario, the total economic losses due to climate change impact will be around $2.5 billion (1.3% of annual gross domestic product [GDP]) up to 2050, and will accelerate in the second half of the century to $48.8 billion (10% of the subregion's annual GDP) by 2100. Even with global efforts to move toward non–fossil fuel energy under a mitigation scenario, economic damage to the AKT subregion is expected to reach some $23 billion (4.7% of annual GDP) by 2100.

In East Asia, if current patterns of development were to continue, the average losses due to climate change for the BAU case could amount to 5.3% of annual GDP by 2100. With an expected adaptation cost amounting to 0.4% of GDP, residual damage would amount to 1.6% of GDP on average by 2100.

In the Pacific, if the world were to stay on the current fossil fuel-intensive growth model, total climate change cost in the region is estimated to reach the equivalent of 12.7% of annual GDP by 2100. Under this BAU scenario, the region would require on average about 1.5% (or as high as 2.5%) of GDP every year until 2050 to prepare for the worst-case scenario (95th percentile) for climate change. If global warming were to be maintained at about 2°C, the economic cost would be smaller but would still reach between 2% and 3% of GDP by 2100 while adaptation is expected to be as low as 0.5% of GDP per year.

In South Asia, without global deviation from a fossil fuel-intensive path (BAU), losses for the region could amount to the equivalent of 1.8% of annual GDP by 2050, progressively increasing to 8.8% by 2100. Avoiding the damage and economic losses under the BAU scenario would require an average adaptation expenditure of 0.48% of GDP per year by 2050 and 0.86% of GDP per year by 2100. If actions are taken to keep the global mean temperature rise at or below 2°C, the region would lose an average of 1.3% of GDP by 2050 and roughly 2.5% by 2100, with associated costs of 0.36% of GDP per year by 2050 and 0.48% of GDP per year by 2100.

In Southeast Asia, inaction in Indonesia, the Philippines, Thailand, and Viet Nam could result in a loss equivalent to more than 6% of GDP annually by 2100, more than double the global average loss, while adaptation at a cost of just 0.2% of GDP for investment in such things as seawalls and drought- and heat-resistant crops, could avoid damages amounting to 1.9% of GDP, on an annual basis.

Sources: ADB. 2016. *Regional Economics of Climate Change in Central and West Asia.* Technical Assistance Consultant's Report. Manila. ADB. 2016. *Technical Assistance on Economics of Climate Change in Central and West Asia.* Manila; M. Westphal, G. Hughes, and J. Brömmelhörster. 2013. *Economics of Climate Change in East Asia.* Manila: ADB; ADB. 2013. *The Economics of Climate Change in the Pacific.* Manila; M. Ahmed and S. Suphachalasai. 2014. *Assessing the Costs of Climate Change and Adaptation in South Asia.* Manila: ADB; and ADB. 2009. *The Economics of Climate Change in Southeast Asia: A Regional Review.* Manila.

85. **Enhance readiness for accessing external climate finance.** ADB has identified several knowledge gaps that constrain DMC abilities to prepare and implement climate investments requiring external climate finance. The DMCs require support in order to have the capacity to plan, access, implement, monitor, report, and verify climate finance from a variety of sources. Development partners have prepared assistance programs to build DMC readiness for scaled-up climate finance, which range from support for national authorities designated to access and coordinate climate finance, to the identification of pipelines of priority climate projects. So far, ADB has largely been involved with helping the DMCs access external climate finance within the context of ADB projects, where external climate finance has been used as cofinancing alongside ADB funds. The DMCs require ADB to develop the capacity to proactively formulate projects, which are designed to tap ADB financing as well as external climate finance. DMC capacity to develop high quality project proposals, liaise with external climate finance sources, properly manage resources for their intended purpose, and link received financing to results on the ground will be a competitive advantage in a context of climate finance with large global demand but currently limited availability.

86. **Capture and disseminate lessons from scaling up climate finance.** ADB will collect and package knowledge generated through the implementation of climate finance, including broad knowledge derived from ADB operations, knowledge specific to countries and subregions, and sectoral or crosscutting lessons.

87. **Implement targeted training and awareness-raising programs in climate change.** Capacity building will be made an integral part of climate projects. The DMCs frequently struggle with a lack of high-level political buy-in and capacity in key entities entrusted with leading domestic climate action. ADB will continue to roll out programs to build awareness and capacity in the DMCs, such as the Asia Leadership Program on Sustainable Development and Climate Change. Awareness of the links between gender and climate change will also be integrated into all climate change training offered to the DMCs (Box 12).

Box 12: Asia Leadership Program on Sustainable Development and Climate Change

Established in 2012, the Asia Leadership Program on Sustainable Development and Climate Change is aimed at inspiring leadership and empowering participants (policymakers and technical officers, environment advocates and members of civil society organizations, the academe and other interested parties) through the acquisition of relevant insights and skills, to take action integrating innovative and transformational solutions in sustainable development and climate change into policies, strategies, and programs. The leadership program has four main activities: (i) annual programs (face-to-face learning events), (ii) e-learning (online learning facility), (iii) knowledge sharing (regular web conferences), and (iv) Community of Leaders (e-community where knowledge and updates may be shared).

Source: Asia Leadership Program for Sustainable Development and Climate Change. http://www.adbleadership.asia/home

5. Strengthening Partnerships and Networks

88. Successful global action on climate change will depend on stronger partnerships and networks between development actors, and on working with, and supporting the collaboration of, other subnational and non-state actors like cities and city networks, private and state-owned companies, multinational corporations, civil society, and the academe, to name a few.

89. **Support knowledge and action networks.** Various networks in the region are helping to improve awareness raising, knowledge exchange, and capacity building. ADB has been supporting networks such as the Global and Asia Low Emission Development Strategies (LEDS) Partnerships and the Asia Pacific Adaptation Network. ADB will scale up participation in networks while supporting their growth, and, where feasible, help to establish new networks with a range of development actors, including in particular non-state actors.

90. **Promote dialogue on climate issues.** ADB's annual Asia Clean Energy Forum and biennial Transport Forum bring together representatives of DMC governments, investors, financial institutions, technology suppliers, development partners, and other stakeholders, to discuss and collaborate on salient issues in various sectors. ADB will continue to promote high-level discussions and opportunities to network and collaborate on climate and DRM issues through the annual meetings of its Board of Governors. For example, the 49th Annual Meeting in Frankfurt in May 2016 had the theme "Collaborating for Sustainability" and featured a number of high-level dialogues and events on climate and wider sustainability issues, including a presentation on a specially purposed "City of Sustainability." In November 2016, ADB held its first Green Business Forum for Asia and the Pacific, which focused on the role of spurring sustainable business models. In March 2017, ADB hosted a meeting of the Climate Vulnerable Forum together with the World Bank and the United Nations Environment Programme (UNEP) at the ADB headquarters in Manila. ADB will continue to initiate and exploit available opportunities to support and actively participate in global and regional dialogues.

91. **Coordinate with other development partners on nationally determined contribution implementation.** Numerous development partners have announced, or are already providing, NDC-related assistance to the DMCs. ADB will analyze how best to coordinate its own NDC-related assistance with these initiatives. The DMCs have already expressed concern about a lack of connectedness and synergy between different initiatives, implying elevated transaction costs for the DMCs. More upstream coordination work is required of the development partners, and ADB is well placed to aid in this effort. ADB will participate in and support emerging coordination platforms and initiatives such as the NDC Partnership and the Global NDC Implementation Partners (GNIplus).[47]

92. **Support international climate policy processes.** ADB will continue to participate in, and support, regional and global processes that are relevant to climate action, including the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP) and preparatory conferences, the World Economic Forum, and the Association of Southeast Asian Nations (ASEAN) and Asia-Pacific Economic Cooperation (APEC) meetings, among others. In September 2016, ADB hosted the 2016 Forum of the United Nations Framework Convention on Climate Change Standing Committee on Finance, which centered on financial instruments that address the risk of loss and damage associated with the adverse effects of climate change. In 2017, ADB is extending support to Fiji, the COP23 chair.

93. **Improve collaboration and coordination among multilateral development banks.** The MDBs are crucial actors in development, with a long-standing partnership on climate action between these institutions and other international financing institutions (IFIs) (Box 13). Committed to scaling up support, individually and collectively, for their developing-country clientele to enable them to deliver on the 2030 development and climate agenda, the MDBs issued a statement to this effect in October 2016.[48] A number of work streams dealing with different issues related to climate finance tracking and reporting have been initiated by the MDBs and can be built on and strengthened.

[47] See https://climatepolicyinitiative.org/press-release/cpi-partners-receive-funding-netherlands-launch-new-global-ndc-implementation-platform-will-accelerate-developing-country-climate-action-starting-kenya/

[48] See World Bank. 2016. Statement by Multilateral Development Banks: Delivering on the 2030 Agenda. Press release. http://www.worldbank.org/en/news/press-release/2016/10/09/delivering-on-the-2030-agenda-statement

Box 13: Collaboration among Multilateral Development Banks

Annual Joint Report on Climate Finance. Since 2012, the multilateral development banks (MDBs)[a] have been jointly reporting their annual climate finance using a harmonized approach for estimating climate mitigation and adaptation finance. The MDBs have agreed to take turns in coordinating the preparation of the report. The Asian Development Bank (ADB) led the publication of the report in 2015. According to the fifth edition of the joint MDB report, released in August 2016, the MDBs collectively committed $25.096 billion in climate finance in 2015 while net total climate cofinancing of $55.749 billion was committed alongside MDB resources.

In various configurations, ADB is collaborating with the other MDBs and international financial institutions on issues such as access to concessional climate finance sources, greenhouse gas accounting, measurement of the mobilization of private sector investment, and environment and social standards. The MDBs also collaborate on sustainable transport issues in support of a commitment made at the 2012 Rio+20 Conference to boost transport financing to $30 billion in the 2010–2020 decade.

MDB collaboration with the International Development Finance Club. The International Development Finance Club (IDFC)[b] brings together 23 leading international, national, and subregional development banks from across the world. The MDBs are working with the IDFC to harmonize climate finance tracking methodologies and to mainstream climate change into operations.

[a] The group of MDBs involved in the climate finance tracking initiative consists of the African Development Bank, the Asian Development Bank, the European Bank for Reconstruction and Development, the European Investment Bank, the Inter-American Development Bank Group (the Inter-American Development Bank and the Inter-American Investment Group), and the World Bank Group (the International Finance Corporation, the Multilateral Investment Guarantee Agency, the International Bank for Reconstruction and Development and the International Development Association).
[b] IDFC. https://www.idfc.org/Default.aspx

Sources: ADB. 2015. *Joint Report on Multilateral Development Banks' Climate Finance.* Manila. https://www.adb.org/documents/joint-report-mdbsclimate-finance-2015; ADB. 2017. *Progress Report (2015-2016) of the MDB Working Group on Sustainable Transport.* Manila. https://www.adb.org/documents/progress-report-2015-2016-mdb-wg-sustainable-transport; The World Bank. 2015. Developing Common Principles for Tracking Climate Finance. 3 April. http://www.worldbank.org/en/news/feature/2015/04/03/common-principles-for-tracking-climate-finance.

94. **Develop new forms of collaboration.** Given the dynamic developments in technology, financing, and policy knowledge and needs in the region, traditional mechanisms of knowledge generation and diffusion, such as hiring consultants to create reports containing proprietary information for ADB and uploading these reports to the ADB website for downloading, could be disseminated more effectively. To tap into the wealth of available knowledge and opportunities for partnership, ADB will explore and develop new modalities for collaboration, particularly those that do not necessarily involve a transfer of ADB resources but enable ADB to contribute to, and receive knowledge from, a network of actors. A priority will be to periodically bring together key actors involved in concessional climate finance and potential financing partners, from institutional investors to commercial finance to reinsurance companies, to improve awareness of challenges and opportunities. In addition, ADB will explore engaging with such partners through temporary secondments or staff exchange programs on a project or time basis, interactive e-learning tools (webcasts, web chats, wikis, web-based training and conferencing, etc.), more flexible rules of engagement with non-state actors, deeper collaboration with think tanks and universities, and other modalities.

III. IMPLEMENTATION PLAN

A. Institutional Measures in ADB

95. ADB has initiated several internal initiatives to strengthen its institutional capacity and operational procedures and enable itself to meet current and projected demand for support from its DMCs, including its commitment to scale up climate finance from its own resources to $6 billion by 2020. For ADB to step up its climate response and deliver stronger, better, and faster assistance as "One ADB", climate action needs to be placed at the heart of its mission. ADB must implement institutional measures to deliver on its commitments and support DMC climate action more effectively to 2020 and beyond, when needs may be even greater and more varied. This implies that ADB will have to ensure that

(i) climate change considerations are fully mainstreamed into corporate strategies and policies, sector and thematic operational plans, country programming, and project design, implementation, monitoring, and evaluation;
(ii) the role of concessional finance in enhancing climate action is assessed;
(iii) roles and responsibilities for the implementation of ADB's climate change agenda are clearly delineated across the institution;
(iv) staff capacity and skills are optimized; and
(v) internal cooperation, coordination, and knowledge sharing is improved.

1. Mainstreaming Climate Considerations into Strategies, Policies, Plans, and Projects

96. CPSs and COBPs will be based on solid diagnostics of climate risks, adaptation and mitigation priorities and objectives, and available capacity for climate action, and ADB's assistance will be targeted accordingly. Monitoring and reporting systems will be improved to better ascertain that ADB assistance to a DMC addresses climate risks and opportunities, and national development priorities. In general terms, project selection will be informed by DMC priorities, particularly as outlined in NDCs or similar plans. However, many DMCs do not have frameworks in place for assessing climate impact and low-emission opportunities, and the related investment needs. Demand for climate-related external assistance therefore tends to be latent rather than explicit. For an institution whose work in the DMCs is largely demand-driven and has a track record largely as a financier of traditional infrastructure projects, creating demand for climate investment and related support is of paramount importance. Thus, ADB will strengthen its position as provider of a full-range of climate-related support, from climate risk assessments to climate finance mobilization and project implementation. More rigorous assessments and systematic integration of climate considerations into country programming processes will also facilitate the identification of priority projects that are key DMC climate actions. To this end, specially targeted funding through a replenishment of the Climate Change Fund or other TA sources should be explored.

97. The Climate Change and Disaster Risk Management (CCDRM) Thematic Group will develop a systematic and rigorous multisectoral review process to provide cohesive and consolidated feedback to the operational departments about climate change risks and opportunities. Provided that sufficient resources are made available for this purpose, the CCDRM Thematic Group will render multisector expert advice on (i) climate risks and (ii) resilience-building and low GHG emissions development opportunities at the country programming, pre-concept, concept, and project preparatory TA stages of project and program development.

2. Assessing the Role of Concessional Finance in Enhancing Climate Action

98. External concessional finance from multilateral or bilateral sources is a significant catalyst of climate investment, for example, through de-risking of investment, lowering the cost of capital, or buying down the up-front costs of climate technologies. In the context of the Paris Agreement, many governments, development agencies, investors, private companies, financial institutions, nongovernment organizations, and philanthropic institutions

have made significant pledges to provide climate finance to developing countries. A concerted effort by ADB's Strategy, Policy and Review Department (SPD), Office of Cofinancing Operations (OCO), CCDRM Thematic Group and Private Sector Operations Department (PSOD) will be made to map these pledges and devise a coherent strategy for tapping sources of finance for ADB climate investment in the DMCs. This can include project or TA cofinancing, ADB trust fund establishment or replenishment, co-investment in new financing vehicles, or other forms of financing.

99. The use of internal sources of concessional finance must also be optimized. ADB will map existing internal sources of concessional finance, which can support implementation and facilitate access by operational departments while taking steps to ensure the availability of resources and adequate coverage across sectors and geographies.

3. Delineating Roles and Responsibilities of Operational and Non-Operational Departments

100. **Operational departments.** Operational departments—including the Central and West Asia Department (CWRD), the East Asia Department (EARD), the South Asia Department (SARD), the Southeast Asia Department (SERD), the Pacific Department (PARD) and the PSOD—lead the delivery of climate operations and TA in line with corporate targets, and are responsible for mainstreaming climate change considerations into strategic programming and project design and mobilization, and for leveraging of climate finance (see next sections). Each operational department has at least one climate change focal person, who is a member of the CCDRM Thematic Group and serves as departmental resource person on climate. These focal persons typically track the department portfolio with regard to climate operations, identify project opportunities, generate knowledge, and serve as team members or peer reviewers for country programming and projects. In some regional departments, these tasks are performed by several divisional focal persons working as a team. The Climate Change and Disaster Risk Management Division (SDCD) of the Sustainable Development and Climate Change Department (SDCC) backstops the climate focal persons or teams on such matters as climate risk vulnerability assessment, external and internal climate finance mobilization, knowledge products, quality control, and peer review.

101. **Sector and thematic groups.** In October 2014, the SDCC reformed the Communities of Practice system and set up sector and thematic groups composed of sector experts across operational departments. There are sector groups for the energy, transport, urban, water, finance, health, education sectors, and thematic groups for climate change and disaster risk management, environment, governance, gender equity, PPP, regional cooperation and integration, rural development and food security, and social development. There are seven sector groups overseen by a chief sector officer, and eight thematic groups, by a chief thematic officer. Each sector or thematic group is led by the chair and co-chair, a function sometimes exercised by the relevant technical advisor on concurrent capacity. In addition to the technical advisor, each sector or thematic group is currently composed of a secretariat of 1–5 international staff and up to 6 national staff or administrative staff.[49] The sector and thematic groups lead the development of sector and thematic operational plans and support upstream project development; explore new opportunities for ADB involvement, knowledge generation and knowledge sharing; and ensure a coordinated institutional response from ADB. The sector and thematic groups have integrated climate change into their operational plans to varying degrees, but will have to ensure that future operational plans are fully in line with CCOF2030 principles.

102. The **CCDRM Thematic Group** is co-chaired by the SDCD director, who is also the technical advisor for climate change and disaster risk management; and the chief thematic officer. This group, with 18 experts throughout ADB, is tasked with coordinating the institution-wide response on climate change and supporting knowledge sharing, peer review, and ADB climate operations across the board. A secretariat, composed of SDCD staff, supports the CCDRM Thematic Group and is responsible for drafting the CCOF2030.

103. The **SDCC** also has a number of units and divisions, aside from the sector and thematic groups, with responsibility for delivering key parts of the ADB climate agenda. The SDCD is tasked with providing centralized support for dealing with strategic and project-related climate and disaster risk management issues. It manages climate-related funding mechanisms (the Future Carbon Fund and the Japan Fund for the Joint Crediting

[49] Actual numbers may be subject to temporary fluctuation.

Mechanism); supports access to external climate finance through the CIFs, the GCF, and other sources; represents ADB in global dialogues on climate action; and contributes to knowledge work. Its Environment and Safeguards Division (SDES) oversees climate-related safeguards, collaborates with SDCD and CCDRM Thematic Group on issues such as ecosystem-based adaptation, and serves as the GEF focal point. The Knowledge Support and Services Center (KSSC) provides funding and support for climate-related knowledge products and activities and organizes the Asia Leadership Program for Sustainable Development and Climate Change[50] in collaboration with the Environment Thematic Group. The SDCC provides strategic guidance and coordinates ADB-wide climate finance tracking.

104. **Other departments.** In addition to the operational departments and the SDCC, other departments are also contributing to advance the climate agenda of ADB. Their recent activities include the following:

(i) Budget, Personnel, and Management Systems Department (BPMSD). Workforce planning, skills assessment, redeployment, recruitment, training, and staff recognition. BPMSD is also carrying out an assessment of the operational department to determine gaps in climate-related skills required to deliver ADB's project pipeline.
(ii) Department of External Relations (DER). Production of knowledge products, information and outreach materials, both printed and online.
(iii) Economic Research and Regional Cooperation Department (ERCD). Research and analytical work on issues such as economic costs of climate change and carbon pricing.
(iv) Independent Evaluation Department (IED). Periodic evaluations of ADB's climate programs, including most recently, the Real-Time Evaluation of ADB's Initiatives to Support Access to Climate Finance (2014).[51]
(v) Office of the Auditor General (OAG). Audit of ADB climate finance tracking (planned for 2017).
(vi) Office of Administrative Services (OAS). Corporate water, energy, and carbon footprint calculation and related efficiency and offsetting initiatives.
(vii) Office of Cofinancing Operations (OCO). Administration of climate-related ADB trust funds and cofinancing resources.
(viii) Office of the General Counsel (OGC). A current TA project addressing legal issues related to climate finance and investment.
(ix) Office of the Secretary (OSEC). Organization of annual meetings of the ADB Board of Governors and the Board of Directors, which include seminars on climate issues as well as related networking opportunities; coordination of the certification of the 2015 and 2016 annual meetings as climate-neutral events.[52]
(x) Operations Services and Financial Management Department (OSFMD). Elaboration of guidelines on green and advanced technology procurement.
(xi) Strategy, Policy and Review Department (SPD). The lead role in ADB's corporate strategies, including the Strategy 2030 and the 2020 climate finance target, as well as inter-institutional and donor relations, through ADB's representative offices in Europe, Japan, and North America. The SPD also serves as the focal department for the SDGs.
(xii) Treasury Department. The lead role in the implementation of ADB's green bond program[53] and the replenishment of ADB's Climate Change Fund.
(xiii) Asian Development Bank Institute (ADBI). Publications and conferences on climate change.

[50] ADB. n.d. Asia Leadership Program on Sustainable Development and Climate Change. http://www.adbleadership.asia/
[51] See ADB. 2014. *Real-Time Evaluation of ADB's Initiatives to Support Access to Climate Finance.* https://www.adb.org/documents/real-time-evaluation-adb-s-initiatives-support-access-climate-finance
[52] See ADB. 2016. ADB Delivers on Sustainability with Carbon-Neutral Annual Meeting. Blog. https://blogs.adb.org/blog/adb-delivers-sustainability-carbon-neutral-annual-meeting
[53] See ADB. n.d. ADB Green Bonds. https://www.adb.org/site/investors/adb-green-bonds

4. Optimizing Staff Capacity and Skills

105. As described above, ADB's current structure includes sector and thematic groups supporting the operational departments and concerned with delivering selective elements of ADB's climate change objectives. ADB has largely succeeded in developing and delivering several important climate actions. Further scale-up of such actions will require, at a minimum, effective mainstreaming of climate change objectives into ADB operations. Climate change action will then be viewed as integral to investment viability and sustainability, rather than an option to be considered when additional climate finance is made available, and a much more multisectoral approach to planning and implementing operations. Periodic reviews will be undertaken to assess the extent to which these two conditions are being met along with other institutional criteria that indicate the sufficiency of internal capacity.

106. Given the projected increase in climate-related operations, ADB needs to ensure that staff in operational and support departments has adequate knowledge and training on climate related issues. While existing staff should benefit from targeted training in issues such as climate risk screening, climate finance tracking, access to climate finance, potential hires should be screened for climate-related knowledge and skills within their roles and sector specializations. The SDCD and the BPMSD are currently carrying out an audit of climate change–related skills and their distribution and use by ADB staff, to identify existing capacity as well as capacity gaps. Capacity gaps should be filled with a judicious combination of staff training and retraining, staff sharing, secondment and temporary appointment, recruitment, use of consultants or expert pools, and other means.

107. Staff should also be incentivized to contribute to ADB's climate objectives through awards and recognition programs.

5. Improving Internal Cooperation, Coordination, and Knowledge Sharing

108. To reach its climate objectives, ADB must deploy an adequate level of staff resources and skills where they are needed in the institution. Available climate change expertise in the institution should be accessible and usable as required, and complemented as necessary through new recruitment. Making the most effective use of existing capacity would be the first priority. Efforts should be made to facilitate the sharing of expertise across departments, either at the project level or through staff sharing, rotation, or exchange programs.

109. In particular, it will be important to strengthen the links between staff in operations, including ADB country offices, and those in support departments.

110. Sector groups and thematic groups have different approaches to addressing climate change. In some sector groups, such as transport, there is a permanent group of staff collaborating on climate issues through a working group on environment and climate change. This working group has a work plan and deliverables that dovetail with the work plan of the transport sector group. This approach has proven to be effective in mainstreaming climate issues into ADB's transport portfolio.

B. Implementation Phases

111. The CCOF2030 covers a relatively long planning time frame, from 2017 to 2030, mirroring ADB's Strategy 2030. It will be implemented in two phases: phase 1, from CCOF2030 approval in 2017 to the end of 2023; and phase 2, from early 2024 to the end of 2030. A two-phase approach is deemed appropriate because (i) the DMCs plan to conduct the first global stocktaking of NDCs, and to devise new and more ambitious NDCs, in 2023; (ii) ADB can carry out a midterm review of the CCOF2030 at that time and, if necessary, recalibrate the operational framework; (iii) a full set of CPSs for all the DMCs is likely to be formulated between 2017 and 2023; and (iv) the time period between 2020 and 2023 allows ADB to assess and adapt to lessons learned after reaching the $6 billion climate financing target for 2020, and how the institution can gear up for delivery against more ambitious targets, which may be impact- rather than input-related; thereafter.

112. Phase 1 (2017–2023) will essentially serve as a testing and learning opportunity as ADB scales up climate finance to meet its $6 billion climate finance target in 2020 and determines how it can further increase climate investment and the quantity and quality of its climate operations beyond 2020. Phase 1 will be based on a stocktaking of output and achievements to date; the pipeline of current and expected future operations; DMC needs and demand for ADB support; institutional mandates and structures; and available financial, technical, and human resources. A priority for phase 1 will be to provide assistance at DMC request in refining and further detailing the NDCs or other planning instruments that the DMCs may prefer,[54] so that such plans will effectively guide investment prioritization and budgeting, and support accurate monitoring, reporting, and verification (MRV). This process will strengthen the ability of ADB and other development partners to provide the most critically needed technical and financial support, and improve opportunities to mobilize climate finance and private sector participation.

113. Phase 2 (2024–2030) will allow ADB to apply the lessons from climate operations during phase 1 in providing the DMCs with the support that they expect as they embark on low emission and climate-resilient development. Phase 2 will reflect the expectations of the DMCs, as outlined in their second-generation NDCs and in other relevant strategies and plans.

114. Actions in both phases recognize the need for (i) adjustments in operational modalities and institutional structures, and new and innovative financing and TA mechanisms, particularly for private and public–private investment in climate adaptation and mitigation; and (ii) analytical and other efforts by ADB to help the DMCs identify opportunities for action in support of national climate and development objectives.

C. Rollout of the Climate Change Operational Plan 2017–2030

1. Phase 1: 2017–2023

115. Phase 1 actions will be designed to enhance outcomes, including lessons learned from ADB's growing TA and lending program being undertaken to reach its annual target of $4 billion in mitigation finance and $2 billion in adaptation finance by 2020. A priority focus for ADB will be to generate lessons as it reaches its $6 billion climate finance target, to better understand how low emission infrastructure and strengthened resilience can support sustained poverty reduction and inclusive economic growth across the region and particularly in vulnerable communities, in line with Strategy 2030. ADB will achieve this in part by (i) staying abreast of the ever-improving understanding of the opportunities, risks, uncertainties, and nature of climate impact, and (ii) assisting the DMCs in taking no-regret or low-regret precautionary measures and employing leapfrogging technology to minimize the costs of, and maximize progress on, climate resilience and mitigation. As technologies evolve, opportunities to support projects that meet the nexus of economic growth, poverty alleviation and environmental sustainability are expected to increase. Such no-regret projects will be accorded high priority.

116. Several DMCs have already identified the assistance they need to improve the quality of their NDCs, including depth, breadth, and utility in planning and MRV. The NDCs are to begin implementation in 2020 and to be updated in 2023. It is therefore likely that phase 1 of the CCOF2030 will include a substantial role for ADB in supporting both NDC quality and early implementation.

2. Phase 2: 2024–2030

117. ADB's regional and DMC experience from phase 1, supported by analytical work, will be brought to bear on its phase 2 operations. ADB is likely to need further adjustments in its priorities and operational modalities at the city, national, subregional, and regional levels, as the decade progresses, and as changes occur in climate change impact and vulnerabilities, access to climate finance, demand from the DMCs, and technology, and also as experience is gained and lessons on good practice and successful approaches are learned. ADB's broad climate change operational objective for phase 2 is to support transformative actions and mechanisms to achieve large-scale mitigation and climate resilience through project and programmatic approaches in the public and private

[54] Some countries, particularly those with high vulnerability to climate risks and limited GHG emission reduction potential such as the Pacific DMCs, find the NDCs less useful than national adaptation plans or similar planning instruments.

sectors, including (i) urban, transport, energy, water, agriculture and natural resource development; (ii) energy efficiency across the built-infrastructure subsector, particularly in buildings and industry; and (iii) the finance sector. ADB will also reinforce the efforts of its DMCs to couple climate action with the achievement of SDGs.

3. Indicative Actions

118. Some indicative actions that can be carried out across phases 1 and 2 are outlined below. These actions will be undertaken with existing and potential partners (Appendix 1).

119. **Fully mainstream climate change considerations**

(i) **Support for the developing member countries in the implementation of nationally determined contributions and other climate and development plans and projects**

(a) Support the DMCs in refining and translating NDCs and other relevant national and regional plans, generating national climate investment plans that clearly articulate the DMCs' need for financial, technical, and capacity-building support, as well as possible sources of this support;
(b) Embed NDCs and climate considerations in all new CPSs and COBPs, operational plans, sector strategies, projects, and TA, ensuring consistency with GHG reduction trajectories for the region;
(c) Develop and adopt a methodology for measuring the potential of different financial instruments (including policy-based and results-based lending, and multitranche financing facilities) to support the DMCs' NDCs;
(d) Assist the DMCs in developing and implementing suitable MRV frameworks for measuring performance against NDC objectives; and
(e) Incorporate climate mitigation and adaptation components into projects in the pipeline, where practicable, and develop stand-alone climate mitigation and adaptation projects.

(ii) **Low greenhouse gas emissions development**

(a) Develop marginal abatement cost curves (MACCs) for low emission technology options for each DMC receiving substantial support for low emission transition, and identify specific opportunities to guide low emission development programming;
(b) Scale up public sector, PPP, and private sector support for the DMCs to couple low cost renewable energy with energy efficiency programs, as the price of renewable energy and energy storage options becomes more competitive and experience is gained in their utilization;
(c) Support the pilot-testing and deployment of promising clean and advanced technologies that are not yet cost competitive by establishing a clean technology support fund or a risk mitigation vehicle or facility to help mitigate the real or perceived risks associated with clean and advanced technology investments; and
(d) Promote clean and advanced technologies by making effective use of ADB procurement and other regulations, as necessary.

(iii) **Climate and disaster risk management**

(a) Review and fully implement the climate and disaster risk screening approach developed by ADB at the regional and country levels, and as an integral part of all project preparation, including projects applying country safeguard systems;
(b) Apply, as appropriate, standard approaches to assessing risks of climate impact and the costs and benefits of adaptation measures, so that programs and projects are designed to minimize risks and increase resilience in an economically viable manner;
(c) Develop standardized and proven approaches to agriculture and natural resource management, water, urban development, social development, gender mainstreaming, and other sector developments so that sufficient understanding of climate risks and measures for maximizing adaptation benefits routinely embedded in project design and implementation;

(d) Develop indicators for assessing the impact of ADB operations in terms of reduced vulnerability and enhanced adaptation to climate change;
(e) Identify and implement new approaches to climate risk assessment including Robust Decision Making (RDM); and
(f) Promote ecosystem-based adaptation, and forest and coastal management and rehabilitation.

(iv) **Spotlight on cities**[55]

(a) For major cities (including city-based industries) across the region, catalyze the collection of critical information such as GHG emissions, data to support risk indices, and energy use and projections;
(b) Establish a catalogue of small- and medium-sized cities that are expected to grow rapidly, so green growth and climate-smart principles can be promoted from the ground level with focus on vulnerable segments; and
(c) Develop and implement a multisectoral model for sustainable urban development that effectively strengthens climate resilience and supports a low emission transition while meeting urban infrastructure and urban service needs.

(v) **Focus on regional public goods**

Prepare subregional partnerships for climate action.

(vi) **Focus on vulnerable segments**

Facilitate improved understanding and action on highly vulnerable segments of populations by aligning with ADB's Gender Equality and Women's Empowerment Operational Plan (2013–2020), its Social Protection Operational Plan (2014–2020), and other relevant policies and guidelines.

(vii) **Other ADB-specific initiatives**

(a) Review and improve mechanisms for GHG accounting of ADB operations; and
(b) Establish a GHG baseline for the ADB portfolio and utilize the baseline to measure progress in meeting GHG reduction targets, with the overall objective of peaking portfolio-wide GHG emissions by 2030 at the latest, recognizing that early peaking would be the optimal course of action.

120. **Maximize mobilization and leveraging of climate finance**

(i) Facilitate improved access to external public and private climate finance, including support for innovative financing mechanisms such as green bonds;
(ii) Adopt an approach to convening partners to mobilize finance and technologies for low emission trajectories with the potential to be implemented at little or no direct economic cost and, possibly a net negative cost, when internalizing environmental externalities and co-benefits;
(iii) Support the rollout of carbon finance and carbon pricing initiatives across the region, including the provision of support to interested DMCs in the development of their ETSs, as well as interlinking with other national or regional ETS to facilitate market liquidity, price stability and harmonization of carbon prices across jurisdictions;[56] and
(iv) Support carbon market development and price stability by collaborating with other multilateral institutions and, if required, facilitate the design and development of an international carbon asset reserve and international settlement platform to support linked carbon markets.

[55] Actions listed will be carried out to the extent possible and subject to the availability of validated data, through the Urban Climate Change Resilience Trust Fund and the Cities Development Initiative for Asia, and connected with secondary data sources.

[56] The Paris Agreement (article 6) acknowledges voluntary cooperation among parties, involving the use of internationally transferred mitigation outcomes (ITMOs) to achieve a higher level of NDC commitment. Interlinking of ETS among parties is one such example of cooperation in achieving higher and efficient reduction of GHG emissions.

121. **Clearly delineate roles and responsibilities**

Establish accountability among ADB operational departments, the Office of Public–Private Partnerships (OPPP) and the PSOD for delivery of $6 billion by 2020, including pathways for ramping up support within the 2017–2020 time frame.

122. **Optimize staffing and organizational structures**

(i) Undertake a skills assessment exercise to establish capacity gaps and readiness of staff for the projected scale-up of climate operations, and take remedial action to adjust the ADB institutional framework as necessary to enhance capacity to deliver on the $6 billion target; and
(ii) Provide all relevant operational staff with adequate training in climate change and climate finance, including continuous learning opportunities related to issues such as climate change impact on infrastructure, opportunities for the implementation of low GHG emission and climate-resilient approaches and technologies, adequate tagging of climate relevant operations, and structuring of projects for climate finance.

123. **Improve internal cooperation, coordination, and knowledge sharing**

(i) In accordance with the "One-ADB" approach, improve internal coordination and synergy between departments to optimize the delivery of solutions, including modalities to work across sectors, themes, and geographies; and
(ii) Establish an ADB-wide information system pertaining to climate impact, policy, and finance in the DMCs.

4. Sectoral and Thematic Actions

124. ADB will test and develop new financing modalities to support cross-sectoral and multisectoral and thematic initiatives for low GHG emissions, climate-resilient development, with a focus on the energy, transport, water, urban development, and agriculture and natural resource management sectors. (Appendix 2 provides detailed information about current sectoral and thematic actions of ADB relating to climate.)

IV. MONITORING AND REPORTING

125. Performance indicators, including baselines and targets, are presented in the results framework (Table 2). The indicators draw in part on indicators in ADB's corporate results framework where appropriate, adapted to provide a specific climate change focus. The SDCC will lead annual data collation to measure progress against the results framework, including the new screening, data collection, and management information systems noted above. This annual data collation will require operational department input to establish consistent monitoring and reporting guidelines.

126. Periodic reports will draw on the results framework and include additional information as relevant. The reports will provide an assessment of implementation progress, key accomplishments to date, and an outlook, including emerging opportunities. They will include recommended corrective actions and adjustments in desired outcomes, outputs, and results indicator targets, as appropriate.

127. Standard ADB monitoring and reporting will be supplemented by data and information generated from analytical work and operational support systems such as the proposed technology tracking and evaluation, GHG accounting, and climate finance tracking systems. Pilot projects and programs will be analyzed, and lessons learned disseminated, to fast-track learning from experience.

Table 2: Results Framework for the Climate Change Operational Framework 2017–2030

Indicator	Baseline	Target	
		Phase 1 (2017–2023)	Phase 2 (2024–2030)
I. Climate Change Progress in Asia and the Pacific			
Climate-resilient development			
1. Resilience, adaptive capacity, and vulnerability to climate-related hazards and other natural hazards, as measured by the Notre Dame Global Adaptation Index (ND-GAIN) Score	2015 level	Monitor	Increase
2. Number of lives lost as a consequence of: • Climate-related hazards • Geophysical hazards	2016 level	Monitor	Monitor
3. Disaster losses as a proportion of total government expenditure	2016 level	Monitor	Decrease
Low greenhouse gas emissions			
4. Greenhouse gas (GHG) emissions (tCO_2e)	2016 level	Monitor	Decrease
5. GHG emission intensity (tCO_2e per unit of GDP)	2016 level	Monitor	Decrease
II. ADB's Contribution to Development Results Addressing CCDRM			
6. Beneficiaries with reduced vulnerability or increased resilience, attributable to ADB interventions • Number of households with reduced flood risk • Number of women receiving support to build resilience against shocks and risks	To be determined	Increase	Increase
7. Annual GHG emissions reduction from mitigation projects in ADB portfolio (tCO_2e/year)	15,329,000 (2012–2015 average)	Increase	Increase
8. Cost-effective GHG emission reduction (tCO_2e per $ of mitigation finance)	To be determined	Increase	Increase
9. Newly installed renewable energy generation capacity (MW equivalent)	4,700 (2012–2015 average)	Increase	Increase
10. Households newly gaining access to renewable energy (grid/off-grid)	To be determined	Increase	Increase
III. Operational Management of ADB's CCDRM Activities			
11. Percentage of country partnership strategies satisfactorily integrating climate technologies[a]	To be determined	Monitor	Increase
12. Percentage of country partnership strategies aligned with nationally determined contributions	To be determined	Monitor	Monitor
13. Annual climate finance from own resources ($ per year)	$2.7 billion/year $2 billion/year (mitigation) $0.6 billion/year (adaptation) (2011–2015 average)	$6 billion/year $2 billion/year (adaptation) $4 billion/year (mitigation)	Increase
14. Percentage of annual climate cofinancing from global funds to total climate finance	10% (2011–2015 average)	Increase	Increase
15. Percentage of projects supporting climate change: • Mitigation • Adaptation • Dual benefit	20% 23% 3% (2013–2016 average)	Increase	Increase
16. Percentage of projects with more than 10% climate adaptation finance to total project costs	To be determined	Monitor	Increase

Indicator	Baseline	Target	
		Phase 1 (2017–2023)	Phase 2 (2024–2030)
17. Climate change knowledge development measured by the number of: • Knowledge products produced • Knowledge events conducted	To be determined	Monitor	Monitor
18. Number of climate initiatives/networks established/ implemented jointly with development partners	To be determined	Increase	Increase
19. Number of climate initiatives/networks established that mainstream gender and climate change	To be determined	Increase	Increase
20. Operational GHG emissions (in tCO_2e/year)	To be determined	Monitor	Reduce
IV. Organizational Management of ADB's CCDRM Activities			
Human resources			
21. Capacity and role of the CCDRM Thematic Group further strengthened by 2017			
22. Climate change staffing assessed, with strategic revision of positions as needed, by 2018			
23. Climate change staff in operational departments and other relevant departments increased by 2020			
24. Staff training and capacity development in the CCOF2030 and global climate trends and development implemented continuously through 2030			
Budgetary resources			
25. Technical assistance project(s) to support the implementation of the CCOF2030 and the strengthening of institutional business process, knowledge, and capacity on climate, provided through 2030			
26. Staffing expansion by 2020			
27. Staff training and capacity development conducted through 2030			
28. Climate and disaster risk screening undertaken as part of business processes through 2030			
29. Knowledge tools, products, and events produced or conducted through 2030			
Business processes and practices			
30. Guidance notes on climate finance tracking in operational use by 2017			
31. Methodology for accounting for GHG emissions harmonized with MDB group in operational use by 2017			
32. Procurement regulations/guidelines updated to incorporate climate considerations by 2018			
33. Mechanism for monitoring climate technologies developed by 2018			
34. Mechanism(s) for cross-thematic alignment explored and developed by 2018			
35. Developed climate mechanisms/methodologies integrated into business processes and practices by 2018			
36. Methodology for measuring potential for supporting DMCs in meeting their NDCs developed by 2019			
37. Standardized approaches for climate considerations in sector development programs and projects (including multisectoral approaches) by 2020			
38. Climate change and disaster resilience assessment approach at regional and country levels developed by 2020			

ADB = Asian Development Bank, CCDRM = Climate Change and Disaster Risk Management, CCOF2030 = Climate Change Operational Framework 2017–2030, DMC = developing member country, GDP = gross domestic product, GHG = greenhouse gas, MW = megawatt, NDC = nationally determined contribution, tCO_2e = ton of carbon dioxide equivalent.

[a] Evaluated according to the Framework for Quality at Entry Assessment – Climate Change Integration into Country Partnership Strategies.

Source: ADB estimates.

APPENDIXES

Climate Change Operational Framework 2017–2030 Action Agenda: Working with Partners

CCOF2030 Action Agenda	Existing and Potential Partner(s)
Climate change considerations are fully mainstreamed	
NDC Assist	MDBs, bilateral agencies, partnership/knowledge platforms/ initiatives (e.g., NDC Partnership, CPI)
Low GHG emissions development	MDBs, think thanks (e.g., GGGI, TERI, Tsinghua University)
Climate and disaster risk management	V20, bilateral agencies, United Nations
Spotlight on cities	Bilateral agencies, other development partners (e.g., DFID, Rockefeller Foundation, USAID)
Focus on vulnerable segments	V20, bilateral agencies
Focus on regional public goods	Regional organizations, partnership/knowledge sharing platforms/initiatives (e.g., CAREC, PIF)
Other ADB-specific initiatives	
GHG accounting mechanisms for ADB operations	International Financial Institutions Working Group
Establishment of baseline and mechanism for measuring progress toward bending the GHG emissions curve of ADB portfolio	ADB internal
Mobilization and leveraging of climate finance is maximized	
Facilitation of access to external public and private climate finance	Multilateral funds, other financial institutions
Convening of partners to mobilize finance	MDBs, bilateral agencies
Support for rollout of carbon finance and carbon pricing initiatives	World Bank, bilateral agencies
Support for carbon market development	Regional organizations, partnership/knowledge sharing platforms/initiatives (e.g., World Bank, ICAP, IETA, IGES)
Roles and responsibilities are clearly delineated	
Establishment of internal accountability	ADB internal
Staffing and organizational structure is optimized	
Skills assessment exercise	ADB internal
Climate change and climate finance trainings	ADB, other development partners (e.g., Frankfurt School-UNEP Collaborating Centre for Climate and Sustainable Energy Finance, UK-Met, CSIRO)
Internal cooperation, coordination and knowledge sharing is improved	
Improved internal coordination and synergy: "One ADB" approach	ADB internal
Developed or enhanced tools and database	ADB internal

ADB = Asian Development Bank, CAREC = Central Asia Regional Economic Cooperation Program, CCOF2030 = Climate Change Operational Framework 2017–2030, CPI = Climate Policy Initiative, CSIRO = Commonwealth Scientific and Industrial Research Organisation, DFID = (United Kingdom) Department for International Development, GGGI = Global Green Growth Institute, GHG = greenhouse gas, ICAP = International Carbon Action Partnership, IETA = International Emissions Trading Association, IGES = Institute for Global Environmental Strategies, MDB = multilateral development bank, NDC = nationally determined contribution, PIF = Pacific Islands Forum, TERI = The Energy and Resources Institute, USAID = United States Agency for International Development, UK Met = United Kingdom Meteorological Office, V20 = Vulnerable 20 Group of Ministers of Finance.

Source: ADB.

Sectoral and Thematic Actions

1. The Asian Development Bank (ADB) will test and develop new financing modalities to support cross- and multisectoral and thematic initiatives for low greenhouse gas (GHG) emissions, climate-resilient development. It will work through the sector and thematic groups, serving as networks that draw on existing and evolving in-house expertise in specific development sectors and themes.

2. In implementing the Climate Change Operational Framework 2017–2030 (CCOF2030), the Climate Change and Disaster Risk Management (CCDRM) Thematic Group, collaborating with the various other sector and thematic groups, will deliver an enhanced program of assistance to ADB operations and developing member countries (DMCs) in institutional and policy development, financing, climate technologies, knowledge and capacity development, and partnerships and networks, aligned with the sector and thematic operational and work plans.[1]

A. Sectors

1. Education

3. ADB's education sector strategies and priorities are guided by the operations plan developed in 2010.[2] ADB support is increasingly geared toward subsectors of education and the acquisition of skills that interface with the world of work—post-basic education, technical and vocational education and training (TVET), and higher education. ADB is adopting a three-pronged education strategy to support the implementation of ongoing projects, design new projects, identify innovative ideas for new pipeline projects, and raise the profile of ADB: (i) develop a common pool of experts and establish selective knowledge partnerships to expand the capacity of the Education Sector Group; (ii) establish a knowledge-sharing platform with knowledge and development partners to organize professional development programs, leverage ADB's convening power, draw lessons, and support priority areas (learning outcomes; market-responsive TVET; and science, technology, engineering and mathematics [STEM] education) and innovative practices in information and communication technology (ICT) and public–private partnership (PPP) to address the dual challenges of quality and quantity of education; and (iii) mobilize grants under the proposed education financing partnership facility to employ innovative and good practices, and evaluate relevant approaches and modalities in anticipating and responding innovatively to emerging global trends and challenges.

4. As part of its 3-year rolling plan on the education sector, ADB is promoting cross-sector support and collaboration initially through two scalable pilot projects that involve embedding skills development in infrastructure projects, and skills training in renewable energy as part of expanding integrated skills development in key areas (infrastructure, climate change, manufacturing, smart cities, services).

2. Energy

5. The prospects for reducing GHG emissions from the electricity sector are considerable. Energy efficiency has been identified as a low, and in some cases negative, incremental cost of reducing GHG emissions, and should thus be among the highest priorities. Solar photovoltaic costs have dropped enough to make the technology an economically attractive option in many locations, if energy storage is not required. But energy storage costs can be modest and are expected to become increasingly attractive over the next 10 years as battery costs decline. Wind power costs have also sufficiently decreased, making wind power an attractive investment option which will be further enhanced by decreases in energy storage costs.

6. The potential for integrating non-dispatchable technologies like wind and solar into power systems with the help of smart grids and micro grids is also improving. Smart grids will better facilitate demand-side management and create more opportunities for energy storage by improving system stability. The path forward for investment

[1] Many of the sector and thematic operational plans are subject for review in the period leading up to 2020. Future generations of these operational plans, as well as future work plans, may draw from the CCOF2030.

[2] ADB. 2010. *Education by 2020: A Sector Operations Plan.* Manila.

support for renewable energy, smart grids and energy efficiency is expected to be an important component of energy system development in Asia up to 2030.

7. Taking into consideration the rapid, and potentially transformational, shifts in energy technology and costs over the next 3 years, ADB will focus on the following with regard to climate change mitigation through energy sector investments:

(i) Support the DMCs in implementing the climate mitigation and adaptation goals outlined in their NDCs. Drawing on an assessment of the costs of current low emission technologies and their expected price trajectory, an approach that would marry the two dimensions of country-specific opportunities and new technologies will be developed.
(ii) Promote energy efficiency and renewable energy while maximizing access to energy.
(iii) Assist the DMCs in energy sector reform, capacity building, and good governance to encourage climate investments by the public and private sectors. ADB may provide advisory services for policy support to improve the legal and regulatory framework and provide incentives for the private sector to help reduce GHG emissions.
(iv) Identify and support the deployment of high-level clean energy technologies that can accelerate the meeting of the DMC's climate objectives.

3. Finance

8. Under Strategy 2020, ADB intends to strengthen its support for financial sector development at both national and regional levels by helping to develop financial infrastructure, institutions, products, and services. The financial sector development is important as it contributes to inclusive growth by expanding access to finance, and is a critical dimension of regional integration. It can also support environmentally sustainable growth by financing environment-friendly infrastructure or disaster risk.

9. The Financial Sector Operational Plan, established in 2011, articulates the financial sector agendas of ADB.[3] The review of the Financial Sector Operational Plan, completed in 2016, includes the finance sector group action plan which provides operational focus on finance sector development, inclusive finance and infrastructure finance. The Finance Sector Group intends to increase operational involvement in multisector or thematic and innovative areas, including digital, disaster risk, green, Islamic and municipal finance. It will enhance support for projects with disaster risk or climate finance, digital finance, bond or capital markets, and crosscutting features. In particular, it will

(i) support the DMCs in developing insurance and capital market solutions and promoting pilot projects;
(ii) promote innovative financing modalities, including guarantee products, green bonds and special investment vehicles to attract climate investment; and
(iii) expand disaster insurance coverage by facilitating the application of technology and digital financial services.

4. Health

10. In Asia and the Pacific, health services are still not available or accessible to many people. The rapid aging of the population in the region has far-reaching consequences on increased health-care spending, and the negative impact on health because of changing lifestyles and risk factors for noncommunicable diseases is growing. Rapid urbanization has not been matched by the required level of investment to meet the demand for more sophisticated health service infrastructure and healthy living conditions. Moreover, there are health risks associated with large mobile populations, increasing vulnerability to climate change and natural disasters, and emerging and reemerging infectious diseases, all of which require a systems approach to strengthening the health sector.

[3] ADB. 2011. *Financial Sector Operational Plan.* Manila.

11. In 2015, ADB launched its Operational Plan for Health 2015–2020, which provides a wide range of integrated strategies and solutions to assist the DMCs in meeting the goal of expanding their public and private health services.[4] Key priorities are in investing in health infrastructure, health governance and financing—all underpinned by investments in ICT and PPPs. ADB intends to provide cross-sector support, including support for climate change, collaboration on resilient health systems, and smart health facilities. ADB will support the DMCs in strengthening health systems to cope with the impact of climate change on infectious diseases, health security, and elderly health.

5. Transport

12. The transport sector is vital to sustainability in Asia and the Pacific. Despite advances during recent decades, the DMCs still have enormous needs for accessible, safe, environment-friendly, and affordable transport. The increased needs have been driven by population growth and the economic progress facilitated by past transport development. There is a need for the DMCs to adapt and improve on the types of transport provided, to ensure sustainability and address new and emerging transport needs and challenges.

13. ADB support for the transport sector is guided by the Sustainable Transport Initiative Operational Plan for 2010–2020.[5] The plan emphasizes the need to mainstream sustainability into ADB's road operations, and build up operations in (i) urban transport; (ii) addressing climate change in transport, including climate mitigation through the expansion of railways and inland waterway transport; (iii) cross-border transport and logistics; and (iv) social sustainability and road safety. The current sector work plan emphasizes strategic operational support to help operational departments implement ADB's overall directions for sustainable transport, the expansion of transport lending, and climate finance target for transport, together with harnessing sector knowledge to raise value addition and innovation in ADB transport operations.

14. A supporting regional TA is being considered to support the implementation of the midterm review recommendations in 2017–2019. The regional TA will provide consulting services as needed by the regional departments for project preparation, implementation and capacity development in sustainable transport priority subsectors. The services include, but are not limited to, assisting the regional departments in conducting studies and sector dialogue to develop operational pipelines in new fields of sustainable low carbon types of transport, such as transport-related air quality improvement and low emission vehicle technologies (through such means as the financing of urban public transport, railways, multimodal logistics, and intelligent transport systems); and identifying clean vehicle and other advanced technologies offering low carbon options in transport for take-up by the DMCs.

6. Urban Development

15. City-level development presents an important opportunity for ADB to facilitate investments in integrated actions that optimize both climate-resilient and low emission outcomes and address local environmental quality improvement needs in line with the Sustainable Development Goals (SDGs). Particularly within the urban sector, where many industries in the DMCs are located, the opportunity to achieve improved energy efficiency, efficiency of other resource consumption, and minimization of waste loading needs to be made an integral part of urban sector operations. ADB is now implementing, on a trial basis, an integrated approach with coordinated programming and multisectoral planning that is intended to simultaneously address urban and climate change mitigation and adaptation imperatives and resolve key issues such as urban transportation, local air pollution, GHG mitigation, and increased resilience.

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[4] ADB. 2015. *Health in Asia and the Pacific: A Focused Approach to Address the Health Needs of ADB Developing Member Countries.* Manila.

[5] ADB. 2010. *Sustainable Transport Initiative Operational Plan.* Manila.

16. Over the next 3 years, guided by the Urban Operational Plan 2012–2020,[6] ADB intends to build on experiences to date and underway. It will

(i) enter into long-term engagements with a few cities to develop, test, and learn from upgrading, expanding, or replacing urban infrastructure by utilizing low emission technologies and climate-resilient approaches and ensuring that the design and spatial location of such infrastructure is appropriate to future climate impact;
(ii) apply a multisector approach that brings together appropriate expertise, needed to assist partner DMC cities and utilities in building capacity to assess opportunities to utilize climate finance to achieve local environmental improvement objectives while also reducing GHG emissions; and
(iii) support new formats and partnerships for scaling up investments in climate-resilient, low emission urban infrastructure and services, not least between governments and the private sector.

7. Water

17. Water resources in Asia are particularly at risk due to climate change. Increases in both precipitation and temperature lead to greater risks of flooding and water scarcity. The probability of what have been extreme events—floods and droughts—are expected to increase (from normal to fat-tailed distribution), increasing the need for water storage. To date, water resources management sector investments have not received the same attention on climate change adaptation within ADB compared to some other sectors. This situation is already changing in anticipation of the likely change in DMC demand for ADB support in strengthening water security in response to climate risks. Beyond ADB's "Water for All" policy and Water Operational Plan (2011–2020), the *Asian Water Development Outlook* outlines a water security framework for the DMCs ranging from household water security to environmental water security, to guide the implementation of CCOF2030.[7]

18. ADB will develop and apply internal approaches to facilitate the identification and assessment of options for ADB-funded water resource programs and projects to maximize cost-effective climate change adaptation benefits. It will also assist the DMCs in gaining a better understanding of climate change and water resource management risks by supporting more basin-scale assessments, promoting conjunctive management of surface and groundwater resources, early warning systems and improved data collection and sharing. The nexus view of investments in water, energy, and food and climate change, as well as recognition of the fundamental role of water in disaster risk management (DRM), will also be promoted. ADB will also increase its financing for infrastructure and other water resource work to ease water scarcity, such as through landscape restoration to improve water capture and conservation, integrated river basin management, water saving technologies like smart irrigation techniques, water reuse, improved management of existing reservoirs, as well as the construction of new reservoirs. In addition, as water temperatures rise or there is an increase in variation in flows, the reliability of fossil-fueled plants is undermined because of their need for cooling water. Technologies like solar photovoltaic and wind that do not rely on cooling water thus become more valuable. ADB's work on water will focus on

(i) providing policy and technical support in identifying and addressing climate change adaptation options linked to the water sector;
(ii) transitioning to an integrated approach, considering the spatial context and exploring solutions at the system, subbasin or basin level;
(iii) evolving from climate-proofing infrastructure to water sector investments predicated on climate change adaptation
(iv) increasing focus on water security, through enhanced water productivity, e.g., producing more crop per drop of water, reducing nonrevenue water, and recycling waste water; and
(v) scaling up investments in water sector infrastructure and interventions.

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[6] ADB. 2013. *Urban Operational Plan 2012–2020.* Manila.
[7] ADB. 2003. *Water for All: The Water Policy of the Asian Development Bank. Manila; ADB. 2011. Water Operational Plan 2011–2020.* Manila; ADB. 2017. *Asian Water Development Outlook 2016: Description of Methodology and Data.* Manila.

B. Themes

8. Environment

19. DMC economies are growing and transforming and are expected to increase demand for ADB support for environmentally sustainable growth. Nearly all the DMCs (with the exception of Afghanistan and Nepal) are expected to become middle income countries (MICs) by 2020. ADB must increasingly align its strategies and operations to address key environmental challenges in the DMCs. ADB's Midterrm Review of Strategy 2020 (MTR) and the Environment Operational Directions 2013–2020 identified strategic priorities for addressing the region's environment and climate change challenges.[8] To promote the transition to green growth, and address the causes and consequences of climate change, four mutually supportive environment operational directions have been identified: (i) promoting a shift to sustainable infrastructure; (ii) investing in natural capital; (iii) strengthening environmental governance and management capacity; and (iv) responding to the climate change imperative. Particular focus will be given to the following:

(i) Promoting and scaling up investments in natural capital and ecosystem-based adaptation. ADB will continue to support operations in scaling up investments to protect, maintain, and improve the productive potential and performance of land, forests, and water resources. ADB will design and package projects to yield multiple benefits such as climate change mitigation and adaptation and livelihood preservation for the poor who mostly depend on natural resources.
(ii) Fostering sustainable infrastructure through ecosystem-friendly approaches. ADB needs to ensure that infrastructure investments contribute to environmental sustainability and provide value added knowledge to its DMCs. Projects will be in clean energy, sustainable transport, urban development, and water. The focus will be on the environment dimensions of infrastructure, including the provision of tools, guidance, and technical support to enhance infrastructure design and implementation. Considerations will include natural capital sensitivities, resource use efficiency, and issues relating to air and water quality and waste management.
(iii) Strengthening environment performance and scaling up green business development, using market-based approaches. The transition to green growth in the region will require policy and governance frameworks that help facilitate improvements in resource use efficiency and reduce environmental pressures. Support will also be provided to more effectively mobilize private sector resources for environmental management. Priority areas are strengthening compliance and enforcement networks; supporting greater use of market-based instruments and other flexible policy approaches to environmental management including private sector voluntary commitments; and strengthening regional cooperation for the management of regional public goods

9. Gender

20. Guided by the Gender Equality and Women's Empowerment Operational Plan 2013–2020,[9] ADB aims at improving gender equality results in its operations by ensuring gender mainstreaming into its projects across sectors; exploring more gender equity theme operations and direct investments in women and girls, to narrow gender gaps; pilot-testing innovations that directly support gender equality, including addressing violence against women and girls; and developing basic infrastructure projects that reduce women's time poverty.

21. ADB recognizes the opportunities for increased gender equality through climate change actions. Climate change commitments and mandates call for gender-sensitive approaches and recognize that effective action on all aspects of climate change presupposes gender equality and the participation of women. ADB will ensure differentiated gender responses in climate investments to advance gender equality (e.g., skills, jobs, decision making). It will also build in-country capacity for gender-responsive climate change and disaster risk management strategy, planning, budgeting, and project preparation, to strengthen women's climate resilience. ADB will initiate or continue pilot innovations to develop gender equity or effective gender mainstreaming project pipeline designs

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[8] ADB. 2014. *Midterm Review of Strategy 2020: Meeting the Challenges of a Transforming Asia and Pacific.* Manila; ADB. 2013. *Environment Operational Directions 2013–2020.* Manila.

[9] ADB. 2013. *Gender Equality and Women's Empowerment Operational Plan 2013–2020.* Manila.

such as on renewable energy, women's employment in the green economy, and green business. While obtaining gender co-benefits through climate investments will continue to be a priority, ADB will seek to support more climate change or DRM projects that have gender equality as a central theme.

10. Governance

22. ADB promotes good governance processes and practices, at the national, local, and institutional levels, for inclusive, participatory and sustainable development in the region. ADB's Second Governance and Anticorruption Action Plan outlines specific actions aimed at improving the effectiveness of development assistance, in particular, strengthening the oversight of ADB projects and improving internal checks and balances.[10]

23. ADB's medium-term thematic priorities on governance include: (i) public sector management reforms, where investments are to be made in areas such as state-owned enterprise reform, tax policy and administration, and service delivery at local level; (ii) governance risks that could adversely impact development effectiveness; and (iii) ensuring that the capacity of the public sector can be enhanced through greater focus on broader issues of institutional performance. On local governance and service delivery, ADB is localizing climate change issues by strengthening institutions at the local level so that they can deliver on the climate change agenda. Through a technical assistance being processed in 2017, and in close partnership with ADB's operational departments, climate change issues will be addressed at the local level, e.g., in the People's Republic of China.

11. Public–Private Partnerships

24. ADB is expanding its work with the private sector to generate greater economic growth in the Asia and Pacific region. The region requires a significant amount of infrastructure investments, and available funding from traditional sources falls short of meeting those needs. The promotion of PPPs is an important mechanism for addressing this gap, and is key in ADB's core operations.

25. Guided by the Public–Private Partnership Operational Plan 2012–2020,[11] ADB's PPP operations center on four pillars: (i) advocating for PPPs and developing capacity; (iii) developing and enhancing the enabling environment for PPPs; (iii) identifying, developing and preparing PPP projects; and (iv) providing nonsovereign and sovereign financing products to support PPP projects leveraging assistance and catalyzing change through greater private sector investments. ADB is working on this agenda in support of climate action by

(i) providing strategic and technical support to ADB's PPP operations in areas with high climate mitigation potential; and
(ii) supporting the operations of the Asia Pacific Project Preparation Facility, a donor trust fund, for the preparation and structuring of such PPP projects.

12. Regional Cooperation and Integration

26. Regional cooperation and integration (RCI) is another key strategic agenda and core area of ADB's operations. ADB is committed to promoting regional economic cooperation and integration among its DMCs, as driven by the Operational Plan for Regional Cooperation and Integration (2016–2020).[12] ADB aims to move toward: (i) stronger connectivity between economies through improved cross-border physical infrastructure, complementary software, and finance to increase market access; (ii) improved growth and business competitiveness in regional markets through new opportunities in cross-border trade, investment, technology, finance, and labor mobility; and (iii) strengthened regional public goods (RPGs) and collective action for cooperative multi-country mechanisms including health, environmental and financial risk, and resilience to external shocks.

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10 ADB. 2006. *Second Governance and Anticorruption Action Plan (GACAP II)*. Manila.
11 ADB. 2012. *Public–Private Partnership Operational Plan 2012–2020: Realizing the Vision for Strategy 2020: The Transformational Role of Public–Private Partnerships in Asian Development Bank Operations.* Manila.
12 ADB. 2016. *Operational Plan for Regional Cooperation and Integration.* Manila.

27. While cooperation on RPGs has deepened among DMCs, it remains insufficient to address the region's growing vulnerability to climate change and natural hazards, among others. ADB will expand and diversify support to mitigate financial and disaster risks and assist countries in implementing their climate commitments and similar agreements with regional impact, as well as to improve cross-border health security and assist the DMCs manage shared natural resources. ADB will continue to mainstream disaster resilience into all RCI operations in infrastructure, urban economic zones and industrial parks, and agriculture logistics hubs to preserve functioning supply chains. It will also support

(i) regional disaster risk management and finance (e.g., regional risk modeling, risk transfer solutions, and disaster risk insurance such as risk pooling);
(ii) regional climate data consortia to support cooperation on climate change;
(iii) cross-border energy and natural resource management, addressing transboundary water and air pollution, and protection of biodiversity, e.g., within established Biodiversity Conservation Corridors; and
(iv) national urban emissions trading and technology transfer, leading to regional initiatives.

28. RPGs work on green technology transfer using enhanced trade and investment channels, for instance, among ASEAN+6 (members of the Association of Southeast Asian Nations plus Australia, the People's Republic of China, India, Japan, the Republic of Korea, and New Zealand).

13. Rural Development and Food Security (Agriculture)

29. Food security remains a seemingly intractable problem in some DMCs, particularly with increasing extreme weather events. The agriculture and natural resources (ANR) sector is highly exposed to climate impact. ADB's Operational Plan for Agriculture and Natural Resources 2015–2020 has four priority areas: (i) increasing productivity and reducing pre- and post-harvest food losses; (ii) improving market connectivity and value chain linkages, also in the context of climate considerations; (iii) enhancing food safety, quality, and nutrition; and (iv) enhancing natural resources management and climate resilience.[13] ADB's support for the ANR sector has declined in recent years, relative to its support to other sectors. The proportion of ANR sector investments in the total ADB portfolio decreased from a peak of 27% in the 1980s to just 7% in the 2000s. ADB financing for the sector in 2015 was about $1 billion. However, almost 80% of DMCs' NDCs outline ANR sectoral measures; hence there is client demand for support.

30. Few ANR projects in the current portfolio and pipeline appear to be oriented toward strengthening climate resilience. Consequently, it is unlikely that ADB will generate significant ANR adaptation lessons from project operations in the next 3 years. However, ADB has successfully undertaken relevant ANR adaptation programs at the subregional level, most notably the ecosystem-based adaptation initiative in the Greater Mekong Subregion. Such subregional and regional initiatives will serve as important sources of operational lessons for most DMCs in planning and designing adaptation measures and collectively addressing and collaborating on transboundary climate change risks.

31. There is an opportunity to review pipeline investments to 2023 to make them more climate smart and climate resilient. For example, promoting ecosystem- and community-based adaptation, utilizing low emission energy sources, identifying crop varieties with lower water demands, and integrating agroforestry principles for agricultural project investments will improve resilience and reduce GHG emissions. In many cases, these may be achieved at little additional investment cost and are likely to reduce operating costs.

32. Deforestation and forest degradation, as well as lack of adequate management of coastal and marine landscapes and resources, remain problematic in several DMCs. ADB currently has a very limited portfolio of investments in those areas and limited internal capacity, making it doubtful that ADB will be able to carry out large

[13] ADB. 2015. *The Operational Plan for Agriculture and Natural Resources: Promoting Sustainable Food Security in Asia and the Pacific in 2015-2020*. Manila.

scale interventions in phase 1. However, there is scope for collaborating with partners to support efforts to curb deforestation and forest degradation, and to promote sustainable management of coastal ecosystems and fisheries and support regional cooperation on natural resource management to build resilience within the scope of ADB projects.

14. Social Development and Protection

33. Social development and protection is central to ADB's inclusive growth agenda. ADB aims to reduce poverty, inequality, and vulnerability among poor and marginalized groups by transforming social institutions toward inclusive and equitable social development. It seeks to promote policies and institutions that support greater inclusiveness and equity in accessing services, resources, and opportunities; greater empowerment of poor and marginalized groups to participate in social and economic life; and greater security to cope with chronic or sudden risks, especially for the poor and marginalized group.

34. Guided by its Social Protection Operational Plan 2014–2020,[14] ADB aims to strengthen the inclusive aspects of ADB-assisted activities, with particular attention to equitable access to services, resources and opportunities. To promote social inclusion in its operations, ADB work is focused on the following three areas: (i) strengthening social protection through social assistance, social insurance, and labor market programs; (ii) supporting job creation and income generation through coordination and monitoring of the document describing ADB's Support for Inclusive Business 2016–2020; and (iii) addressing poverty reduction and social dimension in sovereign and nonsovereign projects. In line with its climate and disaster risk management objectives and targets, ADB is

(i) strengthening the role of social protection in DRM, and climate change adaptation;
(ii) enhancing the resilience of vulnerable communities in urban and rural areas using diverse range of social protection instruments such as weather-indexed crop insurance, employment guarantee schemes, asset transfers, and cash transfers; and
(iii) strengthening the capacity of the DMCs to address the social impact of climate change based on gender, age, disability, ethnicity, geographic location, livelihood, and migrant status.

[14] ADB. 2013. *Social Protection Operational Plan 2014–2020.* Manila.

Climate Change Operational Framework 2017–2030
Enhanced Actions for Low Greenhouse Gas Emissions and Climate-Resilient Development

The Climate Change Operational Framework 2017–2030 is intended to provide broad direction and guidance for enhancing resilience and strengthening climate actions in the operations and business processes of the Asian Development Bank (ADB). It positions ADB to facilitate, collaboratively and proactively, a regional shift toward a low greenhouse gas emissions and climate-resilient development path. The operational framework provides guidance across all ADB sector and thematic groups to support climate adaptation and mitigation actions, operationalizing ADB's commitment to provide at least $6 billion per year in climate change financing from its own resources by 2020. It outlines actions and the institutional measures to be implemented to enable ADB to meet the climate needs of its developing members.

About the Asian Development Bank

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to a large share of the world's poor. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

Based in Manila, ADB is owned by 67 members, including 48 from the region. Its main instruments for helping its developing member countries are policy dialogue, loans, equity investments, guarantees, grants, and technical assistance.

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