

## **Impacts of Climate Change on Building, Housings and Infrastructures**

By Dr Anjan Kumar Dev Roy, Senior Researcher for HOPE Inc., 31 May 2017

The climate change impacts on building, housings and infrastructures are as follows:

1. Climate change will impact on the intensity and frequency of natural disasters with an inundation and erosion under a sea level rise scenario of 1.1 meters for 2100. The will have the adverse consequences with the exposure of coastal infrastructure in terms of industrial, residential and transport systems.
2. Depopulation will be under way. Much coastal infrastructure along the settlement is likely to be at high risk of damage from storms and flooding. The increased frequency of drought, combined with decreased median rainfall and a nearly complete absence of runoff in the Murray-Darling Basin is likely to have ended irrigated agriculture for this region.
3. Climate change has adverse impacts with the consequences of sudden and heavy downpours and wetter winters to direct rainwater and meltwater away from houses, paved areas, roads, especially in the urban areas. Warmer summers will introduce a greater need for cooling. A milder climate will reduce the durability of building materials and affect the indoor climate of buildings.
4. Higher groundwater and water levels in streams and watercourses, and greater risk of storm surges along the coastline, make it pertinent to safeguard buildings against seepage and flooding. All of these will affect the infrastructure. Most importantly, loss of mangrove due to sea level rise and increased salinity will decrease its effectiveness as surge protective wall. Mangrove's deterioration will increase the vulnerability of building and infrastructure protection from natural storm-surge catastrophe.
5. Recently, major impacts of climate change are likely to include stressed urban water supply and the effects of changes in temperature and water availability on agriculture. Major cities and many regional and rural centres are already feeling the strain of declining rainfall and runoff into streams. Most major cities are beginning to develop high-cost infrastructure for new water sources. In the absence of effective global mitigation in line with COP an IPCC, continued investment in expensive new sources of water and its infrastructure will likely to be a necessity in Australia.

6. Housings and buildings can be vulnerable to climate change effects with increased risk of collapse. This may incur huge damage as a consequence of more storms, snow or subsidence loss through deteriorating indoor climate from water encroachment and reduction of building lifetime. However, in the short term stronger storms are the greatest challenge. And again reduction of mangrove will reduce the natural protective walls and increase the vulnerability of building, housings and infrastructure damage.
7. More and longer-lasting heat waves could have health-related consequences in both urban and rural Australia in the longer term, especially for the elderly and weak, in nursing homes, for example.
8. Changes in rainfall and precipitation will also have adverse impacts on Australian agriculture with the loss of farmers' livelihoods and sustainable quality food supply.