

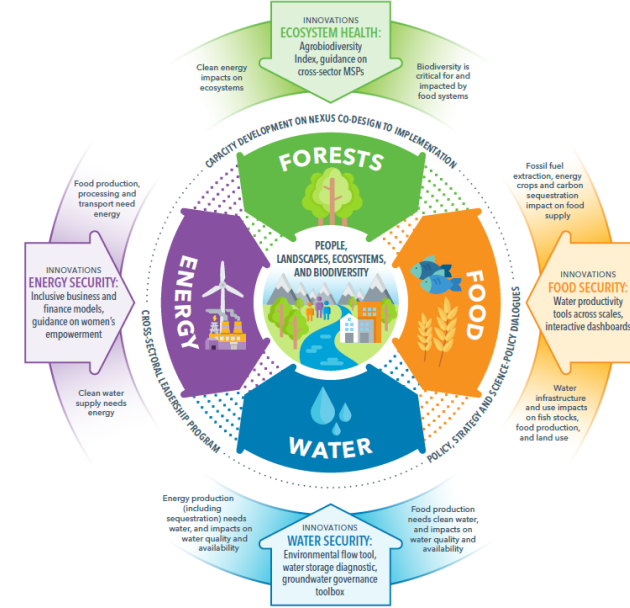


NEXUS Gains:
Realizing Multiple Benefits
Across Water, Energy, Food
and Ecosystems

Importance of Nexus thinking in a global context

**Claudia Ringler, NEXUS Gains co-lead and
International Food Policy Research
Institute**

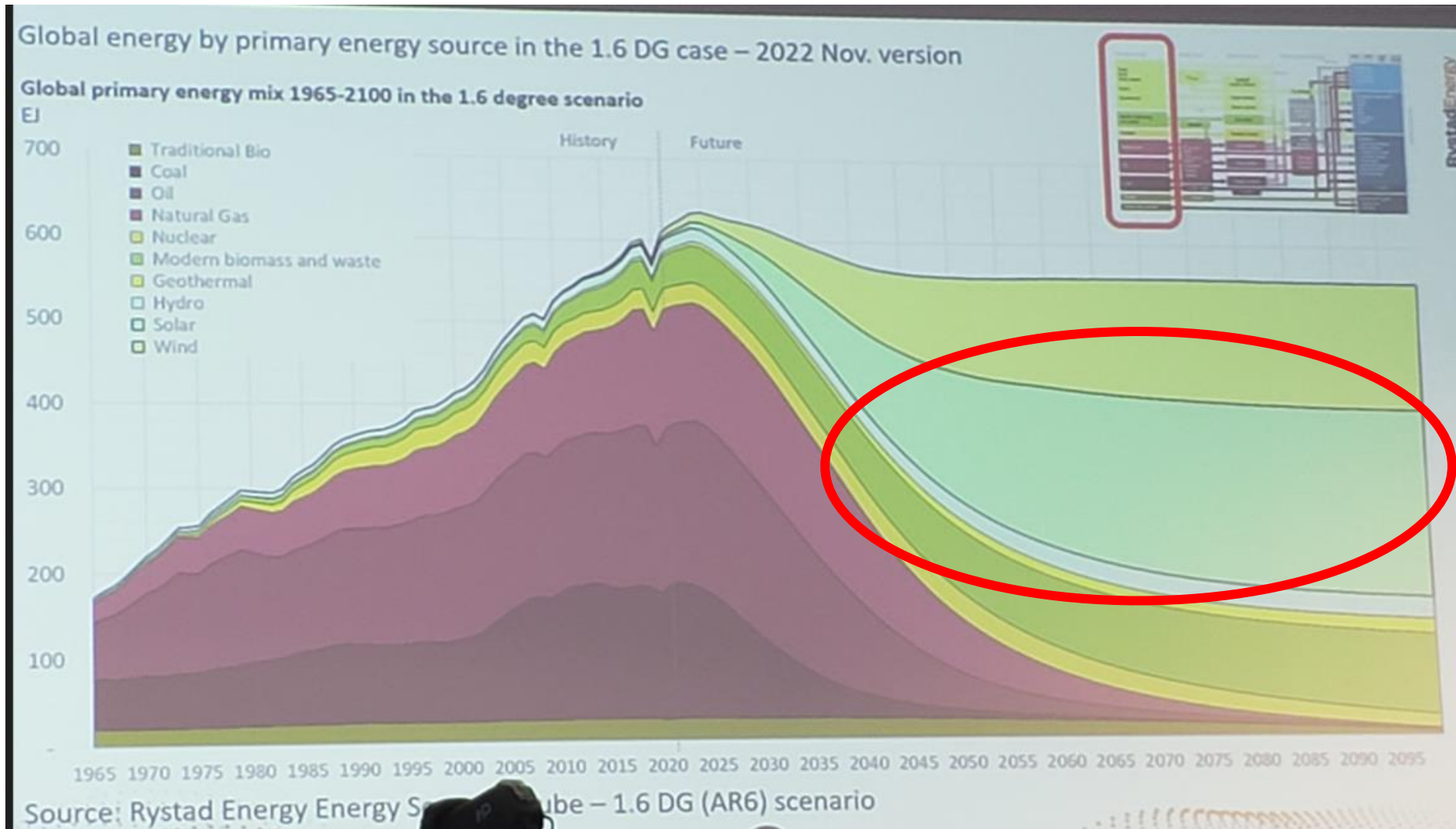
Systems Analysis for Reducing Footprints and Enhancing Resilience
IIASA | Nov 17, 2022



Water/Energy/Food/Environment (WEFE) Nexus Challenges in a Climate Crisis



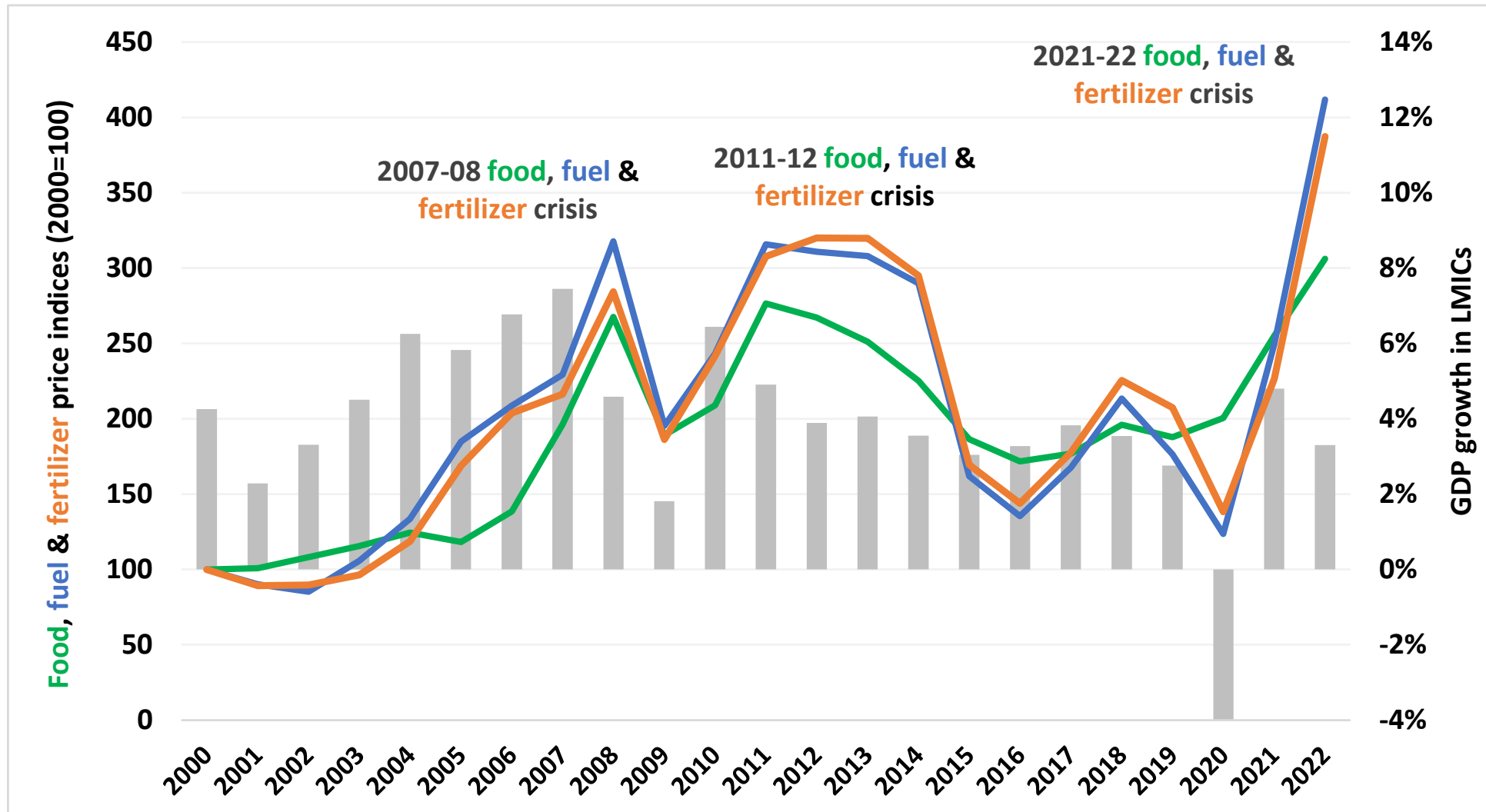
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Water/Energy/Food/Environment (WEFE) Nexus Challenges in a Climate Crisis



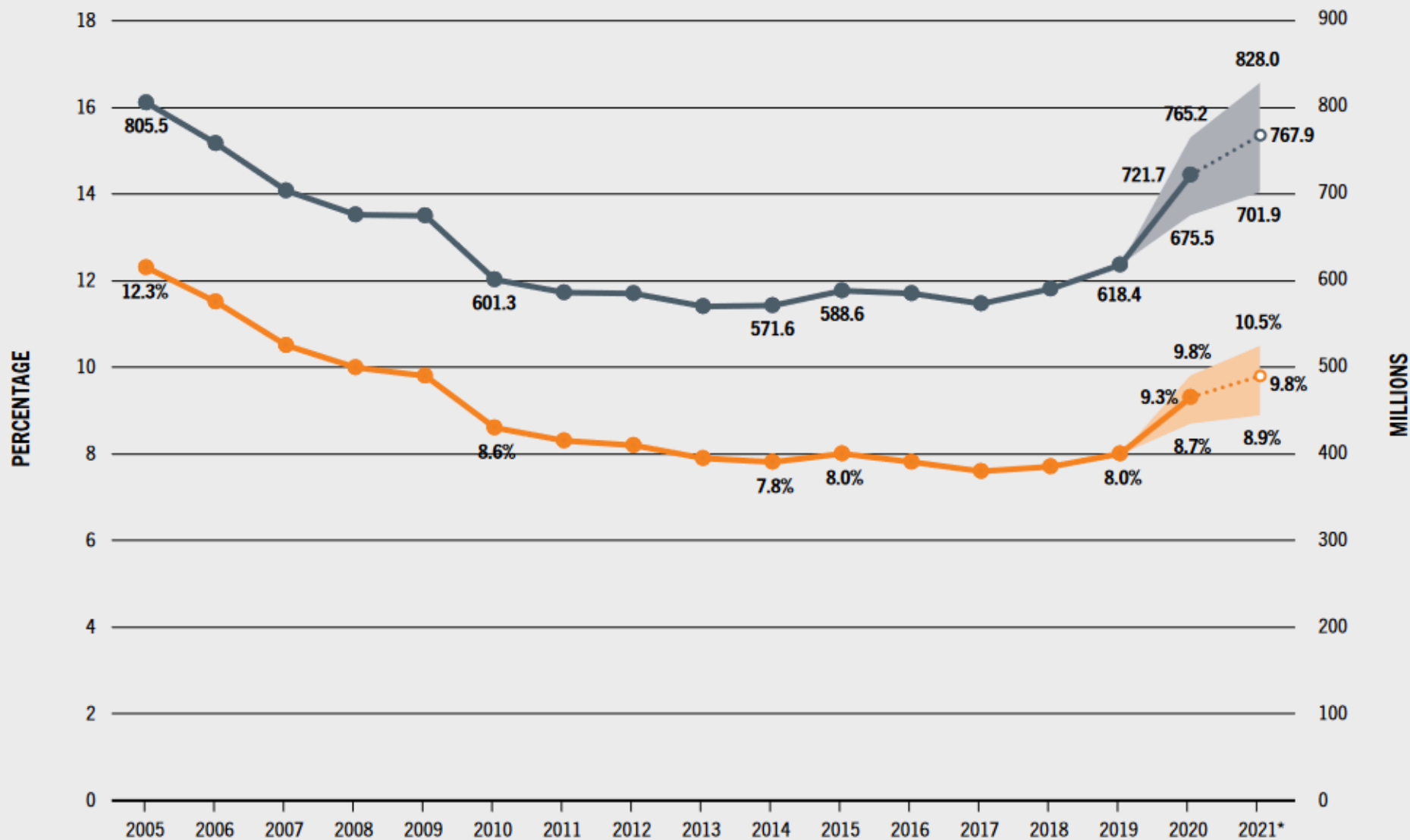
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150 million more people hungry in 2021 compared to 2019



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Source: SOFI (2022).

Water Stress increasing



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Water stress risk



TODAY

Total population living in water scarce areas


 **2.5** BILLION PEOPLE

Global GDP generated in water scarce regions

 **US\$9.4** TRILLION

By 2050

Total population living in water scarce areas

 **4.7** BILLION PEOPLE
↑ **90%**

Global GDP generated in water scarce regions

 **US\$63** TRILLION
↑ **570%**

Storage/needs availability declining



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Present

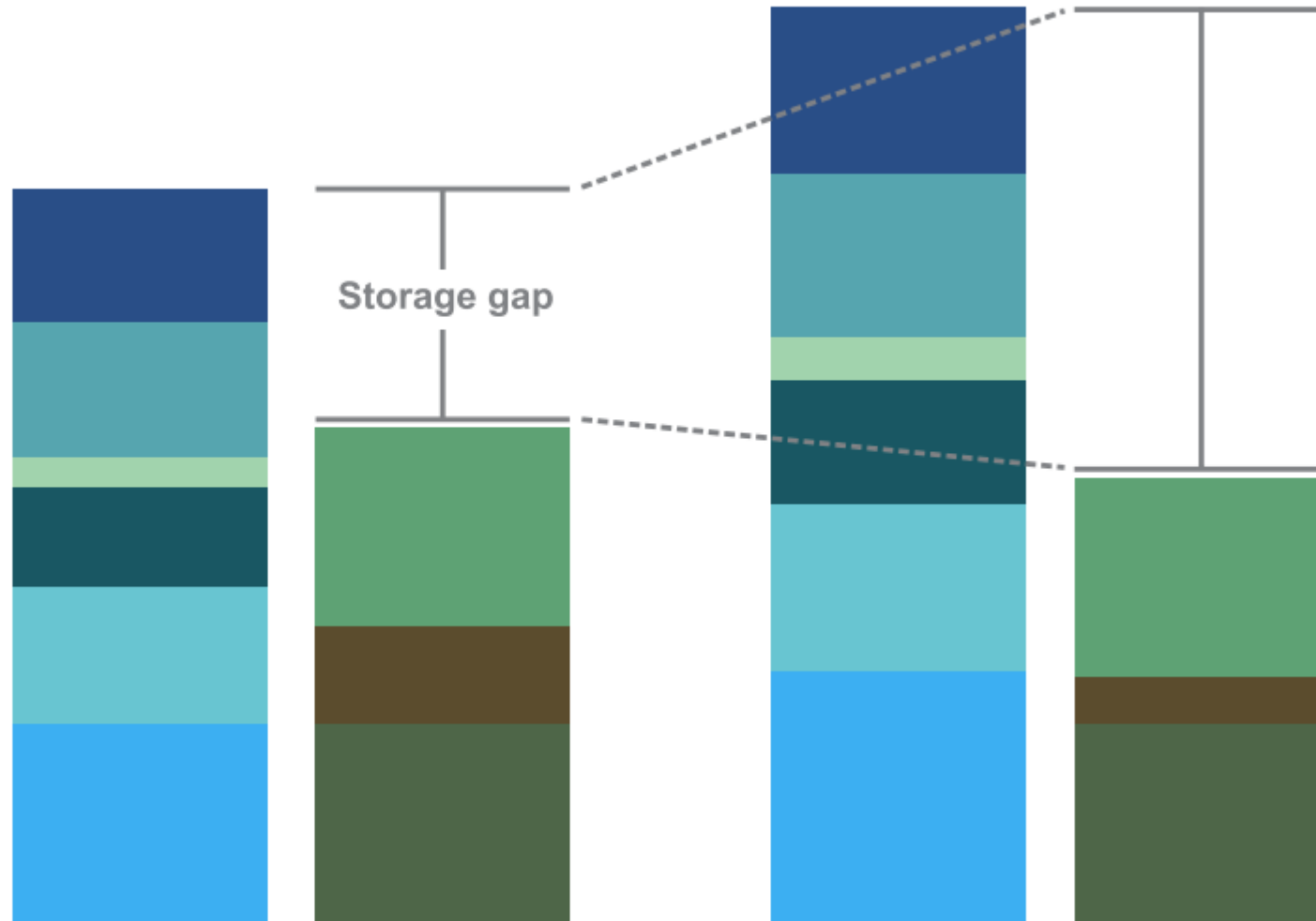
Future

Storage needs

- Flood
- Environment
- Industrial
- Municipal
- Energy
- Agriculture

Operational storage

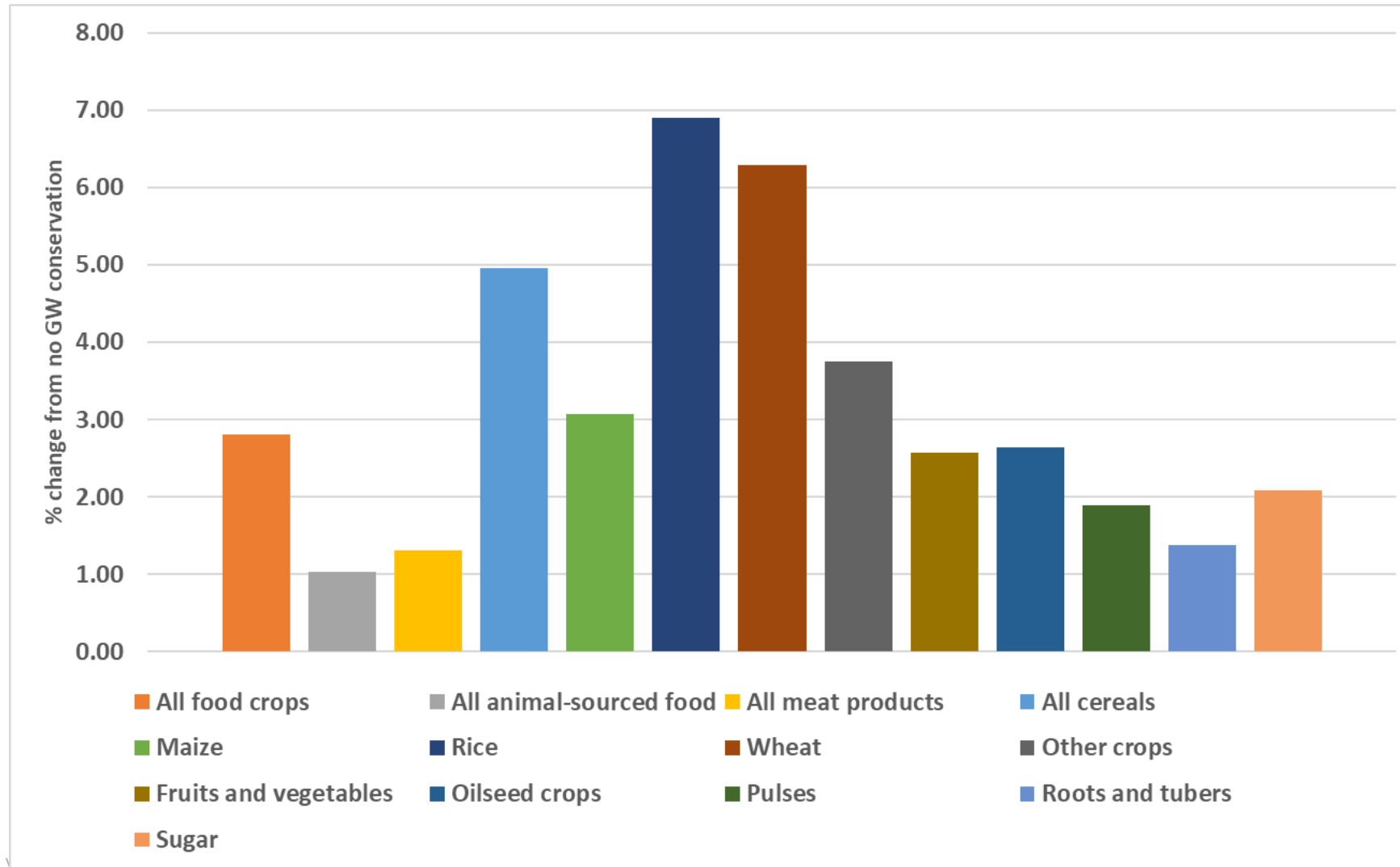
- Nature-based
- Built
- Intermediate



Impact of eliminating GW depletion on risk of hunger (projected 2050)



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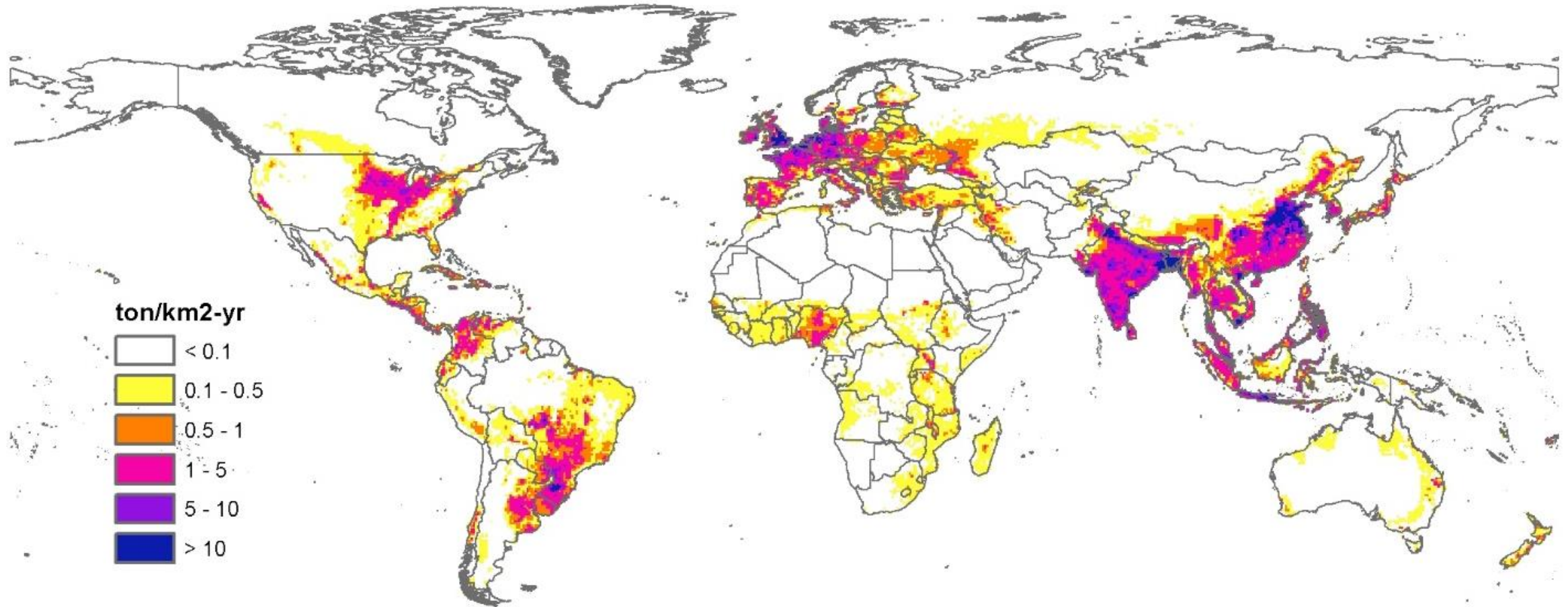


Source: In preparation

Growing ag water pollution (nitrogen 2005)



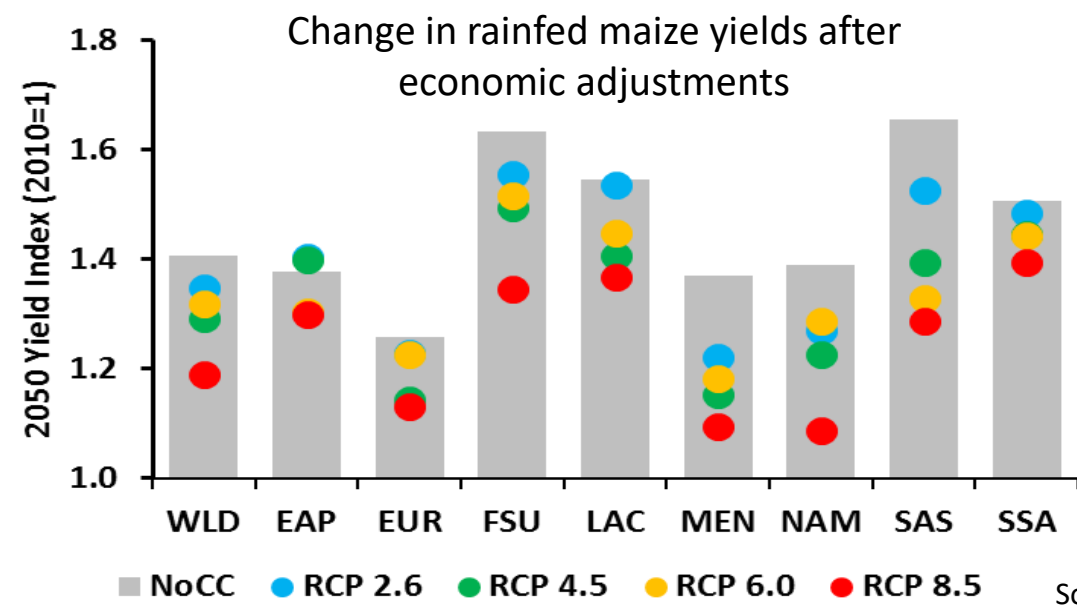
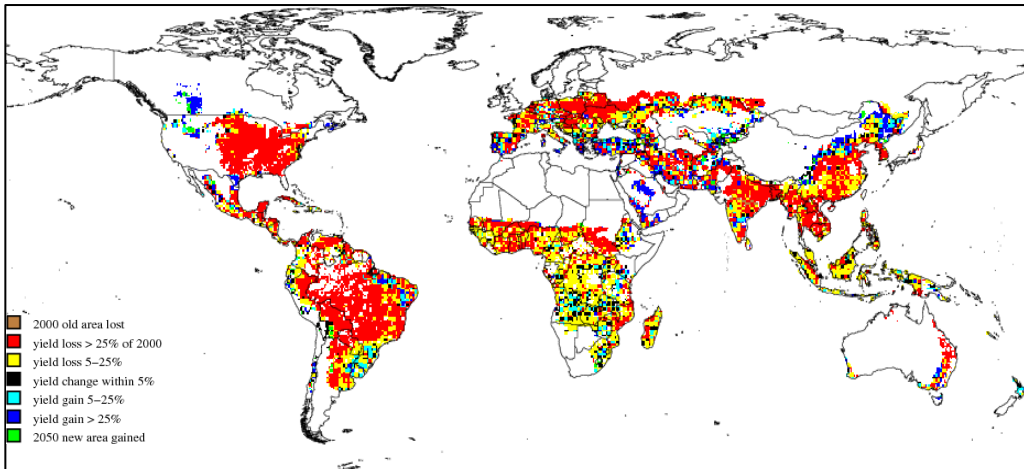
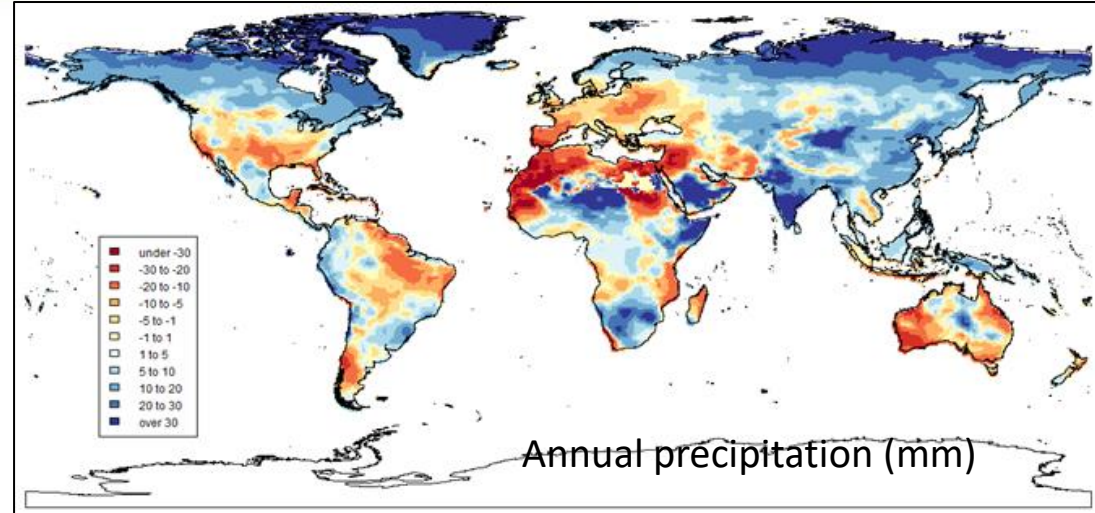
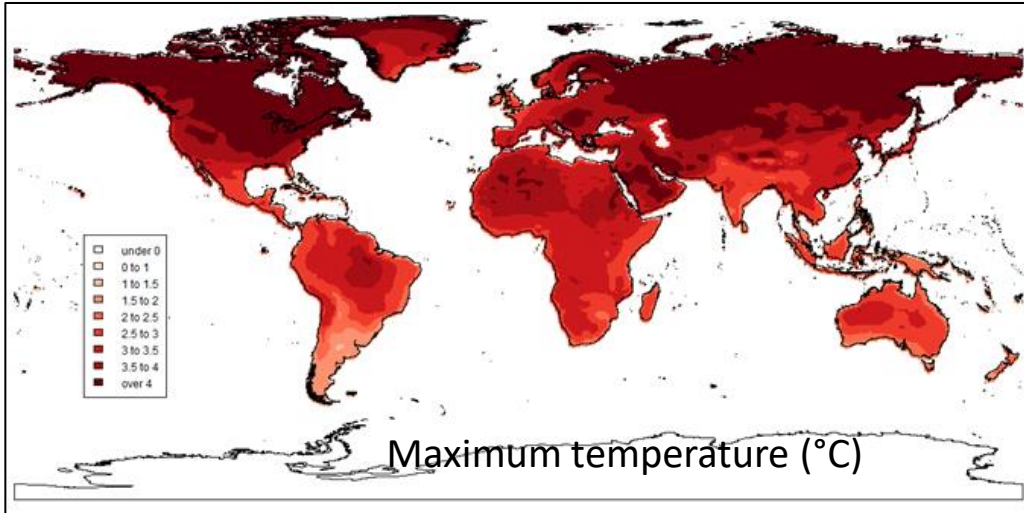
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Climate change grows need for Nexus approaches



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Change in rainfed maize yields before economic adjustments

Source: IMPACT (various yrs)

NEXUS Gains Workstreams



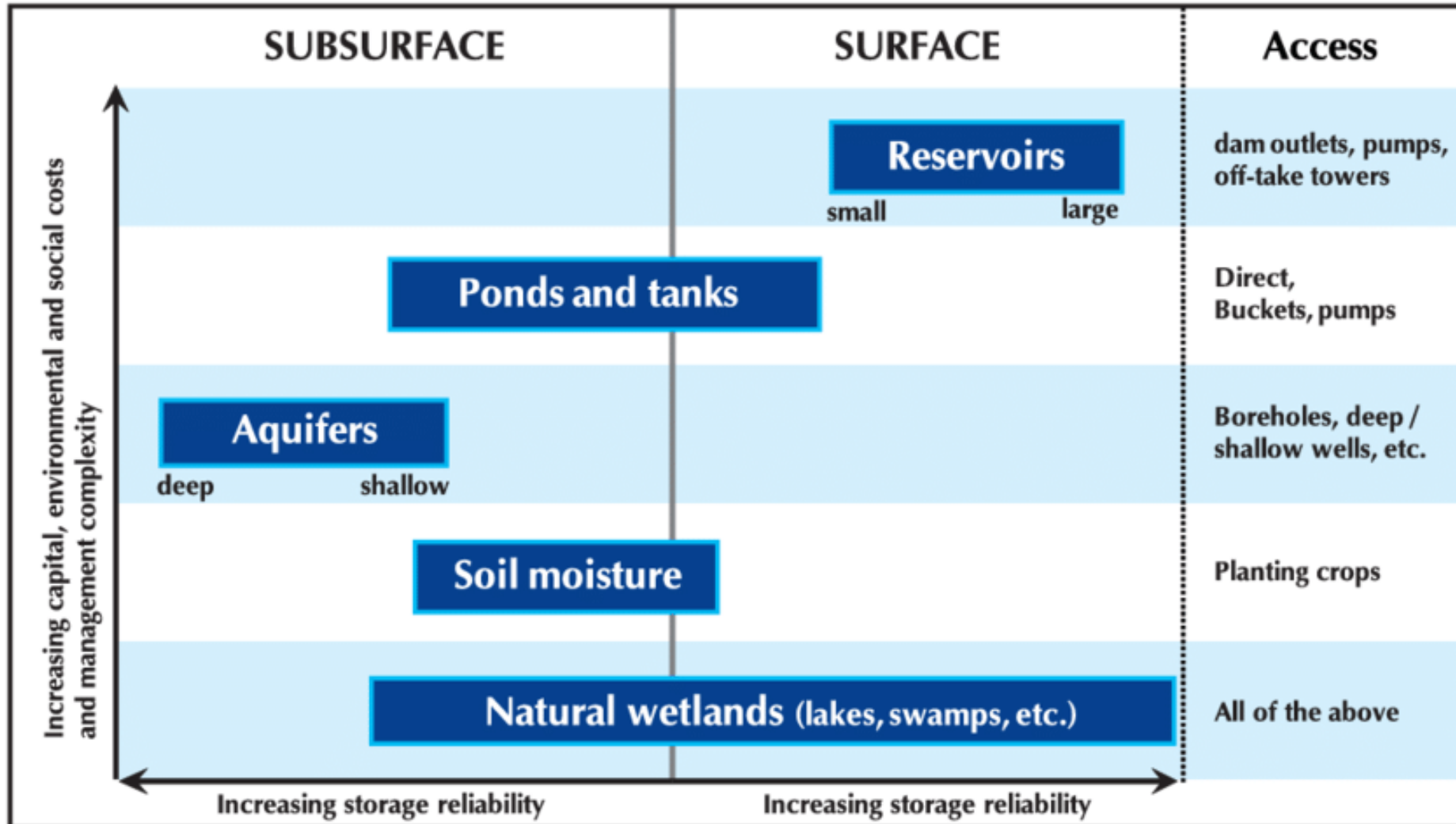
Photo credit: Anton Jankovoy / Shutterstock.com

- 1. Co-developing and scaling NEXUS innovations** using foresight methodologies and trade-off analyses
- 2. Boosting water productivity and expanding storage across scales** (farm to watershed to basin) **and sectors** using a whole systems lens
- 3. Energizing food and water systems** sustainably and inclusively
- 4. Strengthening cross-sectoral, multi-stakeholder governance** at community, national and regional levels
- 5. Developing Capacity for WEF E Actors**, Including Emerging Women Leaders

Integrated storage diagnostic for WEFE



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End of Initiative Outcomes and Examples of Core Innovations



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Photo credit: Hamish John Appleby, IWMI

3. Private investors and policymakers **use scalable gender-sensitive clean energy business and finance models** to accelerate sustainable rural clean energy access in at least 3 focal regions
 - **Inclusive business models** for sustainable **clean energy access** in agri-food systems
4. Policymakers and other stakeholders are using science-policy dialogues, multi-stakeholder forums, co-developed groundwater governance toolbox and guidelines to **strengthen nexus governance** across systems, sectors and boundaries in all basins
 - **Groundwater governance toolbox** to address growing competition, degradation and depletion of resources in hotspots
 - Establish and facilitate cross-sectoral, inclusive **multi-stakeholder platforms** to leverage integrated
5. At least **40 emerging women leaders** in government, private sector, investors, research and NGOs have increased capacity **to identify, assess and implement one or more nexus innovations**

COP27 thoughts



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- Climate justice → which solutions truly work for the poor if we go beyond words
- More serious engagement between NDCs and nutrition and health impacts
- Much better understanding of better water management as it relates to adaptation and mitigation → UN Water conference 2023
- More serious engagement between ecosystem and the rest of the Nexus beyond words

NEXUS Gains

Realizing Multiple Benefits
Across Water, Energy, Food and
Ecosystems (Forests, Biodiversity)

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