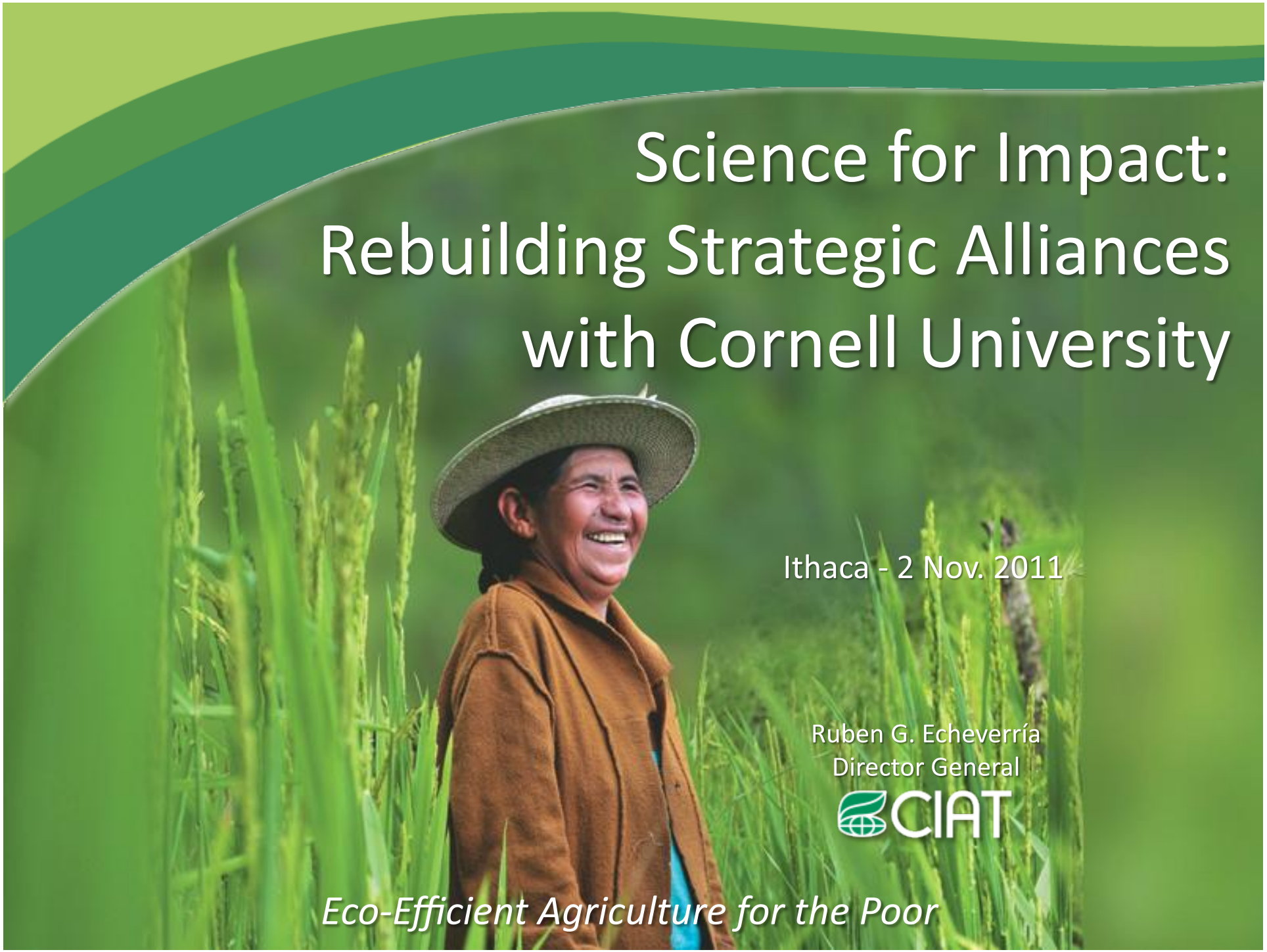
When the winds of change blow, most people build wind-shelters.
Only a few people build windmills

Science for Impact: Rebuilding Strategic Alliances with Cornell University

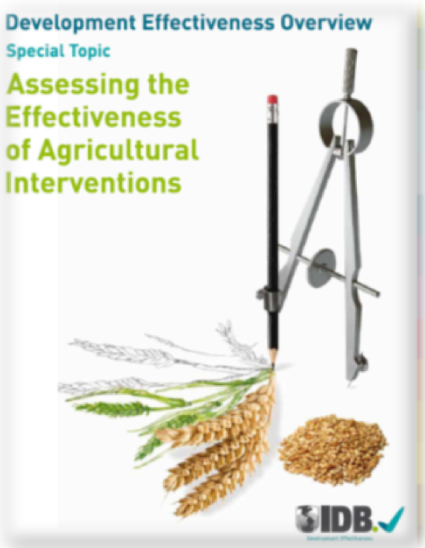


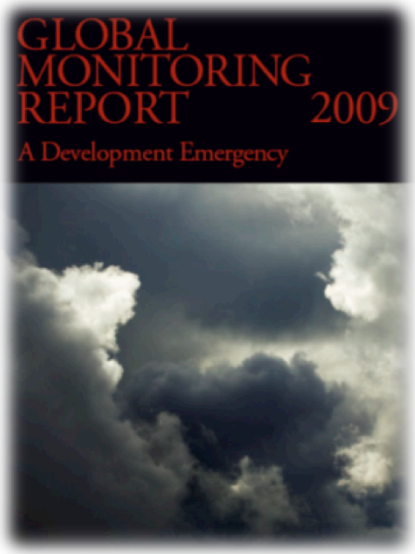
Ithaca - 2 Nov. 2011

Ruben G. Echeverría
Director General
CIAT

Eco-Efficient Agriculture for the Poor

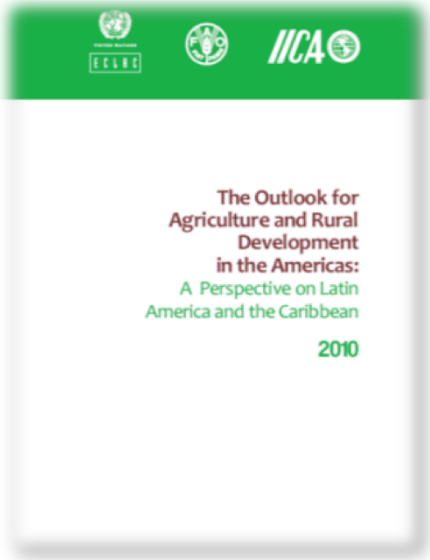
Agriculture is back on the global agenda!

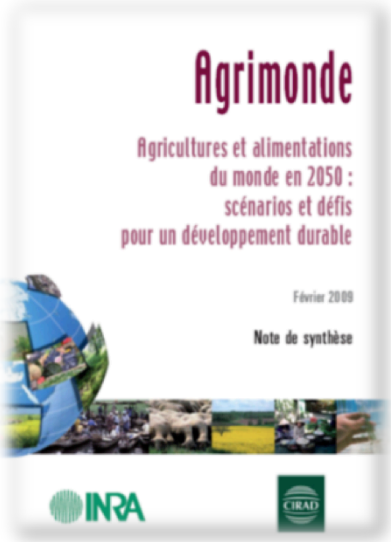


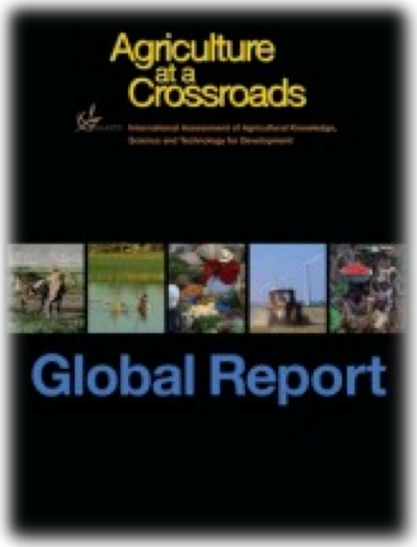


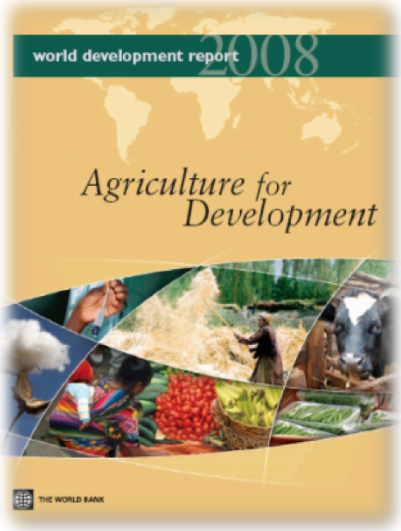












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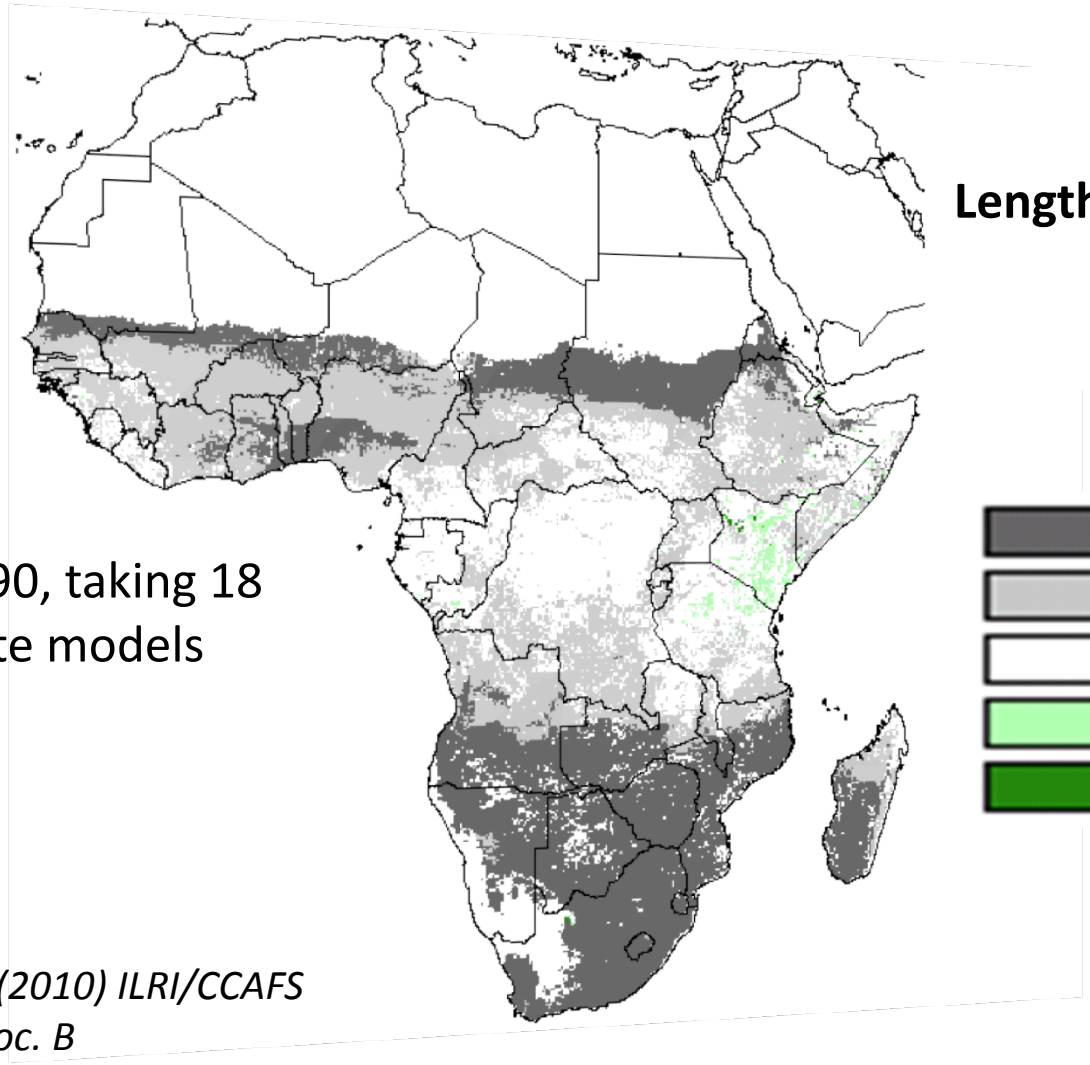


60-70% more food

by 2050

- **Cereal:**
  2.1 → 3 billion tonnes/yr
- **Meat:**
  270 → 470 million tonnes/yr

Length of Growing Season will Decline Drastically



To 2090, taking 18 Climate models

Thornton et al. (2010) ILRI/CCAFS Phil. Trans. R. Soc. B

CIAT

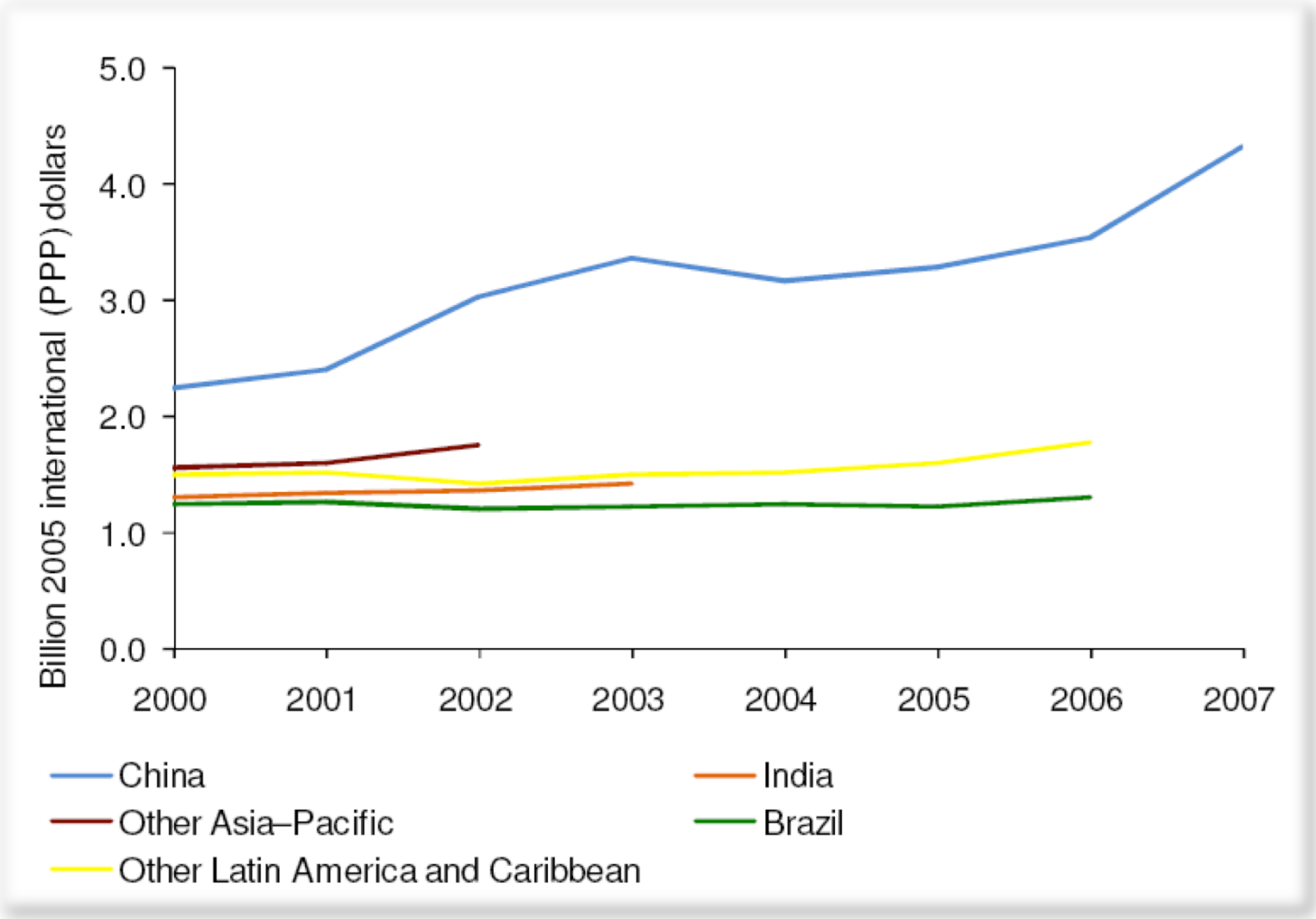
One of the most challenging issues the world has ever faced:
Food production systems under pressure

- Produce more food and increase the nutritional value of food
- Make food accessible and affordable
- Unpredictable and unusual weather patterns and pressure to protect the environment given scarcity of water and arable land
- The majority of the world population will not live near where food is grown

Quo vadis?

- Agriculture is back on the agenda, now what are we going to do?
- Recognition of the importance of agriculture, rural development, and agricultural research is growing, but the road towards translating discourse into reality seems to be very long …
- We should continue to advocate at the highest possible levels in order to secure funding to implement global agricultural development
- Agricultural research it's only a small component of an agricultural development strategy, but a crucial one!
- Public research investment in LDCs continues to be concentrated on a few countries (Brazil, China, India, South Africa, Mexico, Argentina)

Global Agricultural R&D Investment Trends since 2000



SOURCE: Stads and Beintema (2010)

CGIAR: A Consortium of International Agricultural Research Centers



CGIAR Core Assets

- A group of 64 member countries and organizations addressing global development challenges through international agricultural research
- A critical mass of scientists with multidisciplinary knowledge of key agroecosystems
- An extensive global research infrastructure, including research stations representing many agro-ecosystems
- Global and regional research networks with strong links to national agricultural research and innovation systems
- Global collections of genetic resources held in trust for the world

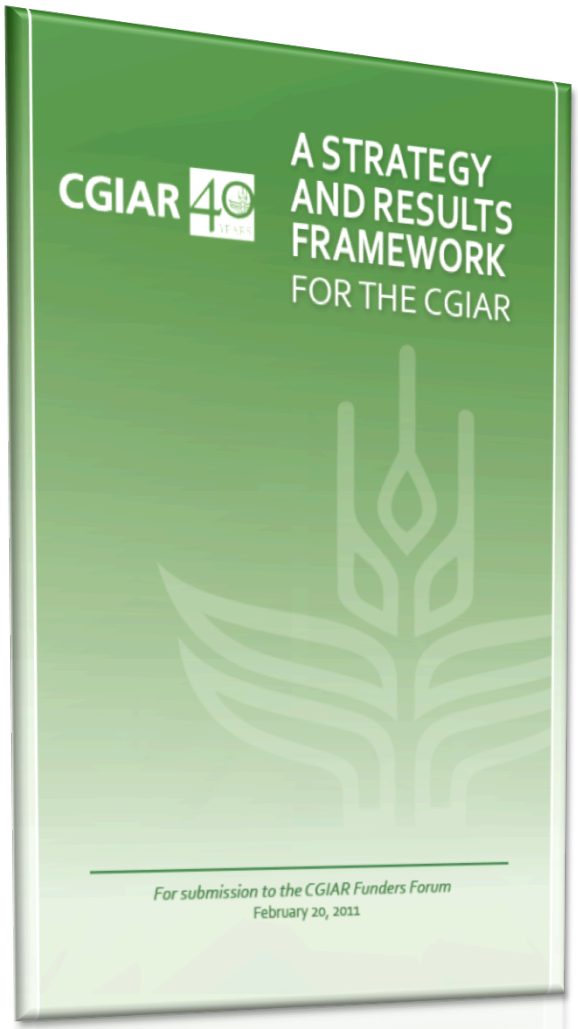
For every $1 invested in CGIAR research, $9 worth of additional food is produced in the developing world

- The estimated rates of return on the CGIAR's investment in all crop improvement research range from 39% in Latin America to more than 100% in Asia, the Middle East and North Africa
- Investments in the CGIAR to 2000 have increased cereal yields by 0.7-1.0% annually, reduced world grain prices about 20%, and prevented 13 million to 15 million children from being malnourished
- More than half of the improved varieties (rice, wheat, and maize) grown in Africa, Asia and Latin America contain germplasm originating from CGIAR research

CGIAR Impacts

- The economic returns to biological control of insect pests of the tropical root crop **cassava**-current value US$ 9 billion for research on the cassava mealybug-far exceed the CGIAR's total investment in Africa since 1971
- 3.5 million African farmers grow **beans** developed by CIAT and partners, about half of the total bean area in Eastern, Central and Southern Africa
- More than 40,000 smallholders have adopted CIAT's improved **forages** in Southeast Asia
- Around 60 percent of **rice** varieties in Latin America originated from germplasm developed by CIAT

Reduce poverty and hunger, improve human health and nutrition, and enhance ecosystem resilience through high-quality international agricultural research, partnerships and leadership



After four decades of experience, the CGIAR has research competencies in:

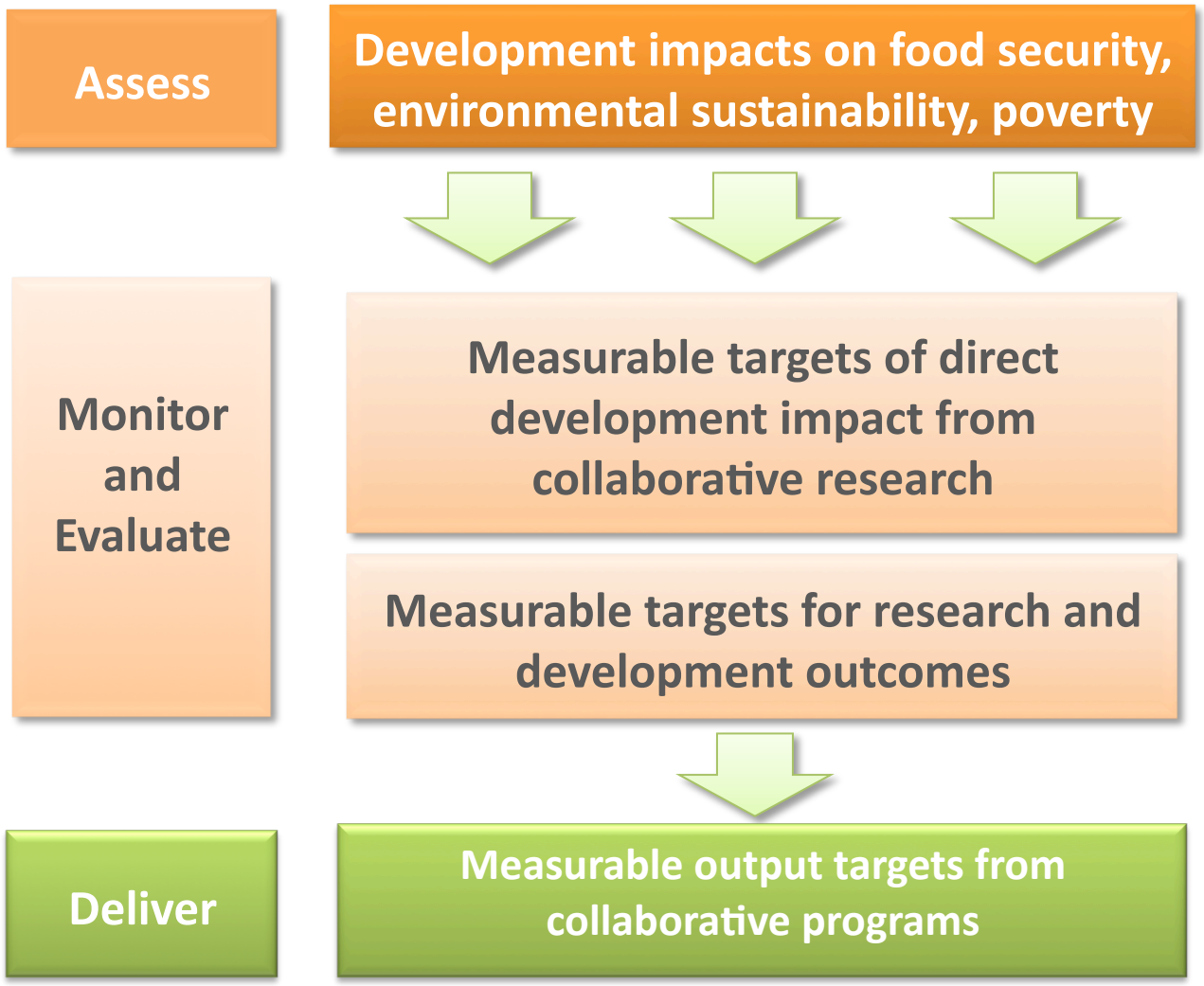
- Improvement of crop and animal production
- Natural resource management
- Social sciences and agricultural policies
- Production systems to improve productivity in a sustainable manner
- Climate Change: adaptation and mitigation to its effects in agriculture

CGIAR Transformation: 2008-11



CGIAR 40 YEARS

New approach:
From impacts on development problems to research outputs



CGIAR Research Programs

Program	Leader
Integrated agricultural production systems for the poor and vulnerable in dry areas	International Center for Agricultural Research in the Dry Areas (ICARDA)
Integrated systems for the humid tropics	International Institute of Tropical Agriculture (IITA)
Harnessing the development potential of aquatic agricultural systems for the poor and vulnerable	WorldFish Center
Policies, institutions and markets to strengthen food security and incomes for the rural poor	International Food Policy Research Institute (IFPRI)
Wheat – Global alliance for improving food security and the livelihoods of the resource-poor in the developing world	International Maize and Wheat Improvement Center (CIMMYT)
Maize – Global alliance for improving food security and the livelihoods of the resource-poor in the developing world	(CIMMYT)
GRiSP – a global rice science partnership	International Rice Research Institute (IRRI)
Roots, tubers and bananas for food security and income	International Potato Center (CIP)

CGIAR Research Programs

Program	Leader
Grain Legumes – enhanced food and feed security, nutritional balance, economic growth and soil health for smallholder farmers	International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)
Dryland cereals: food security, better health and economic growth for the world's most vulnerable poor	(ICRISAT)
More meat, milk and fish by and for the poor	International Livestock Research Institute (ILRI)
Agriculture for improved nutrition and health	(IFPRI)
Water, land and ecosystems	International Water Management Institute (IWMI)
Forests, trees and agroforestry	Center for International Forestry Research (CIFOR)
Climate change, agriculture and food security	**International Center for Tropical Agriculture (CIAT)**

GRiSP-a global rice science partnership

- Nearly 900 partners
- Objectives: Break yield ceilings using genomics, breed drought and flood- tolerant varieties, and find innovative ways to get new varieties to farmers and make the rice sector more efficient and equitable
- Expected outcomes: By 2020 income gains of US$11 billion annually should lift 72 million people out of poverty and enable 40 million people to reach food security

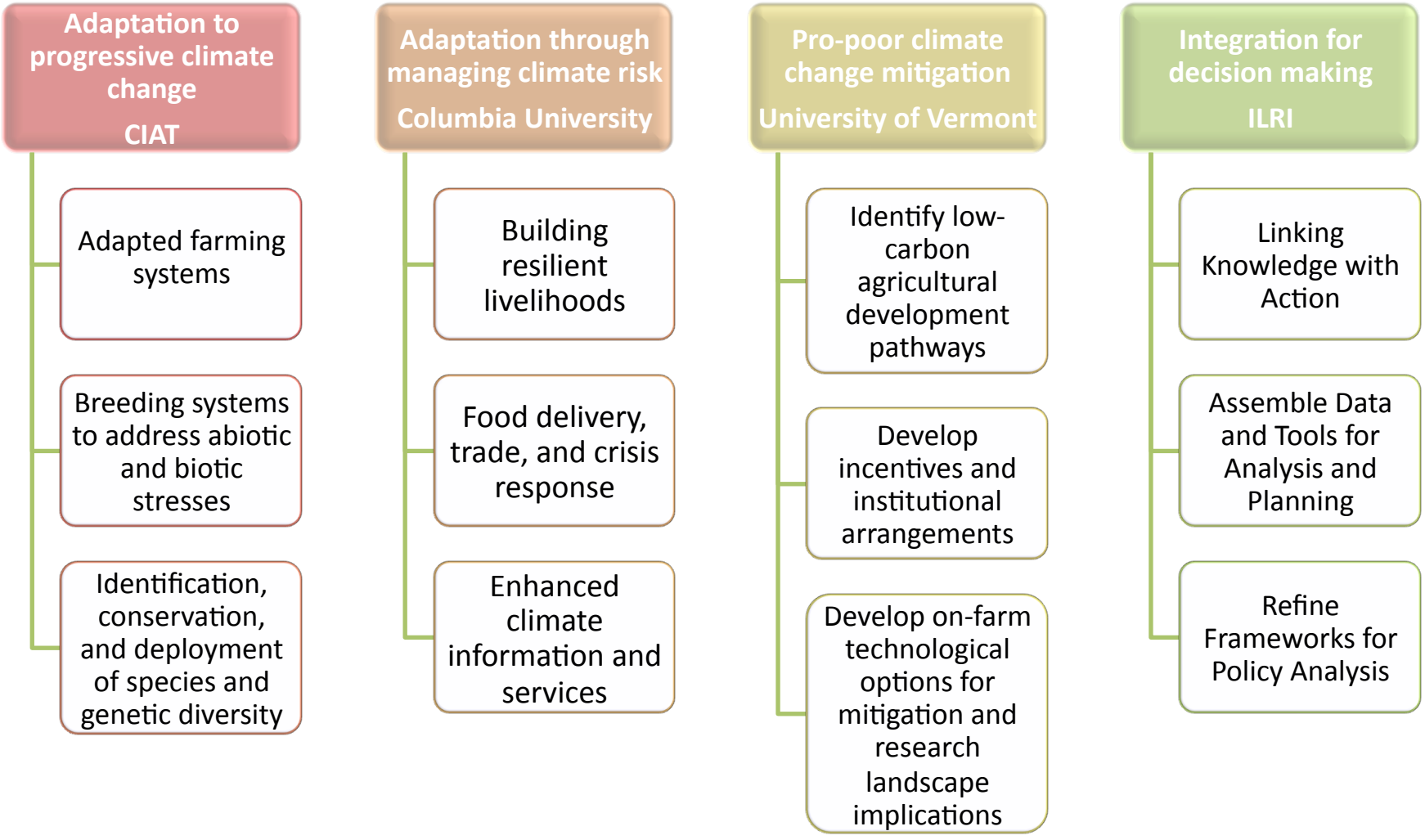


Climate Change, Agriculture, and Food Security (CCAFS)

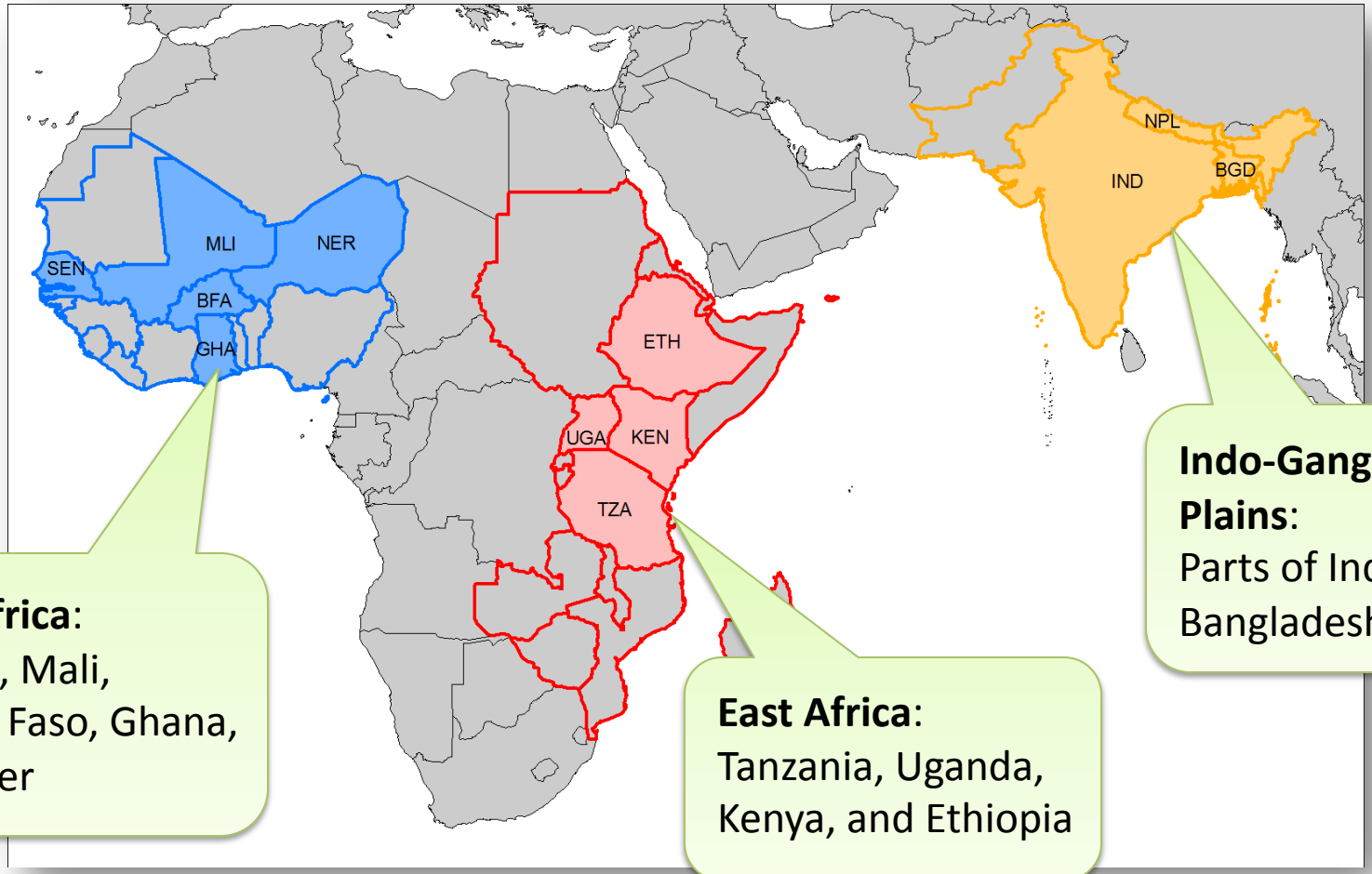
- More than 400 partners, including climate change research community
- Objective: Overcome threats to food security by identifying pro-poor technologies and policies for mitigation and adaptation
- Expected outcomes: By 2020, reduce poverty by 10%, lower number of malnourished rural people by 25% in targeted regions, and reduce greenhouse gas emissions by equivalent to 1,000 million tons of CO_2



CGIAR Program on Climate Change, Agriculture, and Food Security



Place-based Field Work



West Africa:
Senegal, Mali, Burkina Faso, Ghana, and Niger

East Africa:
Tanzania, Uganda, Kenya, and Ethiopia

Indo-Gangetic Plains:
Parts of India, Bangladesh, Nepal

CIAT's Mission



To reduce ***hunger*** and ***poverty***, and improve human ***health*** in the tropics through ***research*** aimed at increasing the eco-efficiency of agriculture

Science for Impact

Eco-Efficient Agriculture



CIAT

About CIAT-some key facts

- Founded in 1967 near Cali, Colombia
- 750 staff, 400 professionals, **200** scientists
- Operating in three regions:
  - Latin America and the Caribbean (based at HQ, Colombia)
  - Sub-Saharan Africa (based in Nairobi) with activities in 28 countries
  - Southeast Asia (based in Hanoi) with activities in China, Vietnam, Laos, Cambodia, and Thailand
- Current budget of US$M **60**

Research-for-Development Initiatives 2011

- Tropical Soils Management
- Rice
- Bean
- Cassava
- Tropical Forages
- Climate Change & Ecosystem Services
- Linking Farmers to Markets
- Capacity Strengthening & Knowledge Management
- Decision & Policy Analysis
- Genetic Resources & Biotechnology

AGRONATURA

Parque Científico CIAT
CIAT Science Park

Promoting innovation for development



Exciting things going on at CIAT

- Breeding of climbing beans adapted to lower elevations has facilitated large-scale adoption of improved bean varieties in Africa- a major contribution to food and nutrition security
- Ongoing use of simulation modeling to support the development of climate change adaptation strategies for staple crops
- Development of the African Soils Information Service (AfSIS)



Regional Biotechnology Platform



- Quicken integration of genomic technologies and cell research, with germplasm improvement and conservation
- Provide access to advanced technologies and enhance breeding capacities and skills
- Train new generation of researchers



Integration with germplasm banks

Integration with plant breeding

CIAT & Regional Infrastructures

Phenomics	Genomics	Genetic modification	Microarray	Proteomics	Sequentiation

CIAT Promotes Capacity Strengthening

- Global training in plant genetics, soil fertility, knowledge management, intellectual property, and seed systems
- Short- and medium-term training in LAC, together with strategic partners such as CATIE, EMBRAPA, CIRAD, IICA, universities, private sector, INIAs, FORAGRO



CIAT Staff at Cornell University



Gloria Mercy Lung'aho
Food Science and Technology
HarvestPlus



Hernan Ceballos
Plant Breeding
Cassava



John Miles
Plant Breeding
Tropical Forages



Helena Pachon
Nutritionist
Agrosalud



Clair Hershey
Plant Breeding
Cassava



Federico Holmann
Animal Science
Tropical Forages

CIAT

Topics Where We could Collaborate

- Genetic improvement
- Agronomy and tropical soils
- Health and nutrition
- Policy analysis, impact assessment
- Adaptation to climate change

Implementing Collaboration Opportunities

- Training of PhD students at CORNELL in research areas related to CIAT and the CGIAR
- PhD students from CORNELL could link their thesis work to CIAT's research challenges
- Fresh graduates from CORNELL could do a postdoc at CIAT
- CORNELL professors could have sabbaticals-research visits to CIAT
- CIAT researchers could have research visits to CORNELL
- We could jointly mobilize resources to fund such activities

CIAT: Science for Impact



www.ciat.cgiar.org

