EXTREME HEAT ACTION PROFILE

Food and Agriculture Organization of the United Nations

Food and Agriculture Organization of the United Nations (FAO)

www.fao.org

April 2025

FAO supports countries and communities to reduce the impact of extreme heat on agriculture by applying an integrated risk management approach for building resilient agrifood systems.

The Food and Agriculture Organization (FAO) is a specialized agency of the United Nations that leads international efforts to defeat hunger. Its goal is to achieve food security for all and make sure that people have regular access to enough high-quality food to lead active, healthy lives.

FAO prepares at-risk communities to reduce and manage the agricultural risks of extreme heat in a comprehensive manner through a suite of solutions ranging from risk monitoring, early warnings, agrometeorological advisory services, disaster risk reduction interventions, and anticipatory action interventions at farm and landscape levels across agrifood value chains.

Lead Heat Entities:

Office of Climate Change, Biodiversity and Environment (OCB)

Technical Focal Points:

Hideki Kanamaru, Natural Resources Officer
Wirya Khim, Emergency and Rehabilitation Officer (Disaster Risk Reduction)

KEY FACTS

Extreme heat harms agricultural production.

Extreme temperatures harm agricultural production, reducing crop yields and stressing livestock. Cereal crops like corn are particularly vulnerable, with heat waves causing significant yield declines. In the livestock sector, heat stress impacts animal fertility, liveweight gain, milk yield, and survival, compounding the challenges for food systems under climate change.

The Impact of Disasters on Agriculture and Food Security (FAO 2023)

Drought has caused over 65% of losses in the agriculture sector.

Extreme heat is closely associated with agricultural drought. Data from post-disaster assessments conducted between 2007 and 2022 indicate that droughts alone caused over 65 percent of losses in the agriculture sector during this period. According to EM-DAT and FAOSTAT, an estimated total of USD 3.8 trillion was lost in crops and livestock production over 3 decades (1971-2022) from all types of hazards.

The Impact of Disasters on Agriculture and Food Security (FAO 2023)

Poor households lose an average of 5% of their income annually due to heat stress.

Heat stress disproportionately impacts the incomes of vulnerable households. Rising temperatures also force poor households to rely more on climate-sensitive agriculture, increasing farm income by 53% but slashing off-farm opportunities by 33%. Female-headed households bear the brunt, with annual losses of 8% from heat stress, amounting to $37 billion in rural low- and middle-income countries.

The Unjust Climate (FAO 2024)

Anticipatory Action

FAO's disaster risk management measures include Anticipatory Action, which are short-term interventions implemented within a defined window between an early warning trigger and the peak of a hazard. These actions aim to mitigate the impact of hazards on lives and livelihoods. FAO has supported the development of Anticipatory Action frameworks and protocols, as well as their implementation ahead of various forecasted hazards. Each hazard requires a tailored monitoring system to assess risk levels and trigger Anticipatory Action at the optimal time.

Additionally, FAO actively supports the Early Warnings for All Initiative, with a particular focus on extreme heat risks. This includes providing actionable warnings for farmers, ranchers, pastoralists, and vulnerable communities ahead of extreme heat events.

Core Partners: Red Cross and Red Crescent Climate Centre (RCCC), the START Network, World Food Programme (WFP), United Nations Disaster Risk Reduction (UNDRR), United Nations Office for the Coordination of Humanitarian Affairs (OCHA)

Featured initiative

The Green City Initiative

FAO's Green Cities Initiative (GCI) helps cities identify, develop, and implement context-specific strategies for green urban regeneration. The initiative aims to improve the health and well-being of urban and peri-urban populations, support climate adaptation and mitigation, reduce carbon footprints, strengthen urban-rural linkages, and promote sustainable urban development. This is achieved by integrating urban and peri-urban forestry, agriculture, and the bioeconomy into urban life.

By promoting a multi-functional green infrastructure approach, GCI helps enhance the environmental, social, and economic well-being of urban populations. Supporting agriculture, green spaces, and trees in cities is a recognized strategy to counter the urban heat island effect.

Core Partners: GCI partners and countries

Global Information and Early Warning System on Food and Agriculture (GIEWS)

The Global Information and Early Warning System on Food and Agriculture (GIEWS) monitors global food supply, demand, and key indicators to assess food security in all countries. It provides regular, analytical reports on prevailing conditions and issues early warnings of potential food crises at national or regional levels. Upon request, GIEWS supports countries by gathering evidence for policy decisions or development planning through Crop and Food Security Assessment Missions, conducted jointly with the World Food Program. Extreme heat, which affects crop productivity through drought and water stress, is a critical factor impacting food security monitored by this initiative.

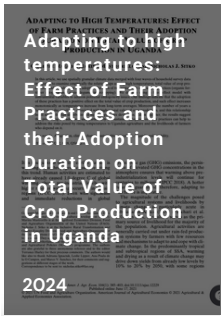
Core Partners: World Food Programme (WFP)

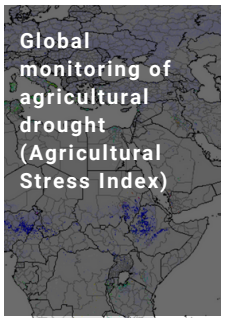
Climate Risk Management

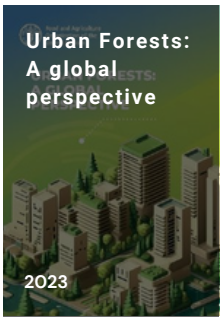
FAO conducts climate risk screenings to support the climate-resilient design of agricultural investment projects and programs as part of environmental and social risk due diligence processes. These screenings aggregate the different components of risk—hazard, exposure, and vulnerability—to assess climate risk for target agrifood systems, with adaptive capacity influencing the overall level of risk. Extreme heat is a key factor in climate hazard assessments. The screening and management processes are supported by a suite of tools (CRTB and CAVA) that provide the best datasets and analytical functions for effective risk evaluation.

Core Partners: University of Cantabria, Spain; World Meteorological Organization (WMO)

HEAT RESOURCES







Foundational documents governing institutional heat activities

FAO Strategy on Climate Change 2022-2031
Extreme heat is integrated into every aspect of FAO's strategy on climate change in a crosscutting manner. Extreme heat triggers a variety of climatic impacts such as water availability, crop and animal heat stress, forest fires, marine heatwaves, and health of agri-food workers. Compounded impacts of multiple heat-related hazards are causing serious loss and damage in agrifood systems. FAO provides its support to Members in their efforts with respect to climate change adaptation and mitigation, working towards climate-resilient and low-emission agrifood systems.

SUPPORTING THE SDGS, INCLUDING:

This heat action profile was developed by the Global Heat Health Information Network in partnership with the World Meteorological Organization (WMO) and the UN Office for Disaster Risk Reduction (UNDRR), as a contribution to the United Nations Secretary-General's Call to Action on Extreme Heat (2024). The content was validated by focal points from the profiled international organization / agency, and captures a snapshot of its heat work at the time of publication. The profile will be periodically updated.

Explore more profiles **About the project**

GLOBAL HEAT HEALTH INFORMATION NETWORK
WORLD METEOROLOGICAL ORGANIZATION
UNDRR UN Office for Disaster Risk Reduction