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Early warning systems for climate and health

Early warning systems addressing health and climate change have been developed to alert communities about climate-related events that may impact their health and well-being so that they can take necessary actions or precautions. Early warning systems have also been designed to assist outdoor workers to manage working conditions in heat and help vulnerable groups, such as the elderly or children, avoid health problems from hot and cold temperatures.

The findings presented in this factsheet are derived from research conducted by two projects: AWARD-APR and HEAT-SHIELD. The early warning system developed by the AWARD-APR project uses sub-seasonal and seasonal weather patterns to predict outbreaks of diarrheal disease among children in Nepal, Taiwan, and Vietnam.

The HEAT-SHIELD project developed an early warning system for use in workplaces using long-term weather forecasts (up to 46 days) and personal risk factors to protect European workers from heat stress.
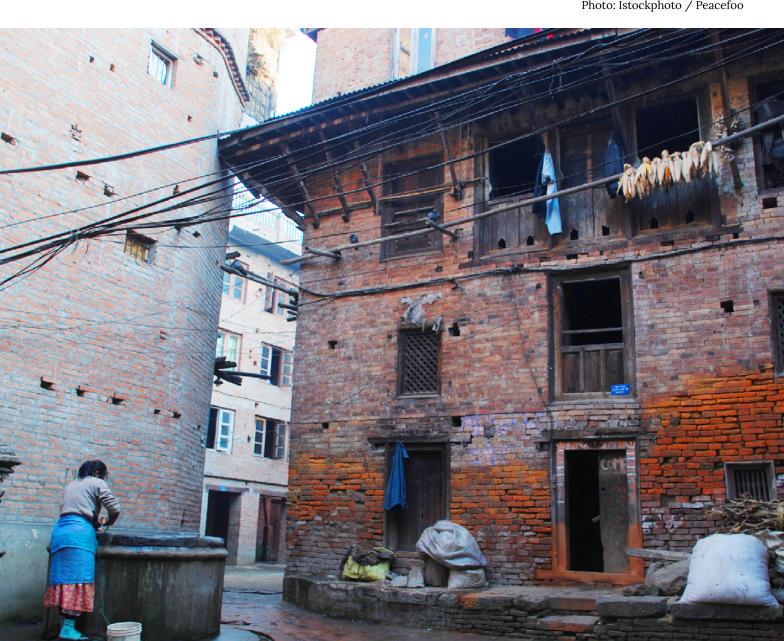
Key findings

Early warning system for diarrheal disease in Nepal, Taiwan, and Vietnam

- The AWARD-APR system uses sub-seasonal and seasonal weather data to predict diarrheal disease among young children in Nepal, Taiwan, and Vietnam.
- The system analyzes temperature and rainfall data to forecast the risk of diarrheal outbreaks so that health officials can take preventive measures such as deploying clean water and sanitation facilities and promoting hygiene practices.

Early warning systems for heat stress in European workers

- Early warning systems have been designed to warn workers about the risks of heat stress and to help individuals avert health problems such as dehydration, heat exhaustion, and heatstroke.
- This early warning system combines weather forecasts with data on workers' physical activity and personal factors such as age, weight, and clothing to provide individualized short-term (5 days) and long-term (46 days) alerts and recommendations for heat stress prevention.

A Nepali woman collecting water from a well in Kathmandu.
Photo: Istockphoto / Peacefoo

Implications of the research

- Early warning systems addressing climate and health issues are instrumental in providing crucial advice, guidelines, and information to vulnerable groups, empowering them to take necessary precautionary measures and prevent health problems.
- These systems have a pivotal role in enhancing preparedness for climate-related health risks by delivering timely information that enables communities and individuals to anticipate and respond to potential threats.
- With the ability to provide tailored warnings, guidance, and resources to high-risk communities and individuals, early warning systems ensure that interventions and resources are directed where they are most needed, facilitating an efficient and effective response.

Who is most at risk?

- The primary beneficiaries of early warning systems are individuals, organizations and communities directly exposed to specific climate-related health risks. The newly developed warning systems equip them with timely information and tailored recommendations, enabling proactive measures to prevent potential health issues.
- Early warning systems are designed to serve those living or working in areas prone to climate-related health threats. By providing specialized alerts and actionable insights, these systems enhance the ability of high-risk regions to safeguard their health and well-being and promptly respond to emerging challenges.

Construction workers, Austria.
Photo: Istockphoto / Spitzt-Foto

Conclusion

Early warning systems focusing on climate change and health are valuable tools that provide timely information, tailored guidance, and targeted resources to at-risk communities, work organizations and individuals. By enhancing preparedness, enabling proactive measures, and mitigating health risks, these systems can play a critical role in building resilience and minimizing the impact of climate-related hazards. Advances in technology, data integration, and international collaboration are vital to further strengthen these systems. Investing in and prioritizing early warning systems will safeguard public health and productivity, reduce healthcare burdens, and foster resilient communities and workplaces in the face of a changing climate.

For more information, visit these websites:

- AWARD APR website
- HEAT SHIELD website

Publications

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