Summary Report: Research Activity 2011-12; Bhopal, India

Low Carbon Society Scenario Development: Bhopal 2035

Preface:

Cities all over the world are a major contributor to the Greenhouse Gas emissions and cities in India are no exception. Developing on a low carbon pathway, Indian cities can contribute substantially to the climate change mitigation.

The study has aimed to develop LCS scenarios for residential, transport and industrial sectors for a selected case study Bhopal and investigates the driving forces of change, main trends, issues and factors that might shape the future of Bhopal, focusing on factors related to economy, environment, technology, society and governance.

The study:

First a GHG emissions inventory of Bhopal for base year was captured followed by quantification of socio economic activities based on various projections and estimates from different government development plans, publications and study reports. With various development initiatives and plans, rise in GHG emissions were estimated using the AIM/ExSS model in two possible scenarios. The Business-as-Usual scenario envisages the continuation of the present government policies and captures forecast for various economic, demographic, land-use and energy use trends whereas, for analyzing the possibilities of reducing the GHG emissions in a sustainable development future, the low carbon society scenario has been drawn for managing energy emissions and driving the urban eco-system towards balance. The estimated GHG emissions of Bhopal in the base year 2005 are around 2.5 million ton CO2 which rises to 14.2 million ton CO2, around 6 times higher than the 2005 level under the BaU scenario for the target year 2035. However with energy efficiency improvements, development of renewable energy, and other policies to promote sustainable development across all sectors, the GHG emissions get reduced to 8.7 million ton CO2 with a reduction of 40% over 2035 BaU level in the possible Low Carbon Society Scenario.

For transforming Bhopal in to a low carbon society, several comprehensive counter measures, from diffusion of low carbon technologies in residential and commercial sectors, energy efficient buildings and industries, shift towards cleaner fuel in transport and electricity supply sectors along with strong environmental awareness, conservationist values to environmental integrity and life style changes would be required.

Towards this goal various policies have been suggested to promote demand side management, energy efficiency, development of renewable energy, and other policies to promote sustainable development across all sectors inviting local participation in promotion and awareness building of sustainable lifestyles, technologies and city ownership.

Authors:

Manmohan Kapshe
Aashish Deshpande
Kshama Putambekar
Sheuli Mitra

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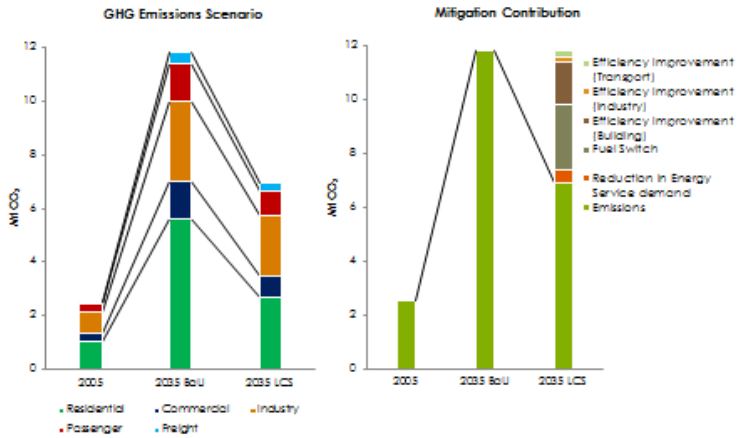
Aashish Deshpande
Kshama Putambekar

In the year 2011-12 following activities were taken up;

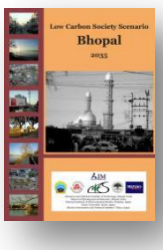
- Studies in 2011-12
  - Low Carbon Society Scenario: Bhopal 2035
    - The study has aimed to develop LCS scenarios for residential, transport and industrial sectors for a selected case study Bhopal and investigates the driving forces of change, main trends, issues and factors that might shape the future of Bhopal, focusing on factors related to economy, environment, technology, society and governance.

GHG Emission Scenario and Interventions Mitigation Contribution in Bhopal 2035



  - Building Sector Studies
    - The study has explored climate change link with the change in energy requirements for buildings. The study established a link between the change in temperature and electricity consumption with the help of empirical data analysis for a case study example and using a simulation exercise to understanding the energy requirements for buildings and how these are affected by various modifications in the building parameters.

- Dissemination Workshop and Publication



  - On September 24, 2011 a Dissemination Workshop was organized on Low Carbon Society Scenarios providing a platform at city level where researchers interacted with stakeholders and policymakers to integrate their knowledge and build relevant scenarios for transition towards a low carbon society.
  - Release of report on 'Low Carbon Society Scenario: Bhopal 2035'.

- Work in progress & Future work
  - A study on developing city level Low Carbon Society Scenario and policy design using computable general equilibrium model.
  - Sectoral studies using AIM/Enduse model.
  - Extending AIM/ExSS model applications in other Indian cities.