

A VISION FOR GLOBAL AGRICULTURAL, FOOD AND ENVIRONMENTAL CHALLENGES

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ABSTRACT

To address the challenges facing global agriculture today by working toward poverty alleviation, using science to benefit development, and developing policies and policy tools for decision-makers, CIRAD has adapted its scientific and partnership strategy.

CIRAD's mandate is to pursue research, education and dissemination of knowledge and research results. Its activities involve the life sciences, social sciences and engineering sciences, applied to agriculture, forestry, animal production and health, food, environmental issues, and rural territories. CIRAD works in collaboration with other French institutions, European research groups, and many other national and international partners, from South and North regions.

CIRAD's experience on-the-ground, some dating back to the 1950s, is an essential part of its history and capacities. This has allowed it to collect a large set of scientific and empirical data and to gather a specific expertise to compare various ecosystems, agricultural practices and social issues. A growing range of partners, including universities, farmers and producers organizations, NGOs, businesses, governments, and regional and global entities (such as NEPAD and the CGIAR) help CIRAD to continuously develop its vision for agricultural research.

CIRAD carries out its research through partnership in South and North regions. All partnerships must satisfy the principle of generating shared scientific knowledge. Some national research partners require support to carry out their priority objectives. Others have achieved a level of quality that meets international standards. By building research programs jointly with a range of partners, and developing and sharing the results (publications, innovations, patents, and any products obtained), CIRAD contributes to capacity building which benefits both its partners and itself.

CIRAD has developed a number of tools to assist its work. These include the research and education platforms which it develops and shares with its partners, and decision tools and scenario systems such as Agrimonde (forecasting and studying global food issues to the year 2050), and the OAM (Observatory of world agricultures) which encourage information gathering at many levels, and permit comparisons across countries and regions.

SIX PRIORITY LINES

Global agriculture now faces three seemingly contradictory concerns: feeding the world, ensuring energy production, and preserving the environment. To address today's challenges using agricultural research, CIRAD's activities concentrate along six critical, priority lines:

- Ecological intensification;
- Biomass energy and societies in the South;

- Accessible, quality food;
- Animal health and emerging diseases;
- Public policy, poverty and inequality;
- Agriculture, environment, nature and societies.

PRIORITY RESEARCH AND EDUCATION INITIATIVES IN PARTNERSHIP

To maintain a high-level scientific output, and strengthen ties between research, universities and local practices, CIRAD is focusing its efforts through some priority initiatives around the world.

These priority research and education platforms permit CIRAD to concentrate its resources, provide focal points for advanced and adaptive research, and help train researchers and development actors.




A vision for meeting global agricultural, food and environmental challenges

An original research institution

- National public institution status, but a global mission
- Targeted research for development
- Based on a rich heritage and an original approach
- A new strategy for a new context

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

A vision for global agricultural, food and environmental challenges

- Decades of research on agriculture and food in tropical regions
- A range of different partners, from decision makers to farmers, from local to global
- Partnership, a founding principle of CIRAD's activities

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A new international context

- Agricultural research at the heart of global issues
- A challenge: to produce more and better, by diversifying commodity chains
- New borders: plurality of "Souths" and global concerns

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A strategy tailored to the new context

- **Targeted research** on development and poverty alleviation issues
- Research focused on the **Millennium Development Goals** (producing global public goods)

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Implementing the vision

- Taking an active part in the renewed global governance of agricultural research
- Two main strategic tools to anticipate needs and understand changes (Agrimonde, OAM)
- A set of joint research initiatives: research platforms in partnership
- Six strategic lines of research

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

Implementing the vision For renewed global governance of agricultural research

CIRAD:

- is contributing actively to the GFAR action plan and was a major player in GCARD 2010
- is involved in the design, governance and implementation of the CGIAR CRPs
- is building a strategic partnership with the World Bank
- is a member of most international AR4D networks and leader of several

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

Implementing the vision Strategic tools

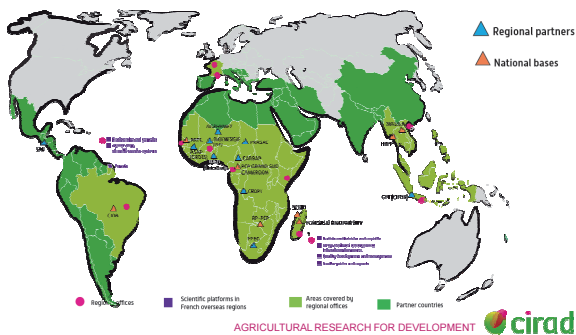
- A foresight tool: Agrimonde, developed with INRA
- An Observatory of World Agricultures (OAM) to assess and compare changes in agriculture, with the FAO and IFAD

Intelligence capacity in support of action

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

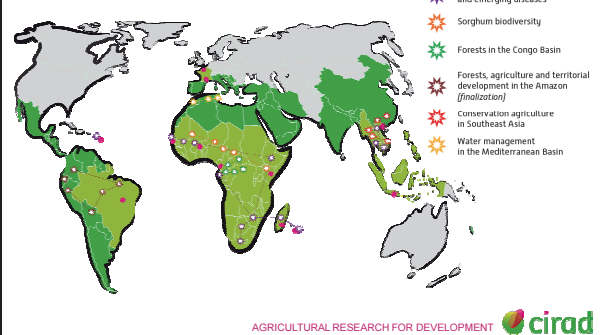
Implementing the vision Priority research initiatives in partnership

Research platforms



Implementing the vision Priority research initiatives in partnership

Thematic networks



Implementing the vision Priority research initiatives in partnership

1. Ecological intensification
2. Biomass energy and societies in the South
3. Safe and diversified foods
4. Animal health and emerging diseases
5. Public policy, poverty and inequality
6. Agriculture, environment, nature and societies

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Implementing the vision 1. Ecological intensification

Inventing farming systems that optimize yields and preserve biodiversity



Managing natural resources and climate risks: SIRMA network, Challenge Programs, RSCs, etc


- Understanding how nature functions so as to use its resources without destroying it
- Developing new varieties tailored to their environment
- Designing sustainable production systems

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Implementing the vision


2. Biomass energy and societies in the South

Developing bioenergies to benefit people in the South



- Studying the efficiency and sustainability of biomass production
- Analysing the conditions for developing bioenergies and their impact
- Looking into the agronomic potential of several plants, such as *jatropha*, cotton, groundnut, etc

Grasslands replanted with acacia to produce fuelwood, near Kinshasa (MAKALA project)

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

Implementing the vision

3. Safe and diversified food

Innovating, to make food varied, safe and accessible to all



- Studying production systems and processing techniques
- Building producers' capacity to adapt
- Studying market and commodity chain organization and drafting appropriate policies

Concrete solutions to control excessive price volatility (CIRAD study, 2009)

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Implementing the vision

4. Animal health and emerging diseases

Foreseeing and managing infectious disease risks linked to domestic animals and wildlife



- Studying disease emergence and spread
- Introducing risk modelling and management
- Drafting appropriate sanitary policies

Migratory birds are capable of transporting the H5N1 virus over hundreds, if not thousands of km (CIRAD study, 2010)

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

Implementing the vision

5. Public policy, poverty and inequality

Promoting public policies aimed at reducing structural inequality and poverty



- Rethinking local, national and international public action
- Studying the adaptation capacities of vulnerable stakeholders
- Developing multi-criteria policy assessment
- Studying the role of agriculture in reducing structural inequalities and poverty


Training in territorial management, Peasants' University, Brazil

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Implementing the vision


6. Agriculture, environment, nature and societies

Understanding relationships between agriculture and the environment and between human communities and nature better, so as to manage rural areas sustainably



- Analysing the interfaces between agricultural areas, ecosystems with resources to be managed, and areas in need of protection
- Studying the impact of climate change on agriculture and the environment, and land management
- Relationships between human communities and nature in its broadest sense

The FLOAGRI project has succeeded in cultivating degraded soils in Amazonia


AGRICULTURAL RESEARCH FOR DEVELOPMENT 

Implementing the vision

Three scientific departments

Three scientific departments for three scales of research

- BIOS (Biological Systems):** understanding biological systems, from molecule to plant
- PERSYST (Performance of Tropical Production and Processing Systems):** analysing the performance of agricultural systems, from plot to farm
- ES (Environment and Societies):** supporting players, from rural area to society, from local management to public policy

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

Implementing the vision


Disseminating and sharing knowledge

- More than 300 PhD students supervised each year, 60% of them from the South
- International Masters courses developed with *grandes écoles* and universities
- 800 researchers and technicians received and trained each year

AGRICULTURAL RESEARCH FOR DEVELOPMENT 

CIRAD in a few figures

- A staff of 1800 (850 researchers)
- 600 staff members outside metropolitan France
- A scientific centre in Montpellier
- Scientists assigned to 40 countries
- Joint projects in 90 countries
- A budget of 220 million euros

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INRA                 

CIRAD is also a founding member of:

The French Consortium for research and education in **agriculture, food, animal health and the environment**



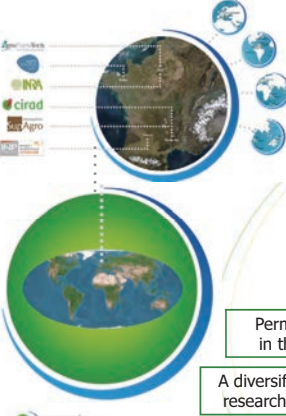


AGREENIUM is a public institution for scientific cooperation (EPCS¹) for research and higher education in the field of agro-sciences :

- To improve the international visibility, attractivity and efficacy of the French system,
- To build links and synergies between higher education and research,
- To promote internationally the French « Research / Education / Development » system.

¹ Established on the 10th of May 2009






Together, Agreenium's members represent :

- **12,000 staff members**, including 5,150 researchers and engineers and 600 lecturers & senior lecturers
- **4,700 students** (Bachelors + Masters) and **2,200 PhD** students
 - **300 research units**
- **5 main campuses** for research and education
- **A network of top-notch technology platforms** and of open and shared experimental facilities

Permanent staff in over 50 countries in the North as well as in the South

A diversified partnership with universities and research and higher education organizations



I THANK YOU FOR YOUR ATTENTION



AGRICULTURAL RESEARCH FOR DEVELOPMENT 

QUESTION and ANSWER

Akio Takenaka: Thank you very much. And there are still a few minutes left and we would like to receive some questions or comments from the floor. Okay? Dr. Koyama, please.

Osamu Koyama: My name's Osamu Koyama from JIRCAS. Thank you very much for your very clear presentation. I have a question about the AGREENIUM. I'm very curious on this event. My question is who initiated it? It's from outside or a voluntarily action from inside? Thank you.

Christian Hoste: Okay, that's a good question, because we all know that our institutions are very resilient to change and I think there's none of my colleague from CG who'll say the opposite. It's very difficult to pool resources and to bring different institutions together. So, clearly the process has been driven by the government and it is the ministries who push for that, because for example, CIRAD is under two ministries, foreign affairs because we are talking about development and research, but not agriculture. While INRAE, for example, belongs to the higher education schools in France on agronomy and veterinary belong to Ministry of Agriculture. So you see, it's also a question of the way we organize ALCEP with it so we now have the AGREENIUM; as the three ministries – Agriculture, Research, and Foreign Affairs work together and drive this push into AGREENIUM--- to have a much more coordinated and added value of working together by bringing research, education, development and international sectors. And the first step is to merge the international linkages of the six members which are members of AGREENIUM. And I've been honored to be the director of this International Relations of AGREENIUM.

Akio Takenaka: Okay?

Ganesan Balachander: Thank you Christian. Very interesting presentation. Let me ask you, there are these motivations for forces of change and we're all looking at the change process. What would you say are some of the lessons from failures or challenges you face at CIRAD that has also motivated you to look at some of the challenges and then modify your modus operandi or the way you're working? You talked about pooling together the resources, talking about research platforms, partnerships and so on. But what were some of the worst difficulties you have faced in the past? And you also talk about going back to nature, ecological activities. How about those things that others have talked about for many years? Yet, we moved away, now coming back. It seems to be going in cycles, so what would you say are some of the real lessons that we could learn?

Christian Hoste: Okay, well, I'll try to answer shortly those challenging questions also. I think for us, the experience at CIRAD is that up to now we have to be demand driven because we are a targeted research organization. And then, as we discussed with JIRCAS, it's very difficult when you receive hundreds of requests for support every year. So, how do we select? How do we say yes, how do we say no to this? And so far we were more demand driven and also using the individual scientist approach. And it was very difficult for CIRAD to measure its impact. And I think the key question now also; is that major change in France has been a driving force for that and that we are now evaluated by the same national evaluation agency for all research institutions. And that means we are also evaluated at CIRAD, which is a targeted research center with impacts as expected results, with the same criteria that the more basic research institution like CNRS or so are facing. And that means emphasis on the publications ranked A. And for us as CIRAD and all our partners in the field, publication is not the main objective. The main objective is impact in the field. So that is why we have now reorganized our system to make sure that our scientists are no longer isolated in dealing with small issues, and also to develop more programs and evolve and increase the synergy, critical mass of scientists, closer partnership with local people in a thematic area, where we can really

produce results with an impact. So I think that has been the main driving force in this change of strategy.

Akio Takenaka: Okay. Any other question or comments? Okay.

Satoru Miyata: Thank you. My name is Satoru Miyata from JIRCAS. You are the only representative from European countries. I would like to ask that situation over EFARD or EIFARD and how you are working with the regional forum?

Christian Hoste: Okay. So if we go back to the global forum; GFAR, we initially asked the different regions of the world to develop their own regional forum. You have APARRI in Asia, you have FARA in Africa and so. And for us as European, we say okay. If we ask our partners to organize themselves, we should show that we are able to do the same. So we really pushed to have a European Forum for Agricultural Research Development – EFARD. The difficulty there is that we want to keep the same approach which was the bottom up approach from the national to the sub-regional to the regional if you want, which is the scheme used at GFAR. But here we cannot do that, because in European countries, we can not mobilize the different stakeholders at the national level. There were a few exceptions that some European countries have developed a national forum on agricultural research for development, mobilizing NGOs, the farmers’ organization, and so. But it was not so easy to pull off the European forum at the European level. So what we are now looking at is to have at the European level, a representative for each category of stakeholder. So what we have organized now at the European level is within the European research area, which is supported by the European Commission. We have coordination mechanisms, have a policy and donor level called EIARD, European Initiative on Agricultural Research for Development, that is a policy and funding program. We have also coordination mechanisms funded by the commission to coordinate the national programs dedicated to agricultural research for development. And for five years, I have launched and I have been coordinating that level by having the European countries talking to each other on how do they set their priorities, how they fund their programs, and where these programs are implemented, to try to avoid to have, for example, in Africa one small Italian project with the flag of Italy there and in next village, another project on the same topic with another flag there. And sometimes conflicts occurs when they’re building a dam and making a well where the water disappeared. So that is really the national program. And more important in terms of operation at the project level, we have built a new mechanism which has re-organized European economic interest groupings of all research and higher education institution to be really the operator at the European level. And that’s really the major component that is now a part of the European forum. So that’s why we are rather well organized at the European level to participate, too. And I think we play a key role as Europeans also in the CG reform and in promoting the GFAR.

Akio Takenaka: Okay. Any other? Okay, so time has been already consumed and thank you very much once again.