Stocktake Report: Heat action across United Nations Entities and International Organizations

July 2025

GLOBAL HEAT HEALTH INFORMATION NETWORK
WORLD METEOROLOGICAL ORGANIZATION
UNDRR UN Office for Disaster Risk Reduction
Duke NICHOLAS INSTITUTE for ENERGY, ENVIRONMENT & SUSTAINABILITY

ABOUT THIS REPORT

This report reflects work commissioned by WMO/UNDRR and conducted by Duke University during 2024 as a first survey of heat related capability and activities across the International System. It represents a snapshot of activities reported at the time of participation during March-September 2024. While not comprehensive, this information represents a solid baseline to support enhanced collective international heat action.

DISCLAIMER

COPYRIGHT

Chair, Publications Board
World Meteorological Organization (WMO)
7 bis, avenue de la Paix
P.O. Box 2300
CH-1211 Geneva 2, Switzerland

Tel.: +41 (0) 22 730 84 03
Email: publications@wmo.int

AUTHORS AND EDITORS

Ashley Ward, Lili Watson, Jordan Clark (Duke University); Marc Gordon (UNDRR), Joy Shumake-Guillemot, Alejandro-Saez Reale, Daniela Cuellar (WMO)

CITATION

Global Heat Health Information Network, UNDRR, WMO (2025). Stocktake Report: Heat action across United Nations Entities and International Organizations.

GRAPHICS

Duke University

LAYOUT

Maddie West

PHOTO: J.SHUMAKE

Contents

Executive Summary 2

Overarching analysis of UN entities' and International Organizations' extreme heat management efforts, highlighting collaboration gaps and proposing improved coordination to address growing heat-related risks

Engagement with Partners 3

Insights from surveys and interviews with UN entities and International Organizations representatives, emphasizing the need for greater engagement, integrated planning, and resource allocation to build resilience to extreme heat.

Heat Governance Ecosystem: Actor, Resource & Governance Mapping 14

Overview of current extreme heat initiatives among surveyed UN entities and IOs, identifying existing collaborations, gaps, and opportunities for enhanced synergy and comprehensive solutions.

Summary of Key Takeaways 20

Consolidated findings from surveys, interviews, and ecosystem mapping, highlighting challenges and opportunities in prioritizing extreme heat within UN entity and IO missions and mandates and the need for integrated planning, better resource allocation, and improved inter-organizational collaboration to address the systemic drivers of extreme heat.

Steps for Improving Collaboration & Governance on Extreme Heat 21

Strategic guidance for UN entities and IOs to enhance extreme heat resilience through improved coordination, resource allocation, and knowledge sharing among partners.

Executive Summary

As global temperatures rise, extreme heat events are becoming more frequent and severe, posing significant risks to public health, infrastructure, and ecosystems worldwide.

In response to this growing threat, the UN Secretary-General has issued a Call to Action on Extreme Heat, emphasizing the urgent need for coordinated global efforts.

This report examines the current landscape of extreme heat management among United Nations entities and International Organizations (UN entities and IOs), identifying challenges, opportunities, and strategies for improving collaboration and governance to support this call to action.

Key Findings

Collaboration & Engagement

- UN and other entities have produced substantial work related to extreme heat, but much of this is conducted with limited inter-organizational collaboration, reducing its impact.
- Entities at lower stages on the heat resilience curve tend to have fewer collaborative relationships, indicating a need for targeted support and partnership building.
- Many entities have expressed a desire for new partnerships and expanded collaboration, indicating untapped potential for knowledge sharing and joint initiatives.

Resource & Capacity Challenges

- Current efforts within UN and other entities are hampered by limited funding, expertise, and institutional support.
- While most entities agree that extreme heat aligns with their mission and mandate, competing priorities challenge resource allocation.
- Prioritization of this work is in part a function of limited requests from Member States for support on extreme heat risk reduction.

Governance & Integration

- Heat resilience efforts are typically integrated into broader climate resilience initiatives rather than developed as stand-alone programmes.
- UN and other entities recognize the critical importance of strengthening heat risk governance and promoting integrated planning at national and local levels.
- Lessons learned from regional and local efforts are not consistently captured or shared, limiting the development of comprehensive, inter-organizational guidance within the UN system.

The Path Forward

To address the challenges identified, the report proposes a comprehensive approach focusing on strengthening inter-organizational collaboration, developing targeted capacity-building initiatives, creating mechanisms for knowledge sharing and transfer, and aligning governance strategies across various timescales. By leveraging the insights and strategies outlined in this report, UN entities and IOs can better support UN Member States to protect communities and ecosystems from the growing threat of extreme heat.

PART 1

Engagement with Partners

Survey

Key Findings

Limited requests for support from Member States on extreme heat limit the ability of UN entities and IOs partners to prioritize the issue. Most partners agree that extreme heat is a major systemic challenge, and addressing it fits into their mission and mandate. There are increasing requests from Member States and partners for technical assistance with extreme heat, however, these requests are not yet numerous enough to drive action.

There is a desire among partners for greater engagement with cluster lead agencies and external stakeholders to address extreme heat. Inter-organizational collaboration on extreme heat is limited, as is a structured approach to collaborate with external and cross-sector partners; however, participants noted a strong desire to establish the necessary structure that facilitates and supports increased collaboration.

Strengthening heat governance and promoting integrated planning at the local and Member State levels is key. UN entities and IOs partners note that while there is a need for more concerted action, integrated approach, and focus on governance to build resilience to extreme heat, few have made progress in elevating extreme heat at the appropriate Member State level.

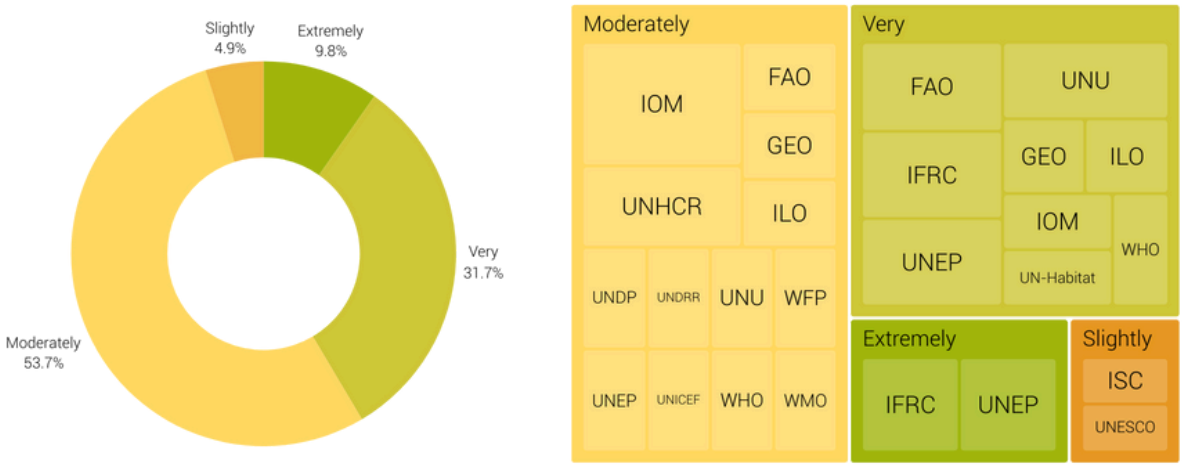
Description

Members of the United Nations Centre of Excellence for Disaster and Climate Resilience (CoE)'s Technical Advisory Group (TAG) and colleagues within their organizations were asked to complete a 22-question survey to gather information on current work that addresses the issue of extreme heat. The information collected from this survey was used to understand the capabilities of UN entities and IOs. A total of 41 respondents, representing 17 organizations, participated in the survey. UN entities and IOs represented include:

- Food and Agriculture Organization (FAO)
- Group on Earth Observations (GEO)
- International Federation of Red Cross / Red Crescent Societies (IFRC)
- International Labour Organization (ILO)
- International Organization for Migration (IOM)
- International Science Council (ISC)
- United Nations Children's Fund (UNICEF)
- United Nations Development Programme (UNDP)
- United Nations Education, Scientific and Cultural Organization (UNESCO)
- United Nations Environment Programme (UNEP)
- United Nations High Commissioner for Refugees (UNHCR)
- United Nations Human Settlements Programme (UN-HABITAT)
- United Nations Office for Disaster Risk Reduction (UNDRR)
- United Nations University (UNU)
- United Nations World Food Programme (WFP)
- World Health Organization (WHO)
- World Meteorological Organization (WMO)

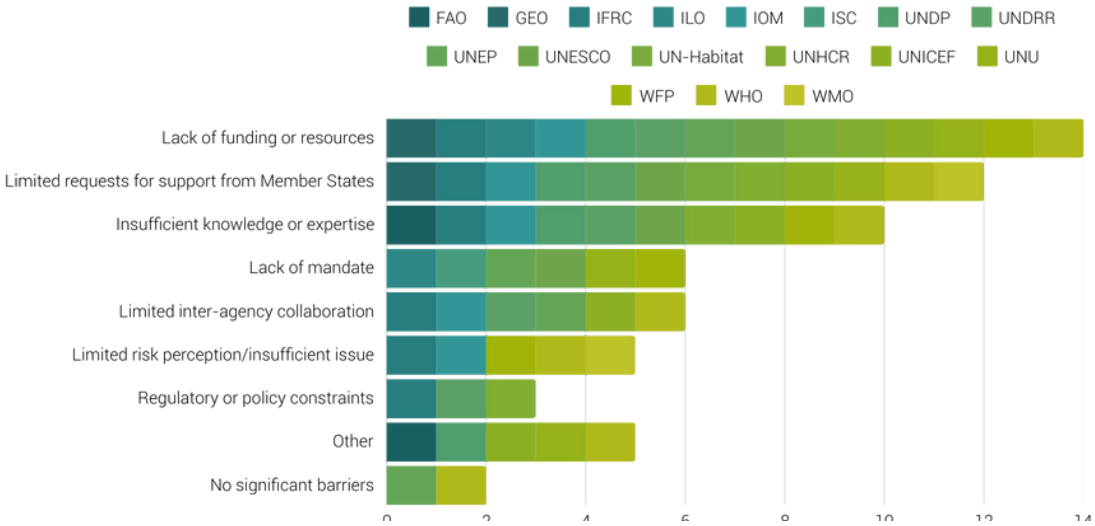
Of the participants surveyed, most (39) felt their organization's mission or mandate was at least moderately aligned with addressing extreme heat, with 13 stating their organization's mission or mandate was very aligned and 4 stating their mission or mandate was extremely aligned (Figure 2).

FIGURE 2: UN ENTITY AND IO MISSION ALIGNMENT WITH EXTREME HEAT



While most participants did not feel their organization's operations were impacted by heat, several cited the needs of UN Member States and the likelihood of or already existing increases in requests from Member States concerning extreme heat. However, the lack of requests from Member States was also noted as a barrier that prevents UN entities and IOs from prioritizing extreme heat over other issue areas. A lack of funding or resources was the most commonly cited barrier (14) followed by limited requests from Member States (12) and insufficient knowledge or expertise (10) (Figure 3). One participant also noted the lack of available downscaled data, research, and evidence as a barrier.

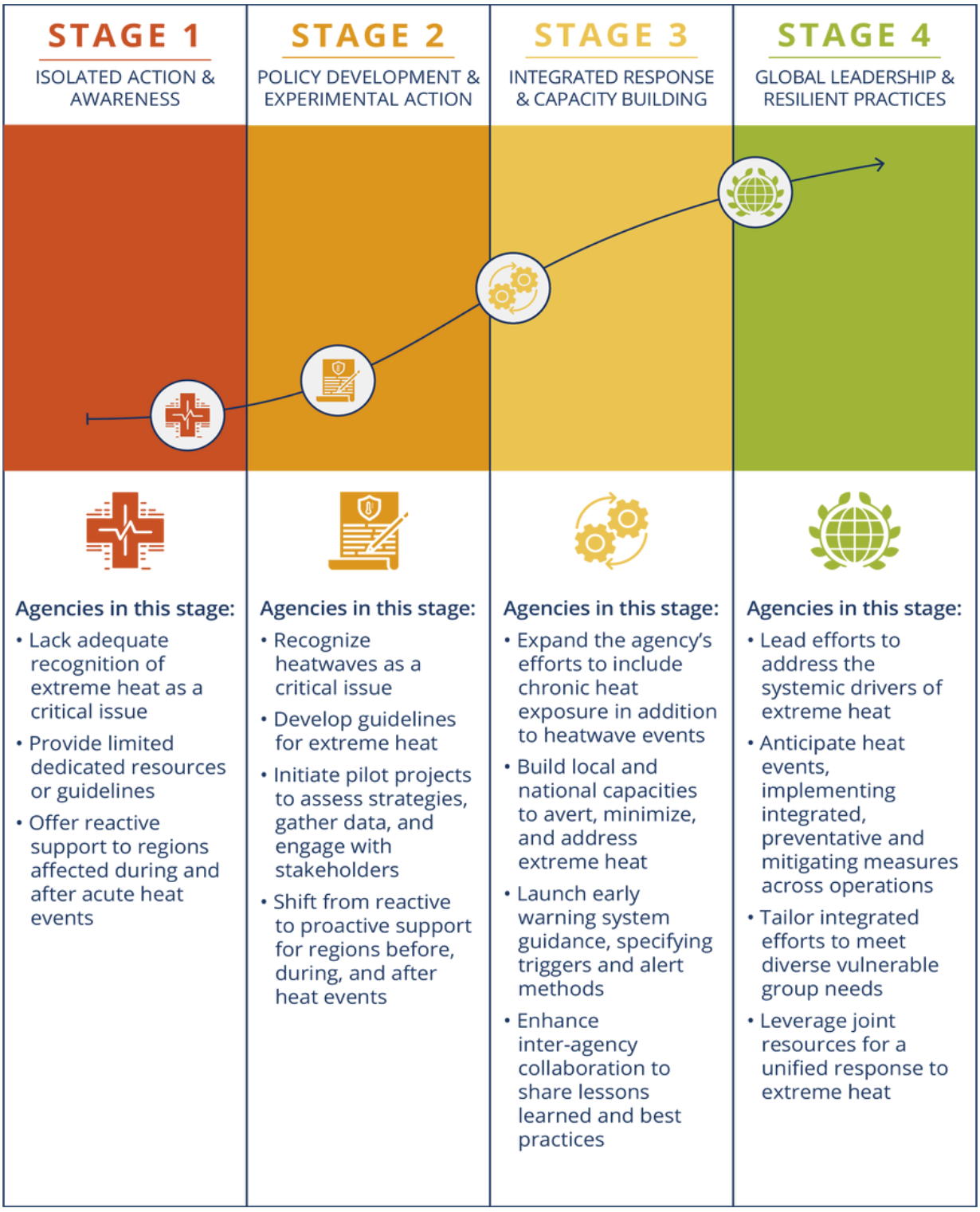
FIGURE 3: BARRIERS TO PROGRESS ON HEAT RESILIENCY AT UN ENTITIES AND IOS



Several participants cited their work in addressing the underlying vulnerabilities associated with extreme heat. Among the options provided, energy burden was the area that received the least attention from UN entities and IOs, with only 5 organizations working to address this vulnerability. When asked to describe how their organization's work minimizes or addresses the impact of extreme heat, partnerships and collaboration (14), planning and preparedness (14), and policy and advocacy (14) were the most common mechanisms cited; however, and community empowerment (13), and research and innovation (12) were also significantly noted by participants.

To better understand the status of heat governance activities at participating UN entities and IOs, respondents were asked to rank their organization's status on a Heat Resilience Curve (see Figure 4 below).

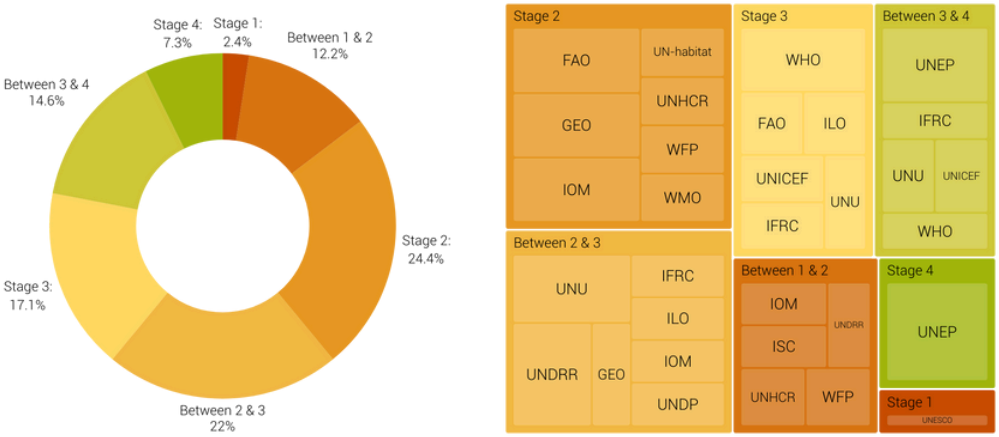
FIGURE 4: HEAT RESILIENCE CURVE



A majority of participants categorized their organization at an intermediary stage, with 10 placing their agency in Stage 2, nine placing their agency between Stages 2 and 3, and seven placing their agency at Stage 3 (Figure 5). There appears to be momentum toward Stage 4, with six participants placing their agency between Stages 3 and 4, but only one of the surveyed UN entities and IOs' staff (UNEP) placed their organization at Stage 4.

FIGURE 5: RESPONDENTS' ORGANIZATION'S STAGE ON HEAT RESILIENCE CURVE

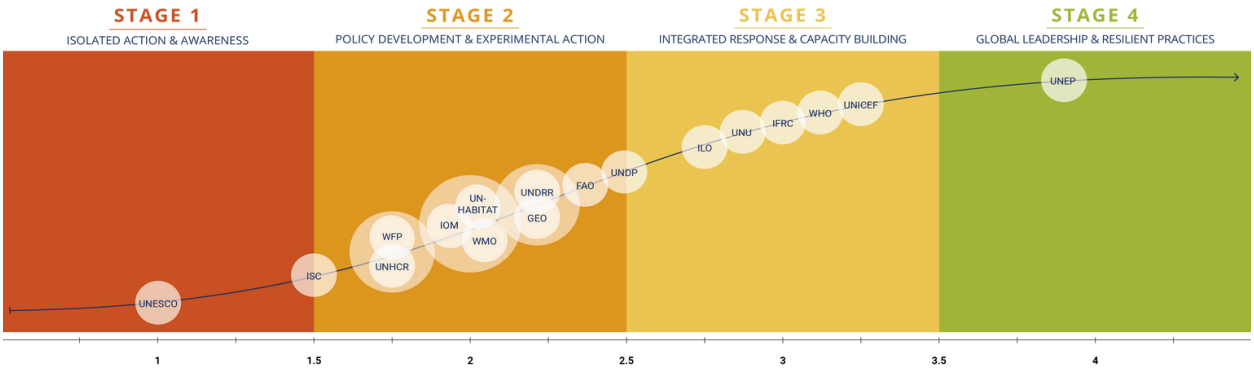
Answers are shown for each respondent. If a UN Entity or IO had multiple survey respondents, multiple answers are shown.



When all stage placements provided by the survey participants are averaged, we can see how most UN entities and IOs assessed are clustered around Stages 2 and 3 (Figure 6).

FIGURE 6: UN ENTITY OR IO'S STAGE ON HEAT RESILIENCE CURVE AVERAGED BY ORGANIZATION

The heat resilience stages presented herein are based on self-reported data collected through a survey administered to various United Nations (UN) Entities and International Organizations (IOs). Each entity's stage represents an average of all survey responses received from representatives within that organization. It is important to note that the stages reported here may not comprehensively reflect the entirety of an agency's work or capabilities in heat resilience. Rather, they are indicative of the perspectives and knowledge of the specific agency representative(s) who participated in the survey.



Summary

The responses to the survey highlight the diverse impacts of extreme heat across various sectors and organizations. There's an acknowledgment of its significance in urban areas, agriculture, humanitarian operations, and research initiatives. Organizations such as the World Food Programme (WFP), International Organization for Migration (IOM), and International Federation of Red Cross and Red Crescent Societies (IFRC) are actively involved in addressing the challenges posed by extreme heat, particularly concerning at-risk populations like displaced persons. Concerns range from logistical disruptions to health risks and infrastructure strain, with a focus on mitigating these impacts through various strategies such as awareness campaigns, infrastructure upgrades, and policy advocacy.

The responses cover various aspects related to addressing heat risks, particularly in the context of urban planning and governance, as well as advocacy for policy integration and preemptive measures. Some participants express uncertainty or minimal engagement on certain issues, while others highlight ongoing efforts and areas for improvement, such as the need for stronger advocacy and cross-sectoral partnerships. Overall, there's a recognition of the urgent need to address extreme heat as a significant environmental and humanitarian challenge.

Interviews

Key takeaways

Heat resilience efforts are typically integrated into large climate resilience initiatives. UN entities and IO missions are generally aligned with addressing extreme heat; however, the degree of investment varies, with few organizations treating heat as a primary focus and most integrating it into larger climate resilience efforts. There is a lack of consensus on whether it is more effective to address extreme heat as a standalone issue or integrated into broader climate initiatives.

Current efforts are hampered by limited funding, expertise, and institutional support. Competing priorities within UN entities and IOs and across UN Member States often restrict an organization's ability to invest resources and increase capacity for heat resilience. To secure additional funding and investment, UN entity and IO leadership requires advocacy by civil society and their Member States.

Lessons learned from regional and local efforts are rarely captured to provide broader, cross-organizational guidance. UN entities and IO partners described urgency and the need for more investment in regions where heat is a primary issue; however, structures do not currently exist to strategically transfer lessons learned or facilitate knowledge sharing. This will become particularly relevant as climate change expands heat risk to regions that have not traditionally faced high heat stress.

There is wide agreement on the need to develop effective communication and Early Warning Systems. Given the variability in regional heat risk, tailoring these systems to local needs and ensuring they provide actionable information is crucial.

Design

Objective: The primary objective of the interviews was to assess the current efforts, challenges, and opportunities in managing extreme heat within various UN entities and IOs. This includes understanding how UN entities and IOs align their missions with extreme heat management, identifying resource and capacity needs, exploring existing initiatives, and evaluating collaborative efforts.

Methodology: Persons representing UN entities and IOs were asked to complete a survey. After the completion of this survey, an invitation to schedule an interview was sent out to identified individuals, and they were asked to forward it if they knew someone within their organization who would provide helpful insight in addition to or instead of themselves.

The interviews were conducted via video calls on Zoom. These interviews were scheduled for 30 minutes. On many occasions, the duration exceeded this as there was a lot of ground to cover and participants were overall very willing and motivated to engage further on the topic areas.

The interviews focused broadly on four main areas, leveraging the participants' survey results to provide a basis for further engagement with any specific interesting facets of their survey:

1. Alignment with extreme heat management
2. Resource and capacity needs
3. Existing initiatives and programmes
4. Collaboration efforts and gaps

Participants: Representatives from multiple UN entities and IOs were interviewed, including:

- Food and Agriculture Organization (FAO)
- Group on Earth Observations (GEO)
- International Organization for Migration (IOM)
- Red Cross Climate Centre
- United Nations Development Programme (UNDP)
- United Nations High Commissioner for Refugees (UNHCR)
- United Nations Office for Disaster Risk Reduction (UNDRR)
- United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA)
- United Nations University (UNU)
- World Food Programme (WFP)
- World Meteorological Organization (WMO)

Discussion Topics: The interviews covered a range of topics including:

- How the UN entities and IO's mission aligns with extreme heat management.
- Current initiatives and programmes related to extreme heat.
- Collaboration with other UN entities, IOs, and partners.
- Capacity gaps and resource needs.
- Regional approaches to managing extreme heat.
- The development and implementation of early warning systems.

Interview Results

The results of the interviews are grouped by common thematic elements.

1. Mission Statement Alignment with Extreme Heat Management

Overall, the UN entities and IOs interviewed generally align their missions with extreme heat management, though the degree of emphasis varies. Some treat extreme heat as a primary focus within their broader climate resilience strategies, while others incorporate it into larger frameworks without making it a standalone issue.

World Meteorological Organization (WMO): Uses climate and weather information to help decision-makers prepare for extreme heat through research, weather and climate services, and fostering multidisciplinary partnerships to catalyze heat action. WMO mentioned that work around extreme heat and health is accelerating. WMO State of Climate reports monitor global and regional temperature trends. Key reports on Extreme Heat Indicators and on Heat-Health Warning Systems will be published during 2025. And at the same time cross-sectoral collaboration with the health community and other sectors is profoundly needed.

World Food Programme (WFP): Focuses on how extreme heat impacts food production and security, integrating it into broader climate resilience efforts. WFP highlighted the difficulty of securing dedicated funding for extreme heat initiatives due to the primary focus on immediate food security issues. This integration is critical as WFP deals with the direct consequences of extreme heat on food availability and agricultural productivity.

Food and Agriculture Organization (FAO): Integrates extreme heat within broader drought and climate resilience strategies, focusing on agriculture and livestock. FAO emphasized that while extreme heat is not a primary focus at the agency level, there is recognition of its impact on specific sectors like livestock, where the effects are more direct. FAO's work includes developing actionable early warning systems for farmers and livestock managers to mitigate the impacts of extreme heat.

Red Cross Climate Centre: Develops practical guides and anticipatory actions for extreme heat, particularly in urban settings. The Centre mentioned the development of a "Heat Handbook" specifically targeting practitioners in the global South, highlighting the importance of understanding heat risks in both urban and rural areas. The Centre's efforts include implementing heat action plans and organizing heat action day events to raise awareness and promote preparedness.

Office for the Coordination of Humanitarian Affairs (OCHA): Office for the Coordination of Humanitarian Affairs (OCHA): OCHA recognizes the importance of considering extreme heat within humanitarian assessments and planning processes. The organization aims to coordinate responses to extreme heat events and, where possible, support efforts through pooled funding. This approach is part of a broader effort to integrate extreme heat into climate risk frameworks and ensure that humanitarian responses are better equipped to address the growing challenges posed by extreme heat.

United Nations Office for Disaster Risk Reduction (UNDRR): Emphasizes addressing systemic drivers of risk beyond event-based responses. UNDRR critically analyzed the current financial system, highlighting flaws in the capitalist model and the need for more effective regulation to address climate-related risks. They also discussed the importance of moving beyond traditional event-based approaches to a more holistic risk management strategy, which involves understanding and addressing the underlying drivers of risk.

International Organization for Migration (IOM): Recognizes the significant impact of extreme heat on displacement and migration. IOM discussed the impact of climate change on migration and displacement, noting that extreme heat exacerbates these issues. IOM is working to revise existing guidance to better include extreme heat considerations and develop strategies to mitigate its impact on migrants.

United Nations High Commissioner for Refugees (UNHCR): Focuses on managing extreme heat impacts on refugees through regional approaches and inter-organizational collaboration. UNHCR emphasized the need for sustainable shelter solutions and effective communication strategies for refugees, highlighting the importance of regional heat action plans and improving shelter designs to withstand extreme heat.

United Nations Development Programme (UNDP): Integrates extreme heat into urban resilience and climate adaptation efforts. UNDP pointed out that extreme heat is often under-prioritized in tropical areas because it is seen as a familiar issue, despite its increasing severity. UNDP is developing tailored heat action plans for specific cities, particularly in Africa and Asia, to address urban heat risks effectively.

Group on Earth Observations (GEO): Provides global heat risk information useful for city planners. GEO mentioned the need for better collaboration across sectors to ensure that global heat risk information is accessible and useful for city planners. GEO's efforts include creating tools to provide detailed heat risk assessments that can inform urban planning and resilience strategies.

United Nations University (UNU): Addresses both urban and rural heat impacts through research and data improvement. UNU highlighted the challenge of quantifying the impacts of extreme heat and the need for better data to inform policy and action. UNU is conducting research to understand heat impacts comprehensively and develop effective mitigation strategies.

2. Resource and Capacity Needs

There is a unanimous recognition of the need for more resources and increased capacity to effectively manage extreme heat. Limited funding, expertise, and institutional support are common barriers faced by these UN entities and IOs. All organizations interviewed highlighted the need for more resources and increased capacity. Limited funding, expertise, and institutional support were commonly mentioned as barriers to effective extreme heat management.

FAO and OCHA: Specifically mentioned the need for tailored regional approaches and actionable early warning systems. FAO stressed the importance of developing systems that provide specific advice to farmers and livestock managers, while OCHA highlighted the need for more capacity to promote significant changes in addressing extreme heat risks.

UNHCR and IOM: Emphasized the need for sustainable solutions and better communication strategies for vulnerable populations such as refugees and migrants. IOM discussed the significant impact of extreme heat on displacement and migration, underscoring the need for revised guidance and sustainable solutions. UNHCR focused on the importance of effective communication strategies to protect refugees from extreme heat impacts.

3. Existing Initiatives and Programmes

UN entities and IOs are engaged in a variety of initiatives and programmes to address extreme heat. These initiatives range from developing early warning systems to creating practical guides and heat action plans.

FAO: Developing early warning systems to provide specific advice to farmers and livestock managers. These systems aim to mitigate the impacts of extreme heat by offering tailored guidance to protect agricultural productivity.

Red Cross Climate Centre: Implementing heat action plans and developing a heat handbook for practical guidance. The Center highlighted the importance of the heat handbook in providing actionable information to practitioners in the global South.

UNDP: Developing heat action plans for cities in Africa and Asia. UNDP mentioned that these plans are tailored to address specific urban heat risks, integrating them into broader urban resilience frameworks.

GEO: Creating tools to provide detailed heat risk assessments useful for urban planners. GEO emphasized the need for these tools to be accessible and actionable to effectively inform urban planning and resilience strategies.

UNU: Conducting research to understand heat impacts and develop mitigation strategies. UNU discussed the importance of improving data availability and conducting comprehensive research to inform policy and action.

WMO: The Global Heat Health Information Network, a community of policymakers, scientists and practitioners that provide thought leadership through science and consensus from diverse actors and institutions, is an initiative of WMO jointly with WHO. Its technical support unit is hosted at WMO. WMO research programmes address extreme heat projections and impacts, and WMO members provide data and extreme heat warning services.

4. Collaboration Efforts and Gaps

Collaboration is essential for effective extreme heat management. UN entities and IOs work with a variety of partners but still face gaps in coordination and resource sharing.

OCHA: Collaborates with IFRC, WMO, and other climate information providers but faces challenges in securing additional resources. OCHA highlighted the demand-driven nature of their work and the need for broader recognition of extreme heat as a humanitarian issue.

UNDRR: Engages with various non-state actors and local authorities to enhance governance structures. UNDRR discussed the importance of collaboration with non-state actors to address systemic drivers of risk.

WMO, WFP and FAO: Work closely with other UN Entities and IOs but highlight the need for improved inter-organizational coordination and resource allocation. WMO, WFP and FAO emphasized the importance of better coordination and resource sharing to address extreme heat effectively.

IOM and UNHCR: Work with local governments and international organizations to address displacement and refugee issues related to extreme heat. IOM and UNHCR discussed the significance of collaboration in developing sustainable solutions and effective communication strategies.

5. Regional Approaches to Managing Extreme Heat

Effective management of extreme heat requires strategies tailored to regional contexts. UN entities and IOs emphasize the importance of understanding local challenges and vulnerabilities to develop appropriate solutions.

FAO: Emphasizes regional specificity in developing early warning systems and actionable guidance for farmers. FAO highlighted the importance of tailoring these systems to local needs to mitigate the impacts of extreme heat on agriculture.

OCHA: Highlights variability in regional readiness and capacity to implement extreme heat initiatives. OCHA pointed out that different regions have varying levels of readiness and capacity, necessitating tailored approaches to extreme heat management.

UNHCR: Focuses on regional heat action plans and improving shelter designs to withstand extreme heat in different contexts. UNHCR discussed the importance of regional plans and improved shelter designs to protect refugees from extreme heat impacts.

UNDP: Tailors heat action plans to specific urban contexts in various regions. UNDP emphasized the need for these plans to be context-specific to address the unique challenges faced by different cities.

WMO: Through the Global Heat Health Information Network, WMO is in the process of launching regional heat health hubs in Southeast Asia, Latin America and South Asia. Regional hubs drive the Network's goals, activities and partnerships at the regional level by bringing together leading partners with strong technical expertise and regional understanding. WMO early warnings for all activities seek to expand the availability of heat impact warning services in all affected regions.

6. Development and Implementation of Early Warning Systems

Developing and implementing early warning systems is a priority for many UN entities and IOs. These systems must be tailored to local needs and provide actionable information to be effective.

FAO: Developing systems that provide specific advice to protect crops and livestock. FAO stressed the importance of these systems in mitigating the impacts of extreme heat on agriculture.

WMO: Early warnings for all activities seek to expand the availability of heat impact warning services in all affected world regions. New country-level and regional pilot projects are planned from 2025. WMO is working to publish expert based guidance on heat indicators and indices, heat warning systems.

Red Cross Climate Centre: Working on anticipatory actions and practical guides for extreme heat. The Centre highlighted the development of practical guides and anticipatory actions to help communities prepare for and respond to extreme heat.

OCHA: Emphasizing the inclusion of heat forecasting in broader climate risk planning. OCHA discussed the need for better integration of heat forecasting into comprehensive climate risk frameworks to improve preparedness and response.

UNDP: Integrating early warning systems into urban resilience frameworks. UNDP mentioned that these systems are crucial for enhancing urban resilience to extreme heat, providing timely and actionable information to city planners and residents.

PART 2

Heat Governance Ecosystem: Actor, Resource & Governance Mapping

Inventorying actors, resources, and governance structures and understanding their interactions is invaluable for addressing the complex issue of extreme heat on a global scale. The Heat Governance Ecosystem Map reveals the current landscape of efforts among the 19 UN entities and IOs assessed, highlighting both collaborations and gaps. By charting existing collaborations, desired collaborations, published reports, and initiatives, the map uncovers interconnectedness and isolation within the network.

Information for the ecosystem map was gathered through a combination of desk-based research, interviews, and surveys. While the map offers a snapshot of recent and ongoing work, it is important to recognize that it may not be fully comprehensive. This overview provides insights into inter-organizational interactions and identifies potential for enhanced collaboration to build a more resilient system against extreme heat.

As with the heat resilience stages, the ecosystem mapping is subject to the limitations inherent in self-reported data and the specific methodologies used in its creation. It may not capture all existing relationships or the full extent of inter-agency cooperation in the field of heat resilience.

Users of this information should be aware that both the heat resilience stages and the ecosystem mapping may not capture the full scope of an organization's heat resilience initiatives, expertise, or collaborative efforts. These representations should be considered as indicative rather than definitive portrayals of the heat resilience landscape among UN Entities and IOs.

Click to View the Ecosystem Map

Key Takeaways

The Ecosystem Map reveals that UN entities and IOs have generated a substantial amount of work related to extreme heat; however, much of this work is being conducted with limited collaboration among the assessed organizations. While the majority of the work assessed was conducted by just one of the assessed organizations, there are a few highly collaborative efforts that provide a strong foundation for future work. In particular, the Global Heat Health Information Network, which five of the assessed organizations participate in, and the recently released, Urban Extreme Heat Risk Management - Resource Package, which four of the assessed organizations collaborated on. Encouraging larger, multi-organization collaborations, like those mentioned above, can lead to more robust and innovative solutions, leveraging the strengths and resources of multiple entities.

UN entities and IOs that have self-assessed as being in the lower stages on the heat resilience curve tend to have fewer collaborative relationships with other UN entities and IOs on heat. Consciously working to foster partnerships between these organizations and organizations that have greater resilience to heat can help them improve their resilience and contribute more effectively to collective efforts.

Many UN entities and IOs have expressed a desire to collaborate with other organizations with whom they are not currently working. This willingness indicates both an opportunity and a readiness to build a more cohesive and integrated heat resilience ecosystem. By facilitating these connections, there is potential to significantly enhance the collective capacity to manage and mitigate the impacts of extreme heat.

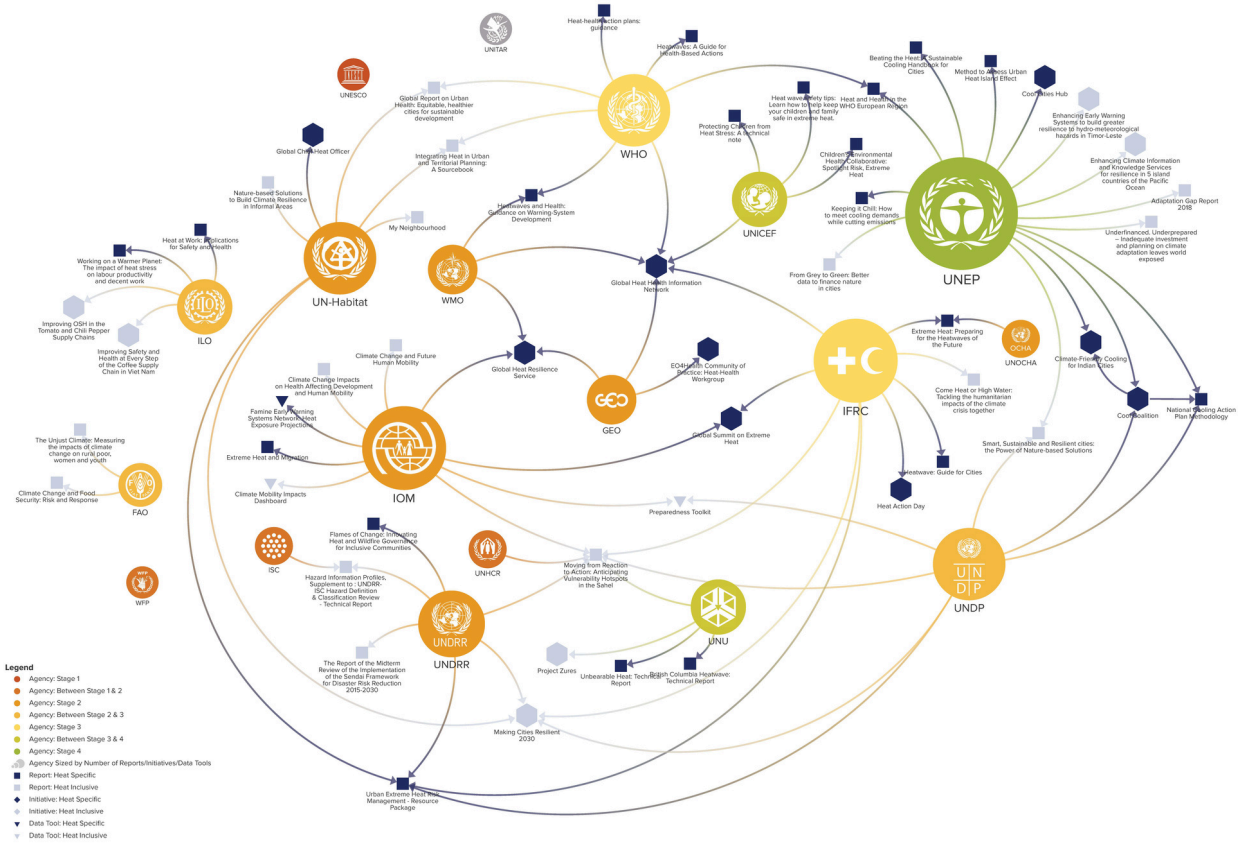
Analysis

The ecosystem map charts a total of 15 heat-related initiatives, including six projects/pilot projects, two events, four informational networks, a workgroup, a data service, and a global chief heat officer. Of these 15 initiatives, nine are focused specifically on extreme heat. The remaining six include heat resilience within broader initiatives. The map also charts 39 resources, including 36 reports and three data tools. Of the 36 reports, 20 are exclusively dedicated to extreme heat, and 16 include information about extreme heat alongside other issues. One of the data tools is heat-specific, and two are heat-inclusive.

There is significant variability between organizations in the degree to which they have focused on extreme heat. In Figure 7 below, the size of the circle representing each organization is based on the number of initiatives they participate in and/or resources they have produced. At the high end of the scale, the United Nations Environment Programme (UNEP) is involved in five initiatives, including two heat-related pilot projects and three heat-specific informational networks, and has produced 9 reports related to extreme heat, of which five specifically focused on the issue. The International Federation of Red Cross and Red Crescent Societies (IFRC) is involved in four initiatives, including two events and two informational networks, and has produced five reports. The International Organization for Migration (IOM) is involved in two initiatives, including one event and one data service. They have also produced three heat-related data tools and four reports. The World Health Organization (WHO), United Nations Development Programme (UNDP), and United Nations Human Settlements Programme (UN-HABITAT) have each been involved in or produced seven heat-related initiatives/resources, while the United Nations Office for Disaster Risk Reduction (UNDRR) has been involved in or produced 6 initiatives/resources. The remaining 12 UN entities and IOs assessed have been involved with or produced four or fewer initiatives/resources, including three that have not produced or been involved in any initiatives or resources related to extreme heat.

FIGURE 7: UN ENTITY AND IO EXTREME HEAT ECOSYSTEM MAP

This map shows the 19 organizations assessed and the initiatives and resources related to extreme heat that they have produced or been involved in. In this view, organizations are sized by the number of initiatives or resources they have produced or been involved in and colored by their self-selected stage on the Heat Resilience Curve.

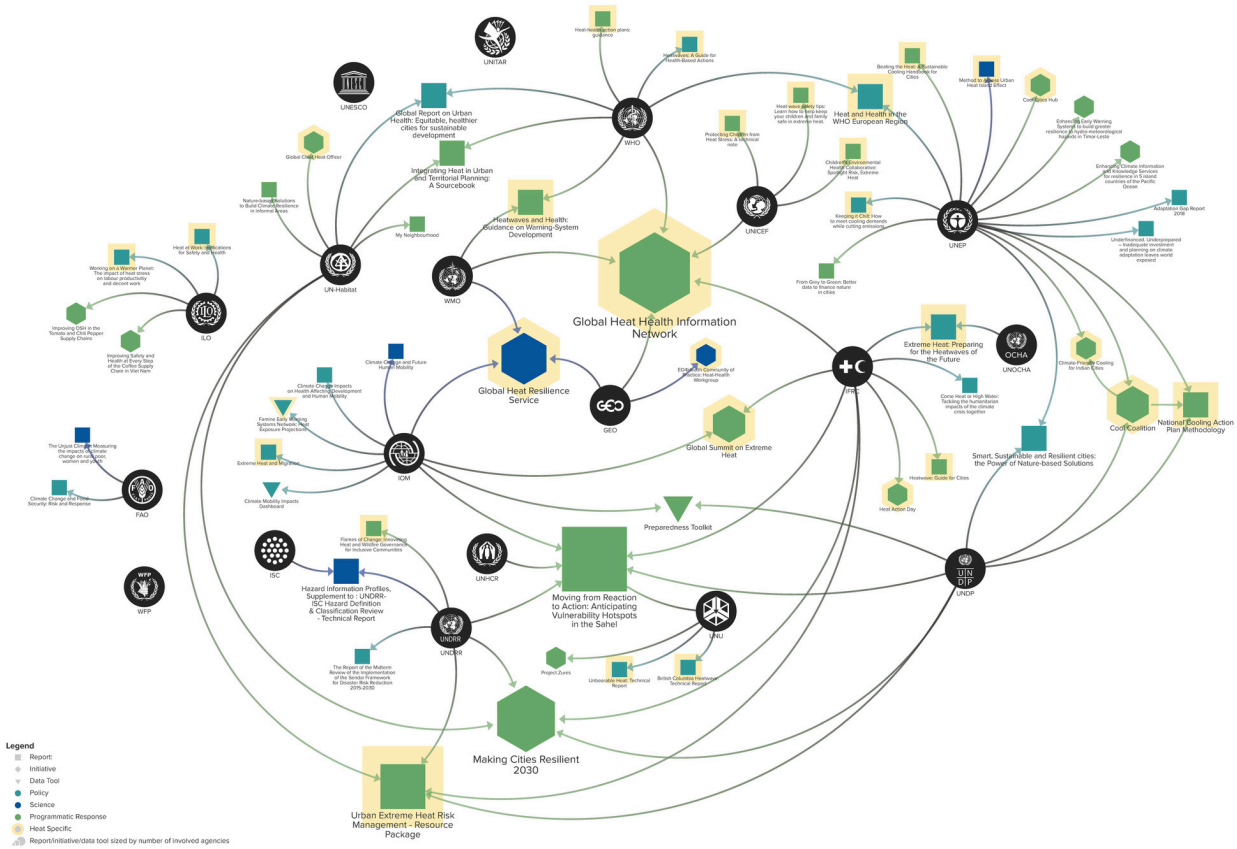


The Ecosystem Map reveals that UN entities and IOs have generated a substantial amount of work related to extreme heat; however, much of this work is being conducted with limited collaboration among the assessed organizations. Of the 36 reports, ten were jointly authored by two or more of the UN entities and IOs assessed. Two reports, Moving from Reaction to Action: Anticipating Vulnerability Hotspots in the Sahel and the recently released Urban Extreme Heat Risk Management - Resource Package, are the exceptions, with six and four of the UN entities and IOs assessed participating as contributors to the reports, respectively.

The initiatives have more collaboration, with five of 15 being joint efforts of two or more of the UN entities and IOs assessed. The Global Heat Health Information Network (GHHIN) is the largest collaborative initiative with five of the UN entities and IOs assessed participating. Making Cities Resilient 2030 and The Global Heat Resilience Service were also more collaborative with four and three of the assessed UN entities and IOs participating, respectively. Other than the two reports and three initiatives mentioned above, no more than two of the UN entities and IOs assessed are collaborating on any single report or initiative; however, many of these efforts involved collaboration with other actors beyond the 19 organizations assessed here. GHHIN is truly exceptional in that five of the UN entities and IOs assessed are involved in it, and it is specifically focused on extreme heat. This network could serve as a valuable tool to encourage more inter-organizational collaboration and knowledge sharing on extreme heat.

FIGURE 8: UN ENTITY AND IO EXTREME HEAT ECOSYSTEM MAP

In this view, initiatives and resources are sized by the number of organizations that collaborated on them and colored by whether they were categorized as primarily focused on science, policy, or programmatic response.

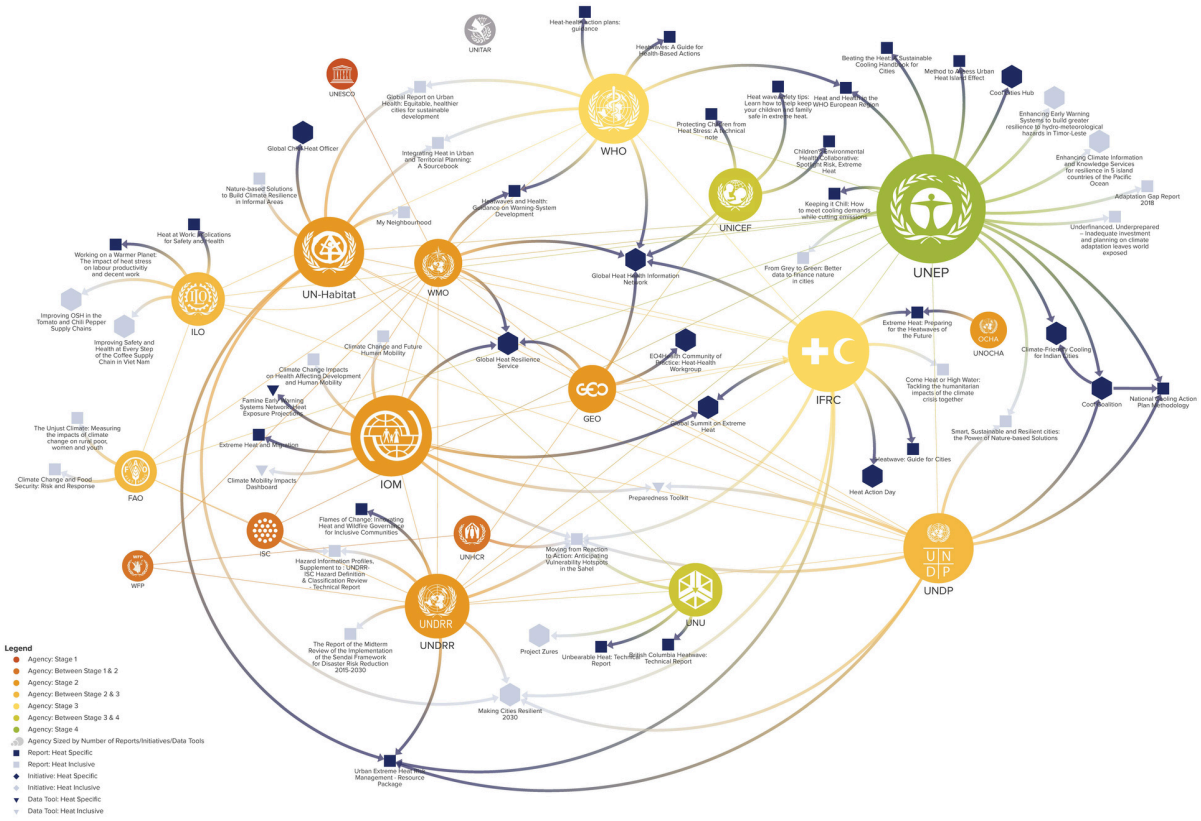


The ecosystem mapping analysis also included a categorization of initiatives and resources as primarily focused on science, policy, or programmatic response, as shown in Figure 8. While there was some overlap between the three categories, this process improved our understanding of the type of work happening at UN entities and IOs. Programmatic response was the most common type of work, with 54% of the initiatives and resources assessed falling into that category, followed by policy with 34%. Of the 15 initiatives, two are science-based, and the remainder are focused on programmatic response. Of the 36 reports, 17 are primarily policy-focused, 15 are primarily focused on programmatic response, and just four are primarily science-focused. Of the three data tools two are designed to inform policy and decision-makers and were included in the policy category and one was categorized as programmatic response. With the exception of the Group on Earth Observations (GEO) and the International Science Council (ISC), the UN entities and IOs assessed have a heavier emphasis on policy and programmatic response than science.

In addition to collaborative work on initiatives and resources, the UN entities and IOs were also asked to identify other organizations they have collaborated with on the issue of extreme heat, regardless of whether this collaboration has produced a direct output. These more nascent collaborations, shown as straight lines in Figure 9 below, indicate a strong opportunity to enhance existing collaboration between organizations. Additionally, this image reveals that those UN entities or IOs that are more isolated and have produced less work on extreme heat tended to rank themselves lower on the heat resilience curve.

FIGURE 9: UN ENTITY AND IO EXTREME HEAT ECOSYSTEM MAP

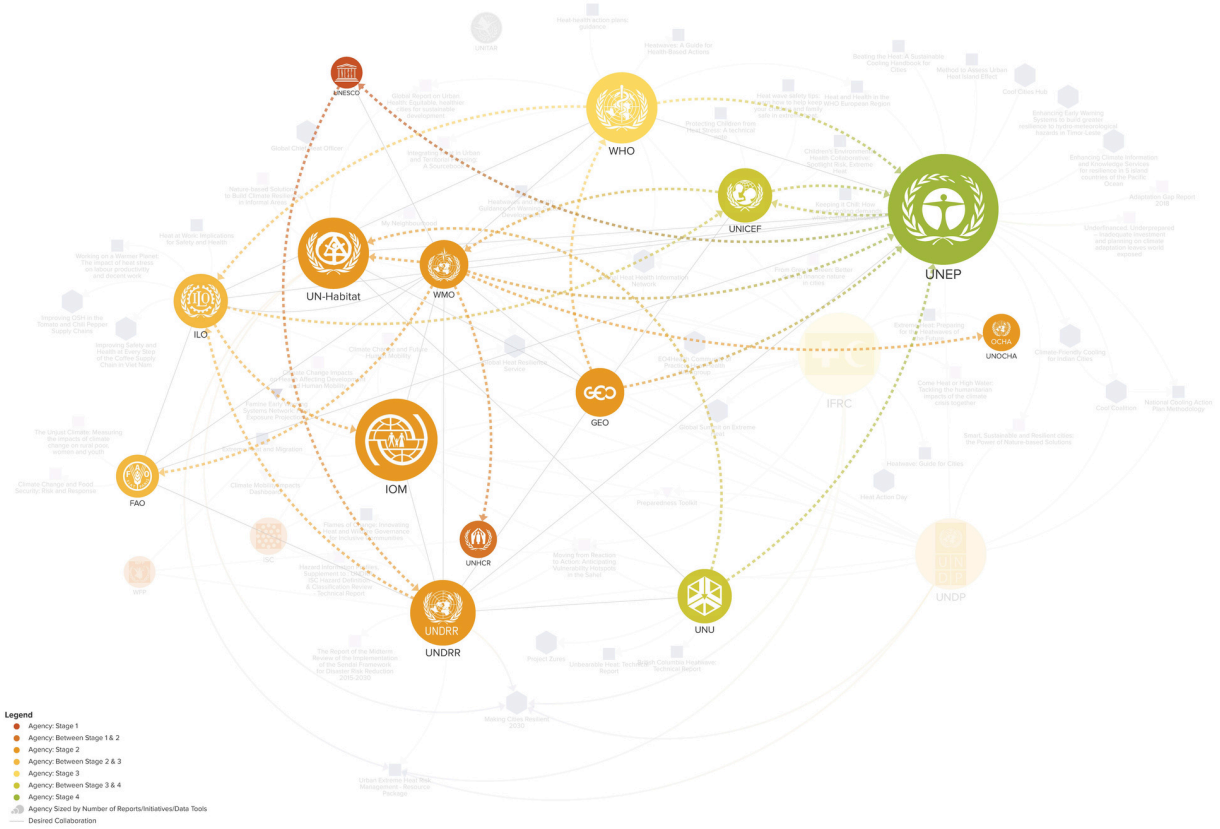
In this view, organizations are sized by the number of initiatives or resources they have produced or been involved in, and coloured by their self-selected stage on the Heat Resilience Curve. Collaborations that have not resulted in a direct output are shown as thin straight lines.



Finally, the UN entities and IOs assessed were asked to identify other organizations with whom they would like to collaborate on extreme heat but have not yet. 14 of the assessed organizations either identified other organizations they would like to work with or were identified as an organization that another organization wanted to work with. This willingness to collaborate indicates both an opportunity and a readiness to build a more cohesive and integrated heat resilience ecosystem. By facilitating these connections, there is potential to significantly enhance the collective capacity to manage and mitigate the impacts of extreme heat.

FIGURE 10: UN ENTITY AND IO EXTREME HEAT ECOSYSTEM MAP

This view highlights desired collaborations between UN Entities and IOs.



PART 3

Summary of Key Takeaways

The ability of the UN entity and IOs assessed to prioritize extreme heat is constrained by the limited requests for support they have received from Member States. While many UN entities and IOs agree that addressing extreme heat fits within their missions and mandates and there is an increasing number of requests for assistance, these requests are not yet sufficient to drive substantial action. Strengthening heat governance and promoting integrated planning at the local and Member State levels are seen as crucial, though few UN entities or IOs have made significant progress in elevating the issue at the local or Member State level.

At the UN entity or IO level, heat resilience efforts are often integrated into larger climate resilience initiatives, with varying degrees of investment; most UN entities and IOs do not treat heat as a primary focus. Limited funding, expertise, and institutional support hamper current efforts, with competing priorities restricting the ability to invest resources and increase capacity for heat resilience. While UN entities and IOs assessed broadly agree that increased guidance is needed, lessons learned from regional and local efforts are rarely captured for knowledge-sharing across organizations. This will become increasingly important as climate change expands heat risk to new regions. Despite substantial work on extreme heat by UN entities and IOs, much of this work is conducted with limited inter-organizational collaboration, leading to missed opportunities for synergy and comprehensive solutions. Encouraging more collaborative initiatives could unify these efforts for greater impact and efficiency.

UN entities and IOs that self-identify in the lower stages of the heat resilience curve have fewer collaborative relationships and could benefit from partnerships with organizations that are further along the curve. There is a widespread desire for increased collaboration among UN entities and IOs, indicating an opportunity to build a more cohesive heat-resilience ecosystem by facilitating these connections. Increasing collaboration in this way would enhance the collective capacity to manage and mitigate the impacts of extreme heat.

PART 4

Steps for Improving Collaboration & Governance on Extreme Heat

Introduction

Extreme heat presents a growing threat to public health, infrastructure, and ecosystems worldwide. Effective governance and collaboration are critical to managing these risks and ensuring a coordinated response across scales and sectors. This approach guides UN Entities and IOs in improving collaboration and governance on heatwave early warning and governance, in parallel with long-term adaptation measures. By fostering a cohesive and comprehensive strategy, this approach seeks to enhance the resilience of communities and systems globally.

Purpose: To support coordinated efforts among UN Entity and IO partners toward improving collaboration and governance on heatwave early warning and early action.

Scope: This approach is intended for UN Entities and IOs across geographies.

Goals and Objectives:

- Enhance collaboration and governance for heatwave management
- Foster early action and resilience building with Member States
- Facilitate knowledge sharing and capacity building among partnering UN Entities and IOs
- This document describes a workflow with 8 tasks (Figure 11).

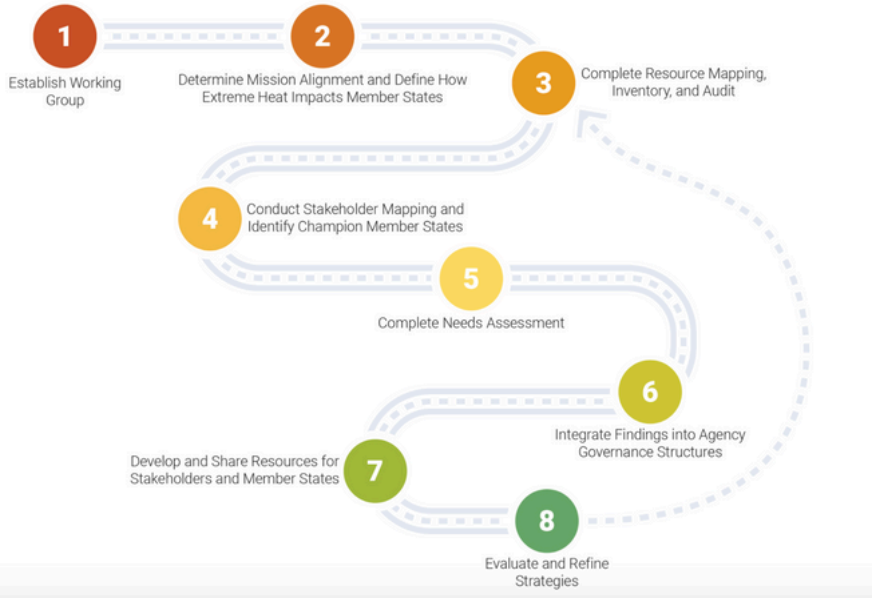


FIGURE 11: WORKFLOW FOR IMPROVING COLLABORATION AND GOVERNANCE ON EXTREME HEAT

Detailed Workflow Description

1. Establish Working Group

Form a task force or working group with representatives from each UN Entity or IO to oversee and coordinate heat management efforts. This task force should meet regularly to define its purpose and objectives, share insights, discuss progress, and address challenges.

2. Determine Mission Alignment and Define How Extreme Heat Impacts Member States

Outline Mission and Objectives: Members of the working group should examine their organization's mission and its alignment with the goals of the Centre of Excellence for Disaster and Climate Resilience partner organizations' objectives on extreme heat. Sample objectives for the working group are as follows:

- **Increase awareness and advocacy:** increase awareness and advocacy among UN Entity and IO partners and Member States and strengthen advocacy efforts
- **Improve governance and integrated planning for heat resilience:** develop governance frameworks and promote integrated planning with and among Member States for extreme heat
- **Improve resource allocation:** outline steps to secure dedicated funding, build technical expertise, and strengthen institutional support
- **Foster collaboration and knowledge sharing:** establish or support existing collaborative networks, facilitate knowledge, data, and information exchange, and develop inter-organizational guidance
- **Build capacity through partnerships:** facilitate partnerships among UN Entities and IOs and promote joint initiatives
- **Detail the impact on Member States:** document how extreme heat impacts Member States, considering factors such as public health, infrastructure, and economic stability, and highlight the importance of a coordinated response and the benefits of inter-organizational collaboration in addressing these impacts

3. Complete Resource Mapping, Inventory, and Audit (Identify Inter-organizational Partners)

For each partnering UN Entity or IO:

Conduct a Resource and Knowledge Assessment: Perform a comprehensive assessment of current resources, including funding, expertise, infrastructure, and data availability. This should involve a review of existing budgets, personnel capabilities, facilities, and access to relevant data and information platforms.

Identify Data, Knowledge, and Resource Gaps: Evaluate the availability and quality of data and resources related to heat risks, exposure, and vulnerability. Highlight gaps such as insufficient funding, a shortage of trained personnel, inadequate infrastructure for cooling centres, and deficiencies in localized climate data, population vulnerability assessments, and heat adaptation research.

Prioritize Areas Needing Additional Resources: Based on the assessment, prioritize areas that require immediate attention and allocate resources accordingly. This prioritization should consider factors such as the severity of heat risks, the vulnerability of affected populations, and the potential impact of proposed interventions.

Prioritize Data and Knowledge Needs: Determine which data and knowledge gaps are most critical to fill for effective heat risk management. Allocate resources to support research, data collection, and information-sharing initiatives that address these priorities.

Synthesize Findings Across UN Entities and IOs: After conducting individual assessments, synthesize the findings across all partner UN Entities and IOs to identify common resource needs, shared data gaps, and opportunities for collaboration. Use the synthesized findings to develop a unified resource strategy that addresses common needs and promotes resource-sharing and collaboration among UN Entities and IOs. This strategy should focus on maximizing the collective capacity to manage heat risks and implement effective interventions.

4. Conduct Stakeholder Mapping and Identify Champion Member States

Identify key stakeholders through a stakeholder mapping process that includes:

- **UN Entities and IOs:** Identify relevant UN Entities and IOs such as UNDRR, WHO, WMO, UNDP, and IFRC, detailing their specific roles and contributions to heat management.
- **National and Local Governments:** List national ministries (e.g. health, environment, urban development, and related agencies, such as National Meteorological Hydrological Services; Disaster Risk Management Agencies, etc.) local government bodies responsible for implementing heat management strategies.
- **Non-Governmental Organizations (NGOs):** Include NGOs focused on public health, disaster risk reduction, climate change adaptation, and community welfare.
- **Academic Institutions and Research Centres:** Highlight institutions conducting research on climate resilience, public health, and environmental management.
- **Private Sector Partners:** Identify businesses and industries that can contribute resources, expertise, or innovations in heat risk assessment and management (e.g. technology companies, infrastructure firms).

Stakeholders should be categorized based on their characteristics and relationship to the UN Entity or IO. For example, external stakeholders will consist of Member States and policy makers who are outside of the partner UN Entities or IOs while internal stakeholders might consist of partner UN Entity or IO representatives and members of project teams that work with Member States.

Once stakeholders have been identified and characterized, analyze each stakeholder's interest and influence by assessing the needs and potential impact of the working group on each stakeholder group. It is important to evaluate each stakeholder's potential influence over the objectives of the working group and prioritize stakeholders based on their level of influence and interest. This helps focus efforts on the most critical stakeholders. For example, those who have both high influence and high interest may be the focus for stakeholder engagement while others who may have low influence and low interest might be informed but less engaged.

Based on stakeholder assessment, develop engagement strategies to reach each stakeholder group. These can range from informing and consulting to fully involving and collaborating. For example, some stakeholders may warrant regular communications to increase and maintain their awareness while others may be involved with planning, consultation, and feedback.

During the process of stakeholder mapping, members of the working group should identify champion Member States. These Member States have shown leadership or significant progress in managing extreme heat. By engaging these champion Member States to share best practices, provide mentorship, and advocate for the broader adoption of effective strategies, the working group expands its impact and better identifies needs, challenges, and opportunities for investment.

5. Complete Needs Assessment

The purpose of a needs assessment is to perform a systematic process to gather information to inform decision-making and guide resource allocation. The needs assessment will initially focus on a subset of member states with the highest vulnerability to extreme heat, similar to the EW4All initiative, before expanding to a global scale as more data and resources become available. There should be agreement among the working group members on the steps, timeline, data collection methods, and tools to be used to complete the needs assessment. Sample objectives of such an assessment are as follows:

- Identify gaps and prioritize areas for intervention based on the severity of risks and the vulnerability of populations.
- Evaluate the specific needs, challenges, and opportunities of different regions and populations affected by extreme heat.
- Utilize regional climate data, vulnerability assessments, and case studies to gain clear insights into the needs, issues, and priorities of each region. This approach ensures that strategies are based on local realities and are more likely to be effective.
- Prioritize needs based on established criteria such as urgency, impact, feasibility, and available resources, and rank these priorities to guide subsequent actions.
- Develop action plans based on the prioritized needs and recommendations, which should include specific interventions, strategies, or programmes to address the identified needs.
- Outline the resources, timelines, and responsibilities of implementing action plans.

Prepare reports from the working group's needs assessment findings and ensure that recommendations from the working group are aligned with the strategic goals and policies of the UN Entity or IO. This helps in gaining buy-in from leadership and staff.

6. Integrate Findings into UN Entity or IO Governance Structures

Use the findings from the needs assessment and resource mapping to inform the governance structures of relevant UN Entities and IOs. Conduct internal briefings at partner organizations and disseminate reports on the working group's findings. Within partner organizations, consider establishing coordination mechanisms from cross-departmental teams or committees to oversee the implementation of the recommendations.

Ensure that recommendations and strategies are incorporated into broader policy frameworks and operational plans. One such method for doing so is to advocate for the establishment of dedicated heat management units or roles within UN Entities and IOs. These units can provide focused attention to heat-related issues and ensure consistent implementation of heat management strategies. Heat Management Units can oversee the integration of working group findings through established organizational processes, such as embedding findings into training and capacity-building initiatives.

7. Develop and Share Resources for Stakeholders and Member States

Develop Educational Materials and Toolkits: Produce educational materials that offer clear and actionable information on heat management practices. These resources should cover topics such as heat risk assessment, early warning systems, public health interventions, and community engagement strategies.

Facilitate Knowledge Exchange: Organize workshops, webinars, and conferences to facilitate knowledge exchange among stakeholders. These events can provide opportunities for sharing research findings, discussing innovative solutions, and learning from successful case studies.

Sharing Resources: Distribute educational materials and toolkits to stakeholders and Member States. Develop communication strategies to inform the public about heat risks and protective measures. These strategies should include multi-channel approaches (e.g. social media, local radio, community outreach) to reach diverse audiences effectively.

Data Platforms: Promote the use and development of existing data platforms that provide climate, exposure, and vulnerability data. Encourage partners to contribute to and utilize these platforms for comprehensive heat risk assessments.

8. Evaluate and Refine Strategies

The working group should develop monitoring frameworks to track the implementation of the recommendations. This might include:

Developing evaluation metrics and indicators: Develop metrics and indicators that are specific, measurable, achievable, relevant, and time-bound (SMART). These metrics should be aligned with the goals and objectives of the heat management plans and provide a basis for assessing progress and impact. Additionally, focusing on key outcomes, such as the reduction in heat-related illnesses and fatalities, increased public awareness and preparedness, and improved inter-organizational coordination, will indicate where necessary adjustments might be needed.

Conduct regular evaluations: Plan for regular evaluations to review the progress and effectiveness of heat management strategies. These evaluations should be conducted annually or after significant heat events to provide timely insights. Use evaluation findings to identify areas for improvement and make necessary adjustments to the heat management plan. This continuous improvement process ensures that strategies remain effective and relevant.

Incorporate feedback and continuous improvement: Gather feedback from Member States, stakeholders, and partners to understand their experiences and needs. Use the feedback to inform continuous improvement efforts and ensure that the heat management plan is meeting the needs of the Member States. Adjust strategies based on the input received to enhance their relevance and effectiveness.

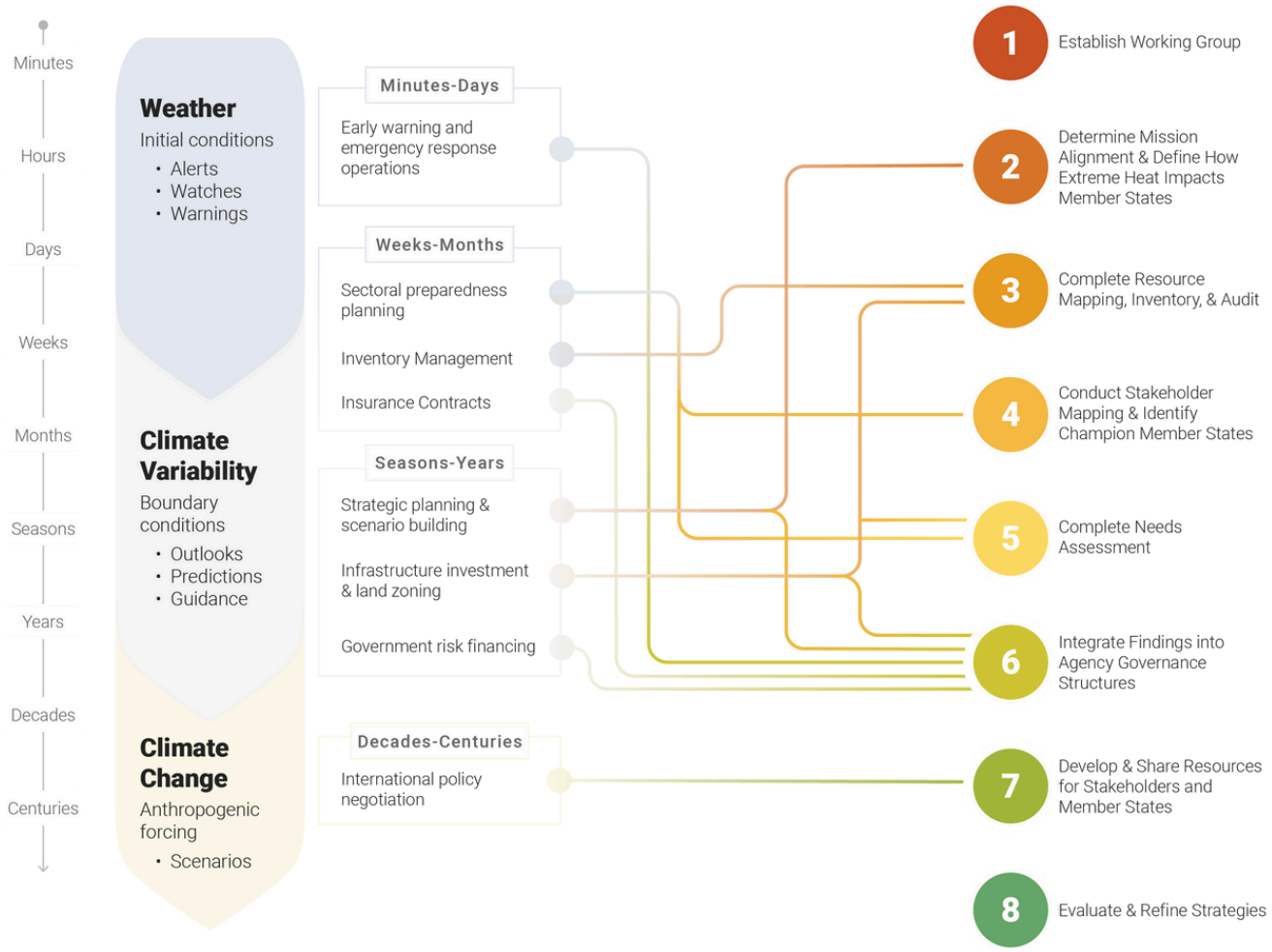
By following these comprehensive steps, UN Entities and IOs can effectively integrate findings from the working group into their governance structures, fostering a more coordinated and resilient approach to managing extreme heat risks. This integration ensures that all relevant stakeholders are engaged, resources are allocated efficiently, and best practices are shared and implemented. The establishment of dedicated units and roles focused on heat management, coupled with continuous monitoring and evaluation, will further enhance the ability of UN Entities and IOs to respond to extreme heat events. Ultimately, this cohesive strategy will not only improve the governance and collaboration on heatwave early warning and early action but also build a resilient framework capable of protecting communities and ecosystems globally. The successful implementation of this framework represents a significant step towards mitigating the adverse impacts of extreme heat, underscoring the critical importance of collective action and sustained commitment from all UN Entity and IO partners.

Integrating the Framework Across Heat Hazard Timescales

As referenced in previous publications, heat risk management and governance should extend beyond acute heat wave events. Probabilistic heat hazard guidance over various time scales (ranging from seasonal and multi-week to multi-day and real-time) has been implemented in some regions. This approach offers partners and the community a more nuanced understanding of heat hazards, allowing for more timely and precise adaptations.

Figure 12 below outlines a roadmap for addressing heat hazards across various timescales, linking weather conditions, climate variability, and climate change to specific actions and strategies. Aligning the Framework for Improving Collaboration and Governance on Extreme Heat with the development of governance strategies at the UN Entity or IO level allows for the integration of UN Entity or IO-level governance with Member State and local action across short and long-term periods. This ensures immediate heat risk is effectively addressed as well as the underlying conditions that contribute to increased risk. This approach emphasizes a comprehensive, multi-tiered approach to managing heat hazards through coordinated actions and strategic planning across a broad chronology.

FIGURE 12: ALIGNMENT OF HEAT HAZARD TIMESCALES AND THE FRAMEWORK FOR IMPROVING COLLABORATION AND GOVERNANCE ON EXTREME HEAT



This report was developed by the Global Heat Health Information Network (GHHIN), United Nations Office for Disaster Risk Reduction (UNDRR) and the World Meteorological Organization (WMO), as a contribution to the United Nations Secretary-General's Call to Action on Extreme Heat (2024).

About the project

GLOBAL HEAT HEALTH INFORMATION NETWORK

WORLD METEOROLOGICAL ORGANIZATION

UNDRR
UN Office for Disaster Risk Reduction

Duke
NICHOLAS INSTITUTE *for* ENERGY, ENVIRONMENT & SUSTAINABILITY

heathealth.info
undrr.org
wmo.int