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Carbon print biggest in east of City

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The eastern part of the city consumes the most amount of electricity and hence stands first among the higher carbon emission areas of Bengaluru.

An ongoing study by the Wetland and Energy Research Group of the Indian Institute of Science (IISc) on 'Carbon Footprint of Greater Bengaluru' shows that per capita electricity consumption and greenhouse gas emission is higher in K R Puram and Whitefield areas. While Bengaluru East emitted more carbon per se, the city's central areas showed high carbon emissions from vehicles.

The higher carbon footprint is due to lack of planned development in the city, the study says.

"The interest in 'carbon footprinting' is due to the growing public awareness of global warming and the consequent impending changes in the climate. Urban centres are the major CO2 emitting centres. As per recent estimates, the urban areas contributed 67% and 71%, respectively, to the global primary energy demand and energy-related CO2 emissions for the year 2006. This share has been forecast to further increase to 73% by 2015," explained Dr T.V. Ramachandra, who heads the research team.

According to the research, the major drivers of the enhanced carbon footprint of Bengaluru are random concretisation and change in building structures, besides improper handling of sewage and solid waste.

"The city has a tropical climate and in recent times has seen high-rise buildings with glass facades. This kind of architecture tends to conserve the heat (suitable for colder, temperate climate). But in hot climates it increases the use of air conditioners and fans and thus electricity consumption shoots up. This is evident from higher levels of electricity consumption — and consequent carbon emissions — in some of the wards in the city where glass buildings are common," Dr Ramachandra said.

The research team points out that the existing solid waste treatment system in the city is not very effective, which is another contributor to greenhouse gases. The total MSW generated in Bengaluru city has increased from 650 tonnes/day in (1988) to 1,450 tonnes/day (2000) and today it is 3,500 tonnes/day. From 1988 to 2000 there is reasonable change in waste composition: fermentables, paper and plastic has increased by 7%, 3% and 0.2%, respectively.

The researchers also said that the government needs to work on the waste and waste water management in the city so that the emission levels can be reduced. "The shortfall or lack of sewage treatment facilities has contaminated the majority of surface and ground water. These aquatic resources are now unfit for current as well as for future use and consequently pose critical health problems," said a research team member.

SOME FINDINGS OF SURVEY

- About nine wards in Bengaluru in Bengaluru East emitted 100 tonnes-plus carbon in 2011. Six wards emitted between 90-100 tonnes and seven wards emitted between 80 and 90 tonnes of carbon. This emission is mainly due to industries and glass buildings.
- Thirty-eight wards situated in the central parts of Bengaluru emitted up to 70 tonnes of carbon due to burning of fuel by vehicles in 2011. About 55 wards emitted 50 tonnes of carbon during the same time.
- Two wards in Bengaluru East were the highest consumers of electricity (between 7,000-8,000 KWh) and four wards have consumed 6,000 to 7,000 KWh of electricity during 2011.

All these wards have large glass buildings which end up consuming higher amounts of electricity mainly for lighting and cooling.

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> Indian Institute of Science

Global seminar on low carbon cities

The Indian Institute of Science has organised an international seminar on 'Low Carbon Cities' on April 13-14 at the IISc. Sun Sheng Han, Faculty of Architecture, Building and Planning at the University of Melbourne, and Yuanqing Wang from Chang'an University of Xi'an, China, will be participating in the seminar. For details log on to http://ces.iisc.ernet.in/energy

All About carbon footprint

- The carbon footprint (CF) reflects greenhouse gas emissions from anthropogenic activities in an ecosystem in a given time frame.

Increasing amounts of greenhouse gases are major factors responsible for global warming and consequent climate change.

Human activity is responsible for most of the increased carbon footprint.

- Greenhouse gas (GHG) emission: 3.3 billion or 49.4% of the global population lived in urban areas in 2007. By 2050, this will increase to 6.4 billion or 70% of the global population (United Nation: World Urbanisation Prospects, 2008).
- The net greenhouse gas emissions from India in 2007 were 1727.71 million tonnes of CO2 equivalent (eq).
- India has maximum emissions in the energy sector (though burning of fossil fuels).

The energy sector emitted 1100.06 million tonnes of CO2 eq, of which 719.31 million tonnes was emitted from electricity generation and 142.04 million tonnes from the transport sector (INCCA, 2010).