Early Warnings for All Multi-Stakeholder Forum for Europe and Central Asia
8th November 2024, Budva, Montenegro

1. Introduction

1.1: Background

Europe is the fastest warming continent in the world (EEA 2024). The continent is especially vulnerable to cascading risks, where disasters and shocks in one area lead to overspills and non-linear effects in systems such as food, health and infrastructure (CASCADES 2023). In Central Asia and the Caucasus, the number of fatalities, people affected, and economic losses caused by hydro-meteorological disasters in the region has steadily increased since the 1990s (ESCAP 2020) - a trend set to increase as 'extreme precipitation is expected to increase in major mountainous regions' (GIZ 2024) in the region. According to the World Meteorological Organization (WMO) Atlas of Mortality and Economic Losses from Weather, Climate, and Water Extremes (2021), this trend aligns with global patterns, highlighting an increasing frequency and severity of such events (WMO, 2023). Despite these real and evolving threats, the worst impacts of the climate emergency can still be avoided and multi-hazard, end-to-end early warning systems are a proven way to limit damage and prevent disasters. Acting on even 24 hours' notice of an approaching hazard can reduce the impact by as much as 30% (UNDRR 2023).

The Early Warnings for All (EW4All) initiative was launched by United Nations Secretary-General António Guterres in 2022 and commenced its rollout stage in 2023. Significant progress has since been made globally to advance the goals of EW4All on scaling up universal, end-to-end multi-hazard early warning systems (MHEWS) and enhance resilience to climate-related risks. In coordination with strategic partners through a collaborative multi-stakeholder approach, EW4All is currently being rolled out globally, including Tajikistan in the Europe and Central Asia region. At the same time, work on multi-hazard early warning systems that was already underway before the launch of EW4All continues, including regional initiatives such as Copernicus and Horizon Europe.

In the Europe and Central Asia region, the EW4All initiative builds on a strong strategic basis:

- The European Forum for DRR (EFDRR) Roadmap 2021 - 2030 commits to "invest in accessible multi-hazard early-warning systems" to ensure preparedness for response and resilient recovery.
- The Central Asia Strategy for the Development of Cooperation on DRR 2022 - 2030 outlines the need for "practical measures aimed at the creation and further development of regional systems for early warning and alert, sharing of information on disaster risks, monitoring, forecasting and assessment of emergency risks based on the capacity of existing national crisis management centres and early warning systems".
- The European Union Disaster Resilience Goals include a focus on "alert - enhancing early warning" as one of five areas of action.

- Joint Position Paper of Major Groups and Other Stakeholders for Policymakers Ahead of the Europe and Central Asia Regional Platform for Disaster Risk Reduction 2024 includes a recommendation to “communicate risk information in accessible formats for diverse audiences”, with a specific focus on “times of crisis”.

In this context, the Early Warnings for All Multi-Stakeholder Forum for Europe and Central Asia took place in Budva, Montenegro on 8th November 2024. The forum provided an opportunity to review key accomplishments, share skills, experience and expertise within the active network of early warning practitioners and institutions. The Multi-Stakeholder Forum was organised by the United Nations Office for Disaster Risk Reduction (UNDRR) in collaboration with the Global Network for Civil Society Organisations for Disaster Reduction (GNDR), as part of the Regional Platform for Disaster Risk Reduction in Europe and Central Asia November 6th - 8th. It hosted 25 speakers across four sessions, including representatives from national governments, international system partners, non-governmental organisations and advocacy organisations.

1.2 Objectives

The forum had four key objectives:

- Emphasise the importance of EWS in disaster risk reduction and climate resilience whilst raising awareness among participants about the vital role of EWS in disaster preparedness.
- Present successful EWS implementations and strategies from Member States as models to encourage adoption by others.
- Facilitate partnerships among stakeholders to strengthen MHEWS under the global initiative EW4All.
- Drive increased pledges and financial commitments from donors and governments toward EWS initiatives.

2. Outcomes

2.1 Early Warnings for All Multi-Stakeholder Forum for Europe and Central Asia

2.1.1 Speakers

- Moderator: Diego Zorrilla Orsat, UN Resident Coordinator a.i. For Montenegro
- Kamal Kishore, Special Representative of the Secretary-General for Disaster Risk Reduction
- Kornelia Radics, Director of WMO Regional Office for Europe
- Dušica Brnović, Director of the Institute of Hydrometeorology and Seismology of Montenegro, Montenegro

- Meruyert Kulakhmetova, Chairperson of the Public Association "Society of Persons with Disabilities", Kazakhstan
- Sanjar Zuparov, First Deputy Minister of Emergency Situations, Uzbekistan
- Erling Kvernevik, Specialist Director Unit for Strategic Analysis and Evaluation, Norway
- Rustam Nazarzoda, Chairman of the Committee of Emergency Situations, Tajikistan

2.1.2 Overview

The Multi-Stakeholder Forum provided a space to re-energise the implementation and accelerate action for the EW4All initiative and other efforts to strengthen early warning systems in Europe and Central Asia as a contribution to Sendai Framework Target G. Participants shared knowledge, experience and good practices in implementing effective early warning systems, recognising that comprehensive risk information, robust observation and forecasting, accessible communication, and early, inclusive response are all indispensable elements in the functioning of early warning systems. In particular, the forum was characterised by efforts to advance solutions to enhance people-centred, inclusive, and end-to-end multi-hazard early warning systems, in accordance with the recommendation of the Sendai Framework Midterm Review.

In his introductory remarks, Special Representative of the Secretary-General (SRSG) for Disaster Risk Reduction Kamal Kishore noted that Target G of the Sendai Framework, concerned with access to multi-hazard early warning systems, is a keystone target that enables reductions in loss of life and economic losses. The SRSG recognised the important progress that has been made in the science of prediction and warning in the past decade, before turning to identify necessary improvements in the implementation of early warning systems. These included a focus on ensuring the actionability of warnings, both through innovative, tailored methods of communication for particular audiences and through improved community level preparedness, as well as the ongoing need to strengthen understanding of risk profiles. Framing the subsequent discussion, the SRSG outlined key challenges in the region, including finance, capacity and the need to ensure that technical work remains people-centred throughout.

Following this introduction, participants provided good practices and shared experiences of implementing early warning systems in diverse contexts:

- The work of the Institute of Hydrometeorology and Seismology (IHMS) in Montenegro
- The implementation of EW4All activities in Tajikistan
- The work of the National Emergency Management Center in Uzbekistan
- The implementation of the National Hazard Warning System in Norway
- The work of the Society of Persons with Disabilities in Kazakhstan.

During these interventions, participants noted that that inclusivity is essential to building effective early warning systems, particularly for vulnerable groups such as persons with disabilities. In Kazakhstan, where 700,000 people live with disabilities, the Society of Persons with Disabilities advocates for early warning alerts to be tailored to specific audiences with the

knowledge that “inclusion saves lives”. The Darmen App, for example, uses vibrations to alert visually impaired individuals, enhancing their capacity to respond to emergencies, whilst the Society maintains a database of people living with disability to enable rapid response. Norway's approach mirrors this commitment to inclusivity, as the National Hazard Warning System is designed to be accessible to all, including the blind and deaf. An emphasis was placed upon developing a trusting relationship with end users, premised on the consistent provision of accurate and timely information, and the inclusion of communities in the design and implementation of early warning systems. At the strategic level, as Tajikistan progresses in its implementation of EW4All activities, it has codified a commitment to ‘leave no one behind’ as part of its Roadmap for Action. These efforts underscore the fundamental role of inclusivity in designing and implementing well-functioning early warning systems.

A further key theme to emerge from the discussion was the role that innovative technologies can have in ensuring effective implementation of early warning systems. In Uzbekistan, the National Emergency Management Center is exploring the integration of cutting-edge technologies such as drones and smart sensors, which support continuous monitoring and real-time data for rapid decision-making. This technological approach is key to the aim of ensuring that early warning systems cover the maximum population possible by 2030. Similarly, in Norway, the National Hazard Warning System incorporates a Common Alerting Protocol, enabling widespread notification through emergency alerts sent directly to phones. This approach has significantly bolstered the coverage of alert messages, with 92% of the relevant population alerted in this manner during a July 2023 landslide. Further, the contribution from World Meteorological Organization (WMO) noted that AI and machine learning are pivotal in advancing weather forecasts, outperforming traditional physics-based methods and enabling faster response capabilities. Together, these innovations underscore a shared commitment to embracing innovative technologies to realise the potential of multi-hazard early warning systems.

Finally, participants noted that, despite notable advancements, significant challenges remain in implementing effective early warning systems in the region. From an institutional perspective, a lack of formal linkages between stakeholders and insufficient regulatory frameworks hinders the integration of warning systems with emergency plans in the region. At the level of capacity, Montenegro noted the persistence of resource limitations, particularly a shortage of skilled personnel and financing for crucial observing infrastructure, such as weather radars. Taken together, these limitations can act as a barrier to the urgent necessity to scale up existing efforts and capacities in the region. These contributions underscored the fundamental importance of improving institutional systems and ensuring adequate resourcing to allow the effective implementation of EW4All.

2.2 Sub-session of Early Warnings for All Multi-Stakeholder Forum for Europe and Central Asia: Role of Actors

2.2.1 Speakers

- Moderator: Ms. Rebecca Murphy, Policy Lead, Global Network of Civil Society Organisations for Disaster Reduction (GNDR), Chair of the NGO Major Group for UNDRR Stakeholder Engagement Mechanism
- Mr. Murat Karypov, Executive Director, Bir Duino Kyrgyzstan
- Ms. Lisa Robinson, BBC Media Action
- Ms. Valentina Atanasovska, Advisor at Protection and Rescue Directorate, Government of North Macedonia
- Mr. Gordon Rattray, Programme Coordinator, European Disability Forum
- Ms. Sari Lappi, Coordinator, Regional Office for Europe, World Meteorological Organization

2.2.2 Overview

In keeping with the Sendai Framework for Disaster Risk Reduction 2015 - 2030 call for a shared responsibility between governments and relevant stakeholders, this session explored the varying and sometimes cross-cutting roles of both state and non-state actors within the EWS value chain, and the merits of utilising and including different actors in separate and interrelated parts of these systems, enabling a connection between top-down and bottom-up approaches. It included consideration of gaps in implementation and best practice examples at the national level. Discussions underscored existing gaps in observing and forecasting of specific hazards, multi-stakeholder coordination, and inclusive communication strategies. Notably, significant challenges include limited capacity to use advanced weather forecasting technologies and the need for impact-based forecasting. Participants pointed out that, while many countries possess technical forecasting capabilities, they often fail to integrate exposure and vulnerability data for comprehensive risk analysis. Case study examples were shared focused on the implementation of alert systems in the Netherlands (112NLAlert) and North Macedonia.

An important focus throughout was on the critical role that local actors should play in the design of EWS. This included conversation about the need to turn the “last mile” into the “first” through inclusive and community-driven early warning systems (EWS) that engage all segments of society, particularly vulnerable and marginalised groups. Participants also emphasised the importance of leveraging local knowledge, involving local actors in decision-making, and ensuring systems are contextually relevant. Taken together, participants made the point that the diverse voices of EWS users should play an intrinsic role in the design of such systems, positioned as leaders in design rather than recipients of support.

The sub-session identified a number of key needs in the region. These included the improvement of observing, forecasting, and nowcasting of specific hazards and the urgency of integration of vulnerability data into forecasting, with a push for impact-based forecasting to improve localised EWS, as well as of continuous, data-driven communication campaigns, tailored to diverse community needs. Another need is for universal accessibility in EWS, which can be achieved by removing attitudinal barriers to inclusion and implementing rights-based approaches to ensure inclusivity. In general, it was recognised that both funding and proactive cross-sectoral collaboration to enhance capacity are key to advancing DRR in the region.

Ultimately, this sub-session made the point that, whilst progress in ongoing, achieving EW4All requires bolstered partnerships, stronger communication strategies, and sustainable funding.

2.2.3 Opportunities

- **Capacity building**: Develop training modules for local governments and emergency services focusing on impact-based forecasting and community engagement. Further, strengthen the observing infrastructure and forecasting systems of National Meteorological and Hydrological Services in South-East Europe, South-Caucasus, and Central Asia to provide accurate and timely forecasts for meteorological and hydrological hazards.
- **Last mile to first mile**: Shift the focus to prioritise the most vulnerable groups in all phases of system design and implementation to ensure equity and effectiveness.
- **Cross-border and stakeholder collaboration**: Promote cross-border collaboration to share equipment and expertise between neighbouring municipalities, as well as encouraging partnerships that span local, national, and international levels to unify efforts and spread best practices.
- **Funding and leadership**: Secure funding and political commitment to sustain DRR initiatives, ensuring that inclusivity is prioritised and institutionalised.
- **Monitor progress**: Monitor and evaluate the progress of EWS adaptations to identify gaps and promote scalable solutions.

2.3 Sub-session of Early Warnings for All Multi-Stakeholder Forum for Europe and Central Asia: Anticipatory Action

2.3.1 Speakers

- *Moderator*: Mr. Andreas von Weissenberg, Regional Head of Health, Disaster, Crisis and Climate, IFRC Europe
- Mr. Ivane Grigolashvili, Chairman, DRR Centre/Association Rural Development for Future
- Ms. Zeynep Sanduvac, Programme Coordinator, Nirengi Dernegi
- Mr. Ara Nazinyan, Armenia Country Lead, USAID
- Mr. Kim Melville, Head of Humanitarian Affairs, DHL Group
- Ms. Mina Popović, Protection, Gender and Inclusion (PGI) and Community Engagement and Accountability (CEA) Focal Point, Red Cross of Montenegro

2.3.2 Overview

The sub-session underlined the importance of systematically linking early warning to anticipatory action, and included consideration of the role of different actors in this connection. Anticipatory action was recognised as a faster, more effective and dignified way of providing support, as well as an effective means of saving lives and livelihoods, and reducing human suffering. Participants consistently emphasised the importance of ensuring that end-users are involved in developing the methodology of an EWS and the design of the message to ensure

that warnings can translate into concrete anticipatory action. This includes private sector actors, who have a clear economic interest in minimising economic loss linked to natural hazards. Another key theme was the inclusion of disaggregated vulnerability data into forecasting models, a process that can be a challenge in rural areas where access to high-quality population data is limited. Where inclusion is realised and high-quality data is used, anticipatory action is a no-regrets approach: it can reduce the burden of emergency response and make it more effective, even if the crisis does not turn into an extreme event.

In addition to the focus on the involvement of end-users and high-quality data in the design of anticipatory action systems, participants considered the types of collaborative action which could best link early warning and anticipatory action. A key institutional consideration was the importance of cross-border coordination mechanisms to deal with transboundary risks. This point was exemplified by cooperation in the field of early warning between Armenia and Georgia, and ongoing work between Central Asian countries centred on earthquake early warning systems. A further focus to improve capacity for collaboration was the pursuit of legal reforms to create the necessary basis for understanding and implementing anticipatory actions, including through developing common terminology to enhance synergies between stakeholders. Throughout, participants noted that coordination between stakeholders is a key goal of effective anticipatory action, ensuring that institutions complement rather than duplicate each other's efforts.

2.3.3 Opportunities

- **Place anticipatory action at the heart of early warning:** Recognising that early warning can never be successful in the absence of anticipatory action, work to ensure that anticipatory action methodologies are present in all EWS project design.
- **Include end-users in design:** Prioritise the engagement of communities that will use the system in order to ensure effectiveness of anticipatory action and meet the needs of marginalised populations.
- **Develop common terminology:** Maximise possibilities for the development of synergies between complementary institutions by defining key terms as a basis for collaboration.
- **Facilitate engagement with the private sector:** Given strong interest of private sector in minimising impacts of disasters, as well as financing limitations at governmental level, engagement with private sector organisations should be a priority.
- **Catalyse cross-border implementation:** Capitalise on the example of early warning systems that cross national boundaries in the region, develop and implement anticipatory action systems that integrate stakeholders from multiple countries.

2.4 Sub-session of Early Warnings for All Multi-Stakeholder Forum for Europe and Central Asia: Economic and Cascading Impacts of Disasters

2.4.1 Speakers

1. *Moderator*: Ms Ioana Creitaru, Programme Specialist, Early Warning & Preparedness, Disaster Risk Reduction & Recovery for Building Resilience Team, UNDP Crisis Bureau
2. Mr Tim Jenkins, Climate and Clean Air Advocate, People in Need
3. Mr Sergio Perez, Program Officer at Climate, DRR and Environment Section, Swiss Agency for Development and Cooperation, Federal Department of Foreign Affairs, Switzerland
4. Mr Serik Aubakirov, Director, Center for Emergency Situations and Disaster Risk Reduction, Government of Kazakhstan
5. Ms Nino Antadze, Environment and Energy Team Leader, UNDP, Georgia

2.4.2 Overview

The sub-session brought together stakeholders from across the region to focus on lessons learned, good practices, challenges and opportunities to improve understanding of the economic return of investing in early warning systems. The escalating impact of climate-related hazards, from floods and wildfires to earthquakes, highlights the urgent need for comprehensive early warning systems that can mitigate economic, social, and environmental costs: the Global Commission on Adaptation notes that investing just US$800 million in such systems in developing countries could prevent losses of $3 to $16 billion annually (WMO, 2023)[1]. This sub-session emphasised the economic impacts of disasters in Europe and Central Asia, including the billions in direct damages in Switzerland's 2005 flooding and the possible cascading impacts of the depletion of crucial and strategically important resources such as timber in Bosnia and Herzegovina. It was recognised that early warning systems provide an urgent opportunity to limit the economic damages caused by disasters, including through impacts on critical infrastructure.

The sub-session progressed to outline solutions to limit the economic impact of disasters through EWS. Participants noted a variety of innovative solutions in the implementation of EWS, ranging from practical, scalable tools like mountain-top cameras in national parks in Bosnia and Herzegovina, to mobile alert apps in Switzerland and Kazakhstan that quickly notify communities of impending threats. Importantly, it was recognised that these technological advancements should combine hardware such as drones and ground sensors with community-centric platforms that allow for rapid, tailored information on impending hazards. In addition to this focus on “hardware”, the discussion included a focus on EWS “software”: governance arrangements. Participants recognised that tailoring EWS to local contexts and community needs remains essential for effectiveness, with the awareness that effective EWS are inclusive, accessible and actionable (UNDRR 2023).

In Georgia, UNDP-led initiatives prioritise stakeholder engagement and the integration of community input to ensure that warnings are accessible and actionable at the local level, with low-tech options such as church bells a key option. Transboundary governance further enhances the utility of EWS by fostering unified monitoring across borders, as demonstrated

[1] WMO 2023, Early Warnings For All Executive Action Plan

in Central Asia through shared sensor networks among Kazakhstan, Kyrgyzstan, and Tajikistan. By combining innovative technological approaches with integrated governance systems, EWS can limit the economic and cascading impacts of disaster.

2.4.3 Opportunities

- **Cross-border collaboration**: Strengthen cross-border collaboration to establish shared monitoring systems and protocols, especially in multi-hazard zones.
- **Inclusivity in EWS design**: Enhance community-based approaches to EWS, ensuring inclusivity and tailoring warning mechanisms to local preferences and needs.
- **Implementation of technologies solutions for EWS**: Expand access to EWS technologies, such as mobile alerts and low-cost, scalable sensor systems, particularly for remote and vulnerable communities.
- **Capacity building:** Promote capacity-building initiatives that equip local governments, civil society, and communities with the skills to operate, interpret, and respond to EWS data.
- **Make the economic case**: Continue to improve the understanding of the economic return for investing in the implementation of EWS.

3. Next Steps

Several outcomes of the Early Warnings for All Multi-Stakeholder Forum in Europe and Central Asia lay a foundation for further discussion at the Global EW4All Multi-Stakeholder Forum:

- The need to re-energise and accelerate implementation to leverage progress made in the science of prediction, including through the use of high-quality data sets to improve forecasting and nowcasting techniques.
- The fundamental importance of designing solutions which are co-designed with at-risk communities, taking account of community level perspectives and the needs of people with disabilities.
- Widespread interest in innovative technological approaches such as drones, mobile apps and artificial intelligence is growing in the region, with the recognition that a focus on technology for EWS must be paired with a consistent emphasis on the strong functioning of inclusive EWS institutions.
- Recognition of opportunities to scale up partnerships at the regional and transboundary level and to enhance synergies within national governments.
- The central role of an all-of-society approach to implementing EWS, ensuring the coordination and contribution of diverse groups of stakeholders including government, private sector, academic entities, communities and advocacy groups, NGOs and the international system.

Next steps at the regional level are indicated by the *Political Declaration* of the 2024 Regional Platform, which emerged from the Ministerial Roundtable. This declaration recognised that “investments in EWS must be made more efficient, and expanded where needed, ensuring

that they are inclusive, interoperable across regions, and integrated with community preparedness and response plans". Regional stakeholders brought this emphasis forward to the COP29 in Baku, Azerbaijan, in a manner that meets the challenge of bridging the gap between DRR and climate communities. In addition, forthcoming work focused on EWS in the region will take account of other outcome documents of the 2024 Regional Platform: the *Call to Action from the Government of Montenegro*: *Earthquake Preparedness and Recovery* and the *Call to Action on Children and Youth*. Ultimately, there is an opportunity for the Europe and Central Asia region to leverage and expand capacity for implementation of people-centred multi-hazard early warning systems, capitalising on existing technological and institutional strengths.

4. Acknowledgements

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