

# Leading Indian States Prepare for Extreme Heat in 2017

December 30, 2016 Nehmat Kaur

The World Meteorological Organization (WMO) recently released [a report that slates 2016 as yet another “hottest year on record”](#), the third in a row after 2014 and 2015. As temperatures rise year on year, extreme heat is fast becoming a serious threat, especially in developing countries where large numbers of poor are vulnerable to heat-related illness and death. In 2016, [cities across India took concrete action to better prepare and protect local communities from deadly heat](#).

Looking ahead to 2017, NRDC and partners the Indian Institute of Public Health, Gandhinagar (IIPH) convened a discussion at the TROPMET 2016 Summit under the leadership of the Indian Meteorological Society (IMS), to review city-level resilience activities and scale to leading states across the country. International experts from NRDC and key leadership from India’s National Disaster Management Authority (NDMA), state disaster management authorities (SDMAs), health departments and meteorological offices from Gujarat, Odisha, Maharashtra and Telangana attended the discussion.

## The Innovative Climate Action Leadership Award 2016

In 2013, Ahmedabad became the first city in South Asia to launch and implement an early warning system on extreme heat—the Heat Action Plan. The innovative warning system worked with nodal officers in regions to issue heat alerts based on locally determined threshold temperatures and prepare communities and health professionals

for the impending heat. Taking cue from Ahmedabad, over 10 cities released their own Heat Action Plans in 2016, under the leadership of the Indian Meteorological Department (IMD). Cities including Surat in Gujarat, the Nagpur in Maharashtra, and Bhubaneswar in Odisha, worked with the IMD and its state offices to provide early warnings on extreme heat in India for the first time in 2016.

Recognizing IMD's leadership, knowledge partners NRDC, IIPH Gandhinagar and partners including the Climate Development Knowledge Network and the University of Washington, presented the IMD with the 2016 Innovative Climate Action Leadership Award to recognize their critical role in providing city-based forecasts that are integral for implementing the Heat Action Plans.

## Scaling Heat Action Plans to Leading States in India

Heat Action Plans, based on robust scientific research, build public awareness of the risks of extreme heat, train medical and community workers to prevent and respond to heat-related illnesses, and coordinate an interagency emergency response effort when heat waves hit. So far, these strategies were carried out at the city level across India. For scaling to the state level, it is important to recognize that while some elements of the Heat Action Plan, such as community awareness messaging to keep cool, can be easily adapted and scaled given the similarities across regions, other elements such as temperature thresholds for the early warning system need to be locally developed for priority regions within each state. The TROPMET discussion, therefore, focussed on each element of the Heat Action Plan and how it would be implemented in state governments of Gujarat, Maharashtra, Telangana and Odisha.

Key takeaways for state heat action plans:

- **Designating a State Nodal Officer:** Appointing a head/nodal officer at the state and district level, and deputing an agency to oversee the Heat Action Plan helps prevent communication bottlenecks during extreme heat events. The Nodal Officer plays the very important role of monitoring daily temperature forecasts and taking the decision on calling a heat alert based on local thresholds. Designating a Nodal Officer also creates a method to receive feedback, complaints, and questions from the states and helps ensure the Plan's efficacy.
- **Vulnerability Assessment and Establishing Heat-Health Threshold Temperatures:** It is important to identify vulnerable areas and populations of a state in order to establish priorities and minimum thresholds for heat alerts and activities. The first method to determine thresholds is the percentile approach developed by the World Health Organization and World Meteorological Organization (WMO/WHO), that uses basic meteorological information to

determine thresholds at the district level in states. The second method uses existing historical temperature and mortality data to develop a heat-health threshold based on specific health responses (i.e. mortality).

- **Developing the Early Warning System and the Interagency Emergency Response Plan:** Developing the colour-coded system to issue heat alerts is at the core of the Heat Action Plan. The state nodal agencies would then work with the IMD for getting a five-day forecast to issue heat alerts based on that colour-coded system which links threshold temperatures to various activities based on the severity of the alert. It is important therefore to chart out the interagency flow of information for the early warning to be effective.
- **Building Statewide Capacity:** It is important for key officials and agencies to recognize their roles in State Heat Action Plan. Table-top exercises, simulations, and drills for heat season and heat alert events can help build capacity in the state and identify and resolve communications gaps and weaknesses between participating departments, partners and the public.
- **Implementation and Monitoring:** Government departments (and partners) are responsible for implementing many components of a heat action plan. It is also important for the public to be aware of ways to respond to extreme heat. Key messages developed and widely disseminated through information, education and communication (IEC) materials warn the public and raise awareness in advance of heat season (e.g., through pamphlets, ads, pictures and videos). Customized local language messages for identified vulnerable groups (including recent mothers, parents, educators, the elderly, children, illiterate persons, outdoor workers, immigrants, slum dwellers) ensure the key “Dos-and-Don’ts” during a heat wave and can be disseminate through the media (magazines, newspapers, websites, radio, television, and/or social media such as Facebook, Twitter, and WhatsApp).

With climate change fuelling more intense and frequent heat waves in India, a new scale of coordinated action is essential to protect communities, especially their most vulnerable members. As India gears up for another searing summer in 2017, state-level

Heat Action Plans provide an opportunity for cities and states to take leadership in building heat-resilience in India and work with the National Disaster Management Authority and the Indian Meteorological Department to protect millions who may suffer from the dangerous health effects of extreme heat.