GLOBAL RESEARCH ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

Setting the scene for impact

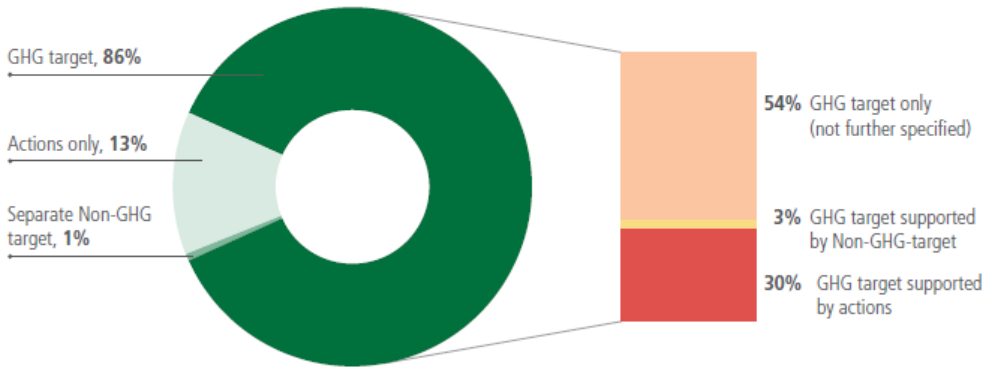
Hayden Montgomery
Special Representative
5 August 2020

Agriculture in national climate plans

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

FIGURE 7.

Percentage of countries covering agriculture in their mitigation contributions



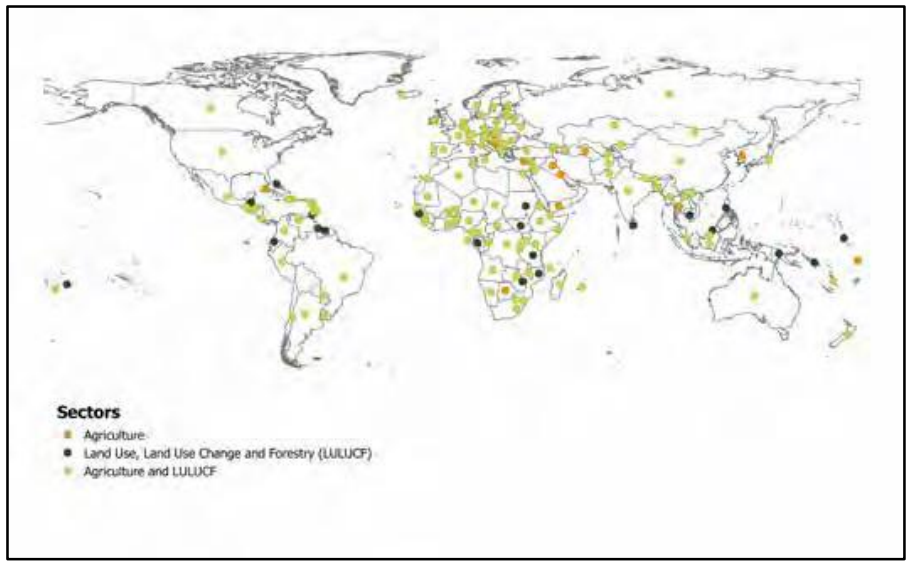
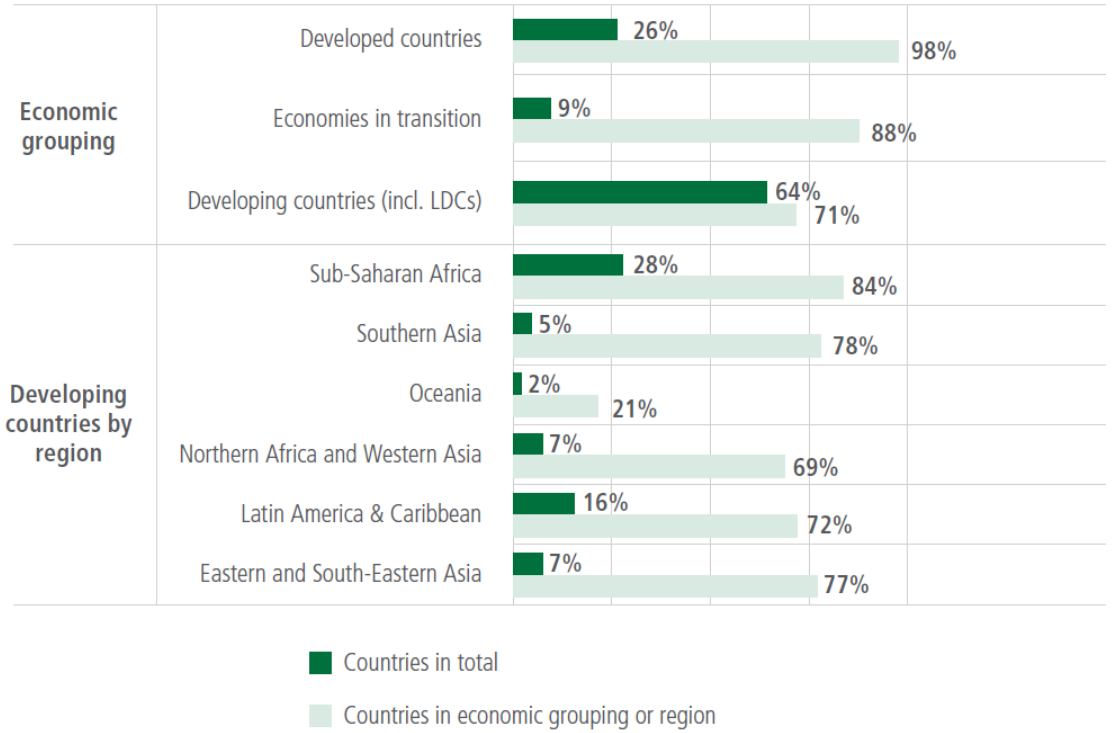


FIGURE 6.

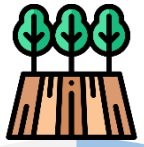
Percentage of countries that cover mitigation in agriculture, by economic grouping and region



FAO, 2016. The agriculture sectors in the Intended Nationally Determined Contributions: Analysis, by Strohmaier, R., Rioux, J., Seggel, A., Meybeck, A., Bernoux, M., Salvatore, M., Miranda, J. and Agostini, A. Environment and Natural Resources Management Working Paper No. 62. Rome.

Agriculture is hundreds of millions of small emitters

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES



Globally 570 million farms,
c. 500 million < 2 ha,
(Lowder et al., 2016).

Small and medium farms (≤50 ha) produce **51–77%** of nearly all nutrients (Herrero et al., 2017).

Agriculture's total contribution to global GHGs is large – but many small scale emitters of diffuse sources of multiple GHGs

Smallholders responsible for **32%** of agricultural emissions and **29%** of emissions from agriculture-driven land-use change.

Agriculture still lags behind the progress being made in other sectors in responding to the climate change challenge.

In comparison, **71%** of cars come from **10** major carmakers

Agriculture faced with significant challenges

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

Scarcity of capability and capacity in many parts of the world

- Need to develop pipeline of next generation of science leaders (Masters, PhD, Post-Docs).
- Need research infrastructure

Significant quantification challenge remains

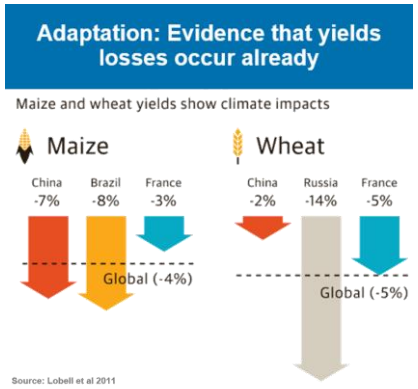
- Emissions vary significantly in time and space
- Activity data inadequate in many countries
  - *Five of 140 developing countries can routinely capture livestock GHGs in national GHG inventories*
  - *Five of 22 mitigation actions currently able to be routinely captured in national GHG inventories in EU countries*

Climate change impacts make mitigation more difficult

- Harder to retain carbon in soil (many regions dryer, hotter)
- Reduced quality of crops and forages
- Reduced productivity and yields in already vulnerable regions

Significant growth in demand for nutrition, fuel, carbon storage, et cetera

- Land use competition can increase
- Synergies between mitigation and other SDGs possible, but not automatic



GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

AT A GLANCE

62 member countries

4 Research Groups

- Paddy Rice Research Group
- Livestock Research Group
- Croplands Research Group
- Integrative Research Group

17 Science Networks

22 partner organisations

Over **3000** scientists involved in activities of the GRA

72 international collaborative projects supporting the GRA

172 fellowships awarded to recipients from **45** countries

40 technical training workshops held

23 technical guidelines, resource materials and databases produced

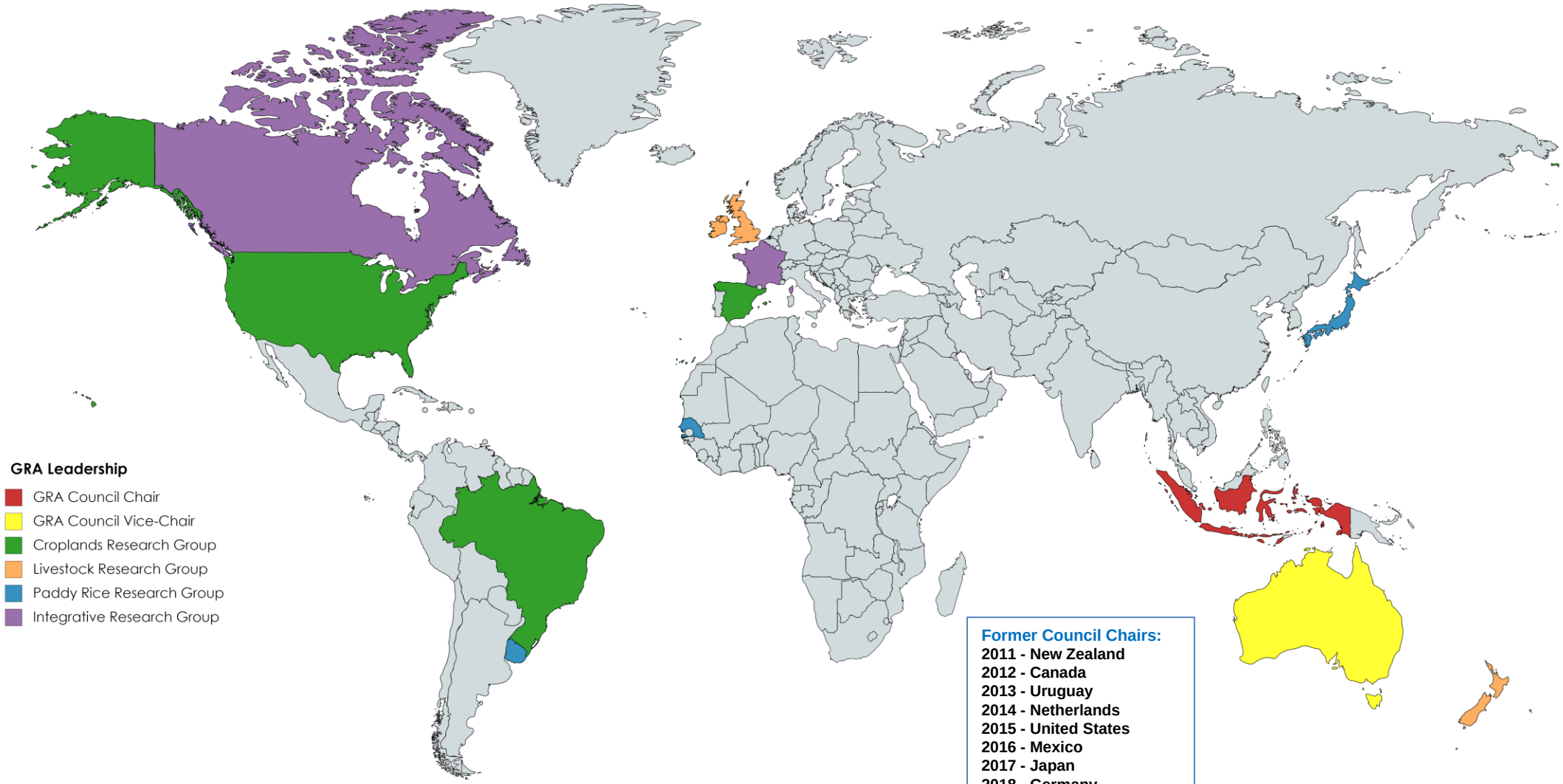







Current GRA Leadership

GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES



Former Council Chairs:
2011 - New Zealand
2012 - Canada
2013 - Uruguay
2014 - Netherlands
2015 - United States
2016 - Mexico
2017 - Japan
2018 - Germany

GRA Partners

GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

FONTAGRO

CABI

FAO FIAT PANIS

IICA

ipcc
INTERGOVERNMENTAL PANEL ON climate change

4 POUR 1000
LES SOLS POUR LA SÉCURITÉ ALIMENTAIRE ET LE CLIMAT

IDB Inter-American Development Bank

CIHEAM

GAA
Global Agri-business Alliance

ISRIC
World Soil Information

wbcsd

AgMIP

ghg management institute

GODAN
Global Open Data for Agriculture & Nutrition

The World Bank

CGIAR

CARDI

WORLD FARMERS' ORGANISATION

BANQUE AFRICAINE DE DEVELOPPEMENT
AFRICAN DEVELOPMENT BANK

CLIMATE & CLEAN AIR COALITION
TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS

CATIE
Solutions for environment and development
Soluciones para el ambiente y desarrollo

FACCEJPI

Future

FARA
Forum for Agricultural Research in Africa

SAI PLATFORM

SAARC

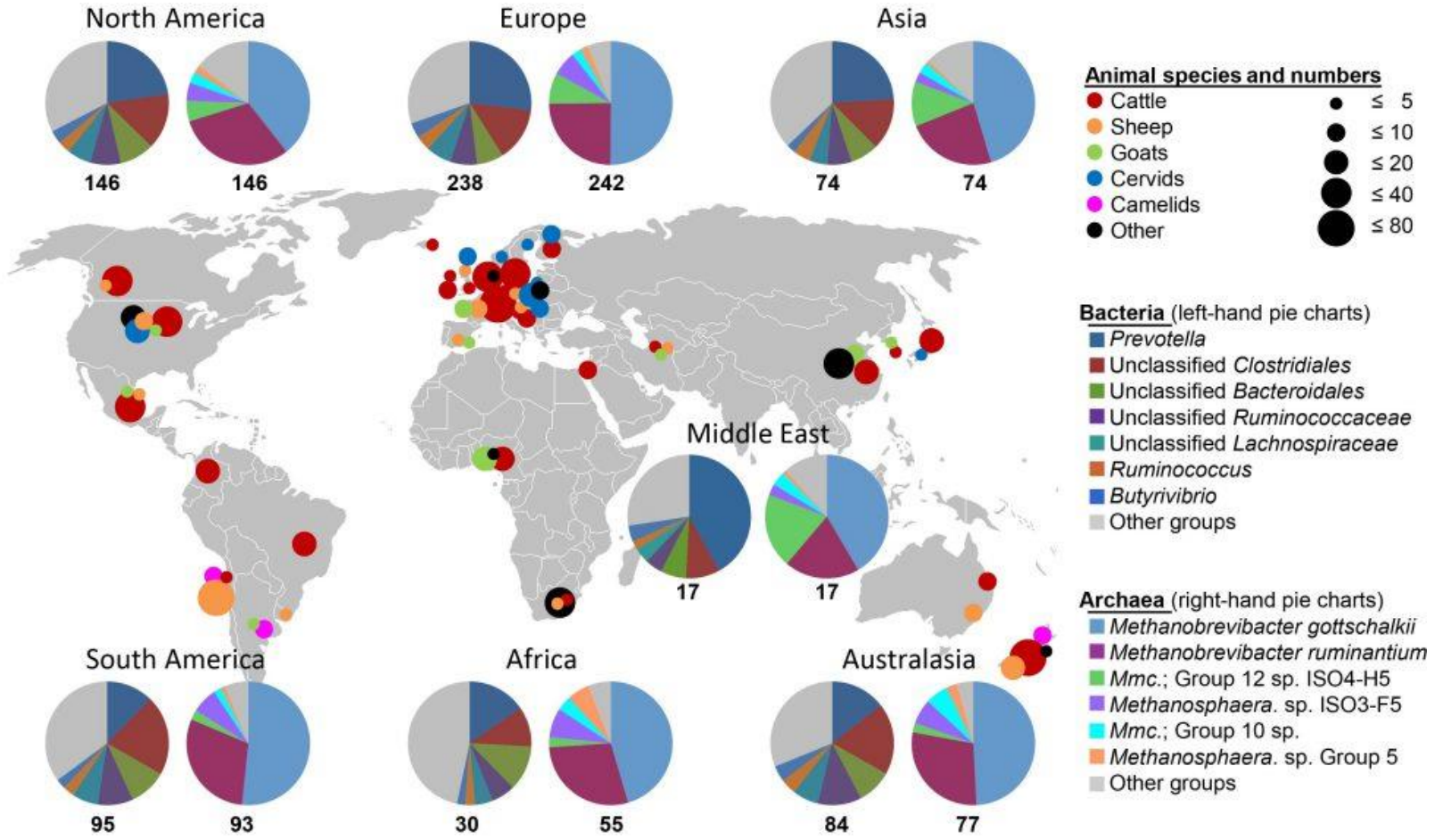
ADB ASIAN DEVELOPMENT BANK

IIASA International Institute for Applied Systems Analysis
www.iiasa.ac.at

Searching for the silver bullet within nature's diversity

GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

Global solutions to reduce methane from ruminant animals are feasible because the microbes causing the emissions are similar around the world



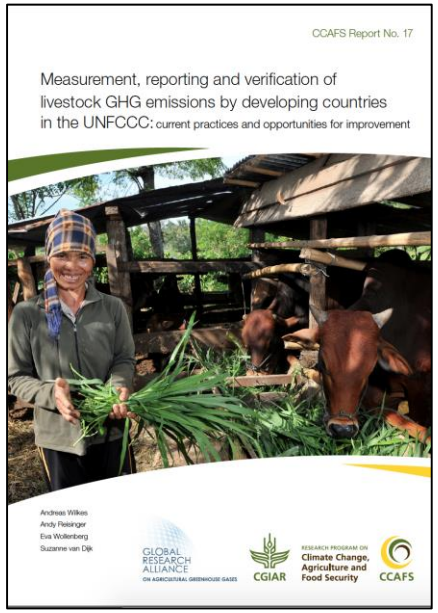
140 scientists from **73 organisations** in **35 countries** contributed to the rumen census, with microbial samples collected over two years.

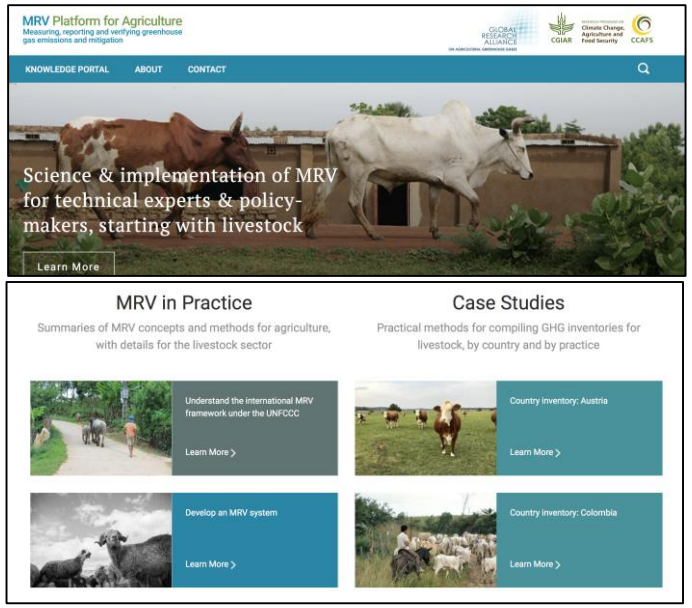
Global Rumen Census

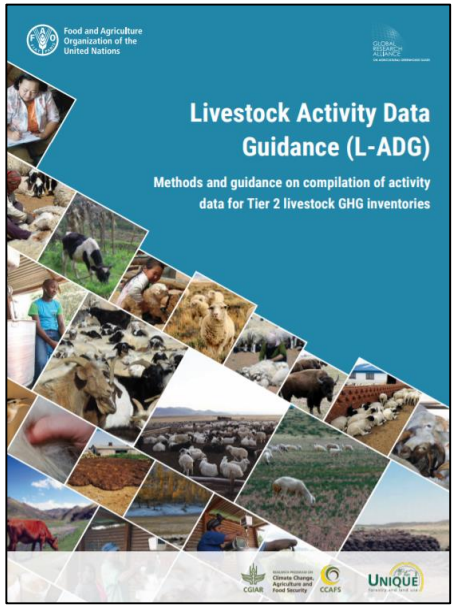
RMG NETWORK
RUMEN MICROBIAL GENOMICS NETWORK

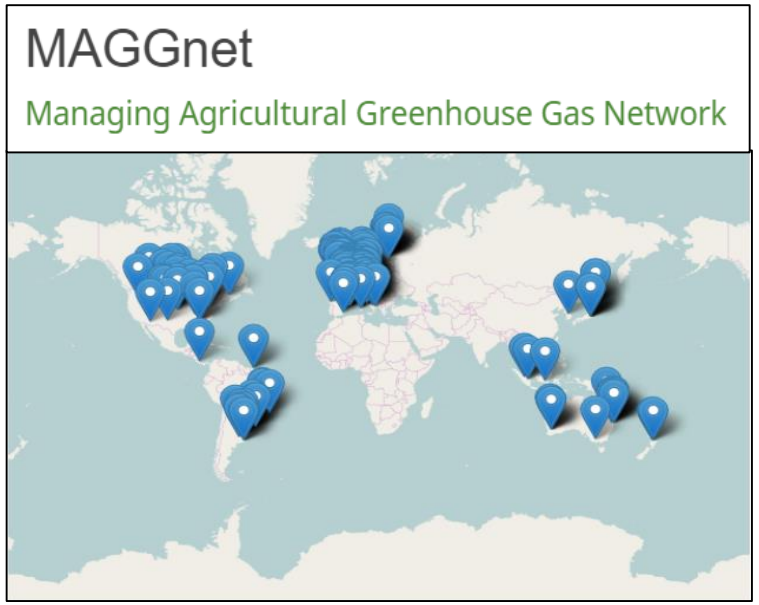
You can't mitigate what you can't measure

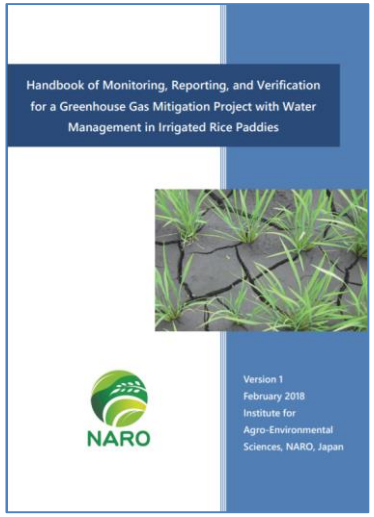
GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

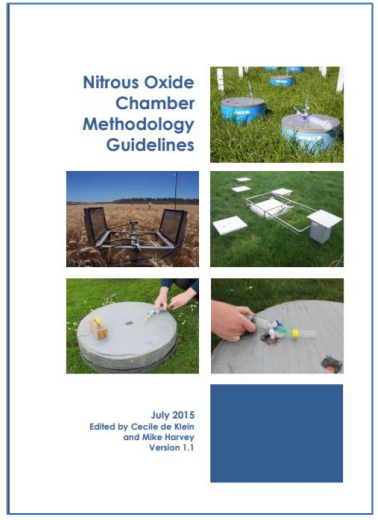


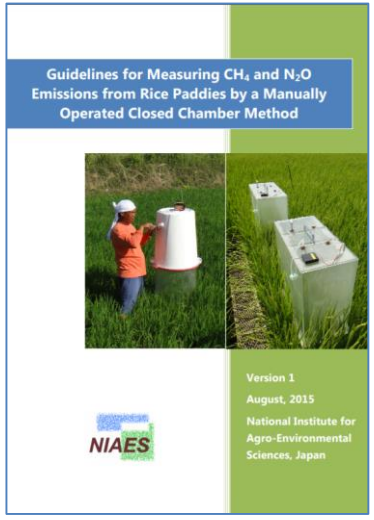


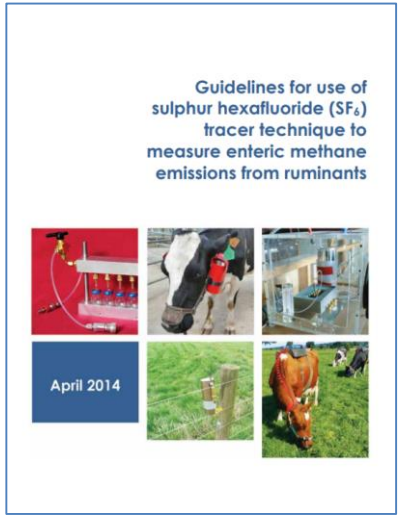












Since 2012, MAGGnet has compiled metadata from over 337 experimental studies from 23 countries.

Progress to date

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

Members getting organised

- Formation of national networks of expertise
- Connecting scientific community to policy community
- Aligning national funding with GRA priorities
- Transferring lessons to others

Regions getting organised

- Platforms of scientists, rural professionals, policymakers, farmers and agribusiness.
- Integrating climate change into research and innovation agenda
- Building capability

Higher education

- Increasing participation of Universities in national policy priorities
- Developing curricula

RUFORUM
Capacity Building in Agriculture

Progress to date

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

CLIFF-GRADS

So far, 124 PhD students, from 32 countries, based in 50 different institutes from 30 different countries.

Benefits:

- Early career scientist capability
- New institutional links
- Alumni networks
- Strengthened GRA membership
- New research ideas

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security CCAFS

Farmer study tours

Building farmer-farmer and science-farmer networks

Farmer leaders from 20 countries have been represented over five study tours

Argentina, Belgium, Canada, Colombia, Egypt, Ethiopia, France, Germany, Indonesia, Italy, Japan, Kenya, Mexico, New Zealand, Paraguay, Poland, South Africa, Switzerland, Uganda and Uruguay.

GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES

WORLD FARMERS' ORGANISATION

Multi-partner research calls

FACCE ERA-GAS

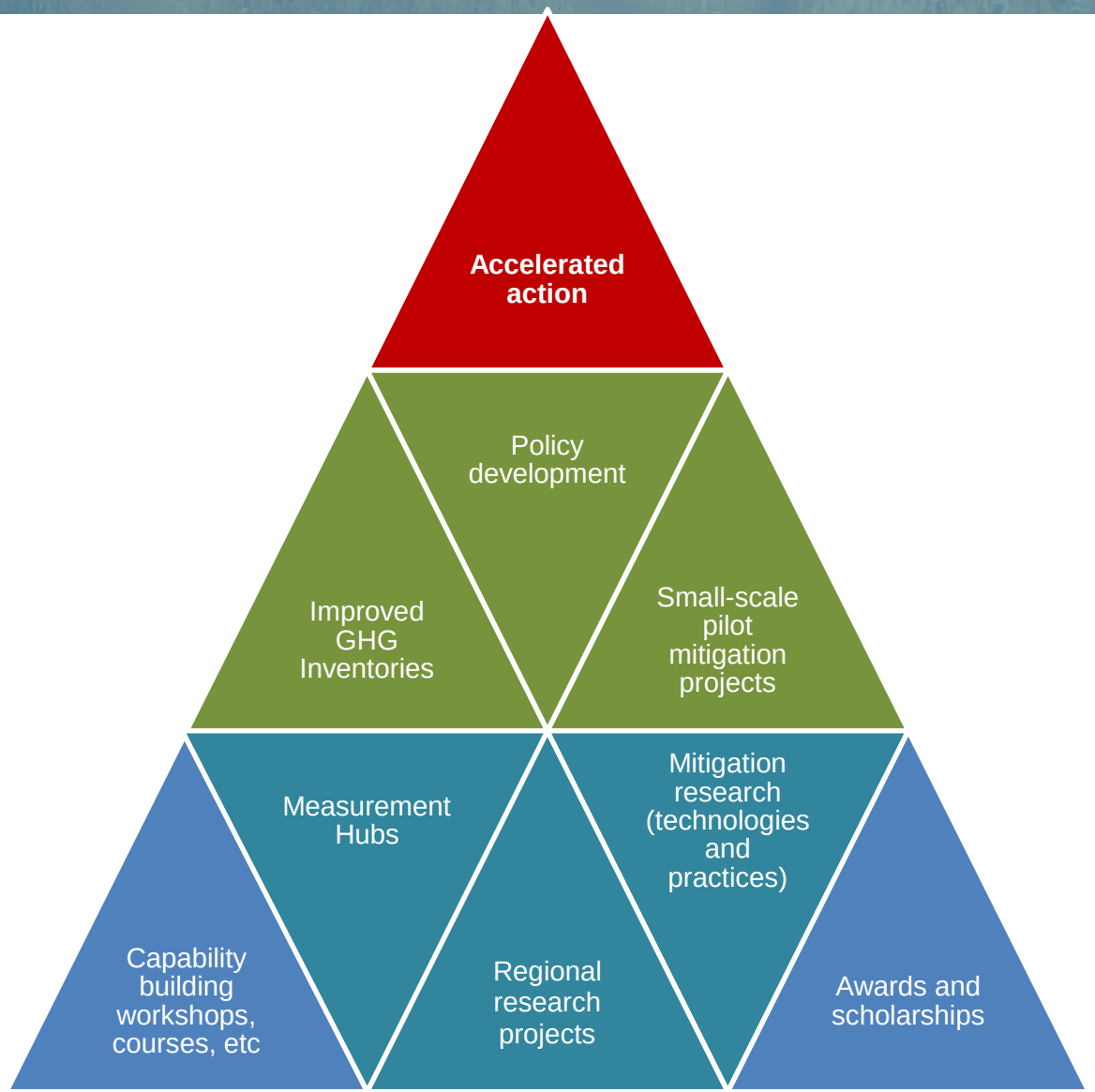
ERA-NETSUSAN

ICT AGRI era-net

- Leveraging funding
- Connecting research institutions from different regions
- Multi-disciplinary research

Priority investments and strategic objectives

GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES



- Need to **address tension** between sector's roles and objectives, i.e. nutrition *vis-a-vis* mitigation *vis-a-vis* livelihoods.
- Have to find ways to 'internationalise' science investment to **maximise efficiencies** and facilitate collaboration
- Need to work first within existing systems and provide **evidence base** for action.
- Need to emphasise **co-benefits** for sustainable development to achieve buy-in and remove barriers.
- Need for **scaled-up** resources (public and private) proportional to the scale of the challenge
- Need **long-term** investment to retain human capability and research infrastructure
- More rapid progress in **removing siloes** between research, agriculture, environment and development agencies.


GLOBAL
RESEARCH
ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES
FOR MORE INFORMATION
www.globalresearchalliance.org
secretariat@globalresearchalliance.org
Twitter: @GRA_GHG