Extreme heat events aggravated by urbanization and the concomitant urban heat island effect (Stone 2012, 2015), is resulting in cities being 5o-7o C warmer than the surrounding rural areas on summer nights (Vidal and Pathak, 2013- Ongoing study in Mumbai and Delhi). Health impacts of heat stress, although less documented, are known to be significant. (IPCC, 2014; Trans et al. 2013). In 2010, for instance, Ahmedabad’s temperature reached a high of 46.8°C causing 1344 excess deaths likely caused by the heat wave. (Azhar et al. 2014).

The urban poor living in heated concrete boxes, with no windows, ventilation, and no or little access to shade, fans, and other cooling technologies, are the most affected population group. Adding to this, is the exposure to heat due to occupational compulsions especially those requiring to work outdoors in construction, street vending, etc. Productivity of women home based workers, who mostly work in afternoons could also go down sometimes up to 50% in summers resulting in reduced household incomes and increased financial burden (Focused Group Discussions with Communities).

Since its inception 20 years ago, MHT has been working to enable access to basic services and better habitats for the poor. We do this by mobilizing and empowering communities to create a demand for better services, while simultaneously working with local governments and service providers for strengthening the supply side. Promotion of pro-poor sustainable technology solutions is one of the crucial strategies employed by MHT in this context. MHT, plays the essential role of a technology incubator in this process. Our role is not developing the technology solutions but enabling a series of process innovations which help the solutions to be tested, validated and customized as per the need of the poor communities, especially women. Identification, piloting and validation of solutions for cooler homes and transport for the poor is one of the critical objectives of the programme, as we strive to build resilience to increasing heat stress in India.
Cooler home and transport solutions for the poor

In the last few years, MHT has specifically been focusing on identifying and promoting solutions for cooler roofs and better ventilation facilities in urban slums. Some of the innovative solutions implemented in this direction are:

a) **“Air Lite” ventilators:** Made of fibre sheet, these dome-shaped roof ventilators not only improve air circulation & reduce inner temperatures, they also enable better day-time lighting of homes, thereby reducing electricity consumption (of fans and tube lights) by almost half. Also helps deal with indoor air-pollution.

b) **“Mod-Roof” tops:** Made of paper waste & coconut husk, these water-proof mod-roofs not only reduce home temperature by 6 - 8° C but also provide for a cheaper and environmental friendly alternative to RCC roofs. They are easily dismantlable, and can be reinstalled after adding additional floors, or at new locations. A boon for slum dwellers with uncertain land tenures!

c) **Cool Auto rickshaw:** Paddy husk, a traditional way of keeping homes cooler in Central India has been adapted to Auto rickshaws. Bamboo and plastic pipes were used to create a frame to place the cooler head-top. The temperature inside has been seen to be cooler by 2 to 6 degrees Celsius at various times of the day and is already gaining attention of local media.

**PEOPLE SPEAK**

Meenaben Soni, from Vishwasnagar, Odhav, who has installed mod-roof top at her home says, “It not only keeps the home cool but is cost-efficient, sturdy and durable. Also looks good.”

Surajben Patni, from Asarwa, Ahmedabad has installed an Air Lite ventilation system. She says, “Now there is ample day light in my home. I can now do fine embroidery work. I get more orders, and my income has increased!”

Nitin Vahne, the Cool Auto Driver, “This has increased my work efficiency in summers as I feel less tired now. My passengers give me a special thanks, and I have also started getting more passengers.”

Brij Kishore, Customer of the Cool Auto, “A cab is not always affordable. This is really affordable and relaxing.”

Dr. Lavkumar, Customer of Cool Auto, “Good for health as one does not have to shift between extreme temperatures as with an air-conditioned car.”

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