# Chapter 5: Heat Health Warning Systems

## Background

### What is a Heat Health Warning System?

A Heat Health Warning Systems (HHWS) is the architecture designed to establish in good time whether a potentially dangerous Extreme Heat Event (EHE) is approaching. HHWSs are the weather-based alert component of a wider Heat Health Action Plan (HHAPs), which in totality are designed to prevent negative outcomes for human health due to dangerous EHEs. When HHWSs work successfully embedded in a HHAP, they can potentially avert scores of premature deaths.

It is important that HHWSs are tailored to the local target population. For this reason, HHWSs must include elements of health data to establish where dangerous thresholds of heat stress are placed in the framework of HHWSs.

Once an EHE has been forecast and decision makers are aware of an alert, a framework should exist which allows for communication to practitioners and members of the public to best prepare to mitigate the worst impacts of the EHE.

### Why are Heat Health Warning Systems important?

Management of EHEs are critically important, as there is ample evidence that they can cause large spikes in attributable heat deaths, where otherwise they would not have occurred. EHEs are also expected to become more frequent, stronger, and longer-lasting under the onset of climate change. Vulnerable populations to this exposure are of special concern, and should be a focus of a successful HHAP.

This means that there is more impetus than ever to ensure that there are adequate systems to not only predict the onset of EHEs, but also to provide adequate warning time to ensure emergency preparedness measures are followed.

## Definitions of heat stress

### Quantifying heat stress

### What is an Extreme Heat Event?

An EHE is broadly described as a significant rise in ambient heat stress. This broad description contains numerous methods of quantifying this, using thresholds localised by mortality and morbidity data, stratified at times by geography, demographic profile, and resilience due to adaptation from conditions in the recent past.

### How are Extreme Heat Events being defined?

## Short-term Extreme Heat Event prediction

### Observed variables and conditions

Different

### How are forecasts made?

### What is the state of capabilities of hazard prediction?

## Architecture of Heat Health Warning Systems

### Quantification of Heat Health Warning Systems

### What is the architecture of current Heat Health Warning Systems?

## Research

### New Heat Health Warning Systems

### Updated Heat Health Warning Systems

## Case studies in innovation

### Defining and predicting heat waves in Bangladesh

### Heat-Health Action Plan to prevent the consequences on the health of the population in the former Yugoslav Republic of Macedonia

### Ahmedabad Heat Action Plan 2017

### Validation of a Temperature Prediction Model for Heat Deaths in Undocumented Border Crossers

### Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)