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Must keep firmly in mind two key facts:

1. AFS innovations have enabled huge advances in human well-being.

![Graph showing trends in global undernourishment.]

2. But they have also had adverse, unsustainable spillover effects on climate, natural environment, public health/nutrition, social justice.

We must embrace/accelerate innovations but update/reorient objectives.
The expert panel reached several key conclusions:

1. B/c AFS consist of complex webs of actors and processes, must keep four key features firmly in mind:
   - Human agency by billions actors is key .. mechanism design
   - Heterogeneity precludes one-size-fits-all solutions
   - Spillover effects pervasive and demand portfolio approaches
   - Science-based innovation needed in evolutionary systems
2. A shared vision of HERS agri-food systems. 
Must embrace multiple objectives simultaneously:
3. Must design for future states, not today’s. Looking 25-50 yrs ahead (past 2030 SDGs, to scaled impact of emergent and ideated innovations), 3 major changes loom:

- Climate change
- Population shifts – urbanization, aging
- Income growth

One key implication:
Pay FAR more attention to Africa ... will account for >50% of global food demand growth to 2100
4. A profuse pipeline exists of promising (natural and social) science advances at various stages of deployment readiness. Span value chains and geographies.
The agri-food systems innovation cycle
1. **Develop socio-technical innovation bundles.**

   No magic bullets exist. Need to bundle in order to:
   (i) realize synergies needed to adapt/scale
   (ii) address political economy arising from spillovers
   (iii) meet heterogeneous needs
2. **Reduce the land and water footprint of food.**
Decoupling food production from land increasingly culturally, economically, technologically feasible. Manage de-agrarianization’s creative destruction.
3. Commit to co-creation with shared and verifiable responsibility. Agreed KPMs, safety nets, penalties can accelerate beneficial innovation and minimize adverse unintended consequences.
4. **Deconcentrate power.** Reducing market and political power imbalances and broadening participation in innovation dialogues can accelerate innovation.
5. Mainstream systemic risk management.
COVID-19 underscores the rising importance of effective systemic risk management. Need innovative risk reduction and risk transfer mechanisms.
6. Develop novel financing mechanisms.
AFS innovations require $$$ (hundreds of billions annually).
How to mobilize private resources beyond public spending/philanthropy?
7. Reconfigure public support for AFSs

Two key roles for gov’ts:
- invest in essential public goods and services
- facilitate dialogue to find cooperative solutions.

Much current government AFS spending is wasteful ($2bn/day!)
Redirect towards social protection programs, agri-food research, and physical and institutional infrastructure.

Foster civil society dialogues to identify and support contextually appropriate socio-technical bundles.
Report and associated journal articles, videos, etc. available at https://blogs.cornell.edu/nature-sustainability/

Thank you for your time and interest!