Agroecosystem Living Labs:
An approach to accelerate the development and adoption of beneficial management practices

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Meeting of G20 Agriculture Chief Scientists
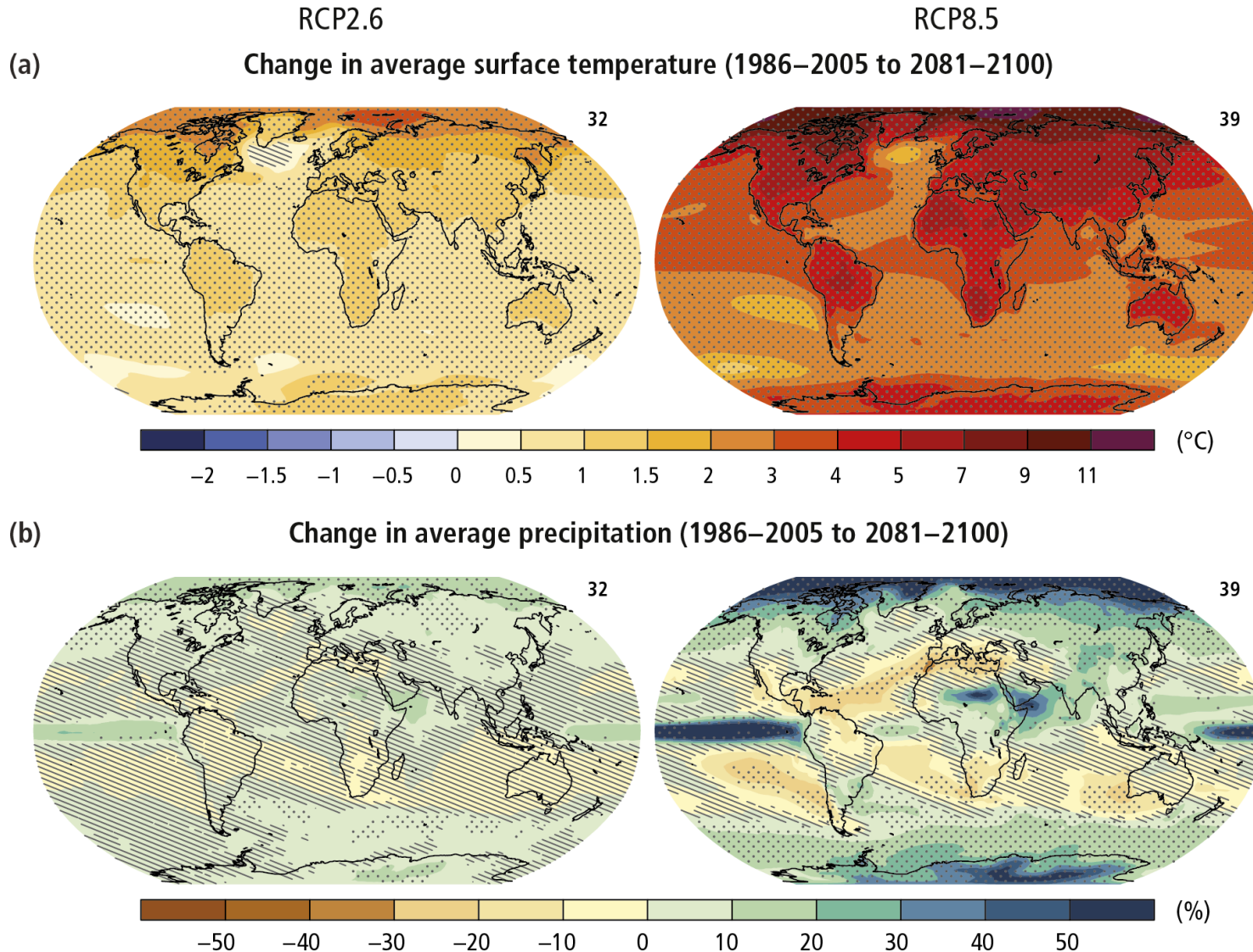San Salvador de Jujuy, Argentina

Agriculture and Agri-Food Canada
Agriculture et Agroalimentaire Canada

Canada

Climate Change is Threatening Agriculture

RCP2.6   RCP8.5

(a) Change in average surface temperature (1986–2005 to 2081–2100)

(b) Change in average precipitation (1986–2005 to 2081–2100)

Source: International Panel on Climate Change, Assessment Report 5 – Synthesis Report, 2014

Climate Change is Threatening Agriculture

Summary of projected changes in crop yields due to climate change over the 21st century

Source: IPCC, AR5 – Synthesis Report, 2014
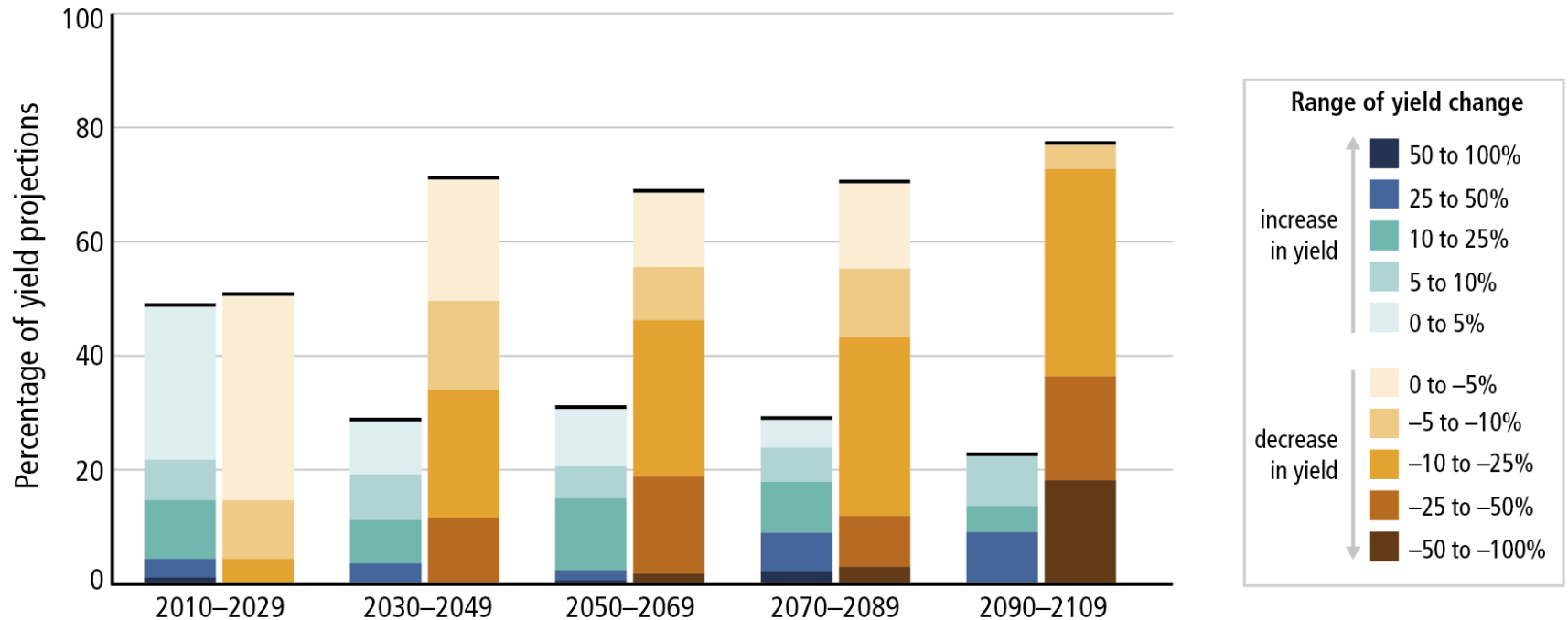
Global Population is Expected to Increase

Population of the world: estimates, 1950-2015, and medium-variant projection with 95 percent prediction intervals, 2015-2100
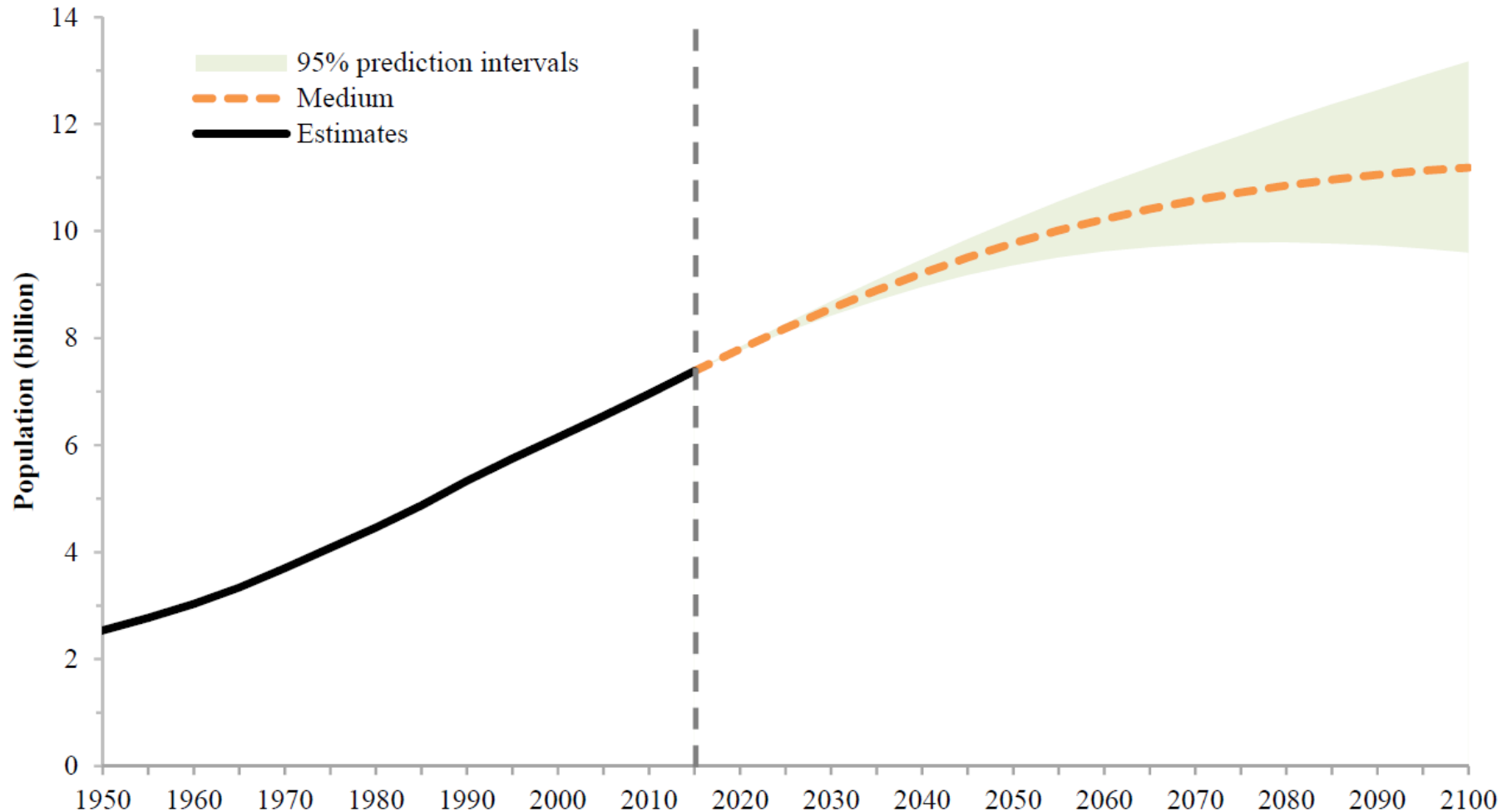
Life in harmony, into the future
COP10/MOP5 AICHI-NAGOYA, JAPAN 2010

United Nations
Convention to Combat Desertification
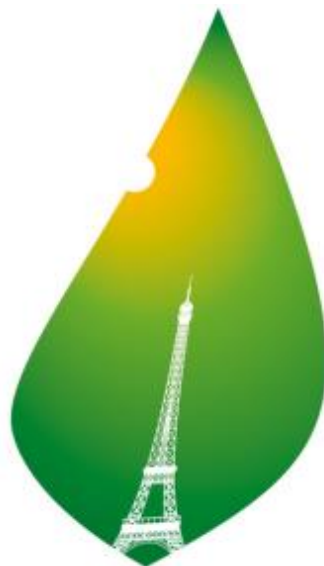
COP21 · CMP11
PARIS 2015
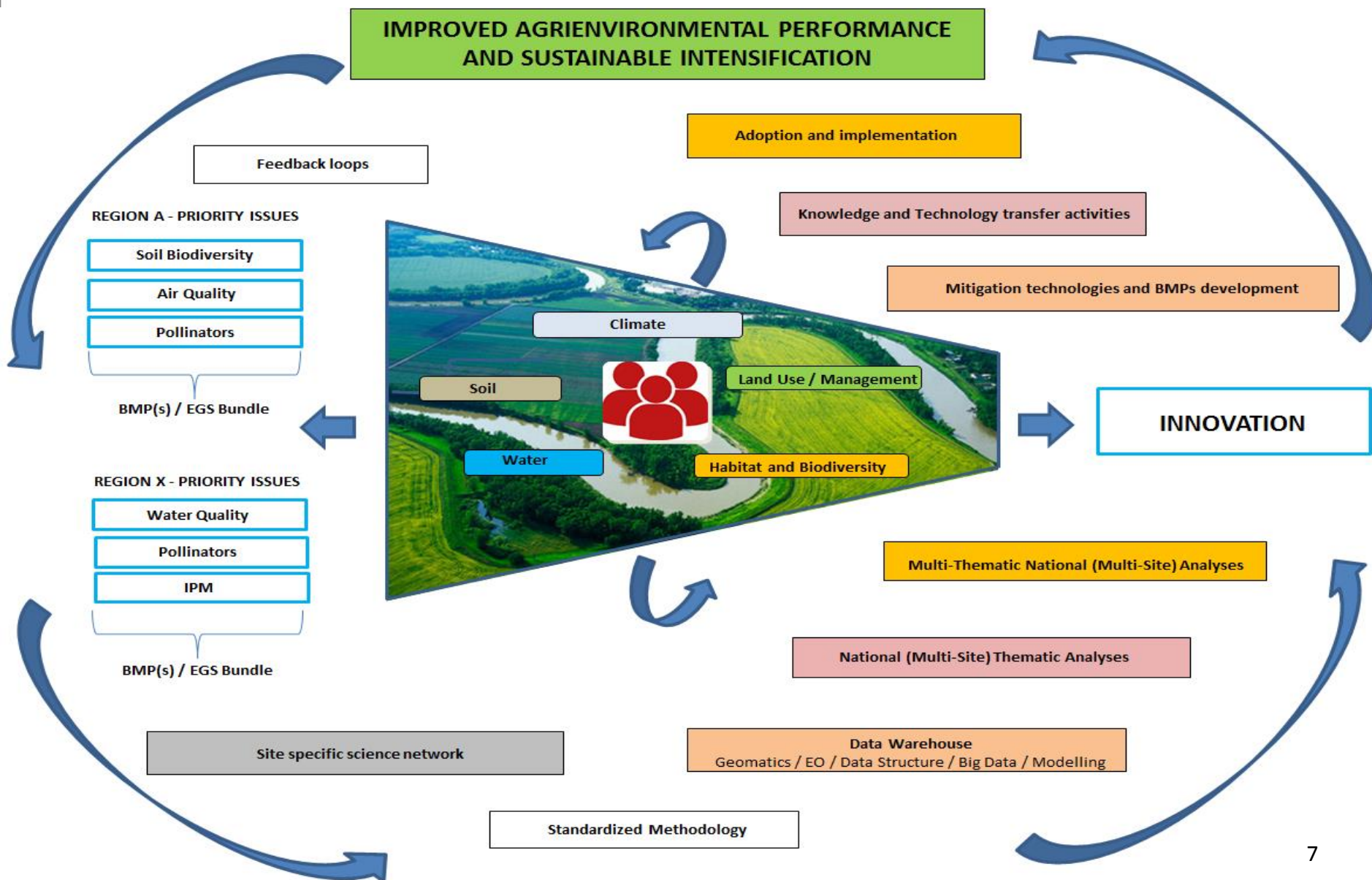UN CLIMATE CHANGE CONFERENCE

SUSTAINABLE DEVELOPMENT GOALS

A New Approach is Required

- The challenge: How to provide a growing population with sufficient food, fiber and fuel (FFF) without using unsustainable agricultural practices?

- How to significantly accelerate both the development and adoption of beneficial management practices (BMPs) ?

IMPROVED AGRIENVIRONMENTAL PERFORMANCE AND SUSTAINABLE INTENSIFICATION

Feedback loops

REGION A - PRIORITY ISSUES

Soil Biodiversity

Air Quality

Pollinators

BMP(s) / EGS Bundle

REGION X - PRIORITY ISSUES

Water Quality

Pollinators

IPM

BMP(s) / EGS Bundle

Climate

Soil

Land Use / Management

Water

Habitat and Biodiversity

Adoption and implementation

Knowledge and Technology transfer activities

Mitigation technologies and BMPs development

INNOVATION

Multi-Thematic National (Multi-Site) Analyses

National (Multi-Site) Thematic Analyses

Site specific science network

Data Warehouse
Geomatics / EO / Data Structure / Big Data / Modelling

Standardized Methodology

Core principles

- Place-based activities in a working landscape
- Co-development with end users
- Interdisciplinary, systems approach
- Accelerated adoption

Desired Outcomes

- Greater resilience in agricultural landscapes
- Improved agri-environmental performance, and
- Attainment of sustainable intensification

ALL Concept and its Application is Growing

- Various initiatives in G20 countries underway using core principles to a varying degree

Country	Example
Brazil	Integrated crop-livestock-forest systems
Canada	Network of sites in various agroecosystems under development
France	Laboratoire d'innovation territorial Ouest Territoire d'Élevage
United Kingdom	North Wyke Farm Platform
United States	Long-Term Agroecosystem Research (LTAR) Network

Canada's Approach

- We are in the process of establishing a coordinated, long-term, nation-wide network of sites where producers, companies, non-profit groups, research organizations and governmental institutions collaborate to develop, assess and implement innovative solutions that are rapidly adopted to address persistent agri-environmental issues.

Key Areas of Focus in Moving Forward

- Co-development approaches with end-users

- Better integration of natural and social sciences

- Recruitment and development of human resources with key skills

- Data management and standardization

- Evaluation of the benefits of ALL versus the potential costs of status quo

The Opportunity for MACS

- Raise global awareness of need for ALL to accelerate progress in attaining sustainable intensification

- Work together in areas of joint interest bilaterally, regionally, globally

- Learn from each other by sharing experiences

Possible Next steps

- Discussion session at MACS 2018

- Use MACS Communique to emphasize need for accelerating the adoption of BMPs via the core principles of ALL

- Pursue further cooperation

- In-depth discussion at MACS 2019 on country experiences

- Workshops and side events to promote the approach

Thank you!

¡Gracias!