

# Unlocking the potential of agricultural innovation to achieve sustainable development goals



**Selvaraju Ramasamy**

**Research and Extension Unit (AGDR), FAO, Rome**



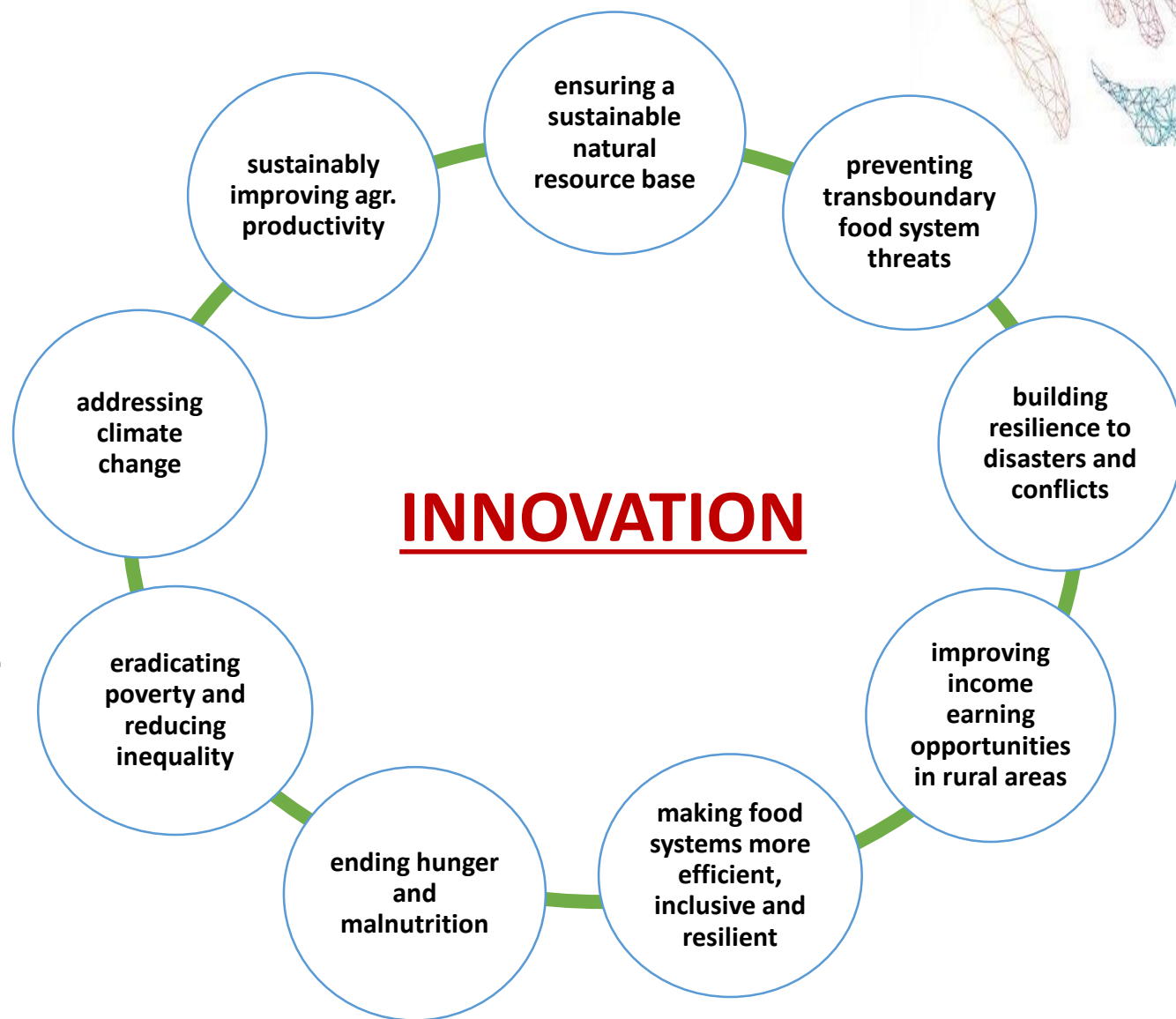
Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*

# Global challenges and innovation pathways in agri-food systems



- Innovation is the central driving force which can transform food systems and lift smallholder farmers out of poverty
- Help the world to achieve food security, sustainable agriculture and the Sustainable Development Goals (SDGs)



# Understanding agricultural innovation



- Agricultural innovation is the process whereby individuals or organisations bring new or existing products, processes or ways of organisation into use.
- First time in a specific context in order to increase effectiveness, competitiveness, resilience to shocks or environmental sustainability.
- Contribute to food security and nutrition, economic development or sustainable natural resource management.



Slide: 3



# Innovation is more than technology



- **Innovation in agriculture involves different social, organizational or institutional processes**
  - Beyond apps, drones or farm machinery
  - Ranges from access to markets, credit or extension services to marketing produce
- **Innovation is a complex process where multiple actors play different roles**
  - Governments, civil society, farmer organizations, research bodies and the private sector

Slide: 4



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*



# Potential Areas of Agricultural Innovation



**Use of new genetically improved varieties in intensive agriculture systems**



**Agro-ecological practices**



**New post-harvest technologies**



Slide: 5



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*

# Potential Areas of Agricultural Innovation



**New ways of testing for  
aflatoxins and food safety**



**New approaches to  
training farmers**



**New ways of farmers  
organizing themselves  
and linking to the markets**



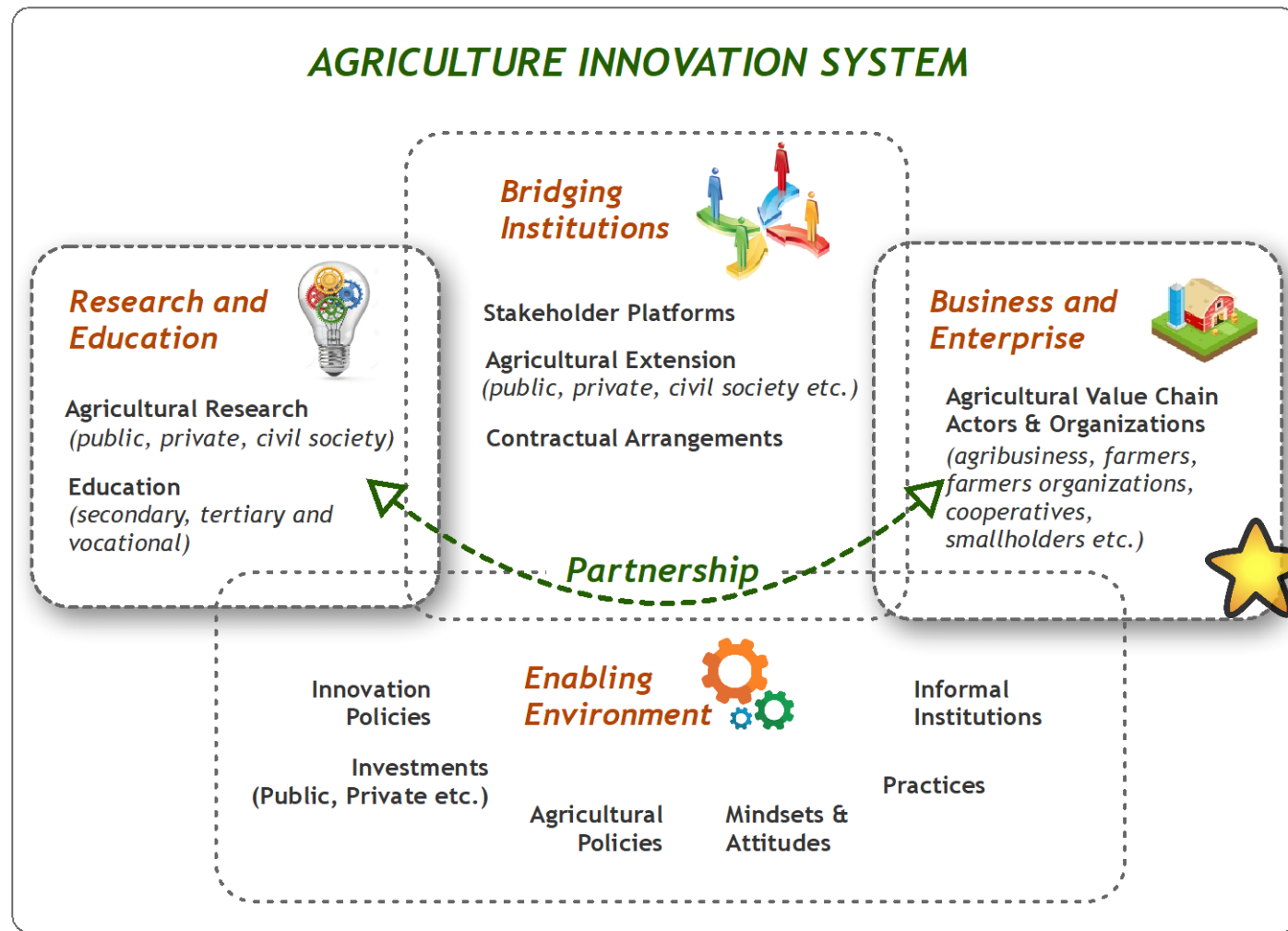
Slide: 6



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*

# Agriculture Innovation Systems



Slide: /



Food and Agriculture Organization  
of the United Nations

G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020



# Innovations in advanced plant breeding tools

- Very rapid advancements in the field of biotechnology (e.g. sequencing of plant genomes is now quicker/cheaper)
- New tools, particularly gene editing approaches involving CRISPR-Cas9, offer significant promise
- Issues of access, as well as potential opportunities and risks, for smallholder farmers are fundamental



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*



# Innovations in farm management decision support systems



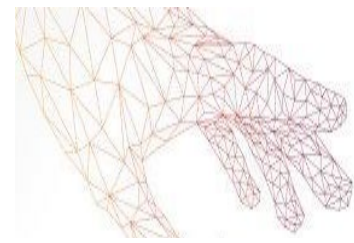
- Allow farmers to use big data and the Internet of Things to make more informed decisions
- A wide range of decision support systems are now available
- Bring benefits to farmers regarding their use of pesticides, fertilisers, water use in irrigated systems, nitrogen use and more



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*

# Adoption of innovations



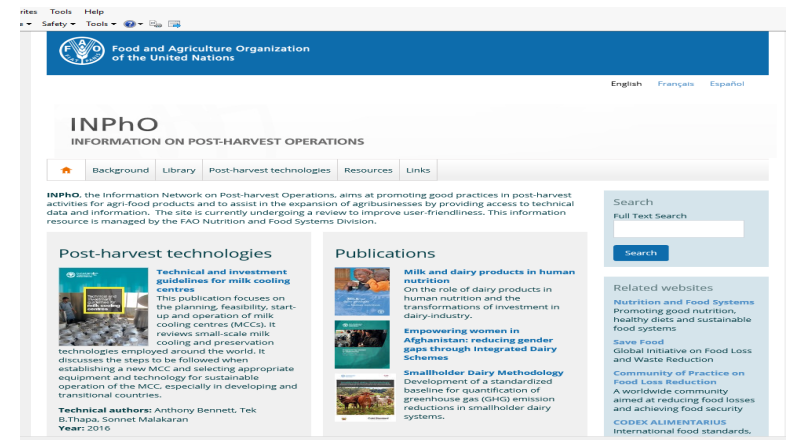
- Strengthening the ‘agricultural innovation system’ through multi-stakeholder processes is essential
- Particular focus is needed on extension and advisory services (EAS) because they are key catalysts which allow innovation to happen



# FAO's work to strengthen adoption of cutting-edge technologies and practices

Knowledge sharing platforms: Facilitate knowledge exchange and sharing related to agricultural innovation. For example,

- TECA, TAPipedia, Inpho etc



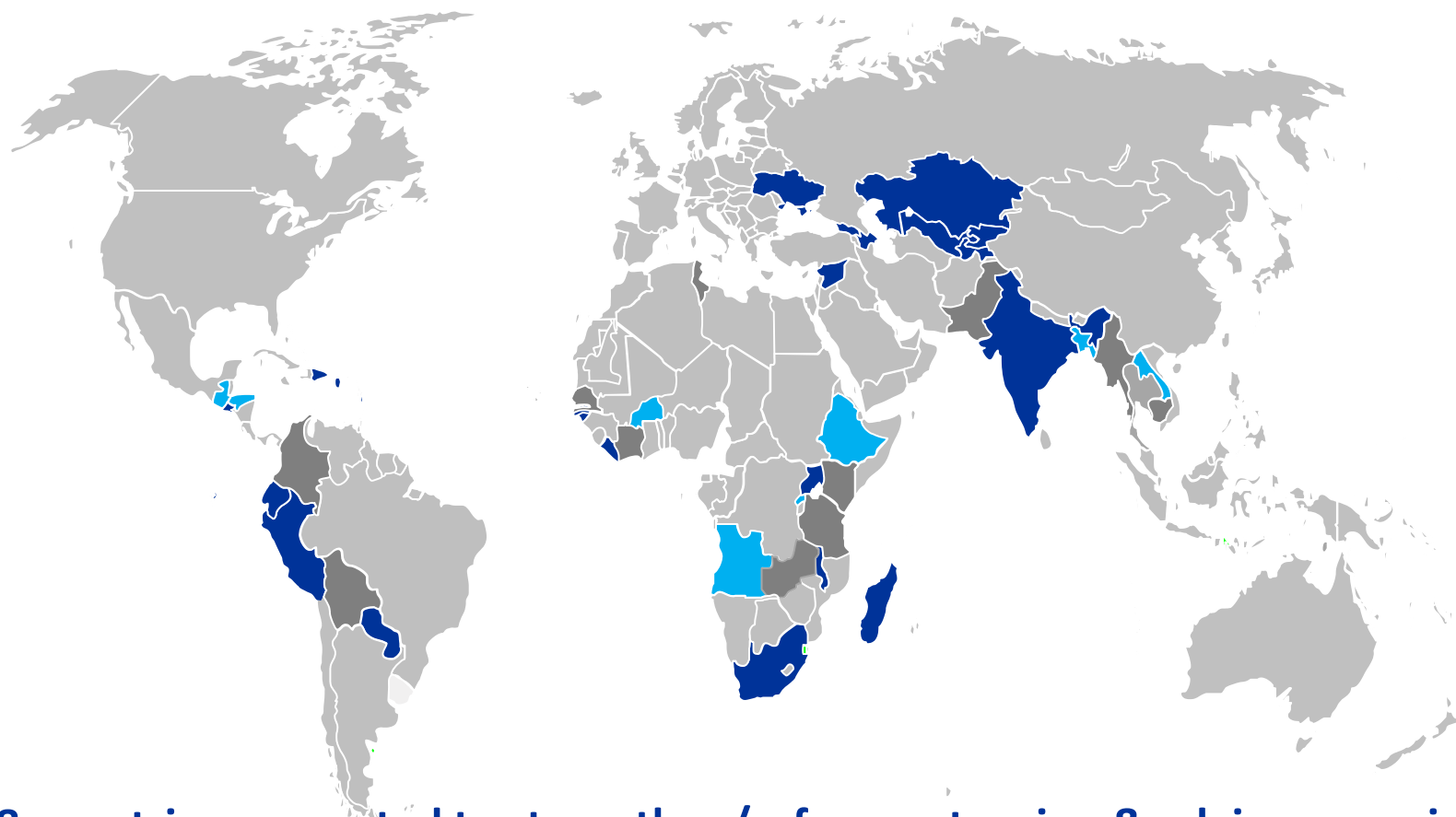
Slide: 11



Food and Agriculture Organization  
of the United Nations

G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020

# Support to strengthen Agricultural Innovation Systems



**18 countries supported to strengthen/reform extension & advisory services**  
**10 countries supported in strengthening innovation system (CD4AIS)**  
**13 countries in the pipeline**



# International Digital Council for Food and Agriculture



- Its vision “to become a key actor to support governments and other stakeholders in the agri-food system to maximize their potential in using digitalization to increase production, productivity and sustainability in an inclusive and equitable manner and to help achieve the SDGs”
- Concept accepted by the Global Forum for Food and Agriculture (GFFA)



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*

# International events on agricultural innovation

- International Symposium on Agricultural Innovation for Family Farmers (Rome, 21-23 November 2018)
- Digital Agriculture Transformation Seminar: The challenges to be addressed (Rome, 12-13 June 2019)

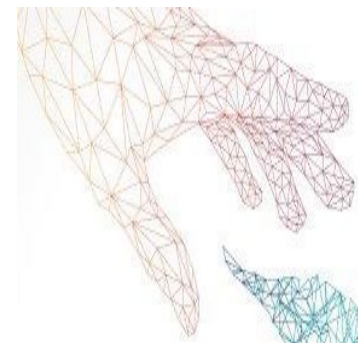


Slide: 14



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*



# Thank you

Slide: 15



Food and Agriculture Organization  
of the United Nations

*G20 Meeting of Agricultural Chief Scientists (MACS 2020), 19 February 2020*