

Agenda item 4 (a) iv – Digital Technologies

Revised draft technical paper on AI for climate action

TEC/2025/30/6Rev

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United Nations Climate Change
Technology Executive Committee

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Context

- **Activity A.4.1 of the TEC rolling workplan 2023-2027:** The TEC is to explore the role of artificial intelligence and applied machine learning as enabler of climate solutions.
- **TEC 28 (Apr 2024):** Draft concept note for the technical paper on AI for climate action
- **Apr-Jun 2024:** Finalization of concept note and preparation of zero draft
- **Jun-Aug 2024:** Call for case studies, peer-review of zero draft by expert group, preparation of draft technical paper
- **TEC 29 (Sep 2024):** Draft technical paper considered and guidance given to the activity group to revise the draft for further consideration at TEC 30
- **Oct 2024-Mar 2025:** Revised draft technical paper prepared



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Major revisions to draft technical paper presented at TEC 29

- Using the content of the TEC information note on AI for climate action to guide the introductory chapter to the technical paper
- Making the technical paper more concise and balanced in terms of the opportunities, risks and challenges of using AI for climate action
- Aligning the language of the paper with other TEC technical papers, removing any promotional language on AI
- Adding case studies to improve balance between adaptation and mitigation cases sourced from the AI Innovation Grand Challenge and a CTCN knowledge product on AI for climate action
- Retaining focus on the intersection between AI and climate action throughout the paper
- Simplifying language and shortening the paper for improved readability
- Revising conclusion and policy recommendations



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Methodology

Literature Review

Analysis of recent literature on the use of AI for climate action, with a focus on developing countries

Peer-review

Insights from experts, researchers, and practitioners on AI-driven climate solutions

Data-Driven Approach

Use of empirical data and case studies to assess AI's role for climate change mitigation and adaptation



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Key Findings: AI for Reducing Emissions

- Land Use & Land Use Change
- Transportation
- Energy
- GHG Emissions Monitoring



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Key Findings: AI for Climate Resilience

- Early Warning Systems
- Urban Resilience & Infrastructure Planning
- Ecosystem Resource Management
- Localized Climate Services for Smallholder Farmers



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Risks and Challenges

- Energy and water consumption
- Data security
- Digital divide and equitable access
- Biases
- Acceleration of fossil fuel extraction and exploitation
- Spreading climate misinformation
- Promoting consumerism



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Policy Options

- Deploy AI tools for climate change mitigation and adaptation strategies
- Develop inclusive and sustainable AI policies
- Integrate indigenous knowledge and gender-responsive approaches
- Promote socially inclusive AI development
- Foster international cooperation, capacity-building, and knowledge sharing
- Establish robust monitoring and evaluation frameworks
- Invest in and foster AI research, development, and innovation



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Conclusion and Recommendations

- AI offers significant potential to support mitigation and adaptation action
- Realizing this potential requires addressing risks and challenges
- Efforts are needed to improve data availability and digital infrastructure
- Investment in capacity-building on the use of AI is critical
- Equitable, inclusive, and transparent governance frameworks are essential
- Strengthened international cooperation is needed



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Next Steps: Finalization of the technical paper

- **TEC 30:** Agree on the finalization of the revised draft technical paper and request the TEC activity group to reflect further changes and circulate the final paper for review by the TEC on no-objection basis
- Possibly launch the technical paper at the UNFCCC Climate Week in May 2025 or at the ITU AI for Good Global Summit in July 2025



Thank you.



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