

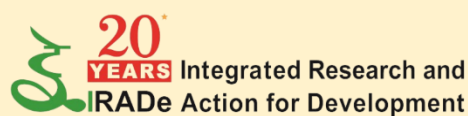
WEBINAR SUMMARY

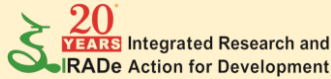
HEATWAVE EARLY WARNING AND HEAT ACTION PLANS IN SOUTH ASIA

ORGANISED BY:

South Asian Meteorological Association (SAMA)
South Asia Heat Health Network (SAHHIN)
Integrated Research and Action for Development (IRADe)

PREPARED BY:





This publication can be cited as:

IRADe, SAMA, SAHHIN (2024). *Webinar Summary: Heatwave Early Warning and Heat Action Plans in South Asia.*

This document is an outcome of the webinar on “Heatwave Early Warning and Heat Action Plans in South Asia,” held on 09th May 2024. The webinar was co-organised by the South Asian Meteorological Association (SAMA), the South Asian Heat Health Information Network (SAHHIN), and Integrated Research and Action for Development (IRADe).

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EXECUTIVE SUMMARY

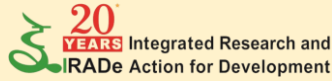
The webinar on **“Heatwave Early Warning and Heat Action Plans in South Asia,”** co-organised by the South Asian Meteorological Association (SAMA), South Asia Heat Health Information Network (SAHHIN), and Integrated Research and Action for Development (IRADe), brought together experts, practitioners, disaster managers, and policymakers to enhance heat stress management across the South Asian region. The escalating frequency and intensity of heat waves in South Asia pose significant threats to human health, economic stability, and infrastructure. These extreme weather events exacerbate health issues such as heatstroke and dehydration, particularly impacting vulnerable populations and countries with limited resources.

In response, governments across the region have intensified efforts to enhance preparedness and resilience to heatwaves. Proactive measures have been undertaken by governments to improve prevention, preparedness, and mitigation measures for heatwave management. These efforts include the development of early warning systems, heat emergency response plans, and public awareness campaigns. Infrastructure resilience, such as cooling centres and access to potable water, is also being enhanced.

The uneven distribution of resources and vulnerabilities within and among countries underscores the need for continued collaboration at regional and international levels. Strengthening partnerships for data sharing, technology transfer, and capacity building can enhance the effectiveness of heatwave management efforts. Investment in research and innovation is crucial for better understanding the complex and dynamic issues of heatwaves and their impacts. Evidence-based policies and interventions informed by scientific knowledge can help mitigate future risks and improve resilience to heat waves.

There is a growing recognition of the need for impact-based warnings to address the multifaceted impacts of heat waves. Collaboration between meteorological experts and sector specialists is essential to develop tailored strategies for different sectors, such as agriculture, water, energy, and health. Organising training programmes and knowledge exchange initiatives can enhance the capacity of South Asian countries to develop and implement effective heatwave management strategies. The Indian Meteorological Department's (IMD) initiative to develop impact-based warnings can serve as a model for regional collaboration and capacity building.





Ongoing collaboration and refinement of early warning systems are essential for their effectiveness. Platforms like the South Asian Meteorological Association (SAMA) play a crucial role in facilitating knowledge exchange and fostering collaboration among South Asian countries. In the long run, addressing the challenges posed by heatwaves in South Asia requires a comprehensive and coordinated approach that integrates scientific knowledge, policy frameworks, and community engagement. By prioritising resilience-building measures and fostering collaboration, the region can better adapt to the changing climate and protect the well-being of its populations.

Session 1 on "Early Warning Systems in South Asia," featured a lead presentation by Dr SC Bhan, Former Scientist "G" at the Indian Meteorological Department (IMD). Dr Bhan's presentation set the stage for subsequent country presentations, where representatives from Bangladesh, Myanmar, Nepal, Pakistan, and Sri Lanka shared their respective experiences and strategies in developing and implementing early warning systems for heatwaves. These presentations highlighted the diverse approaches and challenges faced by each country, emphasising the importance of tailored solutions and regional cooperation in enhancing heatwave preparedness and resilience across South Asia.

Session 2 on "Heat Action Plans in South Asia," Mr Rohit Magotra, Deputy Director of IRADe, discussed IRADe's work in developing climate-adaptive and gender-sensitive heat action plans at the ward level for various South Asian cities like Rajkot, Bhubaneswar, and Delhi. He emphasised the severe impacts of extreme heatwave events on human lives, livelihoods, productivity, health, vulnerable groups, biodiversity, and ecology. He also highlighted the benefits of a more targeted and focused approach, demonstrating how these plans can be tailored to effectively address the unique needs of each community, thereby enhancing resilience and preparedness against heat waves.

Further moving on to the panelists' discussions, Mr Sarder Shafiqul Alam, Consultant and Trainer of Trainers for LGED, Government of Bangladesh, highlighted the need to prepare thermal hotspot mappings such as location-specific vulnerability mappings, capacity building, mitigation adaptation strategies, and gender-inclusive frameworks for heat action plans.

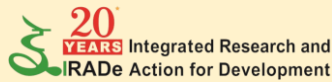




Dr Aditi Kapoor, Former Technical Advisor of Red Cross Red Crescent Climate Centre and Co-founder of Alternative Futures, emphasised considering the differential vulnerabilities of intra-city, inter-generational, and intra-generational groups at a very early stage to mitigate the effects of heatwaves on vulnerable societies. Ms Aarti Nain, Advisor for Urban Cooling and Heat Risk Mitigation, United Nations Environment Programme (UNEP), stressed the importance of building design and construction materials for heat resilience, noting that heat resilience techniques can be applied in urban planning through various practices and guidelines. Ms Devika Shisheer Panse, Consultant, South Asia Region Climate Change and Disaster Risk Management, The World Bank, mentioned the integrated approach in planning, building active and passive cooling systems, urban design solutions, early preparedness, and exploring financing sources.

The webinar concluded with remarks from Dr Someshwar Das, Secretary of SAMA, who highlighted the importance of early warning systems for heatwaves and the necessity of communicating these warnings to the public to enhance safety, mitigation, and resilience. He emphasised the need for widespread public awareness, pointing out that South Asia is particularly vulnerable to heatwaves. According to records, the frequency and intensity of heat waves in urban areas are increasing due to climate change and global warming. Therefore, robust heat action plans are necessary to mitigate the adverse effects of heat waves.





KEY FINDINGS

Session 1: Early Warning Systems in South Asia

Lead Presentation: Dr S. C. Bhan, Former Scientist G, India Meteorological Department (IMD)

- The heatwave warning system comprises various components, including seasonal outlooks, extended-range forecasts, short and medium-range forecasts, district-wise warnings, and city-specific thresholds for issuing alerts.
- These forecasts are disseminated through multiple channels, ensuring widespread awareness and preparedness.
- Advancements such as the introduction of localised heat index-based forecasts and location-specific forecast systems are continuously enhancing the effectiveness of heatwave management efforts.

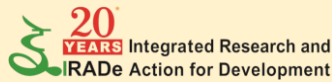
Pakistan: Dr Ghulam Rasul, Former DGM, Pakistan Meteorological Department

- An early warning system has been operational since 2016, predicting temperature, wind speed, and humidity three days in advance and issuing colour-coded alerts based on temperature thresholds.
- Public awareness campaigns are conducted, and efforts are made to ensure the effective dissemination of warning messages through various channels, including media regulatory authorities.
- Collaboration among stakeholders such as national and provincial health authorities, disaster management bodies, media, academia, and local governments is crucial for implementing a comprehensive strategy to mitigate heat waves in urban centres.

Myanmar: Dr May Khin Chaw, Director, Department of Meteorology and Hydrology, Myanmar

- Temperature increases are projected by climate models, which could exacerbate heatwave intensity and frequency.
- Active participation in summer activities is undertaken by government departments, and cooperation in future endeavours, including those with SAMA and SAHHIN.





- Technical knowledge gaps need to be worked upon and cooperative understanding to be established within regions for capacity building and active participation.

Nepal: Ms Bibhuti Pokharel, Head of Climate Analysis, Department of Hydrology and Meteorology, Nepal

- Special weather bulletins and early warning systems should be issued through the Meteorological Forecast Division's website to mitigate the impacts of heat waves.
- The Nepalgunj Heat Action Plan for 2023 outlines target areas, coordination mechanisms, and public awareness campaigns, emphasising the importance of cooling centres and access to drinking water.
- Heat early action plans are integral components of city climate adaptation strategies, with coordination among various governmental and non-governmental agencies for effective implementation.

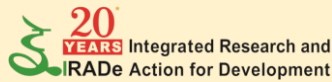
Sri Lanka: Mr MMP Mendis, Deputy Director, Sri Lanka Meteorological Department

- Warnings are disseminated through various channels such as the website, social media, email, and collaboration with disaster management authorities.
- Tailored advisories are provided for different sectors like schools and outdoor workers based on early warnings and forecasts.
- Collaborative research is needed to identify effective factors and develop warning criteria to minimise risks associated with heat waves.

Bangladesh: Dr Md. Abdul Mannan, Bangladesh Meteorological Department

- Climate projections indicate a further increase in the frequency and intensity of heatwave events, particularly in western and southwestern regions, with northeastern and southeastern areas also at risk in the future.
- Comprehensive studies are necessary to fully understand the impacts of heat waves.
- It is crucial to analyse their spatial and temporal distribution to effectively mitigate the associated risks.





Session 2- Heat Action Plans in South Asia

Lead Presentation: Mr Rohit Magotra, Deputy Director, IRADe

- The Heat Action Plan offers several benefits including reducing economic losses, enhancing preparedness, offering localised solutions to protect vulnerable groups such as the urban poor and women, and decreasing mortality rates.
- The plan consists of various components such as raising city awareness, mapping urban heat islands, assessing vulnerabilities, identifying critical thresholds, and implementing early warning strategies and responsive actions.
- A targeted and focused approach is essential for effectively addressing preparedness and mitigation strategies, which requires active engagement with various departments and stakeholders.

Mr Sarder Shafiqul Alam, Consultant and Trainer of Trainers for LGED, Govt. of Bangladesh

- Preparation of thermal hotspot mappings, such as location-specific vulnerability mapping, capacity building, sector-wise mitigation adaptation strategy, and gender-inclusive frameworks, are essential components for heat action plans.
- The impact of heatwaves on Rajshahi, Bangladesh, underscores the importance of addressing sectors such as water supply, health, biodiversity, and solid waste management with special attention to effective mitigation measures.
- Training for capacity and disaster heat action plans among stakeholders and community members, along with the implementation, monitoring, and evaluation of heat action plans, should be conducted not only at the city level but also at the national and South Asian regional levels.

Dr Aditi Kapoor, Former Technical Advisor, Red Cross Red Crescent Climate Centre and Co-founder, Alternative Futures

- Considering the differential vulnerabilities of intra-city, inter-generational, and intra-generational groups is crucial in mitigating the effects of heatwaves on vulnerable populations.
- Developing vulnerability frameworks and implementing forecast-based financing can enhance heatwave mitigation strategies.
- Raising public awareness is a prerequisite for early warning and action.





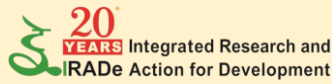
Ms Aarti Nain, Advisor for Urban Cooling and Heat Risk Mitigation, United Nations Environment Programme (UNEP):

- Building design and construction material practices, such as reflective roofs and shelter shading devices, can enhance heat resilience.
- Heat resilience in urban planning can be achieved through increasing green cover, shaded streets, mixed land-use planning, heat assessments, redevelopment of water bodies, stormwater management systems, urban design, digital technologies, and educating citizens.
- Adopting heat action guidelines from the National Disaster Management Authority (NDMA), which advocates for the adoption of energy codes or standalone guidelines for cooling buildings and creating heat-resilient urban environments, is paramount.

Ms Devika Shisheer Panse, Consultant, South Asia Region Climate Change and Disaster Risk Management, The World Bank:

- Heat metrics, meteorological services, and preparedness are necessary, along with providing thermal comfort in the built environment at the city level and within commercial and residential buildings.
- An integrated approach in planning, incorporating active and passive cooling systems, along with urban design solutions, is essential. Additionally, exploring various sources of financing is crucial for effective implementation.
- Directing initiatives towards vulnerable populations, such as integrating thermal comfort parameters into affordable housing schemes by the government is crucial.



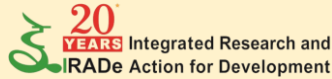


WAY FORWARD

In South Asia, detailed and in-depth analyses of heatwaves are being conducted by all countries. Efforts are also being made to validate heat indices. However, what is truly necessary are impact-based warnings, which we will discuss at the next level. At the first level, the focus is on establishing an early warning system related to human health, for which health data is crucial. Each country, and even regions within countries, exhibit significant variation, making uniform threshold warnings impractical. Therefore, a combination of forecast data and health data is required.

Moving to the next level involves assessing the impact on various sectors, including agriculture, water, energy, and health. Each sector will have different thresholds corresponding to different temperatures. As the frequency, intensity, and duration of heat waves increase, their impact extends beyond human health to social, economic, ecological, and biodiversity aspects. The meteorological community needs to collaborate with sector specialists to develop impact-based warnings. The Indian Meteorological Department (IMD) has initiated this process, and organising training programmes on developing impact-based warnings for neighbouring South Asian countries would be beneficial.





About SAHHIN

Since 2020, the South Asia Heat Health Initiative (SAHHIN) hosted at IRADe has been established as a complementary node of the Global Heat Health Information Network (GHHIN) supported by the World Health Organisation (WHO) and the World Meteorological Organisation (WMO). SAHHIN is an independent, voluntary, and member-driven forum of scientists, practitioners, and policymakers focused on improving capacity to protect populations from the avoidable health risks of extreme heat in a changing climate. For more details: <https://climateandcities.org/>

About SAMA

South Asian Meteorological Association (SAMA) is a non-profit scientific society of nine South Asian countries including Afghanistan, Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka engaged in promoting regional cooperation in the field of meteorology and allied sciences. For more details: <https://southasianmet.org/>

About IRADe

IRADe is an autonomous advanced research institute and reputed think tank in Asia. Its research covers many areas including energy and power systems, urban development, climate change, and environment, poverty alleviation and gender, food security and agriculture as well as the policies that affect these areas. Over the past 20 years, the multidisciplinary, outcome-oriented perspectives provided by IRADe have formed the basis of numerous policy decisions taken by the Government of India. IRADe has contributed to policy inputs to Govt. of India climate negotiations at the Conference of the Parties (COP). Policy-related suggestions put forward by IRADe in connection with the power and the energy sector, moreover, have made their way into government policies in other South Asian countries. For more details: <https://irade.org/>

