

Highlights from the Asia-Pacific Forum on Low Carbon Technology 2018

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BROAD Town, Changsha, Hunan Province, People's Republic of China

I. INTRODUCTION

- a. The Asia-Pacific Forum on Low Carbon Technology is a major knowledge sharing event organized by SDCC and EARD that aims to showcase global, regional, and country-level success stories in promoting the development and deployment of low carbon technologies. It also seeks to stimulate greater levels of investment in low carbon technologies throughout the region from public and private sources; and facilitate both South-South as well as North-South technology transfer through networking and partnerships. This year's Forum was organized by Hunan Development and Reform Commission, ADB, and the Environmental Protection Department of Hunan, with BROAD Group as Co-Organizer.
- b. The Forum is one of the activities under the Memorandum of Understanding (MOU) signed between ADB and the Hunan Development and Reform Commission (Hunan DRC) with the aim to promote the effective deployment and development of climate technology. Since the MOU signing, ADB and the Government of Hunan have co-hosted two successful Forums: the 2016 Asia-Pacific Summit on Low Carbon Technology on 19-21 October 2016, and the 2017 Asia-Pacific Forum on Low Carbon Technology on 29-30 November 2017.
- c. ADB has invited about 19 DMC representatives from Armenia, Azerbaijan, Tajikistan, Kazakhstan, Afghanistan, Turkmenistan, Bhutan, Maldives, India, Nepal, Sri Lanka, Vietnam, Indonesia, Cambodia, Myanmar, and Mongolia to join participants from Hunan and the rest of PRC, as well as participants and speakers from international development agencies, business sector, think tanks, the academe, and potential adopters and suppliers of low carbon technologies. 2018 Forum saw an increase in the number of international participants, from 477 participants in 2017 to 523 in 2018. Country representation also increased, from 25 countries last year to 37 countries this year.

II. HIGHLIGHTS

- a. This year's Forum featured eight parallel sessions (please refer to the Forum Agenda) that gave participants the opportunity to learn more about other related topics in a more focused and in-depth manner. Some of the key points from these sessions include the following:
 - i. **On innovative technologies in green urban mobility:** The PRC leads the world in the adoption of low-carbon buses. By 2020, it is projected that there will be 4.5 million electric vehicles in the world. By 2030, will be 20% of global vehicle sales, with two-wheeler EVs mainly in Bangladesh, Nepal, India, Pakistan. Among the policy options that governments can consider to increase the adoption of EVs are a more consistent investment approach, subsidies or taxation (in balance), creation of more EV charging stations, and setting EV targets. Governments can also focus on high-mileage vehicles and large fleets for public transport. The availability of a big data model on environmental and transport planning presents also big benefits for governments. The applications of the model include emission data modelling, transport planning and policy, and the availability of transport emission information for public consumption. Among the challenges in transport emission quantification include the dynamic quantification of traffic, and how to quantify pollution of multiple transport modes. Some of the key technologies in transport emission monitoring include the fusion of multisource traffic big data, the bottom-up model based on capturing of each vehicle in each zone of city, and emissions model localization.
 - ii. **On green buildings:** There are market, financial, technical, awareness, institutional barriers to efficient and green buildings, but there is no single policy can address the current barriers. A policy 'package' is needed to drive the change for addressing the barriers. The policy package involves in energy efficiency codes, standards, regulations etc., green loans, rebates, taxes relief, etc , implementing voluntary

schemes, capacity building, raising awareness, innovative business models, attracting private sector engagement. Innovation in technology, policy, business model, financial instruments could help the necessary for overcoming the cost barriers to green building. Capacity building is important to raise the awareness of energy saving and create market supply and demand for green buildings. In particular, educating the people including designer of buildings and urban planner, and users.

- iii. **On circular cities:** Integrated planning is essential to address the waste challenge that may be accelerated by building the capacities of governments and facilitating governments to collaborate with private stakeholders to implement action. Understanding the life cycle of production systems also leads to more sustainable supply chains. Research and development promotes transition to a bio-economy that will see deployment of more sustainable materials such as bioplastics and targeted peptides. Near-zero emissions can also be attained by carbon reduction, carbon sequestration, and carbon management.
- iv. **On co-benefit/coordinated control of GHG emissions/air pollution:** In the PRC, with increasing proportion of middle class, urban competitiveness is relying more on high efficiency and high-quality development, instead of traditional resource intensive development path. With the concept of “Ecological civilization” written into law, it provides strong institutional support for coordinated management of GHG reduction and air pollution. In addition, public finance can help start a co-benefits project; the private sector is critical for making a project financially viable in the medium to long-term. The challenge is introducing new and existing technologies into new areas, as well as institutional arrangements, as countries’ national government and local governments do not always communicate or within local communities they do not communicate with each other. Among the mechanisms that can be used include emissions trading, new investment assessment, emissions permit, and standard and labeling. Energy efficiency improvements in large industries should also be prioritized because they are the most cost-effective measures.
- v. **On regional technology cooperation:** Countries must reduce carbon emissions while maintaining quality life. To do this, the adoption of advanced technologies are needed. Among the challenges to technology transfer to developing countries include high royalty and management fees, too advanced technologies, and lack of sufficient capacity of recipient to adopt the technologies. To strengthen future low carbon technology cooperation, technology transfer must be demand-oriented, have innovative business mode, and neutrality beneficial cooperation, and include capacity building of recipient. Cooperation is essential between international agencies, the private sector, the recipient country, and country provider. This cooperation should be neutral and co-beneficial to all countries. An enabling environment and systematic approach should also be devised.
- vi. **On clean heating and cooking:** In the PRC, large-scale opportunities exist due to urban development and redevelopment, where solutions can be built in (e.g., district heating and efficient heating and cooling systems). Application in rural areas are challenging due to “dis-economy” of scale (e.g., district heating is not always practical, but retrofit with more efficient appliances and cleaner fuels is practical). Geothermal systems are available and practical for district heating, industrial and agricultural space heating and cooling systems. The market for geothermal electricity is a very small share of the overall potential for other energy applications. Deep well systems are amenable for larger scale systems. Shallow ground source heat pumps are more “nimble” for smaller scale applications (e.g., retrofit of commercial and residential buildings). Retrofits are possible, e.g., replacement of cooking systems with cleaner fuel and more efficient stoves and use of complementary heating and cooking systems. Biomass can be processed as substitute for coal (densified biomass fuel / DBF) which is complemented by more advanced stoves. Mapping of biomass resources can be accelerated by use

of drones and remote sensing systems. Internet of things can be also applied in new “smart” appliances. Affordability and up-front cost are significant issues, which can be addressed with low-interest loans at the household level.

- vii. **On low carbon industry parks:** Industrial parks can be decarbonized by understanding industrial processes and its by-products and finding the right technology to process and use them again. Challenges in low carbon parks include the adoption of automation among enterprises, and the introduction of cleaner energy while providing for high demand. Industrial policies can drive manufacturing but must be complemented with strong environmental policy or regulation. Strong policy and government support are the strong drivers for environmental compliance in industry parks. Local and central governments should not driven by profit but should concerned with the environment. Policies must be integrated with the central body in charge of industry park management, the evaluation system must be improved with a clear set of indicators, and appropriate technologies must be promoted. ADB supports low carbon industrial development through financing, capacity development, and provision of grant for the introduction of low carbon strategies.
- viii. **On carbon markets:** Carbon pricing policies play a key role in promoting low carbon cities development, and also in encouraging energy efficiency for achieving the steep decline in emissions seen in a SD scenario. This can be achieved by efficient renewables fuel switching, etc. Carbon pricing also plays a critical role in the policy mix for promoting energy conservation and low carbon technology development, but does not address all aspects of energy transition. A comprehensive policy package is needed, which vary by energy sub-sectors over time.
- ix. **On green finance:** Nationally Determined Contributions (NDCs) and sustainable development goals (SDGs) are among the driving forces that push up market demand for green finance. Green finance plays an important role in delivering green projects and green activities, which is imperative to support countries in achieving their commitments under Paris agreement and sustainable development goals. Setting up green criteria, clear selection of green projects/activities, monitoring the management of capital investment, reporting, and verification are required to ensure finance going to green projects and activities. Policy packages are also needed to drive and incentivize capital injecting into green investment to give inventiveness. In the early stage, subsidizing green investment could incentivize green investment and financing green investment. In financing instruments, green bond plays critical role and is broadly applied in financing large green investment in both developed and developing countries. The green bond can be also innovative used in small projects through aggregation of and standardized small projects. MDBs are innovating its financing instruments in order to adapt to their clients’ needs -- in particular, leverage its finance through financing institutions, on-lending, equity investment, risks-sharing/credit guarantee, finance lease etc. Installment-based payment business model is useful to reduce small green projects’ financing cost and attract investors.
- b. Feedback from participants have been generally favorable, with most respondents indicating that the Forum has been mostly useful for their work. They have also indicated a need for a more in-depth discussion on certain topics such as setting up a carbon market in developing countries, development of policies and regulations, facilitating mechanization of LCTs, and institutional setup at the central, state, and local government level, which may be considered for the next Forum, or as topics for a follow-up or a related training workshop.

III. NEXT STEPS

- a. **Continued support for hosting the APFLCT in 2019.** It was the first time that the Forum was held at the BROAD Group’s headquarters in Changsha. During the closing plenary,

BROAD Group Co-Chair and Founder Mr. Zhang Yue voiced their company's commitment to support the Forum next year.

- b. Follow-ups regarding Xiangtan City low carbon city loan
- c. A concept note on lessons learnt from BTH projects for South Asia is currently in development.
- d. As a result of the Forum, a few partnerships have been established. For example:
 - i. Hunan University is in discussion with the National University of Singapore to explore cooperation in the green buildings sector.
 - ii. Potential tie-up with the SAARC Energy Council and electric vehicles manufacturers in Changsha.

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