

# GRA Inventory and Monitoring Cross Cutting Group

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GRA Council Meeting, Des Moines, 10 September 2015

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# Inventory & Monitoring Cross-Cutting Group

**Co-chaired** by Canada and The Netherlands



**Group Vision to:**

- **Work with GRA Research Groups and partners to improve transparency, accuracy, completeness, comparability, and consistency (TACCC) of:**
  - **Inventory** (Upscaled estimates of GHG; Not only UNFCCC inventory)
  - **Monitoring** (Measurement of state and trends of emissions, mitigation, and adaptation).

# Highlights

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- **Meeting with the CRG July 11-12, 2015, Brasilia**
  - Met with CRG plus separate short I&M meeting
- **Successful**
  - Increased number of countries participating in the meeting (11)
  - Increased understanding of I&M work and interaction with the CRG

# Highlights of Four Active Work Areas

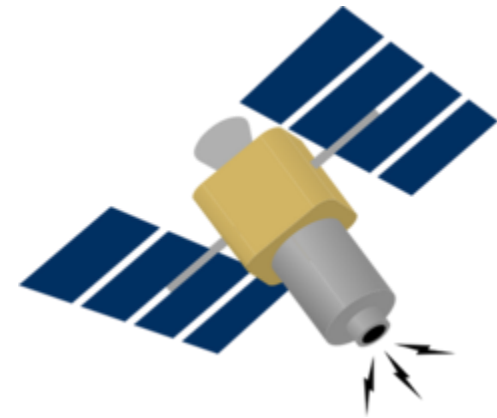
## Work Area 1

GLOBAL  
RESEARCH  
ALLIANCE

ON AGRICULTURAL GREENHOUSE GASES

### To share methods and lessons learned on application of remote sensing to improve activity data.

- Stocktaking of applications
- Workshop opportunity
- Interest in establishing a scientific network
- UK is coordinating



### Output:

- Stock take of state and opportunities of earth observation in inventory of activity data (2014-15)
- Develop network or project work team(s)



## Advantages

- Real world
- Geographic Scope
- Global
- Repeatable
- Multiple modes

## Limitations

- Resolution?
- Cloud cover
- Data volumes
- Complexity
- Cost?
- Skills/Experience

## Solutions

- Data integration
- Modelling and data assimilation
- Cloud computing
- Free access to data (eg. Landsat, Copernicus)
- ***Collaboration and networking – GRA!***

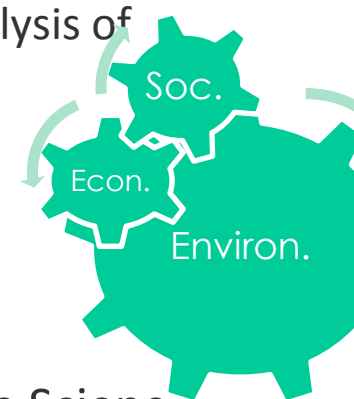
## Work area 2

### To improve the capability to quantify mitigation strategies in inventories and to address synergies and trade-offs with adaptation strategies.

- Improve knowledge sharing based on farming system similarities
- Describe activity data for national inventories that enables better analysis of system-level synergies and trade-offs among gases and practices
- Build on existing work
- Netherlands is coordinating

#### Outputs:

- Workshop on Farming systems (February 2015)
- Co-organized GRA-CCAFS side-event (Climate Smart Agriculture Science Conference, March 2015)
- Opportunities: Develop network or project work team



# Regional network on farming systems

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- **Co-hosted by the Ministry of Agriculture and Cooperatives (MoAC) of Thailand and the GRA.**
  - **Location Bangkok**
  - **11 – 13 February 2015**
  - **Participants**
    - Indonesia, Korea, Malaysia, Myanmar, Philippines, Vietnam and Thailand.
    - With the support from Agriterra, farmer representatives from the Philippines and Indonesia
    - The Netherlands, UK
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# CCAFS meeting during the CSA conference

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1. Collaboration is growing.
2. Potential collaboration point is to extend models to include complex systems in developing countries.
3. Alignment is needed about protocols and measurements. There is potential to write a paper.
4. Exchange of names, no formal structures needed.



# Work Area 3

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## To share knowledge and facilitate collaboration on improving national inventories

- Stock take of national inventory improvements under way and planned
- Canada is coordinating

### **Output:**

- Summary from stock take on inventory improvements
- Africa Inventory Workshop sponsored by New Zealand
- Opportunity: Develop network(s) to further work

# Inventory Stock Take Results

- **All countries were improving aspects of both their activity data and emission factors**
  - Most improving across a broad range of categories and sub-categories of emissions

Opportunity with GRA	Number of Times Identified
Networking and Collaboration	66
Networking only	18
Learning/skill development	16
Collaboration of specific project	13

# Work Area 4

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## Methodological Guidelines for Measurement of Soil Organic Carbon Stocks of Agricultural Lands

- Initial focus on grassland due to opportunity to add most scientific value
- Develop practical, scientific guidance to increase consistency and comparability of monitoring strategies
- Canada is coordinating

## Outputs: modules/reports (2014-2015) on:

- Post-doctoral fellow doing meta-analysis of global literature on C measurement for grasslands
    - Working through 270 papers (from 2000)
    - Meta-analysis identifying relationships needed for monitoring
  - Opportunity: Overall Grassland Network to further work more broadly and/or more deeply
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# I&M Challenges

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- **Active participation in Group work areas!**
- **Involvement of practitioners in national inventory and climate change policy advisors**
  - Often Ministry of Environment
  - Most do not have the flexibility in budget or work like researchers with own project funding
- **Engaging agricultural research scientists into the science of inventory and monitoring**

# Ambitions

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**Recognized massive value to the potential of work  
I&M Group**

**Opportunities to add enormous value through  
addressing I&M issues as GRA rather than as  
individual countries and partners**

**GRA is unique vehicle to achieve these  
opportunities**

***We need the GRA members and partners to be  
more involved!***

# Goals

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- 1. To share knowledge and facilitate collaboration on application of remote sensing to improve activity data for inventory purposes and for monitoring adaptation**
    - Facilitate networking for exchange of knowledge and experiences.
    - Facilitate collaboration on projects on applications.
  - 2. To improve the capability to quantify adaptation and mitigation options at farm level (“farming system”)**
    - Facilitate regional and global networking.
    - Facilitate collaboration on projects on farming system typology.
    - Facilitate capability building.
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# Goals

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### **3. To share knowledge and facilitate collaboration on improving national inventories and on the application of inventory methods to improve sustainable adaptation**

- Facilitate networking for exchange of knowledge and experiences.
- Facilitate collaboration on projects about improvements.
- Summarize experiences and approaches (i.e brief case studies) to provide information for improving inventories and linking agricultural GHG science to policy-relevant applications
- Facilitate capability building.

### **4. To produce best practice guidance on monitoring soil organic carbon stocks over space and time**

- Literature review of monitoring methods and their capabilities.
  - Develop guidance for monitoring carbon stocks on grassland.
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# Summary

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- **Ambitions exceed capacity**
  - **More targeted approach that is restricted to work areas with active participation has been productive**
  - **Stock taking projects have increased involvement and identified more collaborative research opportunities**
  - **Connections to UNFCCC reporting strengthened**
    - National inventories and national communications
    - Inventory methods for sustainable adaptation actions
  - **Meeting in conjunction with RG very successful**
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