International Conference on Sustainability in Energy and Buildings

Invited Sessions

Title of Session:
Adapting buildings and cities for a 3 degree increase by 2100

Name of Chair:
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Description:

'*If you put a frog in a pot of cold water and slowly heat it, the frog adapts its body temperature to that of the water until at 100 degrees centigrade it boils alive'.* Charles Handy used this narrative to illustrate the dangers for people who do not notice that the world is changing; and changing it is. The latest IPCC predictions are for a 3 degree increase by 2100. We need to act and we need to act fast.

Sustainable redevelopment for smart and resilient cities is a challenge in the transformation of cities in developing and developed economies globally. Urban populations are growing from 50% of global population in 2015, to a predicted 66% in 2050. Coupled with the increase in urban populations, is the need to build resilience against acute and chronic shocks that impact on urban settlements and their populations. The notion of resilience is gaining traction for cities planning to mitigate the impacts of climate change and other economic, social and environmental shocks. Smart cities should be resilient and vice averse. The challenges are complex and multidimensional.

The built environment contributes significantly to greenhouse gas emissions (GHG), around 40-50% of total GHG is built environment related. Furthermore there are many other environmental impacts arising from the built environment. As new build, typically adds between 1-3% to the total stock of buildings annually, and Kelly (2008) noted a decade ago that 87% of the buildings we will have by 2050 are already here; adaptation has to be the focus of our efforts to mitigate the severity of the temperature increase and create liveable, healthy comfortable buildings.

Progressive cities promote approaches for sustainability through renewal and/or, redevelopment. For comprehensive urban transformation, greater emphasis is laid on integrating sustainable consumption, while augmenting the quality of the built environment and infrastructure. Efforts are made to enhance synergy between strategies of low carbon development, technological innovation and demand changes for resource productivity with design-led strategies for place-making, improving urban form and infrastructure for regeneration. Several US cities undergoing redevelopment promote synergies from the wider city-region to neighbourhood level to be sustainable, innovative cities of the future. Regeneration in Australia focuses on higher density redevelopment of brownfield and greyfield areas with precinct scale 'green urbanism' principles for sustainable urban development.

This track focuses on adaptation of the built environment from a building, to precinct and city scale with a view to adaptation at a 3 degree level.

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