

Mobilizing Finance for Resilient Infrastructure in Coastal Cities

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Session III
Mobilizing Finance for Resilient Infrastructure in Coastal Cities

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WORLD ADAPTATION SCIENCE PROGRAMME
making climate smart for climate adaptation

In recent years, India's coastal regions have become more vulnerable to multiple risks related to climate change. Intense and more frequent cyclones and severe floods have caused massive devastation to the country's coastal states. While efficient disaster preparedness in many of these states has helped save many lives, there remain significant challenges in rebuilding damaged infrastructure and returning to normalcy after the disruptions.

The 7,517-km-long coastline is home to 260 million people live in low-lying areas within 50 km of the seacoast and are perennially exposed to climate variabilities and extreme weather events. The 130 towns and 77 cities within India's 84 coastal districts are of enormous socio-economic importance. Most of the largest and most dense coastal urban agglomerations such as Mumbai, Kolkata, Chennai, and Vishakhapatnam are hubs of critical infrastructure and assets that contribute to the nation's economy and growth: transport and freight networks, road and rail corridors, industrial zones and parks, maritime and port facilities, petroleum industries, and 12 refineries.

Infrastructure networks can also play an essential role in building resilience to climate change impacts. Climate-resilient infrastructure has the potential to improve the reliability of service provision, increase asset life and protect asset returns. Building climate resilience can involve a package of management measures (such as changing maintenance schedules and including adaptive management to account for uncertainty in the future) and structural measures (e.g., raising the height of bridges to account for sea level rise or using natural infrastructure such as protecting or enhancing natural drainage systems). Tools for mainstreaming adaptation in critical policy areas and encouraging investments in resilient infrastructure include:

- Spatial planning frameworks to redirect development away from high-risk areas.
- Infrastructure project and policy appraisals, including Strategic Environmental Assessment and Environmental Impact Assessment; and
- Regulatory and economic standards (such as building codes)

The use of tools for decision-making under uncertainty can reduce the need for costly retrofitting while reducing upfront costs. **Nature-based, flexible, or innovative approaches to climate-resilient infrastructure may even be cheaper** than traditional approaches. Global studies find that the benefits of investing in resilience outweigh the costs with high benefit-cost ratios, for example of investment in flood defences for coastal cities. Developing and communicating infrastructure plans can help **investors to identify investment opportunities**.

Mr. Edwin Koekkoek, Counsellor, Energy and Climate Action, EU Delegation to India delivered the welcome address and explained the context for the session "Mobilizing Finance for Resilient Infrastructure in Coastal Cities" under the 'Strategic Partnerships for the Implementation of the Paris Agreement (SPIPA)' project implemented jointly by EU delegation to India and GIZ.

Mr. Narinder Nayar, Chairman, Mumbai First delivered the welcome address. He shared the key insights from the conference on [Action for tropical Coastal Cities](#). He highlighted the need for a unified action by government and the private sector to save cities from the adverse impacts of climate change. Reserve Bank of India has recently stated that weather events and transitional risk of compliance to low carbon economy are two systemic risks in India. The financial industry should develop new financial instruments to channelize financing for climate

action. Green bonds were highlighted by Mr. Nayar as a key instrument for financing climate change adaptation and mitigation.

Mr. Tanaji Sen, Director - Advocacy and Partnerships, Coalition for Disaster Resilient Infrastructure (CDRI), delivered the special address where he introduced the CDRI in brief with the aims and approach of the organization. CDRI aims to promote climate resilient infrastructure thereby ensuring sustainable development. He mentioned that there are 27 member countries and 7 international organizations that are members of the CDRI. There are several sectoral programs being implemented by CDRI for example power sector resilience program, transport, telecom and urban sector resilience program. There is a new program on financing for climate resilient infrastructure that has been launched. CDRI is working on National Infrastructure Pipeline (NIP) and will share with other members the learning from the NIP. Most economic losses due to climate change are being faced in critical infrastructure. He stressed the criticality of the issue by stating information for example climate change will lead 77 million people in cities towards poverty by 2030 and coastal areas are highly susceptible to adverse impacts of climate change. Around 90% of coastal areas are expected to face sea-level rise. One dollar invested in infrastructure resilience leads to four dollars in benefits. He further highlighted the significant gap in financing available for climate resilient infrastructure and need for mobilizing private sector investment. He stated that only around 1% of the private sector investment is into infrastructure and cities face significant challenge in mobilizing financing. Lack of creditworthiness and revenue at city level is the key barrier to mobilizing climate finance.

Mr. Donal Cannon, Head of Regional Representation for South Asia, European Investment Bank shared insights on maximising innovation and financing for resilient infrastructure in coastal cities: Success stories from the EU. He informed that EIB provides finance for supporting the EU Green Deal as well as providing finance for climate action in developing countries including India. Banks and investors associate sustainability and resilience also with sustainability of revenue from the project to pay for the cost of financing. Indian coastal cities will be responsible for eighty percent of the future growth in India and will provide significant employment opportunities. He highlighted that Ghaziabad became the first Indian city to raise a green municipal bond backed by good domestic and international demand. Kampala in Uganda also a coastal city has raised one billion dollars through green bonds. The city prefers bonds as the tenure of financing is long term and volume of financing that can be raised is much more as Kampala has one and a half million people and raised one billion dollars. Bonds repayment happens after maturity date generally after ten years and only interest payments have to be made in between. Kampala doubled their revenue between 2011 to 2015 so that they can increase their credibility and the volume of financing that can be raised. The city also reduced dependence on grants and took smaller loans to improve their financial rating. The interest rate is few points higher than borrowing cost of the Ugandan government bonds. The city is focusing on projects that can help improve and diversity the city revenue. EIB, AfD, KfW etc. support municipalities to improve their financial management and help raise financing. He informed that EIB issued a benchmark sustainability bond for biodiversity of one and a half billion Euros for biodiversity conservation. The issue was subscribed more than fifteen times highlighting the interest of institutional investors in green and sustainable bonds. The investors want to reduce their exposure to high environmental risks. The investors are avoiding investments in assets that can become stranded assets like oil. The municipalities should

include ESG in their investment prospectus, they should track their ESG outcomes, get the outcomes audited by independent auditors and share the information with their investors.

Mr. Edwin Koekkoek, Counsellor, Energy and Climate Action, EU Delegation to India highlighted the importance of India-EU cooperation and informed that the EU has become a Member of CDRI starting in March 2021.

The Panel Discussion focused on mobilizing financing for adaptation in cities happened, in which Mr. Tanmay Takle, Policy Advisor & Race to Zero Lead, Ministry of Environment and Climate Change, Govt. of Maharashtra shared a video message. He mentioned that the city of Mumbai will have a GDP on 230 billion US\$ by 2030. However, the economic growth has come at an environmental cost for instance in the last three decades 43% of the green cover has been lost. The heat island effect is expected to increase significantly in Mumbai. The water source for Mumbai is around 100 kms away and there is already an informal market for water where cost of 52 times the piped water cost. He talked about the Mumbai City climate action plan which is being developed by Municipal Corporation of Greater Mumbai has six action areas urban greening, urban flooding, mobility, energy, waste and water. It is focusing on decarbonizing Mumbai along with focusing on adaptation. Mumbai has signed C40 cities declaration. Magi Vasundhara Abhiyan is a mission of the state government to focus on mitigation and adaptation. We need to mobilize finance to implement the action plan and particularly for nature-based solutions to build resilience in Mumbai. There is a need to build water security along with energy security.

The moderation was then handed over to **Ms. Kamilla Kristensen Rai**, Counsellor, EU Delegation to India for moderating the panel discussion.

Ms. Hemali Kalpeshkumar Boghawala, Hon'ble Mayor, Surat initiated the panel discussion where she shared experiences of implementing various climate resilient programs in Surat city, which won many awards for resilience and sustainability. She talked about the city as one of the success stories of being a model coastal city for the rest of the country. She also talked about the water plaza project which was piloted in the city of Surat in collaboration with the city of Rotterdam, which is one of its kind in India. She acknowledged the support of the European Union in all their endeavors so far under the International Urban Cooperation project implemented by the EU delegation in India.

Mr. D C Gandhi, Additional City Engineer (Civil), Surat Municipal Corporation, presented lessons learned from the Surat Water Plaza project and highlighted how it has multiple social, economic and environmental benefits. City is planning to replicate the water plaza across the city at multiple locations like Rotterdam. In case there is 40-50 mm rainfall in Rotterdam there is water logging and water plazas are helping in draining the water to avoid water logging. Surat also needs water plaza for ground water recharge. Surat has 1200 mm of rainfall in 90-100 days therefore there is a need to design water plaza specific to the requirements of Surat. The water plazas for Surat are expected to have 1.5 to 2 meters depth. The water plaza acts as water reservoir until water percolates into percolation wells. This will improve ground water table conditions. Remaining part of the year these structures will be used as activity plazas, sports courts, recreation grounds. During festivities these plazas can be used as artificial ponds for emersion of idols and offerings thus avoiding river pollution.

Mr. Enrique Rebolledo, Climate Finance Advisor, Finbus Investments LLC highlighted the risk to resilient infrastructure with new normal including infrastructure stress, lifecycle uncertainty in terms of CAPEX and OPEX, interface with existing systems in terms of lock-in effect etc. The lock-in effect can be addressed by better assessment of climate risk and addressing those. Around 50% of GDP coastal cities in Malaysia in tourism and transport sector are at risk due to climate change. Service provisions in cities are getting impacted due to climate change. Many benefits of adaptation will be realized in future while costs are to be paid today therefore it is challenging to mobilize financing for adaptation. Also, the capacities at the city level to mobilize financing is limited. Many cities are leading the way in terms of climate risk assessment and mobilizing financing considering the benefits including increased reliability and efficiency of service provision, increased asset life and co-benefits.

Dr. Amir Bazaz, Indian Institute of Human Settlements (IIHS) focused on synergies of climate action with development to attract more investments for future adaptation actions. He highlighted how Surat has become a very important case study of climate action by cities and lot of adaptation initiatives are being replicated. He highlighted that in terms of urban development planning there are opportunities to address climate risks for example infrastructure upgrade can also ensure the infrastructure is climate resilient. Main challenge with adaptation is that it is local and context specific while there is cost benefit asymmetry. Therefore, there is a need to build evidence base around benefits of adaptation initiatives. He also highlighted that there are short term and long-term issues that can be addressed together. For example, green housing can solve short term problem of lack of housing for poor while also ensuring that housing infrastructure is climate resilient in the long term.

Mr. Jai Kumar Gaurav, Senior Advisor-Climate Change, GIZ-India, concluded the session with a vote of thanks and closing remarks.

Recording of the session: https://kestoneimspvt-my.sharepoint.com/:v/g/person/abhishek_mt_kestoneglobal_com/EaMLK2PbhORPhKwRo6NrwMwBqD4A5xDzU4EWhW4fAyRfEA?e=huwzyg