












# 2024 SPECIAL INITIATIVES



Sectors Group  
Asian Development Bank



# SPECIAL INITIATIVES



-  Food Systems Transformation in Asia
-  Boosting Coastal Resilience
-  Air Quality Management
-  Resilient River Basins Initiative
-  Decarbonizing Hard-to-abate Sectors
-  Accelerating Energy Efficiency
-  Strengthening Critical Minerals Value Chain
-  Accelerating New Energy Sources
-  Advancing Energy Transition Mechanism
-  Enhancing Transition Finance
-  Nature Finance
-  Modernizing Sub-national Finance

-   Climate and Health Finance Initiative
-  Skills for Green Economy
-  Nutrition
-  Deepening Macro Climate-fiscal Linkages
-  New Frontiers of Debt Sustainability
-  Enhancing Domestic Resource Mobilization
-  Maritime Decarbonization
-  Enhanced Smart Mobility
-  Make Manila More Maganda (M4) Initiative
-  Rejuvenating Pasig River for a Livable Manila
-  Decarbonizing Asian Cities
-  Affordable Housing for Expanding Asian Cities
-  Strategic Foresight and Design Thinking

 Agriculture, Food Nature and Rural Development (AFNR)  
 Public Sector Management and Governance (PSMG)

 Energy (ENE)  
 Transport (TRA)

 Finance (FIN)  
 Water and Urban Development (WUD)

 Human and Social Development (HSD)  
 All Sectors

## | Food Systems Transformation in Asia

### Background

- The COVID-19 pandemic highlighted the fragility of food supply chains, such as in many developing countries where weak logistics and storage systems exacerbated the disruption. More frequent extreme weather events associated with climate change are increasing the vulnerability of agricultural production. These risks and fragilities have added to the issues already facing the sector, where food supply chains account for a major part of the climate and environmental footprint. Agriculture is the largest consumer of the world's freshwater resources, and more than one-quarter of the energy used globally is expended on food production and distribution. Food supply chains contribute up to 29% of greenhouse gas (GHG) emissions, including 44% of methane. There is a clear need across the region to shift from a focus on singular food production and intensification to food system approach that integrates additional aspects of value chain development, sustainable natural resource management, nutrient-rich diets, and public health; and enhances resilience and mitigates climate change.

1. In December 2023, 159 countries endorsed the COP28 Declaration on Sustainable Agriculture, Resilient Food Systems and Climate Action, which emphasizes the profound importance of the nexus among climate change, natural capital loss, and global food security. The recent discussion at IFI Global Forum for Food Systems Transformation (February 2024) and Asia and the Pacific Food Security Forum (April 2024) indicated the need to shift ADB's AFNR sector operation to more holistic food systems approach to explore climate-food-nature nexus.

### Way Forward

- Going forward, AFNR will launch a special initiative of food systems transformation. This initiative includes five inter-connected components for food systems: (1) emergency food assistance; (2) agricultural development and value chains; (3) nature-based solutions in food systems; (4) climate-resilient infrastructure for food systems; and (5) nutrition security. The indicative lists of concrete topics is as follows.
  - Emergency responses: The AFNR sector team will collaborate with HSD, PSM, and RCI teams to develop pipelines and solutions to address food accessibility issues. In the short term, this component will encompass social assistance, food voucher programs, school lunches (including conditional and unconditional cash transfers, food and in-kind transfers), and a countercyclical support facility to provide fast-disbursing financing. In the medium term, ADB will also focus on strengthening regional cooperation mechanisms to share policy and market information and jointly respond to food security risks instead of resorting to export bans.
  - Sustainable and climate-resilient agribusiness development: The AFNR sector will collaborate with DMCs to develop pipelines for digitalizing agribusiness value chains, adopting net-zero food value chains, enhancing food traceability, introducing early warning systems for extreme climate-related events, and promoting online weather advisory and forecasting services. Agrifood value chains comprise not only agrifood production activities but also supporting activities and services including extensions, research and development, technical education and training, logistics, marketing, and financing. With an expanded value chain approach, digitalization is an efficient and inclusive way of connecting various stakeholders on both the producer and consumer sides who act on various market signals. The AFNR sector is developing such initiatives in INO, PHI, PRC, and VIE and receiving

increasing requests from ARM, TAJ, and UZB for decarbonizing livestock support.

- Nature-based solutions in food systems: The AFNR sector will collaborate with DMCs to create incentive mechanisms to shift the government's support towards nature-based infrastructure. This component includes lakes and wetlands to treat wastewater and improve water storage, sponge villages to mitigate stormwater runoff and extreme heat, zero tillage to conserve soil quality, mangroves to reduce coastal erosion and flooding, and forests to retain water and support groundwater recharge. The financing requirements for such investments are high, for example, pipeline projects/programs at about \$1.2 billion for BAN, \$2.3 billion for PHI, and \$2.1 billion for THA for the coming years (including co-financing), as well as demand from BAN, CAM, IND, INO, LAO, PAK, SAM, UZB, and VIE.
- Climate-resilient infrastructure for food systems: The AFNR sector will expand investments in productivity-enhancing infrastructure to strengthen food availability through road networks or port facilities to help farmers connect with international agricultural markets. Investments to improve access to infrastructure, including adequate storage and transport infrastructure, have been found to reduce food losses. Major investments will include climate-resilient infrastructure such as water storage, cold storage, warehouses, rural connectivity, and digital services that are accessible and affordable for farmers. The AFNR sector has also seen an increasing demand for dam safety, integrated flood risk management, and reclamation in the Pacific and other regions.
- Nutrition security: The AFNR sector is collaborating with the HSD sector to develop a dedicated program on nutrition security. The investments include nutrition education, nutrition labeling and regulations, food fortification and diversification, food safety, and prevention of non-communicable diseases. There is great potential to engage the private sector in enhancing nutrition security in Asia and the Pacific.

## | Boosting Coastal Resilience

### Background

Coastal areas in Asia and the Pacific are home to a significant portion of the global population, with millions of people residing in coastal cities and communities. These regions serve as economic hubs, supporting vital industries such as shipping, fishing, tourism, and trade.

The region is home to three-quarters of all coral reefs and more than half of all remaining mangrove areas. The share of the ocean economy in the GDP of Asia and Pacific countries can go as high as 30%, and even 87% in some island nations. Over 400 million people in the Bay of Bengal area depend on coastal and marine resources for their food, livelihood and security. This reliance makes our region extremely vulnerable to the decline and degradation of our coastal and marine ecosystems.

Climate change is already leading to rising sea levels and more frequent extreme weather events posing significant threats to coastal communities. Without adequate investment in resilience measures, these communities will face escalating risks of displacement, loss of infrastructure, and disruptions to essential services such as water supply and sanitation.

Asia and the Pacific is home to some of the world's busiest ports and maritime trade routes, facilitating the movement of goods and commodities on a global scale. Any disruptions to these critical infrastructure networks due to natural disasters or climate impacts could have far-reaching consequences for regional and global economies.

To protect the oceans, coastal areas and island nations in our region that are on the front lines of climate change, ADB launched its Action Plan for Healthy Oceans and Sustainable Blue Economies in 2019. Since then, our focus on coastal resilience has increased. Our integrated river basin approaches, exemplified by our projects in the

Yangtze and Yellow River basins in the PRC, are being rolled out across the region.

### Way Forward

River-basin management and coastal resilience is a re-emerging area with strong emphasis on water security, food security, and preservation and enhancement of natural capital. It also has strong climate adaptation and mitigation financing. This type of project will bring scale in AFNR operations. The financing requirements for such investments are high, for example, pipeline projects / programs at about \$1.2 billion for BAN, \$2.3 billion for PHI and \$2.1 billion for THA for the coming years (including co-financing), as well as demand from BAN, CAM, IND, INO, LAO, PAK, SAM, UZB and VIE.

By investing in coastal resilience measures such as seawalls, flood barriers, and ecosystem restoration, countries can protect their vital coastal economic assets and ensure the uninterrupted flow of trade and commerce.

Additionally, coastal ecosystems such as mangroves, coral reefs, and wetlands provide invaluable ecosystem services, including shoreline protection, carbon sequestration, and biodiversity conservation. However, these ecosystems are threatened by human activities such as coastal development, overfishing, and pollution.

Using the Natural Capital Lab, we will map out the contributions of coastal ecosystems to economic growth, and identify appropriate areas of investment in these ecosystems, which represent nature-based solutions (NbS) at scale.

Investing in NbS involving coastal ecosystems can not only protect these ecosystems but also restore and enhance their capacity to provide essential services. Healthy coastal ecosystems act as natural buffers against storm surges and erosion, reducing the impacts of climate-related hazards on nearby communities. Therefore, investing

in NbS in coastal areas is a cost-effective strategy for enhancing resilience and mitigating the impacts of climate change.

Our Coastal Resilience projects will also support incubation and commercialization of sustainable and inclusive marine businesses, thus promoting the private sector shift that we are working towards.

Some of the pipeline projects in coastal resilience and management include:

- IND: Maharashtra Sustainable Climate Resilient Coastal Protection and Management Project
- MLD: Enhancing Climate Resilience and Food Security Project
- INO: Reducing Marine Debris in Indonesia Program, Subprogram 1
- PAK: Sindh Coastal Resilience Sector Project
- IND: Climate Adaptation Coastal Protection and Management in Kerala
- IND: Climate Adaptation Coastal Protection and Management in Karnataka
- IND: Sundarbans Upper Delta Climate Resilient Development Project - West Bengal
- PHI: Sustainable Development of Coastal and Marine Ecosystems and Biodiversity
- INO: Integrated Fishing Ports and International Fish Markets Phase 2

## ■ | Air Quality Management

**Background:** Air pollution is a critical environmental health issue in Asia and the Pacific, affecting the lives of billions and causing significant economic and agricultural damage. Major sources of air pollution include fossil fuel-based energy generation, industrial emissions, and agricultural waste burning.

**Activities:** The Asian Development Bank (ADB) is committed to improving air quality through a comprehensive approach involving several key initiatives:

1. **Asia Clean Blue Skies Program:** Launched in 2022, this program aims to strengthen air quality policies, build capacity for monitoring and enforcement, and implement clean air investment projects with climate co-benefits.
2. **Promoting Cleaner Technologies:** Supporting the adoption of clean energy technologies such as solar and wind power, and electrification of transport systems to reduce reliance on fossil fuels.
3. **Strengthening Regulatory Frameworks:** Assisting developing member countries (DMCs) in developing and enforcing robust air quality regulations, including standards for industrial emissions and vehicle fuel efficiency.
4. **Enhancing Agricultural Practices:** Promoting sustainable agricultural practices to reduce air pollution from biomass burning, such as advanced machinery for crop residue management and converting agricultural waste into bioenergy.
5. **Supporting Urban Planning:** Developing comprehensive urban planning strategies that prioritize air quality, including green spaces, improved waste management systems, and reduced traffic congestion.
6. **Leveraging Digital Solutions:** Utilizing digital technologies and data analytics for real-time air quality monitoring, informing policy decisions, and creating targeted interventions.

ADB's initiatives aim to significantly enhance air quality, improve public health, and promote sustainable development across the region.

## | Resilient River Basins Initiative

**Background:** Climate change poses significant threats to economic development, livelihoods, and water security across Asia and the Pacific, the most disaster-affected region globally. The Hindu Kush Himalayan (HKH) region, home to the largest ice reserves outside the polar areas, is experiencing accelerated warming, leading to significant glacier loss. This impacts 10 major Asian river basins, supporting 2 billion people and underpinning global food production and economic stability.

**Activities:** The Asian Development Bank (ADB) is spearheading the Resilient River Basins Initiative (RRBI) to enhance climate resilience and water security. Key activities include:

1. **Integrated River Basin Management:** Managing entire river basins from source to sea, employing a landscape and systems approach to ensure resilient and healthy basins.
2. **Dynamic Adaptive Pathways:** Embedding adaptation into interventions to enhance post-recovery performance and minimize the impact of adverse events.
3. **Multi-Hazard Risk Assessments:** Conducting assessments and consultations with developing member countries (DMCs) to identify investment opportunities and resilience measures.
4. **Innovative Financing Mechanisms:** Exploring financing solutions for capital investments and sustainable operations of water infrastructure.
5. **Interventions:** Implementing structural and non-structural interventions, such as improving water governance, developing early warning systems, enhancing hydraulic structures, upscaling nature-based solutions, and promoting climate-smart agriculture.

The RRBI aims to develop a pipeline of bankable projects to enhance river basin resilience, ensuring water and food security, improving natural environments, and supporting future economic stability and prosperity. Led by a collaborative One ADB team, the initiative will partner with universities, research institutions, and development networks to scale effective practices across the region.



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## | Decarbonizing Hard-to-abate Sectors

### Background

Limiting average global warming to under a 1.5-degree threshold will require industries with carbon-intensive processes responsible for a substantial proportion of global greenhouse gas (GHG) emissions to rapidly decarbonize. Some sectors have lagged implementing the required pathways and scaling the innovative, yet nascent, technical solutions for deep decarbonization. Notably, the [hard-to-abate sectors](#) including heavy industries such as cement, steel, fertilizers, and maritime activities account for between 15-20% of total GHG [emissions](#). Scaling economically feasible yet cost-effective solutions has proven to be a challenge, primarily due to heavy industries' legacy infrastructure and high upfront investment cost for sector transformation. Many current decarbonization technologies struggle to be implemented as they are considered experimental, expensive, or haven't yet met safety and environmental standards due to limited installations.

Despite many green pledges from industry, ADB's DMCs need support to evaluate technologies, raise financing, and support a set of first mover projects that can help accelerate emissions abatement, especially in these hard-to-abate sectors. Energy use interventions, including energy efficiency and use of renewable energy (solar, wind, green hydrogen, green ammonia), are the primary pathways to achieve decarbonization. Benchmarking of various energy-related technologies, solutions, and product and/or service delivery is required to support decision-making. International associations in cement, steel, fertilizers and maritime industries have a large amount of benchmarking data on solutions and the baseline emissions cases for particular types of industrial infrastructure.

ADB recognizes that digital solutions can assist in decision-making for specific changes in energy use or efficiency without extensive site-

specific investigation using existing benchmarking data. Digital [solutions](#) can readily enhance the results of industrial cluster-specific studies to simulate the impacts of specific fuel, inputs, technology, process, operations, and product changes. International industry associations have expressed support to share extensive benchmarking information that can be used within digital solutions. Combining this information provides clarity to regulators, asset owners, and the investment community. The World Economic Forum has an excellent resource [site](#) on 30 digital solutions which can assist in decarbonizing the hard to abate sectors. The digital challenge is to provide the information to stakeholders in a concise manner at a reasonable cost, especially for the medium and small businesses supporting the hard to abate industries.

Engaging with stakeholders across the sectors will be necessary to understand decision-making drivers and timelines. These mostly renewable energy and energy efficiency investments are stalled due to anxiety on costs, expertise, and impacts. More available and cost-effective digital solutions need to be provided which measure outcomes across UN Sustainable Development Goals and economic metrics which DMCs can use to forecast their commitments under the Paris Agreement.

### Way Forward

ADB is proposing to research two industrial sectors initially to combine benchmarking data, repurpose existing digital solutions to suit the needs of industry in DMCs and to train stakeholders in the use and outputs. The solutions will be graphically heavy to convey the benefits more effectively. Through existing engagement, ADB DMCs and their private sector operators need support to better understand the options for decarbonization. There will be a range of technologies and solutions that can be undertaken on a particular piece of infrastructure. Understanding which have the highest benefits across cost, efficiency, reliability, emissions, capacity of staff to operate and development risk is currently a challenge. Linking benchmarking with well researched needs of DMCs and their industries can inform their decision-making processes. This will also accelerate the knowledge sharing of solutions and the needed metrics to support decisions for their use.

Furthering the works done under the ADB Waste Analytical Resource Planning Scenarios (WARPS) [tool](#), an existing digital solutions will be repurposed to provide metrics which can inform DMCs on the impact of particular technologies or interventions. The WARPS tool provided a solid basis to inform decision makers of a course of action through the simulation of the costs, benefits and timeliness of a particular solution. The WARPS tool's output informed whether to proceed to feasibility study or not. The WARPS tool did not replace a feasibility studies' capacity to look in detail at a particular project. However, the WARPS tool did allow decision makers to move quickly to the feasibility stage and provide a level playing field in the assessment of technologies and solutions – “Apples for Apples”, which had been difficult.

Current digital solutions applicable to the hard to abate industrial and maritime sectors are mostly driven by financial metrics but lack robust environmental and economic outputs. An example of a more robust metric would be determining the ability of a solution to impact women in the work force or its impact on the life adjusted years of the nearby populations through reduced pollution and enhanced air quality. The digital solution(s) will be maintained by ADB with the support of international industry associations. This will allow DMCs and their industries to access at affordable prices. Initial work will inform road maps for sectors in specific locations, identify needs for digital solutions and engage industry associations on the needs and data available. Later stage activity will focus on training on the use of digital solutions through workshops. Particular focus will be given to engaging women in the use of digital solutions to increase women in the decision-making process. It is hoped that the TA will increase the ADB pipeline through its activities. It will increase the knowledge base across ADB DMCs. By using digital solutions, ADB intends to enable the conditions for a faster decarbonization of the hard to abate industrial and maritime sectors.

## | Accelerating Energy Efficiency

### Background

At COP28 in December 2023, countries pledged to double the global average annual rate of energy efficiency improvements by 2030. Energy efficiency accounts for more than 40% of the emissions abatement needed by 2040, according to the International Energy Agency's Sustainable Development Scenario. Energy efficiency is a core part of ADB's Energy Policy 2021 which states that accelerating progress on energy efficiency gains across the region could contribute to the agendas of energy security and energy access while also delivering cost savings and environmental benefits.

As the Climate Bank for Asia and the Pacific, energy efficiency measures need to be incorporated in all our projects across energy, water, transport, health, agriculture, and other sectors. For example, any building financed by ADB will have to be sustainable, climate resilient, energy efficient and/or certified green building. More specifically, under ADB's Energy Policy, ADB will:

- Promote clean and efficient cooling solutions.
- Promote demand-side efficiency through policy support, use of digital technologies, use of innovative financing instruments, and mobilization of private sector resources.
- Promote:
  - minimum energy performance standards for appliances and equipment,
  - fuel economy standards for vehicles,
  - standards for electric motors in industry,
  - mandatory energy audits and
  - energy management policies for large industrial and commercial companies, and
  - building codes.
- Support efforts to increase supply-side energy efficiency including reducing losses in electricity transmission and distribution.

### Way Forward

ADB recognizes the urgent need to tackle **energy efficiency in buildings** and established a dedicated **OneADB taskforce** working across sectors – energy-urban-health-education-private sector-climate change teams. The objective is to embed energy efficiency in all the buildings financed by ADB.

- Project examples:
  - In the Philippines, ADB implemented the **Philippines Energy Efficiency Project** - a 31 million US dollars loan with 1.5 million US dollars grant. As part of the project, a total of 190 buildings were retrofitted, of which 40 government buildings in Metro Manila and 150 government buildings nationwide. This resulted in 11 GWh of energy savings per year - with a less than five-year payback on investment.
  - In India, ADB provided a 200 million US dollar loan and 13 million US dollar grant to the government through a government-owned energy service company known as **Energy Efficiency Services Limited (EESL)**. Under the project, ADB helped establish an energy efficiency revolving fund to finance several millions of LED streetlights and LEDs bulbs under bulk procurement.
- Overall, we believe **governments should lead by example** by promoting high-efficiency equipment and efficient buildings. **Government procurement regulations** should always push for the purchase of high-efficient appliances and equipment in line with the standards and labelling of the country.
- Energy efficiency has several **multiple benefits** such as energy and cost savings as well as reducing greenhouse gas emission, increasing asset value, creating new jobs, reducing public budget expenditure in energy, improving energy security by reducing fossil fuel imports, amongst many others.
- ADB is keen to support our DMCs in realizing these benefits through technical assistance, concessional finance and grant funding.

## ■ | Strengthening Critical Minerals Value Chain

### Background

A key component of the UAE Consensus is to outline an action plan to close implementation gaps to 2030. The **single most important action agreed in the Consensus** to bring about the reduction in carbon dioxide (CO<sub>2</sub>) emissions **is to triple the global installed capacity of renewable power by 2030**. According to projections of the International Energy Agency (IEA), expanding renewable capacity on this scale **would avoid about 7 billion metric tons of CO<sub>2</sub> emissions between 2023 and 2030**.

- This **transition is reliant on mining minerals and metals**, which are critical inputs to clean energy technologies, from electric vehicles to renewable energy sources like wind and solar, for energy transmission, and for storage. Under a Net Zero by 2050 Scenario, IEA estimates that the **production of cobalt, copper, graphite, lithium, nickel, rare earth elements, and others will need to be boosted by more than 450 percent by 2040—from 2022 levels**—to meet demand from clean energy technologies.
- Critical minerals production and clean energy manufacturing are **vulnerable to supply chain disruptions** due to high levels geographic concentration, long lead times of expanding production capacities, logistics supply chain gaps, and financial risks (including volatile mineral prices).
- Producing the required minerals and materials exclusively via **mining presents sustainability challenges**.
  - Opponents to rapidly expanding mineral and metal extraction capacity highlight that
    - the **mining industry consumes up to 11 percent of the global energy use**.
    - **70 percent of mining projects are led by the six largest mining companies** operating in water stressed regions.

- Proponents underscore that
  - lifecycle emissions of **renewable energy only account for a fraction (6 percent) of emissions generated by fossil fuel technologies**.
  - **rates, capacity, and costs of key clean energy technology recycling are far too low** to date for it to meaningfully contribute to satisfy demand.

**Enabling the development of inclusive, resilient, diverse, and responsible related supply chains emerges as an essential strategy to facilitate the implementation of global decarbonization plans.**

### Way Forward

Asia and the Pacific is well placed to become a manufacturing superpower for greener technologies, given its strong manufacturing base, good integration in global supply chains, and its endowment with critical minerals essential for the net zero transition. **To unlock green industrialization opportunities**, ADB DMCs will need to invest in (i) up- and re-skilling a specialized labor force; (ii) ancillary infrastructure, such a ports, roads and railway networks; (iii) establish a digital backbone to ensure traceability of minerals and clean energy technology components; (iv) lay the foundations for a circular economy; and (v) governance and platforms that ensure adherence to strict ESG standards. Most importantly, countries must put in place appropriate industrial, energy, and trade policies, and regulations.

- **ADB has already received requests for technical assistance and lending support and provides support. Project references:**
  - ADB knowledge support:
    - 2023/24: RCIT Innovation Webinar Series
    - 2023: [Renewable Energy Manufacturing: Opportunities for Southeast Asia](#)



- 2023: Mongolia: Climate-Smart Mining for a New Climate Economy
- 2023: India: [Mine to market: critical minerals supply chain for domestic value addition in lithium-ion battery manufacturing.](#)
- ADB lending support:
  - 2023: Indonesia: Competitiveness, Industrial Modernization, and Trade Acceleration Program, Subprogram 2
  - 2022: [Philippines: Wyntron Electric Vehicle Charger Production Expansion Project.](#)
  - 2023: [Viet Nam: VinFast Electric Mobility Green Loan Project.](#)
- **ADB's Energy Policy 2021** has no prohibition on mining of critical minerals or manufacturing of clean energy technologies. An expansion of ADB support to its DMCs in this area (i) is aligned with achieving ADB's commitments to strengthening energy security, affordability, and a swift deployment of renewables; and (ii) can enhance ADB's impact and help to effectively deliver on its climate and lending targets. However, the use of fossil fuels for captive power in mining and manufacturing operations is an issue that could conflict with the Energy Policy's goals. This can be construed as supporting the continued use of fossil fuels.
- **In contrast to its peer Institutions, ADB is yet to develop an approach and practice.** ADB peer MDBs, including the African Development Bank, the European Bank for Reconstruction and Development, the European Investment Bank, the Inter-American Development Bank, the International Finance Corporation, the Islamic Development Bank, and the World Bank have established extractive industries practices and approaches. Moreover, peer organizations are in the process or have concluded reforming their approaches and raised partnerships and trust fund resources to respond climate and market needs.
- **ADB is preparing to position itself to remain responsive to its clients' demands.** SG-ENE in collaboration with CCRC is preparing a multiregional TA for an amount of 1.25 million.
  - **Impact:** Development of diversified and responsible CM and CET manufacturing supply chains supported

- **Outcome:** DMCs' capacity for developing diverse and responsible critical mineral and CET manufacturing supply chains increased.
- **Outputs:** (i) opportunities for supporting diversified and responsible critical mineral and CET supply chains identified; (ii) policy dialogues and regional cooperation on CM and CET manufacturing supply chain development increased; and (iii) project pipeline on CM and CET developed.

**Within the next six months, ADB will produce an approach paper on enabling the development of inclusive, resilient, and responsible critical minerals and clean energy supply chains.**

## ■ | Accelerating New Energy Sources

### Background

New energy sources such as solar PV and wind energy have become more competitive as alternative to conventional power generation and expanded significantly in scale. But more steps are needed to accelerate the capacity expansion of these renewable energies; it needs technologies, financing, enabling investment environment, and capacity development of DMCs.

### Way Forward

#### Technologies

- **Frontier for the new energy sources.** There is significant potential for offshore wind in the region (e.g. SG-ENE upstream work in India, Viet Nam, and the Philippines). Floating solar PV in irrigation systems and lagoons also has significant potential especially where land is scarce (e.g. PSOD in Viet Nam, OMDP in the Philippines. SG-ENE in Kiribati, and Tuvalu, and Kyrgyz).
- **Grid strengthening.** Extending the transmission lines and augmenting the capacity is necessary to evacuate intermittent and variable renewable energy. In Southeast Asia alone, it is estimated that \$300 billion is needed to invest in the power transmission grid systems. Regional interconnectivity, such as ASEAN Power Grid program and EMA initiatives to import 4GW renewable energy from its neighboring economies will also open up opportunities to export, import and trade more renewable energy.
- **Storage capacity expansion** is critical to stabilize the grid system and to shift the peak load in the system. ADB is rapidly engaged in expanding battery energy storage systems (e.g. Mongolia, Cambodia, Tonga, Cook Islands). ADB is working

closely with Global Energy Alliance for People and Planet (GEAPP) to develop and operationalize a BESS platform (called Enhancing Access to BESS for low carbon economies [ENABLE]) catalyze knowledge and finance for BESS scaling-up. Hydropower schemes—ranging from mini- to large-hydro and to pumped storage hydropower—always play a significant role in grid system operations.

#### Financing

- **Private sector** financing plays a significant role in developing renewable energy. For the frontier technologies and The in the frontier market, blended financing through grants, concessional and public financing is often crucial in reducing the investment risks. Further, ADB takes a One ADB approach combining its capabilities in private and public sector financing and transaction expertise (e.g. Uzbekistan solar, Cambodia National solar park).
- **Public finance.** When and where the private sector investment is challenging, the public sector still needs to play a crucial role in developing new energy sources. In the Pacific, grant financing remains important funding source for renewable energy.
- **Improving regulatory framework for renewable energy investment.** Many of ADB DMC need to strengthen enabling environments for renewable energy by developing clean energy roadmaps, updating investment plans, introducing regulations and grid codes, and building and reforming institutions. ADB is supporting DMCs' efforts for these policies and reforms through policy dialogues, technical assistance, and policy-based lending (INO, PHI, CAM).
- **Capacity development.** Improving the capacity of governments and utilities in introducing and promoting new renewable energy remains as one of the key challenges in many DMCs. ADB facilitates introducing international best practices, knowledge exchange among the DMCs through knowledge forums, and support study tours and training through its technical assistance.



## ■ | Advancing Energy Transition Mechanism

### Background

Coal-fired power plants (CFPPs) account for nearly 30% of global carbon dioxide emissions. In Southeast Asia, across Indonesia, the Philippines and Viet Nam, coal accounts for between 45–60% of the power generation capacity and while contributing to the countries' energy security. According to the International Energy Agency (IEA), phasing out unabated coal power is an essential lever to decarbonize the global economy in line with the 1.5°C goal, with countries part of the Organisation for Economic Co-operation and Development (OECD) needing to phase out coal by 2030 and the rest of the world by 2040.<sup>1</sup>

- **The definition of ETM.** The Energy Transition Mechanism (ETM) is a program that utilizes concessional and commercial capital from various public and private sources to incentivize the early retirement or repurposing of coal-fired power plants and other carbon-intensive power generation (e.g., heavy fuel oil) while also unleashing new investments in clean energy, grid modernization, and energy storage. ADB's work on ETM promotes a just energy transition, protecting the livelihoods of workers and communities affected by the transition.
- **Launch of the ETM.** The initial concept of ETM was originally proposed under the World Economic Forum umbrella in 2020, which ADB took on to develop during 2021 as an implementable financing mechanism, piloted first in Southeast Asia. In November 2021 at COP26, the Government of Indonesia, the Government of the Philippines, and ADB announced a partnership to design and launch the ETM. Since then, the program has been discussed with other developing member countries (DMCs).

### Way Forward

1. **Indonesia and the first ETM pilot—Cirebon** 1. Indonesia has been the 'first mover' in exploring ETM for transitioning away from coal power generation. ADB supported Indonesia's energy transition priority for its G20 Presidency through feasibility studies and stakeholder engagements, culminating in the ETM country platform launch and signing of a memorandum of understanding (MOU) on a landmark precedent private sector transaction with the target to close in the first half of 2024. ADB is also preparing a series of results-based loan (RBL) programs and policy-based loans to support PLN in shifting from a pre-dominantly fossil-fuel-based power system to one with renewable energy sources.
2. **Expanding ETM in DMCs.** While activities progress in Indonesia, ADB has stepped up work in the Philippines, supporting the government's preparation for an investment plan under Climate Investment Funds Accelerating Coal Transition (CIF ACT), while continuing to garner interest in the region and globally. ETM has begun efforts in Viet Nam, Kazakhstan, Cambodia, India, and Pakistan, with preliminary discussions in other DMCs.
3. **Mobilizing financing for ETM.** ADB is actively engaged in fundraising with donor governments and philanthropies. Since 2022, the governments of Japan, Germany and New Zealand has committed a total of \$81.5 million to the **ETM Partnership Trust Fund (ETMPTF)**. A pioneering MOU signed with the Monetary Authority of Singapore (MAS) and the Global Energy Alliance for People and Planet (GEAPP) to establish a transition finance platform that will meet the objectives of the **ETM Funding Vehicle (ETM FV)** structure. The Partnership Platform will be funded through a mix of concessional and commercial capital, and is targeted to have an initial size of c.\$2 billion. The ETMPTF, among others, will provide concessional finance to the ETM FV. **Carbon market mechanisms are also being explored under the ETM.** The sale of transition credits would encourage independent power producers (IPPs) to retire their CFPPs early as the proceeds would

<sup>1</sup> International Energy Agency. 2021. [Net Zero by 2050](#). May.

alleviate economic barriers due to revenue losses (e.g., early termination of PPA with grid operator, discontinuation of power sales through electricity market). Moreover, revenue from these high-integrity carbon credits can be used to support just transition activities at the asset level.

4. **Just transition and safeguards are central to the ETM**, and ADB engages with civil society organizations, labor organizations, communities, local governments, and other affected stakeholder groups to seek feedback for the ETM program design and implementation. ADB aims to ensure that workers and communities that will be affected by retiring or repurposing fossil fuel-based power plants are properly supported, including along the coal supply chain.

## ■ | Enhancing Transition Finance

### Background

- Asia and the Pacific account for more than 50% of global greenhouse gas (GHG) emissions, of which a third (i.e. one out of every six tons of GHG emissions) are from coal-fired power plants. Coal accounts for nearly 60% of power generation in the region – and energy demand is expected to more than double by 2050 to sustain economic development, population growth, and rapid urbanization. To reach net zero by 2050, there is need for economy-wide transition strategies, and transition finance to support it. Addressing climate change will require that the financial sector go beyond just supporting purely green activities to enabling the transition to a carbon-neutral economy.

### Need for a Transition Finance Framework

- One of the key challenges to transition finance is the lack of private sector financing for decarbonization activities. Major barriers include the lack of: (i) clear definitions of transition activities; (ii) disclosure standards; (iii) financial instruments to provide incentives for better performance of emission reductions; and (iv) demonstration projects.
- To effectively mobilize private investment in transition activities, a sound transition finance framework needs to be established. The framework should consider the following key elements: (i) transition finance taxonomy to identify transition activities and investments; (ii) disclosure and reporting of information on transition plans, activities, and investments; (iii) transition-related finance instruments which include debt instruments (e.g. transition and sustainability-linked loans and bonds) and de-risking mechanisms and tools; (iv) policy incentives, such as tax incentives and fiscal subsidies to enhance bankability of transition projects; and (v) assessment and measures to mitigate the negative social and

economic impact of transition, including unemployment, energy shortages, and inflation (just and affordable transition).

- ADB has been at the forefront of supporting transition finance. This includes developing principles, frameworks, taxonomies, guidance such as publication of 'ASEAN Transition Finance Guidance v1 in Oct 2023', instruments, and pricing and non-pricing policy tools and investment activities.
- Beyond ADB's core lending operations, ADB aims to leverage its capital, de-risk projects and improve project bankability for transition finance, which can eventually attract private capital. Initiatives to support scaling up of transition finance include:
  - (i) The Energy Transition Mechanism (ETM) launched in 2021 as a public-private finance vehicle with two main goals: lowering emissions through early retirement of coal-fired power plants; and unlocking new investments for sustainable and renewable energy. ADB is working extensively with all stakeholders from participating countries to set up and tailor country specific ETM programs.
  - (ii) ADB's Innovative Finance Facility for Climate in Asia and the Pacific which will use guarantees from partners for parts of ADB's sovereign loan portfolio to enable the bank to free up capital to increase lending for climate change investments. Supplementary grants will facilitate project preparation, capacity building and knowledge solutions. With a model of '\$1 in, \$5 out', the initial ambition of \$3 billion in guarantees could create up to \$15 billion in new loans for climate projects.
  - (iii) In 2023, ADB, together with Global Energy Alliance for People and Planet (GEAPP) and the Monetary Authority of Singapore, signed a Memorandum of Understanding to establish a blended finance partnership by mobilizing

concessional capital, de-risking projects, and crowding-in private capital to finance energy transition projects at scale in Asia. The partnership aims to raise up to \$2 billion in concessional and commercial capital whereby ADB will provide origination, transaction, and technical support.

- SG-FIN is currently developing sovereign lending projects through FILs to promote low carbon transition for industrial parks in PRC as well as infrastructure finance covering transition in India. PSOD is processing projects involving green bonds and direct loans for financial institutions' renewable portfolio, which support transition finance across DMCs including PRC, MON, IND, VIE, and GEO (see Annex 2). FILs and PBLs are commonly utilized to promote and finance the economy's transition and leverage private sector financing.
- ADB also closely works with Glasgow Financial Alliance for Net Zero Asia-Pacific Network (GFANZ APAC), including supporting the publication of the report on Financing the Managed Phaseout of Coal Fired Power Plants at COP28 in 2023 and joining the Southeast Asia policy engagement on transition plans in April 2024.
- ADB is conducting an ADB-ADBI Joint Project on Asian Climate Finance Monitoring Dialogue and Platform to facilitate understanding of climate-related information disclosure and regulatory practices to create a resilient financial landscape.
- ADB has joined the launching event on Asia Green Transformation Consortium Initiative with Japan FSA, ASEAN capital market regulators, and GFANZ in March 2024. The initiative aims to promote transition finance in Asia. It will provide transition finance model cases in Asia, addressing obstacles, effective strategies (including blended finance, carbon credits, and disclosure of emission data). The consortium has a plan to consolidate inputs and suggestions from ASEAN financial authorities, ADB, and GFANZ to ensure the model cases are desirable from international perspectives.

## Way Forward

- Scaling up transition finance requires a combination of policy, knowledge transfer, international co-operation, and innovation from governments, financial institutions, and stakeholders. ADB can continue to play an important role in assisting developing member countries to transition to low carbon-economy by:
  - (i) mobilizing private and concessional finance to meet transition financing needs;
  - (ii) facilitating regional cooperation and connection to international markets and investors;
  - (iii) and developing the necessary enabling market ecosystem and capacities to promote sustainable and transition finance, including:
    - engaging policymakers in the region: helping regulators to actively support transition efforts by their financial institutions.
    - capacity building for regulators and financial institutions: providing guidance on credible transition strategies, key components of transition planning, and sectoral transition pathways; showcasing good transition plans; sharing effective financing mechanisms for transition projects.
    - facilitating dialogues between regulators and financial institutions on net zero strategies, challenges, and solutions.

## Background

### Challenges Facing Nature and Biodiversity

- Nature is at the heart of humanity's efforts to tackle climate change, end poverty, and ensure sustainability. However, nature is in decline. Ecosystems, species, and genetic resources, including terrestrial and marine biodiversity, are threatened. In Asia and the Pacific, deforestation and species extinction are rising at alarming rates. In Southeast Asian alone, 14.5% forest cover was lost in the last 15 years, more than 50 million migratory wading birds imperiled due to lost wetlands, and 640 million people living on coastlines most vulnerable to rising sea levels and weather catastrophes.
- The cost from the declining quality of nature and biodiversity is massive. The World Economic Forum (WEF) estimates that over half of the world's gross domestic product, nearly \$44 trillion, is dependent on nature. About 70% of global GDP is at risk from nature loss, with Asia and the Pacific accounting for almost two-thirds of this (valued at \$12 trillion) and placing the region "at the heart of the global biodiversity crisis". The declining quality of nature will be felt in agriculture, fisheries, timber production, and climate impacts around the world.

### Financial and Economic Benefits of Nature Conservation

- Conserving nature makes strong financial and economic sense. Nature provides ecosystem services that support billions of people, including the most vulnerable. It plays a critical role for both climate change mitigation and adaptation. On mitigation, nature is a vital carbon sink. According to IPCC, the world's oceans, forests, mangroves, and peatlands absorb 54% of greenhouse gas emissions.<sup>2</sup> On adaptation, protecting and restoring nature are essential in buffering communities – particularly those in the most vulnerable areas – from climate risks and extreme events.

- The economic returns from nature positive investments are tremendous, generating co-benefits for climate resilience, biodiversity, carbon sequestration, job creation, economic growth, and poverty reduction. The WEF Nature Economy Report estimated that a transition to nature-positive development could generate \$10 trillion in business opportunities globally by 2030 and create 395 million jobs.<sup>3</sup>

### Need for Finance and Innovation

- Implementing nature and biodiversity programs requires massive financial resources. The Global Biodiversity Framework, for example, estimates that \$200 billion is needed annually by 2030 to finance the goals "to halt and reverse biodiversity loss to put nature on a path to recovery for the benefit of people". Public sector budgets are inadequate, and private sector finance is essential.
- However, investment opportunities that generate both solid financial returns and environmental benefits are in short supply. Investors often cite a lack of bankable nature positive investment as a key constraint for expanding nature finance. Creating "signature" nature positive projects that are bankable and scalable, along with policy, capacity, and finance instruments, will showcase how public funds can catalyze private capital into nature-based solutions. Greater use of enabling financing instruments such as guarantees, impact-linked payments, and blended finance to de-risk and catalyze the prospective projects are required.
- Innovative financing instruments also need to be expanded. For example, biodiversity credits and sustainability-linked bonds offer significant opportunities for private sector involvement. However, the market for biodiversity credits and nature-linked carbon credits from REDD+ (Reducing Emissions from Deforestation and Forest Degradation) is still small. Developing high-integrity biodiversity

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<sup>2</sup> Our climate's secret ally: Uncovering the story of nature in the IPCC Sixth Assessment Report. 2022

[https://www.fint.awsassets.panda.org/downloads/wwf\\_our\\_climates\\_secret\\_ally\\_uncovering\\_the\\_story\\_of\\_nature\\_in\\_the\\_ipcc\\_ar6.pdf](https://www.fint.awsassets.panda.org/downloads/wwf_our_climates_secret_ally_uncovering_the_story_of_nature_in_the_ipcc_ar6.pdf)

<sup>3</sup> World Bank Blogs. 21 May 2021. [The Business Case for Nature, Karin Erika Kemper and Vivek Pathak](#)

credits and expanding the use of sustainability-linked bonds require data and taxonomies, which still need to be developed.

- Additionally, deep rooted reforms, such as revamping subsidy programs, expanding domestic and global forest-carbon payment schemes, and investment in nature research and development are crucial for reversing nature loss. The Global Biodiversity Framework adopted in 2022 under the COP 15 for Biodiversity sets ambitious targets for such programs, and strong implementations are required to achieve these.
- A key challenge to mobilize nature finance is to link the positive externalities from nature to actual investment programs, particularly in making investment bankable and attracting private sector capital. Comprehensive assessment of the full spectrum of benefits from nature will help to internalize nature's positive externalities in decision making. The enhanced valuation will provide a clearer, more quantifiable understanding of the economic and environmental benefits, facilitate more informed decision-making around nature finance, and build stronger cases for investments.

### **ADB's Drive for Nature Finance and Solutions**

- ADB is committed to being the Climate Bank of Asia and the Pacific. The linkage between climate and nature is inextricable. To step up its support to nature, ADB launched the Nature Solutions and Finance Hub (NSFH) at COP 28, which aims to address the critical links between biodiversity, conservation, climate change, and sustainable development. The hub will act as a platform to mobilize finance, build capacities, design financing instruments, and develop projects for nature positive investment. By providing a dedicated platform, ADB and partners can facilitate collaboration among stakeholders to step up their nature focused efforts.
- The hub will not only contribute to biodiversity and conservation, but also support climate change adaptation and mitigation efforts. It reflects a growing recognition of the interconnectedness between nature, climate, and sustainable development. It underscores the importance of innovative financing mechanisms to drive positive environmental outcomes. It aligns with global efforts to integrate nature solutions into finance mechanisms and policy frameworks.

- The NSFH complements ADB's existing efforts to mainstream climate and nature into its operations, including the ASEAN Catalytic Green Finance Facility (ACGF), the Natural Capital Lab, the Regional Flyway Initiative, the Healthy Oceans program, the Asia-Pacific Clean Blue Skies Program, the Circular Economy, and the Green, Social, Sustainable Bonds (GSS+) Initiative.
- Currently, ADB is in discussion with the OPEC Fund, the Saudi Fund for Development, AFD, as well as technical partners such as IUCN, WWF, Conservation International, and Nature Finance on funding and operationalizing the hub. A One ADB team involving SG-FIN, SG-AFNR, and CCRE is working on the operational guidelines and business plan for the hub. The hub will embody a de-risking/catalytic fund, a technical assistance, and a team of staff and experts. It will aim to catalyze \$5 billion in capital flows into nature positive projects across Asia and the Pacific in the next few years.

### **Way Forward**

Embracing nature and embedding nature into our decision making will help to safeguard our planet's natural assets and secure a sustainable future. Building on its extensive efforts and experience, ADB can deepen its support to promote nature finance and solutions through various measures, including through:

- building capacity of governments to incorporate nature considerations in their policies, budget, planning, and investment;
- supporting reforms, such as revamping subsidy programs, expanding domestic and global forest-carbon payment schemes, and investing in nature research and development;
- promoting natural capital accounting, developing taxonomies, and enhancing information and data to record and report the full spectrum of benefits from nature conversation;
- developing pipelines for nature positive projects;
- designing and showcasing high-impact 'signature' projects;
- mobilizing and providing de-risking and catalyzing finance to reduce the cost of capital and making nature positive projects bankable; and
- promote innovative finance approaches and instruments to scale-up finance and expand development impact, such as through the use of nature swaps, sustainability linked bonds, and biodiversity credits.



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## Modernizing Sub-national Finance

### Background

#### Challenges on Subnational Finance

- A study by the OECD and ADB highlighted that many countries in Asia-Pacific are characterized by low levels of subnational government debt. The share of subnational government debt in Asia and Pacific (6% of GDP) is less than half compared to OECD (13%).<sup>4</sup> While decentralization has led to strengthening of regional governance in the region, misalignments between the functional assignments and fiscal resources are common, leaving subnational governments with large unfunded or underfunded mandates.
- Low subnational government borrowing can be a reflection of strong fiscal rules, but it is also a result of insufficient revenues, limited institutional capacity and poor governance, and low creditworthiness at the subnational level.
- **Strong fiscal rules.** Many countries place diverse constraints on subnational government finance to manage risks related to excessive liabilities. This includes restricting subnational government debt levels, ability to borrow from international banks and/or in hard currency, and requiring approval of borrowing by central government, particularly for loans from offshore lenders. Capital markets instruments are often equally constrained by factors such as: strict or unclear rules, insufficient own-source revenues, low creditworthiness, and under-developed local capital markets.
- **Limited institutional capacity.** The vast majority of subnational governments in the region need to further improve their institutional

capacity. This spans across a wide range of areas, including technical capacity for project preparation and implementation, weak governance structures, and financial management. The latter is of particular importance as tools and skills for financial management and reporting will improve transparency, accountability, and efficiency and hence support subnational investments.

- **Low creditworthiness.** Low creditworthiness is linked to a range of factors, including fiscal rules, limited institutional capacity, and insufficient and unpredictable subnational revenues (particularly own-sources). Debt repayment ability is a major criterion that investors, banks, and credit rating agencies consider when rating subnational government debt.

#### Measures to Modernize Subnational Finance

- **Financial deepening.** The more creditworthy subnational governments can be supported to have direct access to capital markets, subject to adequate regulatory frameworks. Those without direct market access could be served by financial intermediaries structured according to accepted commercial principles with an initially appropriate level of private-sector involvement that can grow over time. These can be coupled with means to mitigate risks, such as credit guarantees, co-financing initiatives, secondary market support, bond banks, and credit pooling.<sup>5</sup> Governments may also require public financial institutions to support domestic bond market development by restricting municipal lending that they offer, or by securitizing their loan portfolios to the local bond market.<sup>6</sup>
- **Enhancing transfer systems.** Grants and subsidies are the first source of subnational government revenues in Asia and the Pacific. The transfer systems could be enhanced through creating or improving equalization arrangements to address disparities across

<sup>4</sup> OECD and ADB. 2023. Multi-level governance and subnational finance in Asia and the Pacific. OECD Regional Development Papers.

<sup>5</sup> Smoke, P. 2019. Improving Subnational Government Development Finance in Emerging and Developing Economies: Towards a Strategic Approach. ADBI Working Paper Series, No. 921.

<sup>6</sup> Sharma, L., J. Lee, and W. Streeter. 2023. Mobilizing Resources Through Municipal Bonds: Experiences from Developed and Developing Countries.

territories. Performance-based transfers could also be considered to build capacity of subnational governments and increase the efficiency of subnational spending and its alignment with national priorities, such as climate action objectives.<sup>7</sup>

- **Diversifying subnational revenue base.** Some countries in Asia and the Pacific are characterized by significant vertical fiscal imbalances between the subnational expenditures and revenues. Countries can harness the revenue potential of the recurrent immovable property tax, including the creation of recurrent property taxes or surtaxes, revising the tax base and rates, and modernizing and digitalizing tax systems.<sup>8</sup>
- **Promoting public private partnerships.** Sound PPP frameworks and practices can support blended financing and assist subnational governments in building accountable and fair partnerships with private enterprises. A key concern is that such frameworks should create conditions conducive for private engagement but preserve public interests and help to ensure access for the more vulnerable to public infrastructure.<sup>9</sup>

### Embarking on a Journey for Subnational Finance in ADB

- **ADB has almost no exposure to “Public Non-Sovereign” or NSO-subnational lending**. A critical reason is that is the lack of a credit risk assessment framework in ORM.
- **NSO-subnational lending may not be a “low hanging fruit”, but challenges are not insurmountable.** Discussion with other MDBs reveals several challenges, including (i) low capacity of subnational entities for project preparation and implementation, (ii) labor and

time intensive preparation, (iii) slow disbursements. Additionally, lending from MDBs is legally constraint in some DMCs. Transactions sizes can be small. Subnational exposure only forms small part of MDB commitment in general, but the shares are 7-14% of the EBRD and IFC infrastructure investments.<sup>10</sup>

- **Equally, NSO-subnational lending has great potential** given (i) reasonable profitability (margins are in great excess of the overall NSOs), (ii) reasonable risk profile (probability of default of 2.4% vs. 3.5% NSO average)<sup>11</sup>, and (iii) progressing (fiscal) decentralization in DMCs (including. Top-6, i.e. PHI, IND, PAK, BAN).
- **Subnational lending needs to be understood as a “journey” which can enable the transition from SOV to Public Non Sovereign to NSO.** ADB should support DMCs in creating markets through decentralization and private sector participation (e.g. concessions and PPPs for utility services).
- **ADB New Operating Model empowers this journey.** Close SOV-NSO collaboration is the norm under the New Operational Model. Strategic approach to NSO-SOV urban investments is required to **develop** future NSO portfolio and support SOV-NSO transition.

### Way Forward

- **Adopting a municipal finance risk assessment framework.** ADB needs to enable municipal/subnational finance in its operations. In order to do so, ORM, with the support of SG and PSOD, needs to develop a municipal finance risk assessment framework.<sup>12</sup> A strategy needs to be developed across ADB to

<sup>7</sup> OECD and ADB. 2023. Multi-level governance and subnational finance in Asia and the Pacific. OECD Regional Development Papers.

<sup>8</sup> Ibid.

<sup>9</sup> Smoke, P. 2019. Improving Subnational Government Development Finance in Emerging and Developing Economies: Towards a Strategic Approach. ADBI Working Paper Series, No. 921.

<sup>10</sup> EBRD (2023): “Municipal Finance” is about EUR963mn vs. EUR 13bn total infra investments. IFC (2022) Total municipal and Environmental Infrastructure portfolio was \$1.3bn vs \$9.1bn total infrastructure investment.

<sup>11</sup> Global Emerging Markets Risk Database (2023). MDB and DFI Default Statistics. Private and Sub-Sovereign Lending 1994-2022. Volume 1. Published by European Investment Bank.

<sup>12</sup> The Municipal Finance and Governance Community of Practice core group, which representatives from SG, PSOD and ORM, has started discussions on this topic.



support this dialogue with ORM. A subnational finance risk assessment framework is urgently needed as this presents a stifling constraint to develop subnational operations.

- **Reviewing ADB's guarantees instrument.** Credit enhancement is essential to assist subnational and municipal governments in growing the confidence of investors. However, ADB's guarantee instrument is seldom used. The lack of usefulness of this important instrument is likely a sign of pricing, design, and implementation issues around it. It is thus proposed ADB review this instrument to make a valuable part of ADB's toolbox, including for supporting subnational and municipal finance. The World Bank Group has recently undertaken a reform of its guarantee operations to make them more competitive and is currently assessing product design and pricing.
- **Promoting subnational financing instruments.** ADB assist in developing bank and bond market solutions for subnational finance, including through providing viability gap financing (public equity), by requiring a local government funding share in investment for financially stronger municipalities, and by providing credit enhancement such as lines of subordinated credit, intercepts of transfer payments (as were developed in the US), or partial risk guarantees.<sup>13</sup>

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<sup>13</sup> Ibid.

## ■ | Climate and Health Finance Initiative

### Background

- **Climate change caused by human action has led to increasingly severe, and in some cases, irreversible damage to the planet.** Climate change is estimated to push more than 100 million people into extreme poverty by 2030. Extreme weather events such as intensified storms and floods, increased precipitation, heatwaves, wildfires, and drought affect human health through complex pathways. Reduced air quality via air pollution is the biggest environmental health risk in Asia and the Pacific, accounting for two-thirds of the world's 7 million premature deaths each year. Heatwaves escalate the burden of cardiovascular disease and other non-communicable diseases, adding to increased climate-related morbidity and mortality. Climate change has also led to an increased spread of infectious diseases (vector-borne, water-borne, etc.); widespread heat-related illness, deaths and hospitalizations; and other injuries. Asia and the Pacific are particularly vulnerable to climate change risks. Regional dynamics, such as population mobility and migration, increased urbanization, an aging population, widening inequalities, and the rise in infectious diseases, further amplify the negative impacts of climate change. Establishing resilience in health infrastructure, systems, and communities to withstand the impacts of the climate crisis should be a top priority as health systems simultaneously work to achieve Universal Coverage.
- **The health sector is a first responder to climate change and a leading contributor** due to its high carbon footprint of more than 5% of net global emissions, which could triple by 2050 unless necessary measures are taken to mitigate this. As one of the largest and fastest-growing segments of the world economy, the health sector must move quickly to decarbonize by transforming and aligning its growth and development with the ambition of the Paris Agreement to achieve zero emissions and limit global warming to 1.5 °C.

- **To date, global investments targeting the climate-health nexus have been insufficient** as recently highlighted in the 2023 report of the Lancet Countdown on health and climate change.<sup>4</sup> An estimated USD 26.8 to USD 29.4 billion in annual funding is required to build climate-resilient health systems,<sup>5</sup> with only 2% of total global adaptation funding and less than 1% of overall climate funding targeting the health sector.<sup>6</sup>

### Way Forward

- **ADB is leading efforts to put health at the center of climate change action in Asia and the Pacific.** Under India's G20 leadership, ADB participated in the G20 Health Working Group meetings throughout 2023 and led the effort to elevate climate and health as a top priority for the G20 and Developing Member Countries. In August 2023, G20 Health Ministers asserted their collective commitment to prioritizing and mobilizing resources for adaptive, resilient, low-carbon sustainable health systems. This was followed by the G20 New Delhi Declaration in September 2023, in which G20 leaders reaffirmed their commitment, calling for continued collaboration with Multi-lateral Development Banks (MDBs) and alignment with the WHO-led Alliance for Transformative Action on Climate and Health (ATACH)<sup>1</sup>.
- **To drive concrete, rapid action on climate and health, ADB has established the Climate and Health Initiative (CHI),** which was conceptualized during G20 meetings and launched by ADB's President at the first-ever Health Day at COP28 in UAE in December 2023<sup>2</sup>. The CHI will serve as a key platform to consolidate, streamline, and amplify policies and practices at the intersection of climate change and health. The CHI will foster greater collaboration, innovation, and knowledge sharing among national governments, development partners, international organizations, academia, and the private sector to develop climate-resilient and low-carbon healthcare systems. The CHI will leverage

ADB's sovereign and non-sovereign lending in Asia and the Pacific and will mobilize new domestic and international investments and technical expertise. The CHI is guided by the G20 High-Level Principles<sup>3</sup> for Sustainable and Climate-Resilient Health, which provides a means to improve "health for all" and minimize the negative environmental impacts of delivering healthcare. As a follow-up action between the Government of India and ADB, the Climate & Health Thought and Action Conclave will be conducted to bring together different stakeholders working in climate and health for a consultative strategy workshop. This will help identify and operationalize Climate Health Solutions (CHS) including key public and private leaders and decision-makers to foster in-depth strategic discussions and solutions on the intricate relationship between climate change and public health.

- ADB is engaging with the Green Climate Fund to mobilize a funding grant of \$200 million for climate and health. ADB has also partnered with other agencies like the Urban Resilience Trust Fund, Community Resilience Partnership Program Trust Fund (CRPPTF), Japan Fund for Prosperous and Resilient Asia and the Pacific (JFPR), Republic of Korea e-Asia and Knowledge Partnership Fund (EAKPF) to garner CHI seed funding of approximately \$10 million. Additionally, ADB is actively engaging with other partners, including the Wellcome Trust, BMGF, and Rockefeller Foundation, to advance the integration of climate and health agendas in Developing Member Countries (DMCs). For every \$1 grant, ADB will leverage \$6 co-financing from ADB and its partners. To improve Bank-wide coordination, and strategically align efforts across the Climate Change and Sustainable Development Department (CCSD), Sector Groups (SGs)—particularly Agriculture, Food, Nature, and Rural Development; Water and Urban Development; Energy; and Transport—and Regional Departments (RD), HSD will set up a Task Force on Climate and Health (TF-CH), to inform and expand ADB's climate-health operations.
- Further, ADB is harmonizing climate and health action across major development financiers. ADB and the World Bank co-convene the "Development Bank Working Group for Climate-

Health Finance" to mobilize convergent financing needed for climate and health action at scale and to define what that financing should support via identification of the "best buys" and "best practices" promoting climate and health co-benefits. Additionally, the joint approach of the group will support evidence-based interventions tailored to population health needs and local contexts. This collaboration will complement and draw on knowledge developed through the CHI, magnifying the impact of the CHI in reducing both the vulnerabilities of people and ecosystems to climate change and the carbon footprint of health services.

## ■ | Skills for Green Economy

### Background

- The Education Sector Directional Guide (2022) identified climate change as one of the megatrends affecting education sector. Asia generates almost half of all greenhouse gas emissions, and the People's Republic of China (PRC), India, and Indonesia are among the top 10 emitters, collectively responsible for 70% of Asian emissions (ADB 2017). Among the countries most vulnerable to climate-induced disasters are the Philippines and Pacific Island states. At the same time, climate change generates opportunity for sustainable economic growth in Asia and the Pacific with a net gain of 14.2 million green jobs to 2030 if governments adopt strategic policies and interventions (ILO 2019). The Association of Southeast Asian Nations issued a joint declaration in 2018 promoting **skill development for workers transitioning to green jobs** (ASEAN Secretariat 2018). The European Commission has developed a framework for **green skills and sustainability** to promote learning on environmental sustainability in the European Union (European Commission 2022). This affects education in terms of designing environment-friendly facilities; adopting curricula that raise awareness of climate change at all ages; fostering a new generation of leaders; and developing the knowledge, skills, and attitudes necessary to adapt to, mitigate, and reverse climate change.
- A number of DMCs, heavily relies on oil and gas (e.g. for Azerbaijan it constitute a third of its GDP and 90% of exports). Such DMCs face the urgent need to diversify its economy and embrace decarbonization efforts. As countries consider measures to support this transformation, strategies to invest in **workforce reskilling with a focus on green skills** are needed.

### Way Forward

Approaches to support green skills development proposed for DMCs in Asia and the Pacific, include:

#### 1. **Green education and training:**

- Establish vocational training programs and upgrade educational institutions that focus on green skills. These programs can train workers in renewable energy, sustainable agriculture, and environmental management.
- Collaborate with universities and research centers in the region and beyond to develop specialized courses and degrees related to green technologies, climate science, and sustainable practices.

#### 2. **Encourage research and innovation, with universities/private sector partnerships:**

- Invest in research and development (R&D) related to green technologies. Support innovation hubs, start-ups, and research projects that focus on renewable energy, circular economy, and climate resilience.
- Foster partnerships between academia, industry, and government to drive innovation and create a skilled workforce.

#### 3. **Support green entrepreneurship and industry leadership:**

- Provide financial incentives and grants for green start-ups and small businesses. Encourage entrepreneurs to develop sustainable solutions and products.
- Create a supportive ecosystem for green entrepreneurs, including mentorship, networking events, and access to funding.
- Help industries to adopt green / sustainable / digital technologies and adapt to green supply chains through middle level management training targeting industry sectors that are part of global value chain

**4. Long term plan for upskilling existing workforce – social protection / labor:**

- Prepare a long-term human resource strategy that includes training programs for existing workers in sectors like oil and gas, construction, and manufacturing (to equip them with skills relevant to the green transition, such as energy efficiency, waste reduction, and sustainable practices).
- Collaborate with industry associations and trade unions to ensure workers are prepared for the changing job landscape.

**5. Embed human resource development in infrastructure and agriculture sector:**

Build human resource capacity for expansion of renewable energy infrastructure.

- Long term planning for wind, solar, and hydropower projects; and for e-mobility. These initiatives will require skilled workers for installation, maintenance, and operation.
- Train technicians, engineers, and project managers in renewable energy and smart mobility technologies.

Promote sustainable agriculture and forestry

- Invest in agroforestry, organic farming, and sustainable land management. Train farmers and foresters in climate-smart practices, including adoption of green technologies and efficient irrigation.

To support skills for a green economy, ADB programs need to be more transformative, education and skill systems should drive green economy transition, matched with policies and investments in green economy. Apart from training, re-skilling needs to be linked to supporting businesses, especially SMEs to be part of a green growth path while innovation capacity development through higher education, R&D, start-up ecosystem should be driving green growth.

## Background

Asia has made progress in reducing all forms of malnutrition in the past two decades. There have been reductions in stunting and wasting among children below the age of five and improvements in nutritional status for children, adolescents, and adults. However, **malnutrition remains a major challenge** in Asia and the Pacific. Thus, an average of 23 percent of children under five in ADB countries are stunted and an average of over 32 percent women of reproductive age in the region are anemic. All of our developing member countries (DMC) face at least one or more forms of malnutrition. The combined burden of underweight and obesity has increased in most countries globally, and in 2022 Pacific nations were amongst countries with the highest levels. The remaining burden of being underweight in South and Southeast

Asia, where food insecurity persists. **Women** of reproductive age are particularly vulnerable to the effects of micronutrient deficiencies, especially anemia, and this has proven effects on female morbidity and mortality during childbirth, as well as child mortality. **Climate change** will continue to impact nutrition through decreases in food quantity and access, dietary diversity, and nutritional content of food.

The nutrition project portfolio at ADB is small, but it provides a solid basis for expanding nutrition-smart innovative investments. Over the years, ADB has supported a variety of approaches and our investments have resulted in substantial gains in food and nutrition security.<sup>14</sup>

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<sup>14</sup> ADB has supported **direct food systems interventions** such as livestock and horticulture programs that promote sustainable food systems and improve dietary diversity and economic returns, with varied impacts on nutritional outcomes. ADB has also addressed nutrition concerns through **nutrition-smart investments** that go beyond direct nutrition interventions to target other sectors (e.g. agriculture or social protection) with strategies that can enhance impacts on nutritional status and health, while also focusing on economic returns and sustainability.

- An example of a nutrition-smart project in **agriculture** is USD 100M Maharashtra Agribusiness Network Project **in India**. It targets women-owned businesses and women members of Farmer Producer Companies to support post-harvest management and market linkages in horticulture value chains, including fruits and vegetables. This approach offers an opportunity for improved economic and nutrition returns for participant households, business owners and consumers more broadly.
- ADB's first gender-themed irrigation and drainage investment of USD 30M in **Vaksh Valley, Tajikistan** includes direct supports for women farmers in the horticulture sector and financial linkages to help improve incomes, with strong potential returns to health through the promotion of vegetables that can address vitamin A and iron deficiencies.
- ADB's **private sector financing** also focuses on nutrition-smart strategies such as the Climate Resilient Capacity Building for Women Technical Assistance in Bangladesh and the Philippines, which explicitly targets livestock and fish farming while also providing dietary and nutrition training.
- Nutritional goals will not be achieved without support from social protection, health, and education sectors. ADB has supported food security and nutrition through **social protection programs** such as cash transfers, food vouchers, school feeding and input subsidies that are assumed to impact nutrition through enhancing household income and/or consumption smoothing.
- For example, the **Food Stamps Program in Mongolia** provides **direct food security** support to 240,500 Mongolians, among them more than 118,000 children. The program began in 2008 in response to the food and fuel crisis – it is now a fully adopted nationwide program, targeting the most poor. It has been expanded vertically and horizontally to address shocks and rolled back afterwards. An impact evaluation demonstrated that the families who benefit from the program were able to purchase a wider variety of food, address other negative coping mechanisms, and consume more fruits and vegetables.
- The flagship **Pakistan Benazir Income Support Program (BISP)** is a direct cash transfer to women. While it is not a direct nutrition intervention, access to cash support linked with nutrition and livelihood training offers an opportunity to low-income women to enhance their economic security. Impact evaluations of the unconditional cash transfer find positive nutrition impacts on girls ages 0-5 years.
- In partnership with AFD and OPEC, ADB's Technical assistance (TA) will support the **Department of Social Welfare and Development (DSWD) of the Philippines** in piloting a digital food voucher program to provide nutrition-sensitive food assistance to food-insecure households and contribute to the prevention of child malnutrition, targeting 3,000

## Way Forward

To enhance food and nutrition security in the region, two directions are important:

**Scale Existing Nutrition-Smart Investments:** Continue to leverage existing investments in food systems and critical enablers (such as climate adaptation, irrigation, water and sanitation projects, nutrition and hygiene education) to deliberately integrate proven nutrition-smart technologies.

**Test and Learn Emerging Intersectoral Approaches:** Support innovative approaches and enhance cross-disciplinary collaboration for integrating livelihood and nutrition approaches. This includes for example integrating new climate adaptation interventions (e.g. micro-irrigation) with nutrition-smart inputs and innovative financing; or combining economic inclusion, nutrition education and awareness, and cash transfers, such as the ADB-supported Building Resilience and Reducing Rural Poverty Project in Lao PDR currently under preparation.

ADB is a key signatory to the 2021 Tokyo Compact on Nutrition for Growth. As part of this initiative, it has developed a **high-level roadmap** to accelerate nutrition financing and build a multisectoral approach to nutrition. The roadmap includes the following:

- Formation of a Multisectoral ADB Working Group on Nutrition Security - Consisting of representatives of multi-sectoral groups. Rural Development and Food Security, Health, Education, Gender Equity, Social Development and Urban Development.
- Preparation of ADB's Strategic Direction to Enhance Nutrition in ADB Operations Review nutritional aspects of ADB's portfolio and outline strategic direction to strengthen ADB's nutrition security engagement.

- Identification of areas where nutrition overall strategic framework for the next 3-5 years based on review of relevant best practices.
- Integration of Nutrition Security Engagement with the Green and Resilient Food System Investments.
- Trials and upscaling of new business approaches to nutrition engagements under ADB's portfolio (e.g., nutrition-smart agriculture, nutrition fortification, climate- and nutrition-smart urban agriculture, gender-focused and low-cost production of local vegetables and fruits, and animal protein, and enhancing nutritional linkage in social safety net support).

In April 2024, ADB hosted **the Asia and the Pacific Food Security Forum** to discuss actions to ease a worsening food crisis in the region and to improve long-term food security. The Forum reiterated the importance of developing coherent and integrated solutions to food and nutrition security and mainstreaming nutrition and climate nexus in development investments.

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households. The program includes culturally appropriate training for social and behavior change communication (SBCC) to promote positive nutrition-related behaviors. The pilot will inform the government's *Walang Gutom 2027* program that will support 1 million most food-insecure households.



## ■ | Deepening Macro Climate-fiscal Linkages

### Background

The fiscal risks posed by climate change in Asia and the Pacific are immense. Damage generated by climate change-induced weather events such as floods and storms led to \$50 billion annually in damages between 2010 and 2019 in Asia and the Pacific (Dabla-Norris et al. 2021). Such events also disrupt public finances by disrupting economic activity in tourism, agriculture, trade, and other sectors. Other secondary risks include the materialization of implicit and explicit contingent liabilities from public-private partnerships and state-owned enterprises as well as reduced property and asset valuations. At the same time, transition risks in Asia and the Pacific will also affect government finances as countries attempt to reduce reliance on carbon-based energy sources and increase investment in clean and renewable energy. Over time, significant additional public outlays will be required for mitigation actions to limit climate change by reducing GHG emissions or removing GHGs from the atmosphere.

### Way Forward

ADB is committed to supporting Developing Member Countries (DMCs) in adapting fiscal policies to enhance economic resilience to climate change. This involves:

- climate-sensitive **budget tracking systems**
- **integrating climate risks** into fiscal risk and debt management systems.
- developing **green taxonomies**
- **green procurement**
- development of **policies for pricing of carbon emissions**.
- **fiscal policies** that promote clean technology.
- **sector-specific regulations** related to climate.
- design of **climate-sensitive fiscal transfer systems**.
- development of **climate-smart fiscal rules**.

- **green public investment** management.
- defining climate-related financial metrics, certification labels, and disclosure standards.
- incorporating **climate considerations into asset purchase programs** of central banks.

SG-PSMG is incorporating climate actions in almost all programs. A dedicated climate program was processed in Bangladesh in 2023 and climate-focused programs are being processed in Uzbekistan and Kyrgyz Republic for approval in 2024 and 2025 respectively. An e-Bus program is in the works jointly with SG-TRA. Further, contingent disaster financing (CDF) operations are being prepared for COO, FSM, PHI, RMI, TUV and VAN. The total climate financing in SG-PSMG's 2024 projects and programs is estimated at \$973 million, of which \$494 million is for adaptation and \$479 million for mitigation.

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## | New Frontiers of Debt Sustainability

### Background

While the Asia and the Pacific region shows promising growth prospects, projected at 4.9% in 2024 and 2025 (ADO 2024), it grapples with challenges stemming from limited fiscal space. Despite some signs of improvement, the region continues to grapple with persistent debt vulnerabilities. This becomes particularly critical given the region's high exposure to climate change impacts. Projections indicate that public debt as a percentage of gross domestic product (GDP) in developing Asia and the Pacific will hover around 49% through 2026, a slight decrease from its pandemic-induced peak of 51%. This stabilization is partly attributed to the rebounding growth and high inflation observed in many developing member countries (DMCs), acting as counterbalances to upward pressures on debt ratios stemming from primary deficits and exchange rate fluctuations. However, the diminishing mitigating effects of inflation by 2026 and the need to refinance maturing debt amid elevated interest rate conditions underscore the need for sustained efforts to strengthen debt management practices across DMCs. Scenario analysis underscores the susceptibility of debt ratios to adverse conditions and the prevalence of downside risks such as severe contractions in fiscal and export revenues—halving GDP growth in the region could potentially push average debt ratios to nearly 60% of GDP by 2026. Such adverse scenarios highlight the importance of proactive fiscal management and policy interventions to mitigate risks and maintain debt sustainability.

Country-specific examples shed light on diverse debt sustainability challenges. In Fiji, for instance, public debt ratios are expected to decrease by 6 percentage points from 2022–2023 to 2024–2025. This reduction is attributed to a significant narrowing of primary fiscal deficits, from 8% to 1% of GDP, indicating progress in fiscal consolidation efforts. Conversely, in Lao PDR, the government debt-to-GDP ratio is anticipated to rise to an average of 109% in 2024–2025, driven by the depreciation of the national currency and high interest payments consuming a significant portion of fiscal revenues. Pakistan presents another case where public debt reduction provides little relief

due to surging interest expenses, consuming a staggering 61% of fiscal revenues. Despite improvements in external debt service indicators, concerns persist, highlighting the need for sustained fiscal consolidation and policy reforms.

Pakistan's experience underscores the importance of addressing structural imbalances in public finances, enhancing debt management capacity, and promoting inclusive economic growth to reduce reliance on debt financing. The recent Sri Lankan experience highlights the importance of macroeconomic stability and prudent debt management practices to mitigate currency risks and ensure debt sustainability over the long-term. Additionally, enhancing domestic revenue mobilization and diversifying sources of financing could help reduce reliance on external borrowing and strengthen fiscal resilience.

Challenges persist in coordinating international creditor efforts to address debt vulnerabilities effectively, underscoring the importance of multilateral cooperation. Furthermore, aligning debt relief initiatives with national development priorities and strengthening debt management capacity at the country level can enhance the impact of external support and contribute to long-term debt sustainability.

Comprehensive fiscal reforms, including measures to address tax expenditures, enhance public investment management, and establish medium-term fiscal policy frameworks, are essential for improving debt sustainability. By rationalizing fiscal expenditures and discontinuing detrimental subsidy schemes, governments can reduce fiscal pressures and improve debt servicing capacity. Moreover, promoting full transparency in debt management and maximizing domestic resource mobilization are critical components of a comprehensive strategy to enhance debt sustainability. Effective management of SOEs' assets and liabilities is also integral to this strategy, as it helps reduce contingent liabilities and mitigate fiscal risks. Ultimately, a holistic approach that addresses these interconnected issues is necessary to promote debt sustainability and ensure long-term economic stability in the Asia-Pacific region.

### Way Forward

SG-PSMG is incorporating these key requirements for macroeconomic and fiscal stability in its reform programs. The focus is on domestic resource mobilization, expenditure rationalization, SOE reforms, climate-fiscal linkages, improved cash and debt management, economic diversification, enabling frameworks for small and medium enterprises and industrial corridor development, and improved disaster management. SG-PSMG is also setting up a formal network of staff engaged in work related to debt sustainability assessments from across ADB. This network- the Asia Pacific Debt Network (APDN) - will serve as an integrated hub, bringing together various departments within ADB including the Economic Research and Regional Cooperation Department (ERDI), the Strategy and Policy Department (SPD), the Climate Change and Sustainable Development Department, regional departments, Treasury Department, Office of Risk Management, Office of Market Development and PPP. Its primary functions encompass monitoring and analyzing debt trajectories in ADB's developing member countries, coordinating international efforts related to sovereign debt issues, facilitating technical assistance on debt management and policy alignment, producing knowledge products and events related to debt sustainability in the Asia Pacific region, and facilitating exchange of experience between DMC

## ■ | Enhancing Domestic Resource Mobilization

### Background

Governments across the Asia-Pacific region face the challenge of gradually emerging from the pandemic and trying to set their economies on a path toward a green, resilient, inclusive, and sustainable recovery. ADB has been supporting developing member countries strengthen their finances, and domestic resource mobilization (DRM) is a key component of ongoing policy-based lending in Pakistan, Uzbekistan, Kyrgyzstan, Tajikistan and Armenia in Central West Region; Lao, Fiji, Palau, Papua New Guinea, Solomon Islands, and Tonga in South East Asia and the Pacific; and Bhutan, Maldives, and Nepal in South Asia. In addition, DRM support is being incorporated in programs being prepared in Sri Lanka and Bangladesh.

### Way Forward

To help DMCs effectively strengthen their efforts at mobilizing domestic resources, ADB officially launched the Asia Pacific Tax Hub (APTH) at the 54th ADB Annual Meeting in May 2021. The APTH, in collaboration with Development Partners, Multilateral Financial Institutions, and ADB Regional Departments is working to strengthen Domestic Resource Mobilization (DRM) and International Tax Cooperation (ITC) thereby supporting developing member countries' efforts to achieve the Sustainable Development Goals (SDGs).

In association with PSMG staff assigned to regions, and Resident Missions (RMs), the APTH assists DMCs in domestic tax policy and

administration reforms as well as in international taxation. The APTH has more recently supported other ADB units in initiating policy dialogue through technical assistance (TA) and under broader fiscal management policy-based loans. For example, the APTH has provided continuous support to DRM PBLs for the Philippines, Bangladesh and Pakistan as active members of the loan processing teams as well as other PBLs under development with a DRM content such as in Indonesia and Sri Lanka.

The APTH has three building blocks, including:

### **Preparation of medium-term revenue strategies (MTRS) and related initiatives**

- Co-hosting with the Platform for Collaboration on Tax two virtual regional workshops on MTRS attended by 15 DMCs.
- Conducting Tax Administration Diagnostic Assessment Tool (TADAT) assessments in Pakistan, Bhutan, Maldives, Nepal, Sri Lanka, Kazakhstan, Uzbekistan, and Indonesia.
- Providing technical support to the governments of Bhutan and Maldives to develop Medium-Term Revenue Strategies.
- Authoring several knowledge products and blogs<sup>15</sup> on tax policy topics such as Governance Briefs on tax and social protection<sup>16</sup>, taxation of robots<sup>17</sup>, climate fiscal risks<sup>18</sup>, and tax incentives and investment<sup>19</sup>. Technical manuals such as on carbon pricing and fossil fuel subsidy rationalization<sup>20</sup> have also been developed and published.
- Conducting tax policy evaluation and benchmarking studies and tax expenditure and tax gap evaluation studies on request

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<sup>15</sup> [A Tool for Assessing the Distributional Impact of VAT Tax Expenditures](#)

<sup>16</sup> [Taxation and Social Protection](#)

<sup>17</sup> [Taxation of Robots](#)

<sup>18</sup> [Fiscal Risks of Climate Change: Sources and Practical Solutions](#)

<sup>19</sup> [Tax Incentives and Investment](#)

<sup>20</sup> [Carbon Pricing and Fossil Fuel Subsidy Rationalization Tool Kit](#)

from ADB units and DMCs such as Sri Lanka, Bhutan, Bangladesh, and Mongolia.

- Providing capacity building training activities to DMC officials from a wide variety of DMCs in topics ranging from risk-based audit, tax expenditure estimation, base erosion and profit shifting (BEPS), taxation of extractives, and exchange of information.
- Providing technical assistance to client DMCs and other organizations such as a pilot compliance risk management capacity building project in Sri Lanka, a technical report on tobacco and alcohol taxation for the ASEAN and a study on effective tax rates for Nepal.
- Organizing major knowledge dissemination events like two high-level regional tax conferences, webinars on carbon pricing, regional consultations on BEPS and co-organizing the first technical regional conference on tax expenditures for the APAC with the Addis Tax Initiative.

#### **Roadmaps for the digital transformation of tax administration and relevant knowledge products**

- Co-hosting virtual and in-person events on digital transformation of tax administration with the Organization for Economic Co-operation and Development (OECD), National Tax Agency of Japan, Study Group on Asia-Pacific Tax Administration and Research (SGATAR), and the World Bank Group (WBG) attended by nearly 40 DMCs.
- Publishing a number of knowledge products and blogs,<sup>21</sup> including *A Comparative Analysis of Tax Administration in Asia and the Pacific*,<sup>22</sup> *Launching a Digital Tax Administration Transformation: What You Need to Know*,<sup>23</sup> *The VAT Digital Toolkit for Asia-Pacific*,<sup>24</sup> and *Tax Administration Reform through Digital Transformation*.<sup>25</sup>
- Supporting Bhutan and Maldives with the design of a roadmap for tax administration through digital transformation.

- Launching roadmap for tax administration through digital transformation projects in Kiribati, Nauru, Niue, Palau, and Tuvalu.

#### **Promoting international tax cooperation (ITC)**

- Co-hosting BEPS Regional Consultations with OECD, CATA, PITAA, and SGATAR, including four virtual workshops between June 2021 and June 2022, and two in-person consultations in December 2022 and November 2023 benefiting 46 DMCs. The next regional consultation is scheduled for Q4 2024.
- Launching and co-hosting the International Tax Pacific Initiative with OECD, Global Forum, World Bank, PITAA, ATO, and NZ Inland Revenue Department. So far four virtual meetings and 2 in-person meetings have been organized, benefiting 15 DMCs from the Pacific.
- Co-hosting Beneficial Ownership Seminars with the Global Forum, including one held in November 2022 (Denmark) and July 2023 (ADB HQ). A joint seminar together with the Global Forum and the Financial Action Task Force (FATF) on design choices for beneficial ownership registries is planned for July 2024.
- Conducting Tax Treaty Negotiation Workshops, including a virtual workshop in October 2022 with Korea and the OECD, with 29 jurisdictions, including 11 DMCs. A Regional in-person workshop is being organized for May 2024 in Seoul, Korea, with OECD, UN, Korea, and ADB.
- Supporting south-south cooperation to unleash the potential of Automatic Exchange of Information together with the Global Forum. Two regional virtual experience Sharing workshops on Automatic Exchange of Financial Account Information were hosted, including one in June 2023 (20 officials including 11 DMCs) and one in March 2024 (52 officials from 12 developing countries).

<sup>21</sup> [Taxation and domestic resource mobilization blog entry.](#)

<sup>22</sup> <http://dx.doi.org/10.22617/TCS220183>.

<sup>23</sup> <https://dx.doi.org/10.22617/TCS210343>.

<sup>24</sup> OECD. 2022. *VAT Digital Toolkit for Asia-Pacific*. Paris.

<sup>25</sup> [Pacific Economic Monitor – December 2023: Domestic Resource Mobilization for Economic Recovery and Resilience.](#)

- Launching an ITC Helpdesk to assist DMCs with ITC matters and facilitate south-south cooperation among peers.
- Becoming a partner to the Asia Initiative supported by the Global Forum on Transparency and Exchange of Information for Tax Purposes.
- Supporting Armenia, Azerbaijan, Cambodia, Cook Islands, Fiji, Georgia, Indonesia, Kyrgyz Republic, Maldives, Marshall Islands, Micronesia, Mongolia, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Tajikistan, Thailand, Vanuatu, and Viet Nam through tailored programs to enhance ITC in close collaboration with the Global Forum and the OECD.

Beyond the three blocks, the Asia Pacific Tax Hub also supported/is supporting DMCs, including Cambodia, Indonesia, Nepal, and Sri Lanka with reforms to their property registration, property valuation, and local tax administrations.

## ■ | Maritime Decarbonization

### Background

- Maritime shipping carries 90% of the global trade volume and 70% by value. Notably, 60% of these goods are loaded or unloaded in developing country ports, with a significant portion (60% unloaded and 41% loaded) specifically in Asian ports. This emphasizes the region's pivotal role in global trade and the maritime industry.
- The maritime transport sector accounts for 3% of global greenhouse gas (GHG) emissions, an amount comparable to the emissions of the world's sixth largest GHG emitting country. These emissions have increased by 20% over the last decade. However, maritime emissions are not currently accounted for in the Paris Agreement, indicating a significant area for international policy development and enforcement.
- Ports, being located at the land-sea interface, are highly susceptible to the impacts of climate change, including sea-level rise and the increased intensity of storms. This vulnerability underscores the need for resilient infrastructure to cope with these challenges. The financial requirements for achieving net-zero emissions in the maritime sector by 2050 are substantial, exceeding \$1.9 trillion. This investment predominantly needs to support land-based infrastructure and fuel production facilities. Traditional maritime financing instruments may not readily support the upfront expenses required for green and decarbonization technologies, highlighting a gap that needs bridging through innovative financing solutions. There is potential for developing new bunkering hubs in Developing Member Countries (DMCs), which could bring significant economic benefits. The investment in resilient infrastructure is also seen as highly beneficial, potentially yielding \$4 in net benefits for each dollar invested.

### Way Forward

ADB is developing a new flagship initiative to support Green Ports and Maritime Decarbonization in our DMCs – an emerging area for ADB's investments. The Maritime Decarbonization Initiative identifies future fuels as being 2.5 times less energy dense, which implies that ships will require more frequent bunkering. It suggests that new bunkering hubs could be developed in Developing Member Countries (DMCs), yielding significant economic benefits. Additionally, investing in resilient infrastructure in developing countries could lead to a net benefit of \$4 for each dollar invested in resilience. This initiative takes a programmatic approach and aims to address the financing gap through a multi-donor Green Ports and Maritime Decarbonization Fund. It stresses the importance of ensuring a just transition by providing financial and technical support to vulnerable, shipping-reliant DMCs, such as Small Island Developing States (SIDS), which are most affected by the energy transition and shipping costs. The initiative also seeks to fast-track the implementation of electrification and smart/digital solutions at DMC ports to enhance efficiency and reduce greenhouse gas (GHG) emissions.

Furthermore, it promotes Regional Cooperation Integration (RCI) for the harmonization of regional green shipping policies that pay special attention to the needs of vulnerable DMCs, aiming to enable a level playing field and minimize uncertainty. The development of green corridors involving DMCs is supported, alongside building partnerships with the private sector and industry stakeholders to foster knowledge sharing and collaboration. The initiative also focuses on enabling DMCs to decarbonize their domestic fleets, which include fishing, inter-island, and inland waterway vessels, and ensuring the workforce is adequately trained in the use of alternative fuels and related shipboard systems.



## ■ | Enhanced Smart Mobility

### Background

Transport infrastructure and services **remain essential** for economic and social activities to alleviate poverty and improve quality of life in DMCs. **\$560 billion** annual transport infrastructure investment (climate adjusted) will be required by 2030 for improvement of connectivity, including road sector, particularly in low-income countries. On the other hand, the **transport sector** produces **20-25%** of the global CO2 emissions, and road transport, in particular, accounts for three-quarters of the transport emissions. **Smart Mobility**, through digital and e-technologies, would provide practical solutions for **more efficient, safer, and low-carbon transport options**, contributing to net-zero CO2 emissions, while reducing congestion and improving connectivity and transport services.

**Smart Mobility.** Smart mobility would be an intelligent transport and mobility network with connection of various elements of technologies and mobility. This also includes evolving electric vehicle technologies, intelligent transport systems (ITS), and its application to public transport system. The Smart Mobility solutions would provide:

- Improvement of public transport quality (e.g., low-emission buses, passenger information provision, common ticketing system, real-time bus location system, centralized operation control system)
- Low-carbon transport options (e.g., EV, E-buses, E-ferries)
- Urban traffic management for efficient traffic flow (e.g., signaling improvement, parking management, multi-modal connectivity, Free-flow ETC, congestion charges, low-emission zone with monitoring facilities)
- Connected and shared transport mobility (e.g., on-demand transport, shared modalities, real-time road/safety information provisions, autonomous/ safety assistance driving)

### Way Forward

- *Public transport improvements:* **Davao Public Transport Modernization Project** intends to establish a modern public bus transport system in Davao City with modern electric buses and Euro-5 standard diesel buses, and an intelligent transport system (ITS) to support bus operation. ADB also supported the similar concept of award-winning **BRT** project in **Peshawar** (PAK) with efficient operation monitoring and ticketing system. **Shandon Spring City Green Modern Trolley Bus Demonstration Project** (PRC) includes the development of a BRT network, the implementation of dual-model electric trolley buses, the establishment of a public bus control and dispatching platform, the adoption of travel demand management strategies, the provision of shared charging facilities, the setup of centralized bus maintenance facilities, and the piloting of Intelligent Connected Vehicle (ICV) buses. Other public bus improvement projects are also **being prepared** in PNG, Timor-Leste, PRC, PAK, TAJ, and MON in addition to the GCF-cofinanced candidate projects below.
- *Low-carbon transport options:* ADB is implementing a **Green Climate Fund**-financed regional **e-mobility program** that aims to scale-up E-Mobility at-scale by addressing the nexus between climate change, transport, energy, poverty, and gender inequality. The program covers ARM, GEO, IDO, KAZ, KYG, NEP, and UZB. ADB's private sector wing has supported various E-bus and E-ferry projects. An example is that E Smart Bangkok **Mass Rapid Transit Electric Ferries Project**, involves development and operation of about 27 fully electric ferries for mass public transport along the Chao Phraya River in Bangkok.
- *Urban traffic management:* Several **pilot components** have been implemented as part of investment projects (e.g., free-flow smart ETC in Port Access Road Project [SRI], and NMT connectivity improvement through bike-sharing in Peshawar BRT Project [PAK]). More initiatives are being prepared and explored in parking management,



multi-modal smart connectivity including with feeders and NMT, and low-emission zone establishments.

- *Connected and shared mobility*: Technologies used for connected and shared mobility are being developed by various mobility and IT companies as well as universities. ADB is to strengthen partnership with these stakeholders for potential investment and knowledge-sharing opportunities. Shared bikes/e-bikes, on-demand mini public transport, and innovative charging system for 2/3-w could be good potential to improve last-mile connectivity.

## | Make Manila More Maganda (M4) Initiative

### Background

#### **Metro Manila's livability has declined over recent years.**

According to the Economist Intelligence Unit's (EIU) Global Liveability Index for 2023, which ranks cities based on stability, health care, culture and environment, education and infrastructure, Metro Manila placed 136th among 173 cities. The city is suffering from worsening traffic congestion<sup>26</sup> and social infrastructure (housing, hospitals, and schools) arising from rapid urbanization and an inconvenient and fragmented transportation system. Traffic congestion in Metro Manila is estimated to cost the Philippine economy at least Peso 3.5 billion per day according to JICA, with an average time lost of 117 hours due to traffic (Footnote 1).

- Furthermore, **Metro Manila is highly vulnerable to climate-related risks** due to its geographical location and urban density. The city faces significant challenges from natural hazards such as floods, tropical cyclones, and earthquakes. Rapid urbanization in flood-prone riverine and low-lying areas increases the exposure of people and assets to these disasters. In addition to traffic congestion, Metro Manila's transportation systems, including roads and bridges, are particularly vulnerable to disasters and climate change, leading to exacerbated traffic disruptions, submerged bridges, and flooded pavements.
- **Urban heat stress significantly affects the livability of Metro Manila**, particularly due to the urban heat island (UHI) effect, further hampers the health and productivity of citizens,
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the delivery of urban services, and the wider urban economy<sup>27</sup>.

Despite government's on-going efforts to ease traffic congestion and improve commuter experience, through mass transit systems (road, rail, subway, and ferry), active transport infrastructure (bike lanes and pedestrian pathways), and traffic management plan (dedicated bus lanes on EDSA and modernization of public transport system), and PPP's, **more smart, integrated, resilient, and inclusive urban and transportation development is needed to tackle urban livability issues.**

### Way Forward

The M4 initiative aims to improve urban livability and commuter experience in Metro Manila in a holistic manner, leveraging smart city technologies, climate resilient urban planning, and integrated multi-modal transportation systems, combined with small scale investments and low-cost tactical urbanism approaches, which can be implemented within the short term.

#### **Potential support for M4 Initiative**

1. Policy-level
  - a. **Urban planning including land use, spatial, and transportation plan**  
Smart, integrated, climate resilient, inclusive urban planning system including comprehensive land use, spatial, and transportation planning, interagency coordination, stringent enforcement, and tactical urbanism framework for engaging communities in urban transformation.
  - b. **Institutional alignment (reform)**

<sup>26</sup> The Tomtom Traffic Index Ranking 2023 covering 387 cities across 55 countries rank these cities based on their average travel time. It also measures the financial impact of fuel costs and traffic congestion, as well as the fuel/kWh consumption and CO2 emissions of petrol, diesel, or BEV cars. It placed Metro Manila worst (rank of 1 out of 387 cities). [Tomtom Traffic Index Ranking for Metro Areas.](#)

<sup>27</sup> Joint World Bank and ADB assessment shows that the UHI can be as high as 3°C in metro Manila, typically peaking during the nighttime.

Regulatory authority centralized within one governing body with remit and power to oversee Metro Manila's entire transportation system. Improve interagency coordination and capacities to plan and implement integrated urban development plans and services and manage finances sustainably.

**c. Capacity development**

Train staff and build capacity to manage a smart urban transport system, appoint senior decisions makers, through technocrats and on the ground enforcement.

**d. Decarbonization of vehicle fleet** – policy to phase out Internal Combustion Engine vehicles across the city.

**2. Project-level**

**a. Integrated urban transport system** - efficient, reliable, and convenient multi-modal transport systems with integrated automated fare collection systems, scheduling, and mobility as a service.

**b. Pedestrian environment improvement** – Standardization for securing space for pedestrians to improve walkability and expand safe, accessible, and green spaces for pedestrians through elevated parks and covered walkways to enhance intermodal and last-mile connectivity.

**c. Green and blue Infrastructure** – green spaces, such as parks and gardens, and blue spaces, like rivers and lakes, can help cool the urban environment and enhance quality of life for residents, providing spaces for exercise and social interaction, which are crucial for the well-being of the community.

**d. Non-motorized transport promotion and management** – interconnected bike lanes, bike bays, bike sharing, regulations, safety rules, etc.

**e. Motorcycle regulations and safety** – improve road safety amidst increases in motorcycles.

**f. Intelligent transportation system** – smart congestion monitoring and alert system, traffic control center, MIS, etc.

**g. Parking control** – reform on street parking and smart parking management system.



*Artist rendering of greenways through the M4 initiative*



# | Rejuvenating Pasig River for a Livable Manila

## Background

- The Pasig River, a vital waterway in the heart of Metro Manila, Philippines, which stretches 25.2km between Manila Bay and Laguna Lake, was historically a critical water source, transportation route, and economic hub. However, due to urbanization and neglect, the river's condition deteriorated over time. Following many years of rehabilitation effort, **urban development around the Pasig River has gained renewed urgency under the new administration.**
- President Marcos Jr.'s Executive Order 35<sup>28</sup> re-elevated the rehabilitation of the Pasig River as a key priority and established the *Inter-Agency Council for the Pasig River Urban Development*, with Department of Human Settlements and Urban Development (DHSUD) as chair and Metropolitan Manila Development Authority (MMDA) as vice chair, with a mandate for “the full rehabilitation of the banks along the Pasig River water system and nearby water systems in order to provide **alternative transportation, propel economic opportunities, and boost tourism activities**”.
- The **Pasig River Urban Development (PRUD) Masterplan**<sup>29</sup>, identifies 6 key priorities (water system rehabilitation, transport, tourism, mixed-used development, recreational and public open spaces, and resettlement) and 15 relevant government agencies, and 9 distinct segments of the river for development, in partnership with the private sector.

## Way Forward

- The REPALM project aims to revitalize this important river and surrounding urban areas, transforming it into a vibrant,

- sustainable space that benefits all stakeholders. The project also aligns with a broader vision for regional economic integration and development throughout the Greater Manila Bay area, emphasizing sustainable, inclusive, and integrated economic and human development. Additionally, the project plans to create commercial hubs, public parks, bicycle lanes, footbridges and greenways, and promenades along the river, which further underscores its historical role as an economic hub.

## Proposed Support

- This cross-sectoral initiative is led by WUD-EA, with significant contributions from TRA, particularly in the support of the MAPALLA ferry project and AFNR in support of the Laguna Bay Masterplan and potential clean-up and rehabilitation efforts for Laguna Bay, Pasig River, and Manila Bay. WUD will also support on integrated, climate-resilient land-use planning, sustainable urban development, and investment support aligned with the PRUD Masterplan, including affordable housing for resettlement and sustainable tourism.
- The project will leverage a multi-disciplinary approach (involving structuring of public and private sector financing and PPP's) for integrated, climate resilient and people-centric urban planning and investment support across natural resource, transportation, housing, and tourism sectors, and incorporate cross-cutting themes (climate and coastal resilience, water systems sustainability, digital transformation, and gender mainstreaming).
  - a. **Urban Planning** – Integrated urban master planning, policies, governance, and strategy (industrial and land use, spatial planning, zoning regulations, transport) and PRUD climate resilience framework, incorporating blue-green infrastructure,

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<sup>28</sup> [Executive Order 35](#) was issued on 31 July 2023.

<sup>29</sup> The [Pasig River Urban Development masterplan](#) was presented on 29 August 2023.



nature-based solutions, and sustainable and inclusive urban design guidelines.

- b. **Natural Resource** – Support for Comprehensive Master Plan for Laguna De Bay (Laguna Lake) to address the rapid environmental degradation, increasing wastewater pollution, and rapid urbanization and industrial growth facing the region. Potential support ecosystem management (including lake and river system restoration and pollution control) to improve water quality and biodiversity within Laguna Bay-Pasig River-Manila Bay. Laguna Lake, the largest natural lake in the Philippines and one of the largest in Southeast Asia, has a catchment area of 90,000 hectares and serves as an aquaculture and fishing grounds and water supply for the surrounding communities.
- c. **Transportation** - Manila Bay-Pasig River-Laguna Bay (MAPALLA) Ferry Project, a priority transport infrastructure project under the Philippine Development Plan 2023-2028, which aims to provide 10 million commuters with an alternative transportation system. The project will improve commuter experience through modernization of ferry stations and low-carbon, high-capacity vessels, intermodal connectivity with existing and planned mass transit systems, including MRT3, LRT, NSCR, and climate adaptive and inclusive transit-oriented development (TOD) components, and integrated automated fare collection system. Financing arrangements to secure financial sustainability of the project needs to be sought out.
- d. **Housing** – Land value capture for mixed-used and TOD including affordable and social housing solutions for resettlement, aligned with the government's 4PH housing program to deliver 1 million housing units annually until 2028.
- e. **Tourism and Recreation** – Enhanced river access and connectivity through footbridges, bike paths, and greenways, historical site rehabilitation and digital tourism information and services, linear parks and public spaces, amenities and transportation and pedestrian access.



## | Decarbonizing Asian Cities

### Background

Cities in the Asia-Pacific region are experiencing rapid urbanization, economic growth, and population expansion, leading to increased carbon emissions and environmental degradation. Addressing climate change and reducing greenhouse gas emissions have become critical imperatives for sustainable development. According to the UN, 49 countries in Asia Pacific were responsible for more than half of global greenhouse gas (GHG) emissions in 2020. Their current nationally determined contributions (NDC) are projected to result in a 16% increase from 2010 levels, rather than the 45% decrease required by the 1.5°C pathway<sup>30</sup>. Asia also has 99 of the 100 worst polluted cities in the world, and of these 83 cities are in India alone.<sup>31, 32</sup>

Cities in the Asia-Pacific region face several challenges that inhibit their pathways to decarbonization. Key among these challenges are: (a) Urbanization pressure; (b) Infrastructure deficits; (c) Vulnerability to climate change; (d) Policy and financial barriers; and (e) limited capacity (e.g. technical and financial) of city administrations. Decarbonizing cities requires a multi-sector, multifaceted approach that involves facilitating, promoting, and transitioning to low-carbon energy sources, enhancing energy efficiency, electrification of urban services, promoting sustainable transportation, blue and green infrastructure, and adopting more compact and resilient urban planning strategies, combined with effective development control guidelines.

### Way Forward

Asia-Pacific region is home to some of the world's largest and fastest-growing cities. These urban centers are significant contributors of

greenhouse gas emissions due to industrial activities, transportation, and energy consumption. The concentration of emissions in urban areas exacerbate air pollution and accelerates climate change, leading to adverse impacts on public health, infrastructure, and overall quality of life. Decarbonization of cities is imperative for sustainable development in Asia, and the ADB is well-positioned to support this transition through its financial resources, technical expertise, and strategic partnerships. By working closely with national and local governments, as well as other stakeholders, ADB can help unlock the full potential of Asian cities to become low-carbon, resilient, and inclusive urban centers of the future.

The strategic objectives of ADB's new program on Decarbonization of Cities are:

- a. To promote the decarbonization of cities in the Asia-Pacific region to mitigate climate change and improve urban sustainability.
- b. To significantly enhance private sector participation and private sector investment to support decarbonization initiatives of the cities in the Asia-Pacific region.
- c. To support the cities in the Asia-Pacific region in developing and implementing effective strategies for reducing carbon emissions and transitioning to low-carbon infrastructure.
- d. To enhance the capacity of local governments and stakeholders in planning, financing, and implementing decarbonization initiatives.

ADB will combine its deep sector knowledge, project financing and advisory skillsets with its financing instruments, credit enhancement products and technical assistance to deliver solutions specific to cities in its DMCs. In the first phase of

<sup>30</sup> UNESCAP. [Review of Climate Ambition in Asia and the Pacific](#). UNESCAP, November 2022.

<sup>31</sup> IQAIR. [2023 World Air Quality Report](#), 2023.

<sup>32</sup> ADB's Agriculture, Food, Nature, and Rural Development (AFNR) and Water and Urban Development (WUD) teams are initiating targeted work on air quality management in India.

Decarbonization of Cities program, ADB could focus on countries with large cities where ADB is already engaged, such as India, Bangladesh, and Indonesia.

ADB's program on decarbonization of cities would deliver projects focused on the following:

1. **Emissions Reduction and Improving Overall Air Quality.** Reduce greenhouse gas emissions from urban sources, including energy generation, transportation, buildings, industry, and waste management, to mitigate climate change and contribute to global efforts to limit temperature rise.
2. **Energy Transition.** Accelerating the transition to renewable energy sources and promoting energy efficiency measures in cities to reduce dependence on fossil fuels, increase energy security, and promote clean and affordable energy access for urban residents. Develop solar rooftop generation solutions and associated local regulations, building codes, and permitting requirements for solar installations.
3. **Transportation Transformation.** Transforming urban transportation systems to prioritize sustainable modes of transport such as public transit, walking, cycling, electric vehicles (EVs) and invest in city wide charging infrastructure, in order to reduce emissions, alleviate traffic congestion, improve air quality, and enhance mobility for residents. Promoting the adoption of personal EVs in cities requires a multi-faceted approach that addresses various barriers and incentivizes consumers to make the switch to electric mobility, which would include infrastructure development, regulatory support, financial incentives, public transportation integration.
4. **Waste Management and Circular Economy.** Promoting sustainable waste management practices, including waste reduction, reuse, recycling, composting, and resource recovery, to minimize greenhouse gas emissions from landfills and promote a circular economy approach to waste management.
5. **Energy Efficiency of Buildings.** Enhancing energy efficiency in buildings through retrofitting existing structures, implementing green building standards, promoting energy-efficient appliances and technologies, and integrating renewable energy systems to reduce energy consumption and carbon emissions. Focus on energy efficient district heating and district cooling solutions and investments.
6. **Climate Resilience and Adaptation.** Strengthening urban resilience to climate change impacts by integrating climate adaptation measures into urban planning, infrastructure design, and disaster risk management strategies to reduce vulnerability and enhance adaptive capacity. In each of the cities ADB would be engaged with, ADB will support in the development of a City Climate Action Plan (CCAP) that charts a pathway for decarbonization. In the event such CCAP is already adopted by the city, then ADB will seek further enhancement to the CCAP, and align its policy dialogue and finance directly to respond to the CCAP.
7. **Policy Support and Capacity Building.** Providing policy support, technical assistance, and capacity building to local governments, urban planners, and decision-makers to develop and implement effective decarbonization strategies, enhance institutional capacity, and foster knowledge sharing and collaboration among cities. Through the policy support, ADB would also promote sustainable urban development by integrating decarbonization goals into urban planning, infrastructure development, and policy-making processes to create livable, resilient, and environmentally friendly cities<sup>33</sup>.
8. **Community Engagement and Social Equity.** Engaging local communities, stakeholders, and marginalized groups in the decarbonization process, ensuring that their voices are heard, needs are addressed, and benefits are equitably distributed across society.

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<sup>33</sup> ADB has been actively supporting livable cities. Through its overarching Operational Priority 4 -Making Cities More Livable, ADB has been providing significant support through technical assistance ([TA 9508 in India](#)) as well as investment projects ([Project 53199-001 in Cambodia](#)) for improving livability in cities of the region.



9. **Urban Planning including Transit-Oriented Development.** Urban sprawl, rather than compact urban agglomeration, is a common character in most cities in Asia and the Pacific. Urban forms must be improved for cities to be on a net-zero pathway, focusing on mixed land-use, accessibility, and compact development. ADB will support strengthening development and implementation of relevant policies and spatial planning in cities.
10. **Blue and Green Infrastructure.** Nature-based solutions play an important role in both climate mitigation and adaptation. Developing green parks and spaces, green roofs, and rejuvenating water bodies, including nature-based solutions will not only mitigate greenhouse gas emissions but also help alleviate urban heat and flooding issues.

#### Immediate actions (2024)

- At the [COP29], ADB could announce a **\$20 billion new program** to support Decarbonization of Cities.
  - Creating a Task Force for **“Integrated solutions for Decarbonization of Cities”** drawn from Transport, Energy and Water & Urban Sector Offices and CCRE under the guidance of the Director General, SG.
  - ADB will mobilize **\$500 million towards Project Development Facility (PDF)** for Decarbonization of Cities. This amount would be offered to cities in the DMCs on a highly concessional or grant basis (if applicable) to help the cities in planning, preparing for policy reform, and in developing specific investments to be supported by the newly created program. The aim of the PDF is to substantially derisk a project during its preparation stage and achieve a high level of readiness by the time the project is presented to ADB’s Board of Directors for their consideration. Currently the project preparation to full implementation of ADB projects takes at least seven years (often longer) and given the serious challenges that cities are currently facing, decarbonization initiatives and investments must be

deployed more rapidly. The PDF aims to achieve this so that ADB’s investment remains relevant to critical development challenges that rapidly growing cities of the region face. The PDF would operate on a ‘revolving’ basis, in that the upfront project development expenses incurred for a specific project would be capitalized into the ADB loan or grant as applicable- and the actual disbursement would be net of the project development expenses incurred.

#### Medium term actions (2025-30)

- In every city that ADB works with, ADB will support the development of a City Climate Action Plan (CCAP) that charts a pathway for decarbonization. In the event such CCAP is already adopted by the city, then ADB will seek further enhancement to the CCAP, and align its policy dialogue and finance directly to respond to the CCAP.
- Support cities on their pathways for digitalizing and decarbonizing at the same time, which creates opportunities for the infrastructure transition to be enabled – and accelerated – by innovations in digital technology.

## | Affordable Housing for Expanding Asian Cities

### Background

- ADB has had a long history in supporting the housing sector across our DMCs, particularly through financial institutions (FIs) with mortgage products. This support has significantly evolved over time, ranging from support of state-owned FIs to private sector FIs and from primarily conventional sites-and-services and slum upgrading projects in the 1990s targeting the poorest, to integrated urban development in the 2000s and 2010s. This change was primarily driven by governments and donors moving to pass the responsibility for housing supply and demand to the markets and the private sector.
- While this shift has led to positive reforms of legal and regulatory environments and fostered private sector participation, the focus on home ownership (mortgage finance) and neglect of the rental sector has led to a shift of the attention away from the poor to the middle-income groups in the majority of DMCs (with the exception of incremental housing from microfinance institutions and some specialized housing finance companies in India).
- A successful housing ecosystem requires the supply- as well as demand-side housing value chains to operate effectively and at scale. A well-functioning housing ecosystem must include both: (i) a well-targeted subsidy system for the poor and low-income households, and (ii) housing finance supply for middle-income households. Policy interventions to address market failures (policy & regulatory, land, finance, climate/ energy efficiency) are of utmost importance to ensure a sustainable housing ecosystem.
- The critical relationship between the public and private sector, as well as direct (sovereign, construction) and intermediate (mortgage, development) finance require a strong collaboration between SG-WUD, SG-FIN, OMDP, and PSOD. Increased focus on energy efficiency and climate-resilience furthermore demands expertise from SG-ENE and CCSE. This spans across on-project collaboration (One ADB teams), and cross-ADB knowledge initiatives such as the Housing Community of Practices (led by WUD-EA).
- There is a massive gap in the provision of decent low income and affordable housing units across the DMCs, and many countries have announced targeted programs for affordable housing (e.g., 4PH in the Philippines; IGAHP in Indonesia, and PMAY in India). In response, ADB has been stepping up its support in the sector. Between 200-2020, 23 housing-related lending operations were undertaken by ADB with a total lending volume of \$2.8 billion. Sovereign projects were equally split between supply side (52% of \$ value) and demand side. ADB's private sector interventions were heavily focused on supply side through FIs led by PSFI (84%).
- ADB's finance sectors in both the sovereign and private sector operations have been actively providing equity, debt, and technical assistance to financial institutions, enabling them to provide mortgage loans to low income and affordable housing buyers, including women. More recently, the finance teams have been supporting the development of green mortgage products, including in DMCs such as Mongolia, India, and Fiji.
- The projects of low income/social/affordable housing from SG-WUD have delivered climate- and disaster-resilient units, as well as those that have delivered private sector investment and participation (e.g., Georgia, India). SG-WUD's current portfolio of affordable housing projects include India, Bhutan, and Mongolia. Most recently, SG-WUD has increased collaboration with PSOD (and OMDP), focusing on delivering innovative solutions to tackle the housing crisis, including technology-led solutions such as the IND: Inclusive, Resilient, and Sustainable Housing for Urban Poor Sector Project in Tamil Nadu (2021); GEO: M Square Affordable Housing Project (2021); and PHI: Lhoopa Promoting Green Affordable Housing Project (approved in Oct. 2023).
- The housing sector offers ample opportunities for ADB to increase lending and policy initiatives, both on supply and demand side, and across the public, PPP, and private sector. Sovereign funds and certain FIs are best suited for public sector interventions (e.g., low

income housing, finance policy, legal, regulatory reforms, titling, and registration), and on providing assistance to the most vulnerable groups (e.g., infrastructure upgrading, rental, social housing). Nonsovereign funds, on the other hand, are better suited to focus on supporting market players such as small-scale developers and FIs to bring housing delivery more downstream.

## Way Forward

### 1. Policy and planning

- *Regulatory control and planning provisions.* There are opportunities to support DMCs in developing affordable and social housing solutions, by assisting in the development and improvement of policies, regulations, and building codes to remove barriers to affordable and green housing. Land management is becoming increasingly important, and government agencies involved in housing should be supported – key considerations here would be on how to manage land markets, taxes, land availability, tenure/titling, as well as land use planning, land development, location, services, topography, and environmental considerations (green corridors). Planning needs to consider ways to free up land for development (minimizing uncontrolled sprawl); land use zoning and managing subdivision (release of land) would be critical. Opportunities for digitization of land use planning should be considered.
- *Integrated urban planning.* Holistic planning will be critical. Successful housing development relies on having access to basic and essential services (transport, utilities, water/wastewater, solid waste, drainage, social and community infrastructure services). Within this, there are also opportunities to instill key concepts of green, sustainable growth (such as nature conservation and parks) and safety. Integrated planning is essential to enable linkages between housing, services, and economic development opportunities.
- *Development and housing typologies.* Key considerations here are in relation to the physical layout of developments – subdivision layouts, building densities, heights/restrictions/setbacks. Other areas to consider is the

constructability and affordability of the designs (different family units need different things – so planning should provide for the different needs and priorities (but within an affordability context), which further entails affordability of housing, constructability, designs (green, affordable), and livability – safety, climate impacts.

- *Housing incentives.* Housing development needs to look at ways to incentivize the private sector; support could be provided to assess developer charges or other incentives to produce affordable housing units.

### 2. Housing finance through FIs

- Upstream work on foreclosure laws (critical to the expansion of mortgage lending), titling, and mortgage regulations, along with green finance products.
- Development of mortgage-backed securitization through capital markets.
- Expand mortgage and private sector developer finance through FIs by financing and TA.
- Develop mortgage re-finance facilities/companies to provide longer-term liquidity needed for mortgages initially through sovereign with graduation to private sector investment and funding.
- The assistance can be through both the sovereign and nonsovereign operations, with the sovereign covering social housing and the nonsovereign affordable housing.
- Green and climate resilience will be a critical dimension of ADB's housing finance engagements.

### 3. Multi-sectoral infrastructure delivery

- Housing development relies on close connectivity to infrastructure and access to basic services, and connectivity to transport will be critical.
- Conducting integrated urban planning will be an important process; housing development will need to go together with planning of basic infrastructure. Providing affordable and social housing is not adequate if there is no access to basic utilities and social and community services.

# | Strategic Foresight and Design Thinking

## Background

The Asia and Pacific region is characterized by its vast diversity, rapid growth, and complex socio-economic challenges. These factors necessitate new ways of designing development projects to effectively address the unique needs and issues of this dynamic region.

**Design Thinking** is a methodical, human-centered approach to innovation that focuses on understanding user needs, challenging assumptions, and redefining problems to create novel solutions. It involves a cyclical process of empathizing with users, defining problems, ideating solutions, prototyping, and testing. This approach emphasizes user engagement, creativity, and iterative testing to ensure solutions are both innovative and practical.

**Futures Thinking**, or strategic foresight, involves systematic and participatory anticipation of possible futures, aiming not to predict but to explore a range of possible outcomes. This method uses scenario development and strategic foresight to help organizations anticipate changes, identify opportunities and risks, and prepare adaptively for the future. It is particularly useful in developing long-term strategies that are resilient and adaptable to dynamic global changes.

## Way Forward

ADB will mainstream new approaches to project design as well as developing sector strategies. Specifically, design and futures thinking provide a proven approach to improve the quality of investments.

- **Climate Resilience:** By integrating design thinking, ADB can develop tailored solutions that effectively address the specific impacts of climate change on vulnerable communities. Futures thinking aids in anticipating long-term climate change scenarios, enabling ADB to implement infrastructure and

policies that are robust against a range of future environmental conditions.

- **Private Sector Development:** Design thinking facilitates collaborative solution-building with the private sector, ensuring that innovations are not only sustainable but also commercially viable. Futures thinking helps identify emerging economic trends and market needs, guiding ADB to foster investments that are strategically positioned for future growth and success.
- **Scaling New Technologies:** With design thinking, ADB can ensure that new technologies are accessible and meet the real needs of their users, promoting wider adoption and greater impact. Futures thinking provides insights into technological trends and potential disruptions, allowing ADB to integrate cutting-edge technologies in a manner that aligns with future market and regulatory landscapes.

In sum, by adopting design thinking and futures thinking, ADB can enhance its project designs to be more innovative, user-focused, and resilient to future challenges. This approach not only increases the effectiveness of development interventions but also ensures that investments are proactive and aligned with the evolving dynamics of the Asia-Pacific region.