



Completion Report

Project Number: 48265-001
Technical Assistance Number: 8865
February 2018

Financing Low-Carbon, Climate-Resilient Urban Infrastructure in Asia and the Pacific

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| TA Number, Country, and Name: TA 8865-REG: Financing Low-Carbon, Climate-Resilient Urban Infrastructure in Asia and the Pacific | | | Amount Approved: US\$ 750,000.00 | |
| | | | Revised Amount: N/A | |
| Executing Agency: Asian Development Bank (ADB) | | Source of Funding: TASF-V | Amount Undisbursed: US\$ 61,340.00 | Amount Utilized: US\$ 688,660.00 |
| TA Approval Date: 23 December 2014 | TA Signing Date: N/A | Fielding of First Consultants: 19 February 2015 | TA Completion Date Original: 29 February 2016 Account Closing Date Original: 29 February 2016 | Actual: 31 March 2017 Actual: 25 July 2017 |
| Description Given the current infrastructure gaps and future expected growth of cities in Asia and the Pacific, as well as high levels of climate vulnerability, there are significant opportunities for implementation of low-carbon, climate resilient (LCCR) urban infrastructure. However, decision makers in cities frequently lack specific and actionable information on LCCR urban infrastructure investment needs and opportunities. This leads to underinvestment in LCCR urban infrastructure. In response, the technical assistance (TA) aimed to increase awareness about LCCR urban infrastructure needs, costs, benefits, and financing options. | | | | |
| Expected Impact, Outcome, and Outputs The expected impact was to increase investment in urban infrastructure using climate finance mechanisms in DMC cities. The expected outcome was an improved information basis for project designs for large-scale climate investment in LCCR urban infrastructure in DMC cities. The planned outputs included, (i) DMC cities classified, main climate risks and infrastructure options identified, and 6 archetype cities identified; (ii) needs and opportunities for large-scale implementation of LCCR urban development in archetype cities identified; (iii) financing models and mechanisms to address investment needs and capitalize on opportunities identified; (iv) costs and benefits associated with large-scale implementation of LCCR urban Infrastructure identified; and (v) conceptual proposal for scaling up investment developed. The TA design and formulation are rated <i>relevant</i> based on needs identified during implementation of ADB's Urban Operational Plan 2012-2020, the Cities Development Initiative in Asia, the Urban Climate Change Resilience Trust Fund, and the initial scoping for ADB's Climate Change Operational Framework 2017-2030 and the Future Cities Program. | | | | |
| Delivery of Inputs and Conduct of Activities ADB was the executing agency for the TA. The Climate Change and Disaster Risk Management Division (SDCD) of the Sustainable Development and Climate Change Department (SDCC) led the TA implementation. Activities were carried out with 69 person-months of consultant input. International consultants were engaged by ADB through a firm, and ADB also engaged individual national consultants. A scope change was carried out to extend the TA completion date from February 2016 to March 2017 due to longer than expected recruitment time for the consulting firm and the selection of archetype cities, which were not derived from the city database as originally planned but selected from a list of cities proposed for inclusion into ADB's Future Cities Program. This however facilitated joint missions, sharing of national consultants, and information-sharing between SDCC and operations departments for most of the cities. Fact-finding and consultation missions to Ho Chi Minh City, Mandalay, Suva, Tbilisi, and Ulaanbaatar, and a desk study for Dhaka, were delivered against this new schedule. The consultants' performance was satisfactory. Government concurrence in conducting the activities and participation was facilitated through collaboration by operations departments, particularly the Fiji, Georgia, Mongolia, Myanmar, and Viet Nam resident missions. Further minor scope changes to the TA were processed to (i) contract a water specialist (international consultant), (ii) add an additional budget entry for equipment, and (iii) contract a climate investment programming specialist (international consultant). A change in implementation arrangements was made to contract national consultants separately from the firm. Unused TA resources of 8% were due to savings in consultant, workshops, and publications expenses, and unused allocations for equipment and contingencies. Overall, ADB's performance is rated <i>satisfactory</i> . The TA is rated <i>efficient</i> . | | | | |
| Evaluation of Outputs and Achievement of Outcome The TA was able to deliver the planned outputs stated in the design and monitoring framework: (i) database cataloguing DMC cities which fit the selection criteria by current population and growth rate - this was completed but not uploaded in online form, pending discussions with Urban SG regarding its dissemination (Output 1); (ii) report with 6 archetype city profiles with a macro-level description of infrastructure gaps and expansion, current and projected climate exposure, and current and projected opportunities to transition to LCCR infrastructure (Output 2); (iii) a consolidated report covering Outputs 3 and 4 with 6 archetype city profiles (2 of which, Ho Chi Minh City and Ulaanbaatar, are more in-depth) with a macro level estimate of costs, benefits, and financing requirements of LCCR infrastructure investment options, an assessment of options with regard to applicable financing models, a basic financing model, and a description of possible financing strategies and approaches; and (iv) a report containing a | | | | |

description of options for clustering investments and accompanying financing strategies (Output 5).

The TA developed a basic rapid city appraisal (RCA) methodology to assess current and future LCCR infrastructure needs of a given city until 2030, using publicly available data. RCAs can help decision makers to prioritize investments in mitigation, adaptation and dual-benefit infrastructure options. The TA supported high-level RCAs for Dhaka, Mandalay, Suva, Tbilisi, and Ulaanbaatar. Results from the RCAs, particularly the ranking of priority infrastructure options, were validated through in-country consultations with city government stakeholders, DMC experts, and development partners. A more detailed RCA was developed for Ho Chi Minh City, which was complemented by a rapid economic assessment (REA) – a high-level cost-benefit analysis of different infrastructure options. 5 city missions and workshop at ADB HQ were undertaken to validate the RCA methodology.

The TA is rated as *less than effective* in terms of achieving the outcome of an improved information basis for large-scale climate investment in LCCR infrastructure in DMC cities, which is likely to be achieved when TA outputs are further internalized and applied by project team leaders working on operations in the cities targeted by the TA. However, the TA demonstrated: (i) how use of downscaled climate data and greenhouse gas emissions could inform city level decision-making on infrastructure investment; (ii) the need for a multidisciplinary, multisector, collaborative and climate-aware approaches to inform prioritization of LCCR urban infrastructure options; (iii) the range of appropriate financing modalities, including climate finance; (iv) the financing gap and the challenges encountered by city governments in identifying and engaging with finance sources, particularly international financing sources and the private sector; and (v) the need to improve the availability of actionable information on climate-vulnerable critical urban infrastructure using local sources of information and deeper local stakeholder engagement.

Overall Assessment and Rating

The TA is rated *less than successful*. The TA represented a first attempt to approach the topic of LCCR urban infrastructure investment using climate data and greenhouse gas emissions profiles as determinants for project selection and prioritization, as opposed to the common approach of optimizing for climate benefits within the constraints of urban sector projects. The TA was successful in using this information to derive investment needs and opportunities and identifying appropriate financing mechanisms, but only on a conceptual level. Further work is needed for urban decision makers to be able to effectively prioritize individual climate investments based on objective needs and emerging financing opportunities. City government representatives expressed their appreciation for the consultation process and the insights provided by the TA, and their interest in continued support from ADB to identify LCCR investment options and financing sources. ADB response to these requests is likely to boost demand for investment in LCCR urban infrastructure in DMC cities, including through ADB financial support, TA and capacity building on integrated LCCR infrastructure planning and financing. The TA is rated *likely sustainable* as there is a strong need for LCCR urban infrastructure investment, estimated at \$1.1 trillion to 2030 for the 106 fastest growing DMC cities alone. Internal discussions on possible follow-up projects are ongoing.

Major Lessons

The RCA methodology showed some shortcomings particularly in “low data” situations, e.g. cities with little or no GIS or digital map resources (e.g. Mandalay), flood maps, or where maps or inventories of critical infrastructure are outdated or nonexistent. Furthermore, due to data limitations, the RCA methodology could not accurately capture information on the physical condition of existing infrastructure in need of retrofitting. Desk based assessments should therefore be supplemented with on-site surveys of infrastructure conditions, which was done only on a partial basis by the national consultants due to budget limitations. Getting accurate estimates of building and retrofitting costs also proved to be a challenge as such information had to be derived largely from existing project documentation and through use of proxy values. It is thus recommended that the RCA methodology be used only as a first level of assessment in preparation for more thorough assessments in situ. The TA also took an infrastructure centric view of vulnerability, which very likely underestimates the costs of reducing the vulnerability of the city inhabitants as well as the large scale institutional shift and local capacity necessary for broad based LCCR urban development.

Recommendations and Follow-Up Actions

TA identified major ‘action areas’ to support LCCR urban development, including by MDBs: (i) generation, sharing, and updating of urban data and knowledge to facilitate evidence based decision making, (ii) improved understanding of critical urban infrastructure, climate exposure, and greenhouse gas emissions, (iii) strengthened capacity of city governments on LCCR development and encouragement of systemic and integrated LCCR approaches and strategies, (iv) mainstreaming of climate-proofing of urban infrastructure, (v) deeper and wider engagement with city stakeholders, (vi) establishment and strengthening of public urban financing institutions, urban green funds, and urban land development agencies, (vii) provision of incentives for private sector investment, (viii) improved access to MDB urban climate finance, and grant and concessional financing for urgent LCCR interventions, (ix) support for urban LCCR project prioritization and development, and (x) strengthened commitment to urban LCCR financing by all actors. It is recommended to further build up the cities database and to further develop the RCA methodology based on the remediation of its current shortcomings.