Framework Convention on Climate Change

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Technology Executive Committee

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Supporting the Early Warnings for All Initiative through innovation and transformational technologies: Knowledge product on innovation for risk knowledge

Background note

I. Introduction

A. Background

1. As per activity A.3.1 of the TEC rolling workplan for 2023–2027,[1] the TEC plans to engage in work on emerging and transformational adaptation technologies by identifying and analysing emerging and transformational technologies for adaptation (e.g., early warning systems and disaster risk management), including the role of finance and the private sector in supporting their deployment. The TEC is to engage with potential partners in 2023 to identify areas for collaboration on the topic of emerging and transformational adaptation technologies that contribute to reducing vulnerabilities and strengthening resilience. A related knowledge product is expected to be published in 2024.

2. At TEC 26,[2] the TEC considered several presentations containing potential focus areas for future work of the TEC on emerging and transformational adaptation technologies, including outcomes of a deep-dive session on early warning systems at the 2023 GSTIC conference, organized by the TEC in collaboration with the UNFCCC children and youth constituency. The TEC agreed to continue its work on emerging and transformational adaptation technologies with a focus on early warning systems, taking into account insights from the work of relevant actors under and outside of the UNFCCC on multi-hazard early warning systems (MHEWS), i.e. the Early Warnings for All Initiative[3] (#EW4All) launched by the UN Secretary General at COP27, and potential linkages with other activities of the TEC including the work on water-food-energy systems, digitalization, and oceans. A TEC activity group has been tasked with pursuing this work.

3. Subsequently, the TEC, through the UNFCCC secretariat, has joined the #EW4All as an implementing partner to pursue synergies and collaboration in the implementation of this activity of its workplan, while contributing to the overall work of the #EW4All and its partners, as appropriate. In particular, the TEC has embarked on a collaborative partnership with the Group on Earth Observation (GEO) for the development of the abovementioned knowledge product, with a focus on innovation for risk knowledge. GEO is a supporting implementing partner of the #EW4All Pillar 1 on Disaster Risk Knowledge and Management and Pillar 2 on Detection, Observation Monitoring, Analysis and Forecasting. Under Pillar 1, GEO co-leads activities on innovation for risk knowledge.

4. Other envisaged activities under #EW4All related to innovation for risk knowledge throughout 2023–2024, to which the TEC may contribute as appropriate, are: a) a global workshop on how to bring risk knowledge innovation to resource-constrained contexts; b) partnerships with private sector, academia and other technology actors to introduce and apply innovative technologies for risk knowledge (e.g. GIS, remote-sensing, drone data collection, etc.), and c) country-based

[1] Available at: https://unfccc.int/ttclear/tec/workplan.
[2] Meeting documents and report available at: https://unfccc.int/ttclear/tec/meetings.html.
[3] More information available at: https://public.wmo.int/en/earlywarningsforall.

activities e.g. capacity building on GIS, remote sensing and cloud server set-up, including innovation at community-level.

B. Scope of the note

5. On the basis of exchanges with relevant partners and inputs receive from members of the activity group, this note aims to provide information for considerations by the TEC regarding the development of the abovementioned knowledge product on innovation for risk knowledge, taking into account synergies and complementarities with the work of the #EW4All and relevant work of the TEC.

C. Possible action by the Technology Executive Committee

6. The TEC will be invited to consider the scoping note and provide guidance on further work on this matter to the activity group, in particular with regard to concept and design of the knowledge product and appropriate next steps for its development, outlined in section II and III below, respectively.

7. While discussing the issue, the TEC may wish to consider additional information provided in section IV below, and the following guiding questions:

(a) Do you have any suggestions for refining the suggested concept and design of this knowledge product (i.e., related to the focus, suggested sources of information, and/or the target audience)?

(b) Considering the audience and potential users of this knowledge products, what type of knowledge product would be the most fit-for-purpose in your opinion, e.g., technical paper, handbook, technical guide, compilation of good practices, etc.?

(c) Do you agree with the proposed next steps? Are there specific resources, examples and/or partners you would suggest being considered in the development of this work?

(d) Are there other considerations that may enrich the work of the TEC in the development of the knowledge product and engagement with #EW4All?

II. Concept and design of the knowledge product on innovation for risk knowledge

A. Focus and key elements

8. The knowledge product will provide examples of existing and emerging technologies, tools and innovation that could help improve ‘risk knowledge and information’ to support the implementation and scale up of multi-hazard early warning systems in response to context-specific needs and priorities of most vulnerable communities especially in the SIDS and LDCs. In particular, this knowledge product aims to explore and highlight technologies, tools and innovation (including indigenous knowledge and endogenous technologies), that, through improved risk knowledge and information:

(a) Assist countries to enhance their readiness and access to finance for EWS and climate resilience, e.g., from the Green Climate Fund (GCF), the Adaptation Fund, the Climate Risk Early Warning Systems (CREWS) Initiative, and the Systematic Observations Financing Facility (SOFF) and other financing windows for early warning and early action;

(b) Support system-based MHEWS framework, impact-based decision making and risk-informed adaptation planning and action at the national- and local-level, and implementation of early warning and early action;

(c) Address barriers to the implementation of MHEWS including those related to finance, technology, private sector engagement and capacity-building.

9. The main elements of this knowledge product will include:

(a) A summary of key gaps and challenges in ‘risk knowledge and information’ that hinders the access to support for overall MHEWS framework, including specific regional perspectives and circumstances;

(b) Identification of prioritized technologies with transformational impacts for improving ‘risk knowledge and information’ and examples of their application in different contexts;

(c) Key findings and recommendations for various actors across including private sector the early warning value chain.

B. Sources of information and means of gathering data

10. The development of this knowledge product will be informed by insights from relevant sources and stakeholders throughout various stages, i.e., the assessment of existing gaps and needed improvements in ‘risk knowledge and information’; identification of prioritized technologies and innovative solutions for improving ‘risk knowledge and information’; curation of case studies and good practices; as well as feedback seeking and verification of findings.

11. Relevant sources that may be used in the desk review include reports, information notes, project documents and other relevant products from analysis of ‘risk knowledge gaps’ in developing countries produced by international organizations, national entities, providers of capacity-building and technical assistance, funding entities, implementation agencies, research and academic institutions and other relevant actors across the EWS value chain. This may include reports of #EW4All activities at the national, regional and global levels, reports of the CTCN’s technical assistance, as well as countries’ submissions to the UNFCCC containing relevant information (e.g. adaptation communications and NAPs), and data gathered by Sendai Framework Reporting and WMO country survey and other relevant organizations assessments.

12. Relevant stakeholders that may be consulted and informed about this work through bilateral exchanges, focus group discussions, multi-stakeholder dialogues, and participation in relevant meetings and events include representatives of: funding entities, national teams in charge of developing project proposals, providers of capacity-building support and technical assistance in developing countries, implementing agencies and accredited entities of climate funds, the UNFCCC constituencies (e.g. RINGO and WGC) and constituted bodies (e.g. WIM Excom), the GEO and its network of communities and experts, and #EW4All partners.

C. Target audience and potential users

13. The findings emerging from this work will provide valuable insights on harnessing climate technology and innovation in developing evidence-based and scientifically-sound projects and programmes. The knowledge product and relevant key messages and recommendations from this work by the TEC could inform a range of actors across the early warning value chain in their actions, including:

(a) Country teams that are in charge of developing proposals and implementing projects with a focus on MHEWS and climate resilience, including research institutions and the private sector;

(b) Providers of technical assistance and capacity-building to strengthen MHEWS;

(c) UNFCCC Parties, bodies and processes that are involved in issues related to means of implementation for climate adaptation, resilience and loss and damage;

(d) Funding entities and their implementing partners that could incorporate findings from this work as part of their programming guidance, and tools for project design and assessment;

(e) Partners and stakeholders of the EW4All Initiative across all pillars.

III. Next steps

A. Tentative timeline and actions

14. In the process of developing the knowledge product, the TEC, the GEO and partners may utilize relevant venues and means to engage with stakeholders and partners and inform the ongoing work. A tentative timeline of suggested actions is provided below, for consideration by the TEC and subject to the availability of resources.

Timeline	Expected deliverables	Proposed means/actions
October – November 2023	Defining the scope of the knowledge product and development of a draft outline.	- Desk research. - Virtual information session(s) with stakeholders. - Bilateral exchanges with relevant partners and experts.
November – December 2023	- Gathering and analysing information to identify key gaps and priorities and verifying the findings.	- Soliciting feedback and inputs from stakeholders, partners and experts, including through communities of practice and expert working groups convened by GEO and other #EW4All partners. - Engagement with relevant stakeholders and partners at the margins of flagship events i.e., the UNFCCC RCWs, COP 28, and meetings of constituencies and constituted bodies.
December 2023 – February 2024	- Identifying and supplying cases/good practices.	- Finalizing the outline of the document and identifying case studies for inclusion in the knowledge product. - Engagement with relevant experts and partners at the margins of flagship events, i.e., the UNFCCC COP28 in Dubai and GEO week 2023.[4]
February 2024 – TEC 28	- Development of a first draft of the knowledge product for consideration at TEC 28.	- Seeking expert feedback and review on the draft including through communities of practice and expert working groups convened by the GEO and other #EW4All partners.
After TEC 28	- Further develop the draft knowledge product, disseminate its findings, and produce key messages and recommendations.	As per guidance provided at TEC 28, engagement with relevant partners, and inter-sessional work of the activity group, with a view to finalize and release the knowledge product in 2024.

B. Communications and outreach

15. With regard to promotion and disseminate of findings from this work throughout its development, the TEC and partners may utilize appropriate outlets including knowledge and policy products, events and meetings, as well as promotional and outreach materials, disseminated through the UNFCCC communication outlets and/or those owned by the GEO and other #EW4All partners, with a view to raise visibility of the work, further the discussions, and engage with relevant stakeholders.

16. The secretariat will continue to facilitate engagement and information sharing with interested stakeholders and relevant partners, including through the TT:CLEAR, UN Climate Change LinkedIn Group, and curated contact lists.

[4] More information available at: https://www.earthobservations.org/geoweek2023.php.

IV. Additional information

17. The framing of this knowledge product is aligned with the executive action plan of the early waning for all initiative,[5] as well as the broader climate and development policy context for early warning systems. For example:

(a) The Paris Agreement,[6] under Article 7, recognizes the importance of strengthening cooperation on enhancing action on adaptation including with regard to strengthening scientific knowledge on climate, including research, systematic observation of the climate system and early warning systems, in a manner that informs climate services and supports decision-making. Moreover, Article 8 of the Paris Agreement highlights early warning systems as one of the areas where Parties may enhance understanding, action and support on a cooperative and facilitative basis with respect to loss and damage associated with the adverse effects of climate change.

(b) The Sharm-el-Sheikh Implementation Plan[7] recognizes the need to enhance coordination of activities by the systematic observation community and the ability to provide useful and actionable climate information for mitigation, adaptation and early warning systems, as well as information to enable understanding of adaptation limits and of attribution of extreme events. The same decision invites development partners, international financial institutions and the operating entities of the Financial Mechanism to provide support for implementation of the Early Warnings for All initiative.

(c) The Sendai Framework for Disaster Risk Reduction 2015–2030[8] (i.e. under Article 33) recognizes the importance of MHEWS in supporting disaster risk reduction efforts. In particular, it includes commitments to investing in and strengthening people-centred MHEWS, disaster risk communication mechanisms and hazard-monitoring telecommunications systems – emphasising a participatory and gender-inclusive approach. Specifically, Target G of the Sendai Framework aims to "substantially increase the availability of and access to multi-hazard early-warning systems and disaster risk information and assessments to the people by 2030".

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[5] Available at: https://www.preventionweb.net/publication/early-warnings-all-executive-action-plan-2023-2027

[6] Available at: https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf

[7] Decision 1/CP.27.

[8] Available at: https://www.preventionweb.net/publication/sendai-framework-disaster-risk-reduction-2015-2030.