

Global Workshop on Water, Agriculture, and Climate Change



United Nations
Climate Change
Adaptation
Committee

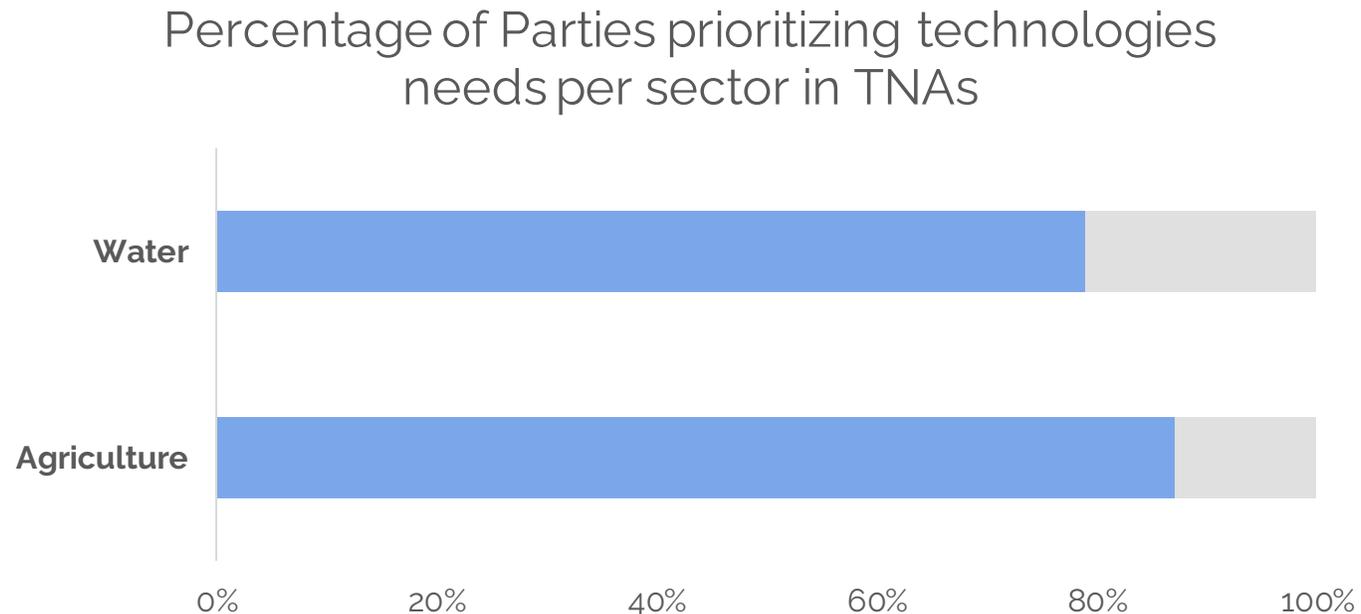
Adaptation Technologies for Water and Agriculture: Priorities, Needs, and Innovation

Rosa Morales, member of the Adaptation Committee

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Adaptation technology needs in water and agriculture

- Agriculture and water resources are consistently among the sectors with the highest adaptation-related needs among developing countries:

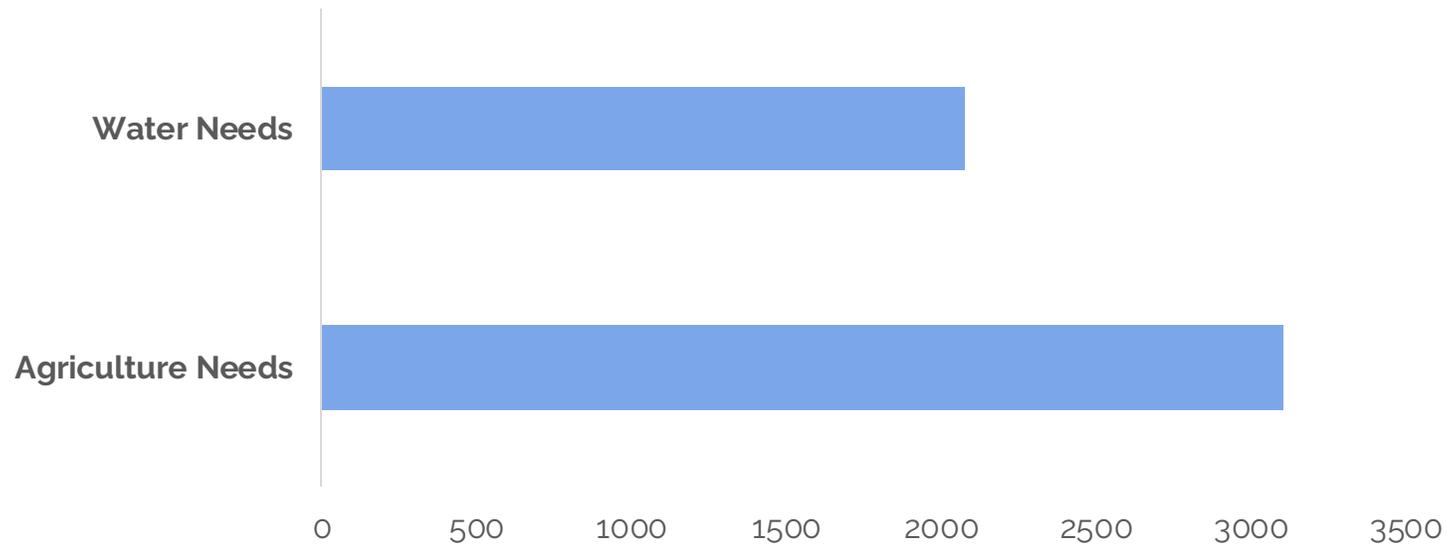


Source: Fourth synthesis of technology needs identified by Parties not included in Annex I to the Convention (UNFCCC, 2020)

Adaptation technology needs in water and agriculture

- This extends beyond technology needs to all means of implementation:

Number of needs expressed by developing countries in national reports by sector across all national reports and all means of implementation



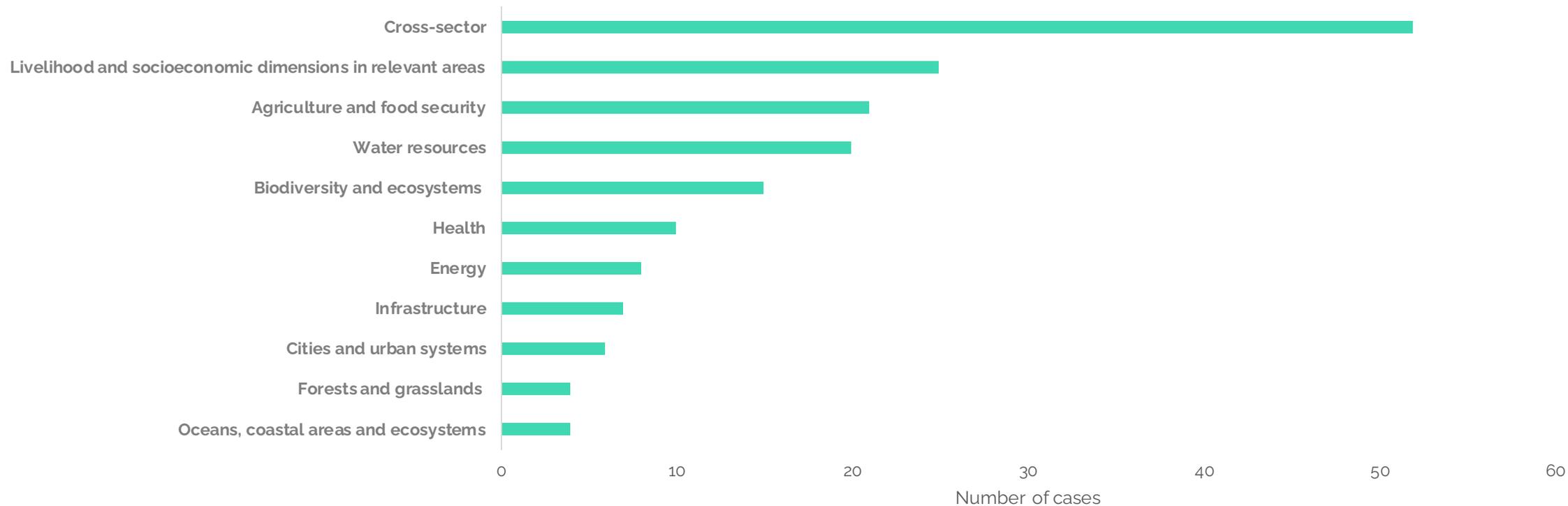
Source: First report on the determination of the needs of developing country Parties (SCF, 2021)

Adaptation technology needs in water and agriculture

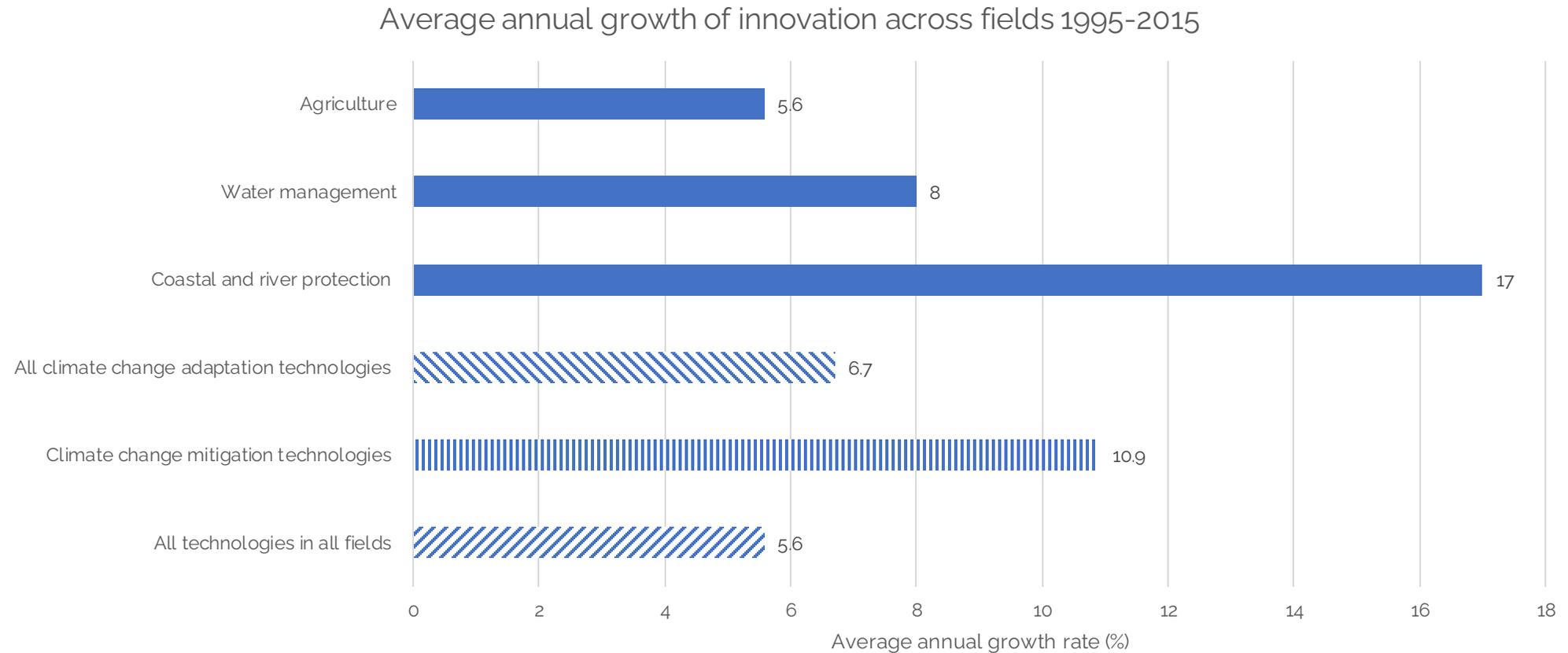
- Many of the adaptation technology **needs relate to the intersection between water and agriculture**:
 - For example: efficient sprinkler and drip irrigation; drought-resistant crop varieties; rainwater harvesting; water conservation practices (e.g. mulching); improving farm drainage infrastructure
- Also related **software and orgware needs** and priorities:
 - Orgware: establishing agricultural institutions; improving farmers' access to credit; developing integrated watershed management plans; improving transboundary water management cooperation
 - Software: establishing climate-smart agriculture demonstration sites; public awareness campaigns on water conservation

Innovative technologies and approaches

Distribution of adaptation-relevant frontier technologies by sector



Innovative technologies and approaches



Source: Dechezleprêtre et al., 2020

Indigenous technologies and practices

- Sophisticated indigenous technologies have been successfully used and improved over time
- Example: Waru waru agricultural terraces:
 - raised beds for cultivating crops surrounded by canals for irrigation and fish farming
 - beds vary significantly in size and shape depending on the topography
 - elevated fields are built above peak floodwaters to protect crops and seeds from being washed away
 - water captured in the channels irrigates and fertilizes the crops ahead of the dry season
 - serve a thermoregulation function, helping moderate the impact of extreme temperatures
 - After being largely abandoned, some local communities and indigenous peoples are revisiting the practice

Cross-cutting issues: stakeholder engagement and enabling regulatory environments

- Stakeholder engagement is integral to the successful development and deployment of technologies for adaptation
- Innovative approaches for engaging stakeholders include:
 - Mobilizing **technology champions**: e.g. women in India disseminate the Bhungroo© storm water management technology
 - Promoting the use of **citizen science**: e.g. farmer citizen science project led by Bioversity and ICAT
- Policy, legal and regulatory barriers to the development and deployment of adaptation technologies cited by 98% of developing country Parties

Opportunities and good practices

- Taking a **holistic approach** to adaptation technologies: incorporating hardware, software, and orgware
- Working towards an **enabling environment** that is conducive to the application of adaptation technologies
- Considering the **need for capacity-building** to facilitate the uptake of improved adaptation technologies
- **Engaging a wide range of stakeholders** throughout designing, identifying, developing, deploying, and evaluating adaptation technologies
- Ensuring that adaptation technologies are **gender-responsive**
- **Viewing innovation broadly** as encompassing sophisticated traditional and indigenous technologies and practices



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Thank you

ac@unfccc.int