Behavioural Mapping of Urban Settlements towards Changing Climate – A study of semi arid zone of India

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Growing urbanisation is viewed as one of the most serious problems leading to climate change. Urban settlements pose serious problems, with regard to the impacts of climate change as they concentrate people, assets and infrastructure in ways that increase risk and vulnerability. As a result of climate change, urban settlements are getting affected on several fronts such as health and well being, lifestyles, availability of energy and resources, biodiversity, infrastructure, agriculture, ecosystems and economy.

The project was undertaken with the objective of studying the physical changes and psychological responses towards climate change in ten cities located in urban settlements of semi arid zone of India. The cities were Agra, Ahmedabad, Ajmer, Ambala, Aurangabad, Coimbatore, Gulbarga, Jaipur, Meerut and Veraval. The change in land use patterns and climatic variables such as rainfall and temperature were documented and behavioural mapping at the cognitive, affective and conative level was done in order to assess and correlate the perceptions and attitudes of people with the actual scenario in the study sites.

Both qualitative and quantitative techniques were used for primary and secondary data collection. Multi-stage sampling was done and primarily purposive sampling technique was used to select the cities and 402 respondents. For mapping the spatial change during the study, remotely sensed data was used. Climate Change Perception Inventory (CCPI) was the key tool administered for data collection.

It was found that climate mapping of the cities indicated an increase in the average temperature. There was significant rise in the mean minimum temperature in all the cities indicating global warming. As per the rainfall data of the cities, the rainfall pattern was erratic and most of the rainfall has been taking place in few days of the season. Substantial seasonal shift in quantity of rainfall was observed and reduction in winter rainfall was the real cause of degradation in the natural resources. The shift in the rainfall pattern and erratic nature was indicative of climate change.

Behavioural mapping of respondents indicated a good level of awareness, emotional concern and action tendencies in the respondents. Respondents of the study site were cognitively aware about various dimensions of changing climate and had substantial factual knowledge about it and its impact on human population and natural resources. At affective level, respondents expressed frustration over current initiatives of government/institutions to reduce the impacts of climate change. At conative level, very high action oriented behavioural tendencies were observed among respondents. At the institutional level, respondents perceived major role of environmental action groups, educational institutions and government in reducing the impact of climate change. Increasing urban forestry and decreasing pollution by car pooling/local transport/ walking/ bicycle use/using low smoke/CNG vehicles, emerged as the most desirable coping measures. The increasing temperatures and erratic rainfall patterns in the sampled cities forced the city dwellers to think seriously about climate change and use desirable behavioural adaptation strategies to reduce impact in the years to come.