

Ready or Not?: Advancing Climate Resilient Infrastructure Development in the Qatar

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Presentation Outline

1. Introduction
2. What are the legal, contractual and governance innovations required to finance and advance climate smart infrastructure development in Qatar?
3. Comparative evaluation of lessons that can be learned from countries that have significant amounts of climate infrastructure projects, with respect to project design, approval, financing and implementation?

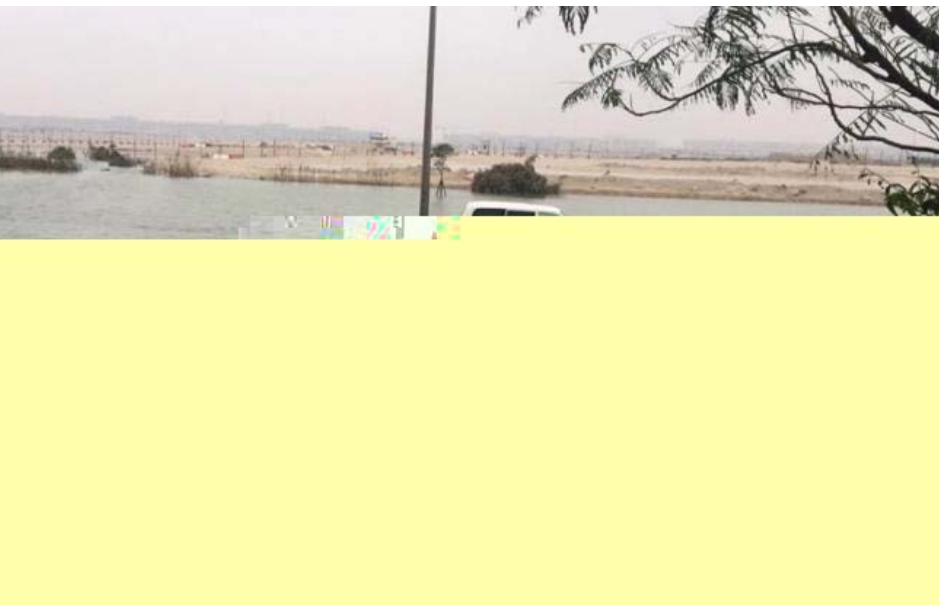
Climate change and the Arab region

- Increased manifestation of extreme weather events, such as Hurricane Harvey in Texas; Cyclone Pam in Vanuatu, devastating floods in Nigeria(2016), fatal heat waves across the United States(2015), droughts in South Sudan, and Hurricane Xaver across Europe (2013) remind us that the effects of climate change are here
- Climate change, however, poses even more serious economic, social, and environmental threats to the Arab region
- Apart from climate-induced fatal heat waves and debilitating sea level rise, climate change could have wide-ranging effects on extant and future infrastructure in the Arab region. This could include potential failure of facilities, reduced life expectancy of buildings and increased operational and maintenance expenditure of electricity, water and aviation infrastructure, amongst others

- Even without climate change, Arab countries, such as Qatar, are currently subjected to tough arid conditions and extreme heat, which typically affect the structural integrity, operation and life span of water, energy, coastal and transportation infrastructure



Ready or not?



effectively address the impacts of climate change on critical infrastructure, all countries in the region must develop capacities to absorb future climate related shocks and stresses to social, economic, and technical systems and infrastructure

er Article 9 (e) Paris Agreement: This will include redesigning water, transportation and energy infrastructure and buildings to enhance their resilience and adaptive capacity; upgrading infrastructure operating and maintenance practices to enhance climate resilience; upgrading building technologies to incorporate low-carbon and energy efficient materials; and investing in new climate-smart infrastructure to replace ageing assets

However, shifting to climate smart infrastructure is a capital-intensive commitment. About US\$90 trillion in infrastructure investment is needed globally by 2030 to achieve climate-smart infrastructure.

There is a need to mobilize engineering expertise, technology and private sector experience to climate proof new construction projects in Qatar

- According to the United Nations:
- *Climate proofing refers to the explicit consideration and internalization of the **risks and opportunities** that alternative climate change scenarios are likely to imply for the design, operation and maintenance of infrastructure. In other words, integrating climate change risks and opportunities into the design, operation, and management of infrastructure.*

- Climate proofing is a multidimensional process that requires integrating the need to develop economic and social infrastructure of the country and the necessity to protect prevent fatal risks.
 - **Mapping of present and future climate variability and change risks:** identify the possible risks that various kinds of infrastructures will face over the next 50 to 100 years as a consequence of climate variability and change
 - **Mapping of critical socio-economic infrastructure:** These are the primary physical structures, technical facilities and systems that are socially, economically or operationally essential to the functioning of the country and must be prioritized

- o **Defining acceptable risk levels:** identifying the types and duration of service interruptions that can or cannot be accepted.
- o **Expanding both non-structural and structural risk mitigation measures:**
 - o *Non-structural measures* are measures not involving physical construction (such as building codes, land-use planning laws and their enforcement, research and assessment, information resources, and public awareness programmes).
 - o *Structural measures* require engineering and construction designs to reduce or avoid possible impacts of hazards, such as flood levees, ocean wave barriers, earthquake-resistant construction and evacuation shelters.

Ways forward

Professional bodies such as the Qatar Society of Engineers will articulate a Green, Low-Emission and Climate-Resilient development (Green LECRD) strategy for Qatar. This will provide *technical, economic and policy* guidelines on how to mainstream climate resilience of infrastructure into development strategies especially for ongoing World Cup projects

Green LECRD is pivotal because many of the initiatives required to protect public infrastructure against the impacts of climate change are also necessary to realize other critical infrastructure-based development benefits. For example, planners could design a road transport network that would facilitate flood-water drainage, while reducing commuting, creating employment and fostering balanced economic development.

- Addressing the risks of climate change within a broader Green LECRD strategy not only helps to reduce the loss of buildings, physical damages and interruptions in critical infrastructure services, but it also yields additional benefits that can promote the full realization of the Qatar National Vision 2030, especially in areas of social and economic development

Shukran!
Thank you

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