

Scoping note for the 2021 technical paper on the application of technologies for adaptation¹

1. Background

1. The Adaptation Committee in its flexible workplan for 2019-2021 agreed to prepare in 2021 a technical paper on the application of technologies for an adaptation priority topic to be determined. It further agreed to determine the topic and prepare a scoping note in the second half of 2020.
2. In order to determine a priority topic and ensure complementarity and added value, previous work undertaken by the AC, the Technology Executive Committee (TEC), the Climate Technology Centre and Network (CTCN) and work undertaken in the context of technology needs assessments (TNAs) by developing countries has been considered.

2. Overview of previous work and Technologies for adaptation

2.1. Summary of needs, including breakdown by sector and technology¹

3. Adaptation technologies have been grouped into 3 broad categories²:
 - a) **Hardware**, referring to tangible, 'concrete' measures, such as infrastructure like a dam;
 - b) **Software**, referring to the 'soft skills' required to make behavioural and socio-cultural changes, for example, training around different planting techniques; and
 - c) **Orgware**, referring to the institutional set-up and coordination mechanisms (and change) that are required to support the implementation of hardware and, software.
4. In their TNAs, developing countries have prioritized technologies in agriculture, water and coastal zones sectors/areas, including
 - a) **Agriculture sector**³
 - Sprinkler Irrigation & Drip irrigation;
 - Crop diversification and new varieties;
 - Drought resistant crop varieties;
 - Conservation agriculture/land-use planning;
 - General agroforestry, silviculture and mixed farming solutions;
 - Rainwater harvesting;
 - Storage techniques for grains and seeds;
 - Integrated soil nutrient management
 - b) **Water sector**⁴
 - Water harvesting;
 - Sub-surface storage and use;

¹ https://unfccc.int/sites/default/files/resource/sbi2020_inf.01.pdf

² https://www.researchgate.net/publication/279845414_Technologies_for_Adaptation_Perspectives_and_Practical_Experiences

³ https://www.ctc-n.org/technology-sectors/agriculture-and-forestry?f%5B0%5D=taxonomy_term_page_content_type_facets%3Atechnologies&page=0

⁴ <https://www.ctc-n.org/resources/climate-change-adaptation-technologies-water-practitioner-s-guide-adaptation-technologies>

- Small reservoirs, small dams, etc.;
- Integrated river basin management;
- Desalinization;
- Water supply systems;
- Watershed management;

5. For **coastal zones**⁵ countries identified technologies for three basic adaptation strategies: protect, retreat or accommodate, including

a) **Protect:**

- Hard structures – dykes, sea-walls, tidal barriers, detached breakwaters;
- Soft structures – dune or wetland restoration or creation, beach nourishment;
- Indigenous options – walls of wood, stone or coconut leaf, afforestation;

b) **Retreat:**

- Establishing set-back zones;
- Relocating threatened buildings;
- Phasing out development in exposed areas;
- Creating upland buffers;
- Rolling easements;

c) **Accommodate:**

- Early warning and evacuation systems
- Hazard insurance
- New agricultural practices, such as using salt-resistant crops
- New building codes
- Improved drainage
- Desalination systems.

2.2. Summary of current support⁶

6. With regard to **technical assistance** being provided, 100 countries representing 206 technology transfer requests are being supported by CTCN, including in the following areas:

- a) Decision-making tools and/or information provision;
- b) Feasibility of technology options;
- c) Financing facilitation;
- d) Piloting and deployment of technologies in local conditions;
- e) Private sector engagement and market creation;
- f) Recommendations for law, policy and regulations;
- g) Research and development of technologies;
- h) Sectoral roadmaps and strategies;
- i) Technology identification and prioritization.

⁵ https://unfccc.int/resource/docs/publications/tech_for_adaptation_06.pdf

⁶ https://www.ctc-n.org/sites/www.ctc-n.org/files/2020%20Annual%20NIE%20Seminar_Chon.pdf

7. In terms of **knowledge sharing** on adaptation (Climate technology knowledge portal), the following are available:

- a) Publications – more than 17,000 on the CTCN website⁷;
- b) Case studies;
- c) Tools; and
- d) Webinars.

8. Regarding **collaboration and networking**, there are currently 592 organizations working with the CTCN as Network Members (as of 28 Aug. 2020), representing the following areas:

- a) Private sector organizations (48.6%);
- b) Research and academic institutions (21.3%);
- c) Nongovernmental organizations (11.2%);
- d) Not for profit organizations (7.2%);
- e) Public sector organizations (6.9%);
- f) Intergovernmental organizations (2.0%);
- g) Partnerships (1.2%);
- h) Financial institutions (0.7%);
- i) Initiatives (0.5%); and
- j) Regional organizations (0.2%).

2.3. Summary of remaining gaps⁸

9. The following remaining gaps and barriers were identified in the synthesis of the TNAs:

- a) Economic and financial barriers: -lack of or inadequate access to financial resources as the main barrier;
- b) Policy, legal and regulatory - insufficient legal and regulatory framework;
- c) Institutional and organizational capacity - limited institutional capacity;
- d) Human skills - lack of skilled personnel for the installation and operation of climate technologies;
- e) Information and awareness - Lack of awareness about issues related to climate change and technological solutions;
- f) Technical- Technical system constraints, maladaptation and environmental dumping⁹;
- g) Social, cultural and behavioural- Traditions and habits;
- h) Market failure/imperfections; and
- i) Network failures - Weak connectivity between actors favouring the new technology.

⁷ www.ctc-n.org

⁸ https://unfccc.int/sites/default/files/resource/sbi2020_inf.01.pdf

⁹ https://www.feem.it/m/publications_pages/ndi2019-014.pdf

2.4. Summary of innovative approaches to accelerating and scaling up climate technology implementation¹⁰

10. The TEC in its work has identified the following innovative approaches:
- a) **Combined and iterative use of models and improved participatory processes:**
 - i) Knowledge and capacity to use qualitative analytical tools for participatory processes in order to solicit insights and practitioner knowledge from country stakeholders in countries with limited modelling capacity;
 - ii) High-quality databases for mathematical models for scenario development;
 - iii) Participatory assessments to complement quantitative analyses in order to evaluate social acceptance of the scaling up of technologies.
 - b) **Enhanced social engagement in technology planning and implementation**
 - i) Easy stakeholder access to technology solutions and allowing stakeholders to choose from available options in order to retire the conventional sentiment that climate technologies are imposed on stakeholders;
 - ii) The careful planning of stakeholder engagement, which is an opportunity for stakeholders to co-design technology projects and is likely to enhance social acceptance of technology projects and programmes;
 - c) **Enhanced access to funding**
 - i) Government-led collaborations with international funding agencies and funds (such as the GCF), multilateral banks and development banks;
 - ii) Technical and resource assistance from the GCF and multilateral development organizations to improve access to climate finance and leverage private finance;
 - iii) The creation of benchmarks for innovative financial products such as climate bonds, so that funding is truly allocated to climate investments rather than being used for greenwashing;
 - iv) Effective collaborations between financial institutes and governments to blend capital and reduce risks;
 - v) For adaptation, government policies that help strike a balance between problems of finance mismatch (for investors) and returns be accrued by society as a whole and not just the investors;
 - d) **Private sector engagement and incubators**
 - i) The alignment of partners' interests when establishing multi-stakeholder partnerships for deploying climate technologies;
 - ii) Alliances with global incubation programmes (e.g. those managed by United Nations agencies or multilateral organizations) to foster the development of start-ups;
 - iii) Strategic interventions by regional bodies (e.g. New Partnership for Africa's Development and Common Market for Eastern and Southern Africa);
 - iv) The incorporation of corporate social responsibility in business models so that private sector investment in climate projects becomes more attractive;
 - v) Clear motivations of public and private parties in a collaboration so that these motivations do not hamper the achievement of the overarching (climate) goal;

¹⁰https://unfccc.int/ttclear/misc/_StaticFiles/gnwoerk_static/innovative_approaches/07a2f73969c945928ffa1ec74285f356/235654758e1343f788b1f1132bb109b8.pdf

- e) **Cross-cutting aspects of innovative approaches (as applied in LDCs and other developing countries)**
- i) Effective and efficient interlinkages among country institutions to stimulate and enforce accelerating actions;
 - ii) Tools and metrics for measuring progress of technology implementation programmes, with the specific goal to gather good practices in overcoming barriers and reap investment opportunities by creating and utilizing enablers for technology deployment;
 - iii) International cooperative action to support countries in pursuing mitigation and adaptation pathways, with a specific call for international cooperation among countries and industries.

3. Next steps

11. Given the previous work by the TEC but also the AC on technology needs, support and gaps as well as the desire to focus on the application of technologies and to add value to previous work, the AC may wish to:

- a) Consider focussing its technical paper on enhanced stakeholder engagement, including the private sector, in technology planning and implementation;
- b) Following agreement on a topic, request the secretariat to prepare a first draft for consideration at AC19.

Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
01.0	8 November 2020	AC 18 This background note (AC18/BCKINFO/8B) was prepared for the AC's consideration and further guidance.

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