

GLOBAL RESEARCH ALLIANCE  
ON AGRICULTURAL GREENHOUSE GASES



# Climate Smart Food Security

The Impact of Global Cooperation in Research

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Date: 2/1/2016

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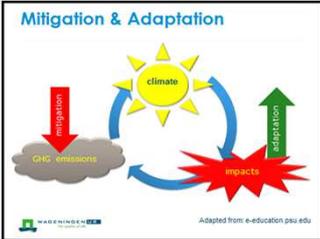
## The Dual Challenge



Healthy Food and Nutrition ...  
.... for > 9 Billion People in 2050 ...  
..... within the Capacity of our Planet



### Mitigation & Adaptation



Adapted from e-education.psu.edu

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# GRA

## Established in 2011 46 Members and Partners

- brings countries together to find ways to grow more food with lower emissions
- by improving global cooperation in research
- to support farmers, policies and other international organizations










RESEARCH PROGRAM ON  
Climate Change,  
Agriculture and  
Food Security



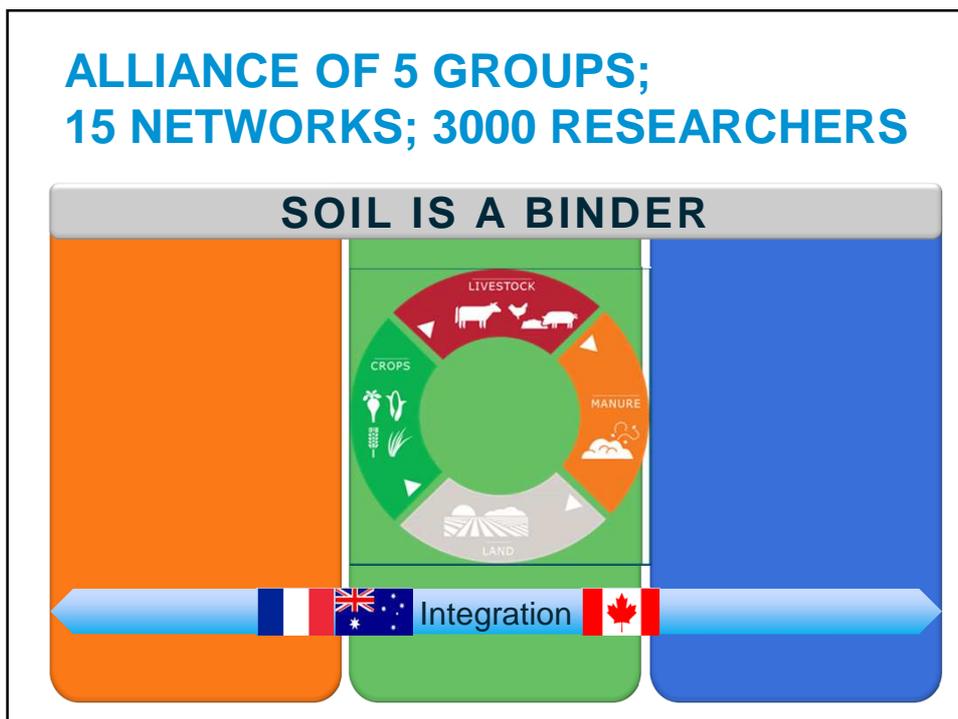

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## ALLIANCE OF 5 GROUPS; 15 NETWORKS; 3000 RESEARCHERS

**RESEARCH GROUPS**

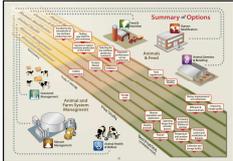
 <p style="font-size: 18px; color: white; margin-top: 10px;">livestock</p> <div style="display: flex; justify-content: center; gap: 5px; margin-top: 10px;">    </div>	 <p style="font-size: 18px; color: white; margin-top: 10px;">croplands</p> <div style="display: flex; justify-content: center; gap: 5px; margin-top: 10px;">   </div>	 <p style="font-size: 18px; color: white; margin-top: 10px;">paddy rice</p> <div style="display: flex; justify-content: center; gap: 5px; margin-top: 10px;">   </div>
<div style="display: flex; justify-content: center; align-items: center; gap: 10px;"> <div style="background-color: #0070C0; color: white; padding: 5px 10px; border-radius: 15px;">   </div> <div style="font-size: 18px; color: white; font-weight: bold;">Integration</div> <div style="background-color: #0070C0; color: white; padding: 5px 10px; border-radius: 15px;">  </div> </div>		

2



## What it brings.....

<p><b>BETTER UNDERSTANDING</b></p> <ul style="list-style-type: none"> <li>• Networks of Researchers</li> <li>• Workshops</li> <li>• Trainings &amp; Fellowships</li> <li>• Technical Guidelines</li> <li>• Collaborative Research Projects</li> </ul>	<p><b>BETTER PRACTICES</b></p> <ul style="list-style-type: none"> <li>• Knowledge Hubs &amp; Kiosks</li> <li>• Technology Transfer</li> <li>• Mitigation Options</li> <li>• Adaptation Options</li> <li>• Support to Farmers</li> </ul>
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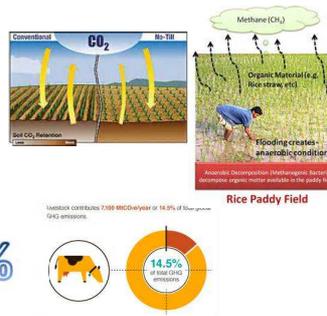


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## Less GHG Emissions

### Global Emission Agricultural GHG Emissions:

- 10 Billion Tonnes CO<sub>2</sub>eq (ca. 20%)
- 60% Livestock related
- 40+% Mitigation Potential



- > 40%

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## More Carbon Sequestration

### Global Agricultural GHG sinks:

- 2 Billion Tonnes CO<sub>2</sub>eq
- 60% more Sequestration Potential

4 ‰ ->  
+ 60%



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## Better Adapted Food Production

Extreme Storms and Rains  
Extreme Droughts  
Higher Temperatures  
More Floods



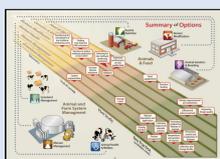
Reduced Crop Yields  
Limited Water Resources  
Soil Erosion  
Inundation of Land  
Infectious Diseases



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## Practical Achievements

2007

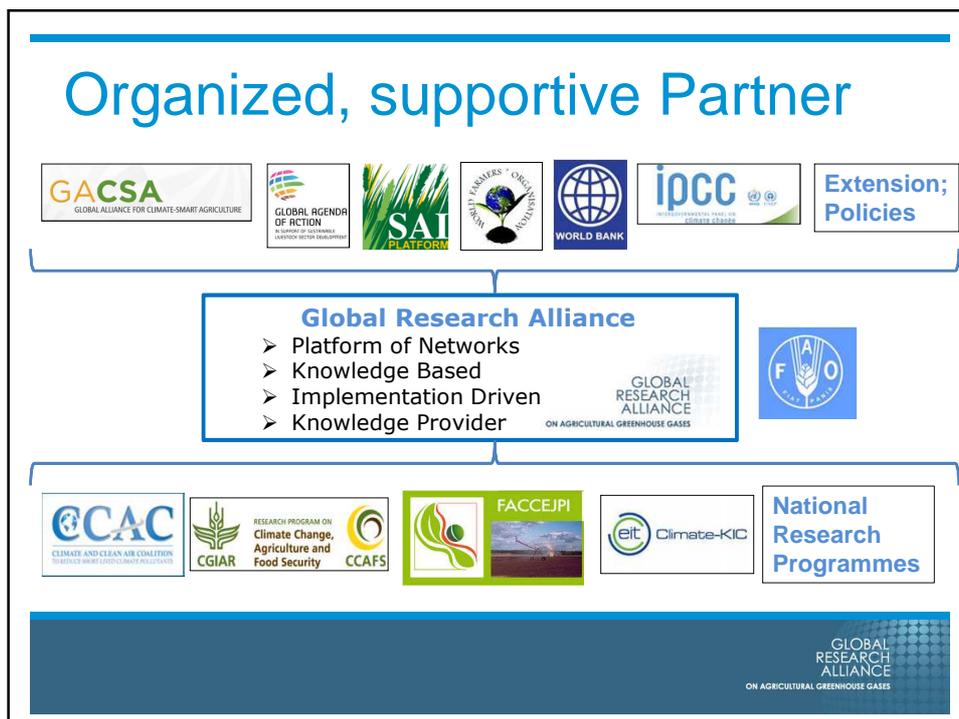


2014



- Genotyping Low Methane Production for Selection
- Improving Feed Quality and Digestibility, Rumen Microbes
- Improving Animal Health and Husbandry Conditions
- Manure Management: Collection, Storage and Utilisation
- Improving C Sequestration Soils
- Precision Livestock Farming

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## Thanks for your Attention

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@GRA\_GHG