Platforms in partnership for research and training

Directory 2016

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Since 2009, CIRAD has been concentrating its partnerships within the framework of the platforms in partnership for research and training (dP). The goal is to provide better local and global responses to the major development challenges through knowledge production and capacity building with partners. Another objective is to promote a scientific community within global research.

The dP are organised around different structures: local research platforms in one or several countries; transnational thematic networks; and scientific observatories linked to development.

The research hubs in the French overseas departments are involved in this process and are setting up dP on regional issues in the Caribbean and the Indian Ocean.

"The dP are the main mechanism enabling CIRAD to strive towards development through research, by producing relevant knowledge, contributing to innovation processes and strengthening the capacity of tropical societies to produce locally relevant knowledge, a prerequisite for development."

Patrick Caron
Director General in charge of Research and Strategy
CIRAD is the French agricultural research and international cooperation organisation working for the sustainable development of tropical and Mediterranean regions.

It is an applied research organisation that sees partnership as one of the cornerstones of its scientific strategy.

On the strength of its long experience in some 50 countries in Africa, Latin America, Asia and the Pacific, CIRAD has drawn up a geographical partnership strategy, centring on the implementation of research and training platforms in partnership.

An innovative tool for international agricultural research: the dP

A platform in partnership for research and training is a group of partners and the desire to work together; shared outlooks and objectives; the long-term commitment of human, material and financial resources to achieve the objectives; a shared research theme; a defined geographical area; a critical mass of multiple competences and activities.
Partnerships that embrace CIRAD’s priorities

- **Ecologically intensive agriculture**
  Inventing sustainable farming systems that make optimum use of agro-ecosystems.

- **Biomass and non-food uses**
  Innovating towards sustainable non-food uses for biomass.

- **Sustainable food systems**
  Ensuring food security in southern societies.

- **Animal and plant health**
  Understanding, anticipating and managing the risks linked to animal and plant pests and diseases.

- **Public action for development**
  Supporting public action towards reducing structural inequality and poverty.

- **Societies, nature and territories**
  Supporting societies in managing territories sustainably.

Challenges shared and benefits co-evaluated with development stakeholders

- **Agri-food value chains and sustainable development**
  To conduct, locally, in developing countries, research and capacity building activities in order to produce more, better and differently.

- **Innovation and impact**
  Assess and measure, at the level of final beneficiaries or very close to them, the effectiveness and social usefulness of research for development activities.
Platforms in partnership:

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**Research Hubs and Platforms**

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- French Guiana-West Indies
- Reunion
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Sustainable Production of Industrial Plantation in Congo

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Pest Agro-ecology in West Africa

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Forests of Central Africa

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Forests and Biodiversity in Madagascar

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Agro-ecological pest management in West Africa

4 DP-FAC
Forests of Central Africa

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Forests and Biodiversity in Madagascar

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Agro-silvo-pastoral systems in West Africa

- Analysis of the dynamics of crop-livestock systems.
- Analysis of agricultural advice services and territorial governance and changes.
- Modelling of biomass and nutrient flows within farms and territories.
- Co-design of technical and organisational innovations.
- Building of stakeholders’ capacities and support of innovation.
- Multi-criteria assessment methods and studies of the impact of innovations.
- Feasibility studies, project management and assessment.

www.dp-asap.org
How can we work with farmers in West Africa to design innovative, intensive and ecologically-friendly crop-livestock systems?

Family agro-silvo-pastoral systems are in the majority in West Africa. They are the main lever for development. They are also facing a multiplicity of demographic, economic and climatic changes, and their productivity is not making sufficient progress to satisfy the changes in demand. Intensification is the preferred type of pathway to increase agricultural production, but it exposes farmers and the environment to a range of risks and degradation processes. Action research in partnership serves to design more productive, more sustainable crop-livestock systems based on the principles of ecological intensification.

ASAP, a platform with some 40 researchers and teaching staff members and around 10 PhD students

Partners

Burkina Faso
Centre international de recherche-développement sur l'élevage en zone subhumide (CIRDES)

Institut de l'environnement et de recherches Agricoles (INERA)

Polytechnic University of Bobo-Dioulasso > Institut de Développement Rural (UPB/IDR)

Mali
Institut d'économie rurale (IER)

Côte d'Ivoire
UPGC Korogho

France
CIRAD > Research units:
INNOVATION; SELMET; AÏDA; BSEF; AGAP.

Contacts

Burkina Faso and Mali
Michel HAVARD
CIRAD, UMR INNOVATION
dP Coordinator
michel.havard@cirad.fr
Tel.: +226 72 57 19 56

France
Eric VALL
CIRAD, UMR SELMET
dP Correspondent
eric.vall@cirad.fr

For further information
CIRAD Regional Office
http://afrique-ouest-continentale.cirad.fr/
Sustainable production of industrial crops in Congo

- Water and nutrient balances in forest ecosystems, pedology, ecophysiology, functional ecology.
- Planted forest management and development.
- Forest tree breeding and improvement, quantitative genetics.
- Nursery techniques and plantlet production.
- Technological characterisation of woods.
- Socioeconomic analyses of supply chains (fuelwood, charcoal, game).
- Social impacts of forest certification.
- Studies of environmental impacts.
- Geographical information systems.
How can we ensure the economic, ecological and social sustainability of fast-growing forest species production?

In a highly constricive environment [low mineral fertility, water deficits, land tenure conflicts], improving and maintaining productivity requires significant ecological intensification of plantations and their integration into the local socioeconomic fabric. This platform contributes to the identification and development of plant material that is highly efficient in terms of mineral and water resource use. It tests new crop management sequences that use and export little in the way of resources. Lastly, action research in partnership enables the co-construction of production and logging systems for the common benefit of local populations.

CRDPI, a platform with 6 researchers and teaching staff and 5 Masters and PhD students

Partners

Republic of Congo
Délégation générale à la recherche scientifique et technique > Supervisory body for public research centres.

Eucalyptus Fibre du Congo > [EFC] Industrial forest plantation company.

CIRAD > Research units: AGAP, Eco&Sols, B&SEF.

Contacts

Congo
Philippe VIGNERON
CIRAD, UMR AGAP
dP Coordinator
philippe.vigneron@cirad.fr
Tel.: +242 05 356 35 65

France
Jean-Paul LACLAU
CIRAD, UMR Eco&Sols
dP Correspondent
jean-paul.laclau@cirad.fr

For further information
CIRAD Regional Office
http://afrique-ouest-continentale.cirad.fr/
Agro-ecological pest management in West Africa

- Advice and methods in relation to cropping techniques, to ensure quality products while minimising input use, particularly pesticides.
- Pest and disease diagnoses and development of monitoring-assessment methods.
- Coordination of integrated, sustainable pest and disease management projects.
- Methodological support for the design of research and development programmes in the field of agro-ecology.
- Agro-economic modelling of multi-species farm functioning.
- Agro-economic feasibility study of tropical horticultural products and tropical annual crops; assessment of their environmental impacts.

www.divecosys.org
How can we make use of natural regulation processes for the sustainable management of crop pests and diseases (pathogens, pests and weeds)?

Climate change and the expansion of agriculture at the expense of natural areas are threatening ecosystems that play a role in the natural regulation of crop enemies. In a context in which demand for agricultural goods is soaring in line with population growth, the network's multi-partner structure is helping to develop appropriate crop protection strategies, which boost the productivity of farming systems (producing more) and reduce farmers’ reliance on pesticides (producing better).

DIVECOSYS, a platform with 40 researchers and teaching staff members and numerous Masters and PhD students

Partners

Benin
Institut national de recherches agricoles du Bénin > (INRAB)
Agricultural Science Faculty, University of Abomey-Calavi > (FSAUAC)
CGIAR > International Institute of Tropical Agriculture (IITA)

Mali
Institut d’économie rurale > (IER)

Senegal
Science and Technology Faculty, Cheikh Anta Diop University > (FST-UCAD)
Gaston Berger University, Saint-Louis-du-Sénégal > (UGB)
Institut sénégalais de recherches agricoles > (ISRA)

CIRAD > Research units: AIDA, HortSys.

Contacts

Benin
Philippe MENOZZI
CIRAD, UPR AIDA
dP Coordinator
philippe.menozzi@cirad.fr
Tel.: + 229 96 72 53 57

France
Hubert DE BON
CIRAD, UPR HortSys
dP Correspondent
hubert.de_bon@cirad.fr

For further information
CIRAD Regional Office
• Support for public policy and donor strategies.
  • Project identification, feasibility studies, management and assessment.
    • Knowledge of logged forest dynamics, recommendations.
  • Helping the public and private sector manage productive forests.
  • Sustainable plantation management, restoration of degraded forests.
    • Fuelwood supply chains.
  • Bushmeat: support for operators to work towards greater sustainability.
    • Environmental services, taxation: assistance with implementing new economic instruments.
    • Observatories: OFAC, protected areas, land tenure.
How can we improve policies, strategies and modes of intervention on every level so as to ensure the long-term preservation of the Congo Basin forests and food security for the people who derive a living from them?

The preservation of the Congo Basin forests and of the services they provide lies at the heart of many environmental, agro-economic, social, governance and territorial issues. Research is supporting efforts to improve forest management and forestry policy, to understand the effects of global change and to study and preserve biodiversity.

**Partners**

Central Africa
Commission des forêts d’Afrique centrale > [COMIFAC]
OFAC
Belgium
Gembloux Agro Bio-Tech, Nature+
Cameroon
FPAE, IRAD, MININFO/DPT, MINRESI, University of Yaoundé 1
International
CGIAR > [CIFOR]
Congo
CRDPI, IRF, Université Marien N’Gouabi.
Gabon
CENAREST, CIRMF, IRET, USTM.
RCA
ICRA
Université de Bangui
Democratic Republic Congo
ERAITF, INERA, University of Kinshasa, University of Kisangani
France
ATIBT, IRD
CIRAD > Research units: BSEF, BioWooEB, ECOFOG.

**Contacts**

Congo
Eric FORNI
CIRAD, UPR BSEF
dP Coordinator
eric.forni@cirad.fr
Tel: +242 05 680 89 73

France
Sylvie GOURLET-FLEURY
CIRAD, UPR BSEF
dP Correspondent
sylvie.gourlet-fleury@cirad.fr

For further information
CIRAD Regional Office
http://afrique-centrale.cirad.fr/
Forests and biodiversity in Madagascar

- Spatial information management for forest monitoring.
- Sustainable natural resource management; environmentally-friendly logging techniques.
- Conservation and enhancement of biodiversity.
- Information systems: databases, monitoring and assessment indicators.
- Public policy support, new economic instruments, and participatory local management.
- Project identification, feasibility studies, management and assessment.

www.forets-biodiv.org
How can biodiversity conservation and improving living conditions for local people be reconciled?

The biodiversity of the primary forest in Madagascar is a global treasure that must be preserved. However, this cannot be done at the expense of the people whose livelihoods depend on its many uses. The platform is working to address a dual challenge – preserving the forest and alleviating poverty – by involving local communities in the conservation and sustainable use of natural resources and the ecosystems in which they are found. To this end, its research is both multidisciplinary and conducted on various scales.

F & B, a platform with some 60 researchers, teaching staff members and PhD students

Partners

Madagascar

University of Antananarivo
> Graduate School of Agricultural Sciences (ESSA); Science Faculty; Law, Economics, Management and Sociology Faculty (DEGS); Arts and Human Science Faculty.

FOFIFA
> Department of Forestry and Fishery Research (DRFP); Department of Research and Development (DRD); Department of Zootechnical and Veterinary Research (DRZV).

CIRAD > Research units: BSEF, GREEN, AGIRS; AGAP.

Contacts

Madagascar
Sigrid AUBERT
CIRAD, UPR GREEN
dP Coordinator
sigrid.aubert@cirad.fr
Tel.: +261 32 40 70 813

France
Jean-Marc BOUVET
CIRAD, UMR AGAP
dP Correspondent
jean-marc.bouvet@cirad.fr

For further information
CIRAD Regional Office
http://madagascar.cirad.fr/
Agroforestry systems in Central Africa

- Development of sustainable pest and disease management strategies.
- Varietal creation, improvement and breeding.
- Agroforestry production system design.
- Training for farmers, technicians, students and researchers.
- Carbon stock assessment.
- Support for promoting ecosystem services.
  - Soil fertility analysis.
  - Biodiversity assessment.
How can we develop sustainable, high-yielding agroforestry systems that satisfy demand from the agricultural sector, particularly family farms?

In Central Africa, a significant proportion of agriculture relies on complex agroforestry systems, primarily cocoa- and coffee-based, which contribute to the incomes and diets of millions of rural households. In the current situation of growing pressure on natural resources, such systems, which combine environmental service and production functions, can help improve living conditions for local people. The aim of the platform is to assess the performance and sustainability of such systems in all their diversity, and to support decision-making by producers.

Agroforesterie Cameroun
a platform with 25 researchers and teaching staff members and 15 Masters and PhD students

Partners

Cameroon
Institut de recherche agricole pour le développement
> (IRAD) Scientific coordination: perennial crops and production systems.

University of Yaoundé 1
> Science Faculty, plant biology, animal biology and physiology, and biochemistry departments.

University of Dschang
> Agronomy and Agricultural Science Faculty (FASA).

CIRAD > Research unit: Pests and Diseases.

Contacts

Cameroon
Bidzanga NOMO
IRAD
dP Coordinator
lbidzanganomo@yahoo.fr
Tel.: + 237 222 22 33 62

France
Patrick JAGORET
CIRAD, UMR SYSTEM
dP Correspondent,
patrick.jagoret@cirad.fr

For further information
CIRAD Regional Office
in Central Africa
http://afrique-centrale.cirad.fr/
Public policy
and governance
in Southern Africa

- Public policy support (law, economics, land tenure, environmental and sectoral policies, etc.).
- Analysis of new economic instruments, and of participatory local management schemes.
- Support for local, national and global decision-makers and operators with a view to drafting fairer, better integrated, sustainable public policies.
  - Support for multi-stakeholder and multi-level structures.
- Strengthening stakeholders’ associations (producers’ organisations, etc.).
- Project identification, feasibility studies, management and assessments.
How can we support the drafting and implementation of new public policies in Southern Africa, while taking into account the restructuring of local and international governance bodies and instruments?

When it comes to rural development and natural resource management, a clearer understanding of the changes in public action, the connections between the different levels on which decisions are made, the multiplicity of organisations and operators (public and private), and the historical and cultural links between institutional frameworks, modes of governance and the instruments associated with them should enable a more effective response to the concerns voiced by our local and global partners. The aim is also to engage discussion and contribute to the debate on governance issues.

GOVINN, a platform with 6 researchers and teaching staff members and 11 PhD and 16 Masters students

Partners

South Africa
University of Pretoria
> Faculty of Natural and Agricultural Sciences, Department of Agricultural Economics; Postgraduate School of Agriculture and Rural Development; Centre for Environmental Economics and Policy in Africa; Political Science Department > Center for the Study of Governance Innovations (GOVINN).

CIRAD > Research units: ART-DEV, G-EAU, MOISA, INNOVATION.

Contacts

South Africa
Ward ANSEEUW
CIRAD, UMR ART-DEV
dP Coordinator
ward.anseeuw@up.ac.za
Tel.: +27 (0)12 420 50 22

France
Denis PESCHE
CIRAD, UMR ART-DEV
dP Correspondent
denis.pesche@cirad.fr

For further information
CIRAD Regional Office
http://afrique-orientale-australe cirad.fr/
Pastoralism and drylands in West Africa

- Participatory design of management methods and land tenure policies suited to pastoralism.
- Multi-scale assessments of the impacts of herd mobility on nutrient cycles.
  - Analyses of transhumance and cross-border trade in the Sahel.
  - Analyses of animal product supply chains in West Africa.
  - Analyses of risks and food security.
- Design of ecosystem services to ensure sustainable intensification of extensive livestock systems.
- Design of decision support tools and modelling tools for the Sahel.
- Higher education and adaptive research.

www.ppzs.org
Understanding pastoral systems and working to develop them and integrate them into national economies

In spite of the widespread crisis affecting the Sahel, pastoral livestock production is still a major way of life and a key production system in the arid zones of Africa. Within this context, its sustainability depends on its ability to preserve natural environments and to co-exist with other activities. The platform is working towards sustainable pastoral livestock production that is better integrated into national economies and articulated with other production systems in dry zones.

PPZS, Pastoralism and drylands
16 researchers and teaching staff, 20 Masters and PhD students

Contacts

Senegal
Ibrahim DIOP GAYE
UCAD
dP Coordinator
Ibouga2@Yahoo.fr
Tel.: + 221 707 33 72 82

France
Alexandre ICKOWICZ
CIRAD, UMR SELMET
dP Correspondent
alexandre.ickowicz@cirad.fr

For further information
CIRAD Regional Office

Partners

Senegal
Centre de suivi écologique
> (CSE)
Institut sénégalais
de recherches agricoles
> (ISRA)
University Cheikh Anta Diop,
Dakar > (UCAD)

CIRAD > Research units: SELMET,
TETIS and GREEN.
Production and conservation in partnership in Southern Africa

- Natural resource governance and sustainable management.
- Environmentally-friendly use and economic exploitation techniques.
  - Biodiversity conservation and enhancement.
- Agriculture and conservation in the semi-arid zones of southern Africa.
  - One Health approaches to managing infectious diseases at the interface between humans, livestock and wildlife.
  - Functional ecology in complex ecosystems.
  - Community and behavioural ecology.

www.rp-pcp.org
How can the sustainable development of rural populations be combined with biodiversity conservation in zones of substantial interaction between people and nature?

The Trans-Frontier Conservation Areas (TFCAs) in Southern Africa are complex socio-ecosystems in which African savannahs are shared between traditional agricultural activities and African wildlife. For farming systems already fragile as a result of climatic, economic and political constraints, the interactions between people and the environment are often fraught with conflict (crop destruction by elephants, or poaching). Research helps to manage these conflicts and to promote the sustainable use of natural resources by encouraging farming practices that respect the environment and biodiversity.

RP-PCP, a platform with some 30 researchers and teaching staff members and 45 Masters and PhD students trained or in training since 2007

Partners

Zimbabwe
University of Zimbabwe
> Departments of Geography and Environmental Science, Animal Science and Biological Science; Centre for Applied Social Science; Faculty of Veterinary Science; Tropical Ecology Programme.

National University of Science and Technology
> Faculty of Forest Resources and Wildlife Management.

France
CNRS > Institut de l’écologie et de l’environnement, Lyon.
CIRAD > Research units: AGIRS, AIDA, BSEF, GREEN, AMAP, INNOVATION, MOISA.

Contacts

Zimbabwe
Michel DE GARINE-WICHATITSKY
CIRAD, UPR AGIRS
dP Coordinator
degarine@cirad.fr
Tel.: +263 4 33 24 84

France
Bruno BACHELIER
CIRAD, UPR AGIRS
dP Correspondent
bruno.bachelier@cirad.fr

For further information
CIRAD Regional Office
http://afrique-orientale-australe.cirad.fr/
Spatial information systems in West Africa

- Food security in relation to food crop production and price volatility models.
- Rangeland management.
- Management of spatialised information and information systems.
- Training (databases, geographical information systems, remote sensing, decision support tools).
What kind of information and sharing and support mechanisms are required for public policy makers, particularly in order to address food insecurity in West Africa?

Food insecurity affects vulnerable people in both rural and urban areas. It depends on the accessibility of food goods (which itself depends on agricultural output), climate risks, market functioning and consumer income levels. More detailed, precise and better quality data on a territorial scale will make it possible to inform those in charge of drafting and implementing public policy on food insecurity.

The SISTO network associates a dozen institutions of various types, and around 30 scientists.

Partners

West Africa
CILSS - AGRHYMET > Permanent Interstates Committee for Drought Control in the Sahel
Burkina Faso
ISESTEL > Private higher education establishment for space studies ISESTEL
Ministry of Agriculture and Food security
University of Ouagadougou
INERA > Institut de l’Environnement et de Recherches Agricoles
Mali
IER > Institut d’Economie Rurale University of Bamako
Niger
INRAN > Institut National de la Recherche Agronomique du Niger
CIRAD > Research unit: AGAP, AIDA, QUALISUD, DIADE, LSTM, TETIS, MOISA;

Contacts

Burkina Faso
Arlène ALPHA
CIRAD, UMR MOïSA
dP Coordinator
arlene.alpha@cirad.fr
Tel.: +226 67 36 17 79
France
Xavier AUGUSSEAU
CIRAD, UMR TETIS
dP Correspondent
xavier.augusseau@cirad.fr
For further information
CIRAD Regional Office
http://afrique-ouest-continentale.cirad.fr/
Highland production systems and sustainability in Madagascar

- Improving productivity and quality of upland rice. Creation of improved varieties.
- Design of innovative ecologically intensive systems and multi-criteria assessments.
- Assessment of the agronomic and environmental performance of cropping systems.
  - Fostering interaction between agriculture and livestock production.
- Management of soil fertility and ecosystem services.
- Characterisation of farmer strategies and analyses of innovation processes.
  - Spatial organisation of environments and activities (analysis of satellite images and databases).

www.dp-spad.org
How can we boost agricultural production on family farms in the highlands of Madagascar, while preserving natural resources?

In Madagascar, population growth and low agricultural productivity are a threat to food security. In highland regions, declining soil fertility, pest attacks and socioeconomic constraints all limit production. The aim of the platform is to contribute through research to optimising interactions between farming activities and to production system sustainability.

SPAD, a platform with around 30 researchers and teaching staff members, 20 Masters currently studying since 2007

Partners

**Madagascar**
- FOFIFA > Antsirabe regional research station (SRRA); Lake Alaotra agricultural research centre (CALA), Rice research department (DRR); Zootechnical and veterinary research department (DRZV).
- FIFAMANOR > Research department; Animal husbandry department.
- University of Antananarivo > College of agricultural science (ESSA); Radio isotopes laboratory (LRI); Science Faculty.

**International**
- CGIAR > AfricaRice
- France
  - IRD
  - CIRAD > Research unit: AIDA, SELMET, INNOVATION, TETIS.

Contacts

**Madagascar**
- Paulo SALGADO
  - CIRAD, UMR SELMET
  - dP Coordinator
  - paulo.salgado@cirad.fr
  - Tel.: +261 32 78 99 459

**France**
- Eric SCOPEL
  - CIRAD, UPR AIDA
  - dP Correspondent
  - eric.scopel@cirad.fr

For further information
- CIRAD Regional Office
Innovation and plant breeding in West Africa

- Breeding methodology, molecular genetics and marker-assisted selection.
- Crop adaptation to abiotic and biotic constraints.
- Use of modelling to characterise target environments (TPE) and interesting traits for selection.
- Bioinformatics and data integration.
- Management of soil fertility and ecosystem services.
- Genotyping methodologies for characterisation, quality control and analysis of breeding material.
- Phenotyping methodologies in controlled environments, experimental stations and farming environments.
Implementing innovative plant breeding programmes to address the complexity of agro-ecological systems in West Africa.

In order to tackle different challenges, plant breeding today needs to take into consideration the complex nature of these challenges. As a stakeholder in numerous different social and cultural organisations, it must help to feed a rapidly growing population, especially in West Africa. It should be adapted to diverse and changing environments without damaging them, while providing ecosystem services. The key focal area of the IAVAO dP is thus based on integrating an interdisciplinary approach into the design and effective implementation of plant breeding programmes that are both flexible and innovative, and address the complexity of the agro-ecological systems found in sub-Saharan areas.

IAVAO, a platform with around 50 researchers and teaching staff and some 20 Masters and PhD students

Partners

West Africa
CORAF/WECARD > West and Central African Council for Agricultural Research and Development.

Senegal
ISRA > Institut Sénégalais de Recherches Agricoles.

University of Thiès
CERAAS > Centre d’Étude Régional pour l’Amélioration de l’Adaptation à la Sécheresse.

Burkina Faso
INERA > Institut de l’Environnement et de Recherches Agricoles.

Mali
IER > Institut d’Économie Rurale.

Niger
INRAN > Institut National de la Recherche Agronomique du Niger.

France
Montpellier SupAgro
CIRAD > Research unit: AGAP, AIDA, QUALISUD, DIADE, LSTM.

Contacts

Senegal
Daniel FONCEKA
CIRAD, UMR AGAP
dP Coordinator
daniel.fonceka@cirad.fr
Tel.: +221 33 951 49 93

France
Jean-François RAMI
CIRAD, UMR AGAP
dP Correspondent
jean-francois.rami@cirad.fr

For further information
CIRAD Regional Office
Epidemiological intelligence.
Diagnosis and monitoring of infectious human and animal diseases.
Dynamics of pathogens and vectors.
Disease control methods.
Emergency intervention.
Assessment of monitoring systems.
Socioeconomic analysis of the network.
Improving monitoring of infectious animal and human diseases through an integrated, interdisciplinary and intersectoral regional approach (One Health), with a long-term interface between research and monitoring.

Emerging diseases pose a number of major challenges. They are a permanent risk to public health since 60% of these diseases in humans are of animal origin. They also represent a constraint for the endogenous development of livestock farming and the security of animal protein supplies for the Indian Ocean area. Here, strategic choices in terms of the prevention and control of transmissible animal and human diseases will stand a greater chance of producing lasting and effective results if they are integrated into a regional strategy and take into consideration interactions between islands and with other geographical areas concerned.

ONE HEALTH OI, a network of more than 40 researchers and teaching staff, 40 health professionals and 6 PhD students

Partners

**Reunion**
- CRVOI > Centre de Recherche et Veille de l’Océan Indien.
- CHU > Centre Hospitalier Universitaire.
- GDS > Groupement de défense sanitaire
- LVD 974, Avi-Pôle, DAAF, Université de la Réunion

**Madagascar**
- IPM > Institut Pasteur Madagascar
- FOFIFA > Centre National de Recherche Appliquée au Développement Rural.
- DSV Madagascar
- Fondation Mérieux

**Comoros**
- INRAPE > Institut National de Recherche pour l’Agriculture, la Pêche et l’Environnement.

**Mauritius**
- UVeille Sanit. COI

**Seychelles**
- UVeille Sanit. COI

**Mayotte**
- GCS, DAAF, CoopADEM

**France**
- IRD
- CIRAD > Research unit: CMAEE

Contacts

**Reunion**
- Eric CARDINALE
  - CIRAD, UMR CMAEE
  - dP Coordinator
  - eric.cardinale@cirad.fr
  - Tel: +262 2 62 93 88 05

**France**
- Thierry LEFRANÇOIS
  - CIRAD, UMR CMAEE
  - dP Correspondent
  - thierry.lefrancois@cirad.fr

For further information
- CIRAD Regional Office
Asia

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Conservation Agriculture in Southeast Asia

13 GREASE
Management of emerging Risks in Southeast Asia

14 HRPP
Hevea Research Platform in Partnership in Southeast Asia

15 MALICA
Markets and Agriculture Linkages for Cities in Asia
Design, assessment and steering of innovative cropping systems.

- Characterisation of agricultural development strategies and innovation processes.
- Recommendations for sustainable improvement of the productivity and quality of annual rainfed cropping systems.
- Integrated management of fertility and characterisation of biological and geochemical dynamics.
- Integrated management of pests and diseases.
- Adaptation of direct seeding materials to stakeholder requirements.
  - Fodder resource use by animals.
  - Recycling of livestock manure to fertilise crops.
- Characterisation of the spatial organisation of landscapes and activities.

www.cansea-network.org
A network aimed at producing more while preserving resources.

Population and economic pressure has driven agricultural intensification in Southeast Asia. It has also increased the pressure on available land and soil degradation. Conservation agriculture (CA) helps to preserve and restore soil fertility. The major potential for dissemination of such innovative systems is being supported by a wide range of stakeholders. CANSEA is working to structure these initiatives on a regional scale.

CANSEA network, 20 researchers and teaching staff, 5 Masters and PhD students

Partners

China
Yunnan Academy of Agricultural Sciences > (YAAS)

Cambodia
Ministry of Agriculture, Forestry and Fisheries > (MAFF)

Indonesia
Indonesian Agency for Agricultural Research and Development > (IAARD)

Laos
National Agriculture and Forestry Research Institute > (NAFRI)

Thailand
Kasetsart University > (KU)

Vietnam
Northern Mountainous Agriculture and Forestry Institute > (NOMAFSI)

Soils and Fertilizers Research Institute > (SFRI)

Australia
University of Queensland > (UQ)

France
CIRAD > UPR AIDA, MOISA G-ÉAU, ÉCO&SOLS, GREEN.

Contacts

Laos
Frank ENJALRIC
CIRAD, UPR AIDA
CANSEA Coordinator
frank.enjalric@cirad.fr
Tel.: +856 20 28237881

France
Régis GOEBEL
CIRAD, UPR AIDA
dP Correspondent
francois-regis.goebel@cirad.fr

For further information
CIRAD Regional Office
http://asie-sud-est.cirad.fr/
Emerging diseases in Southeast Asia

- Analysis of epidemiological risk and socioeconomic dynamics in veterinary public health.
- Interactions between biodiversity and health, local management of environmental disease.
- Assessment of the surveillance, control and impact of animal diseases and zoonoses.
- Participatory epidemiology: building capacities for health surveillance and control among local stakeholders, development of partnership projects.
- “InterRisk” international Masters, implemented by Kasetsart University (Faculty of Veterinary Medicine) and the École Nationale Vétérinaire de Toulouse (ENVT-INPT).
How can we manage the emerging health risks at the interface between animals, humans and their environments?

Southeast Asia is a hotspot in terms of disease emergence, due to a number of converging factors: climate change, deforestation, urban growth and changing production conditions and market chains. The GREASE network promotes a “One Health” approach, taking into account the interdependence of social and epidemiological dynamics, biodiversity and health, and veterinary and human public health in order to prevent and control these diseases.

GREASE network, around 40 researchers and partners teaching staff members, 10 students (Masters or PhD) per year, 250 members

Partners

Cambodia
National Veterinary Research Institute > [NAVRI]

Vietnam
National Institute of Veterinary Research > [NIVR]

Philippines
Central Mindanao University > [CMU] Faculty of Veterinary Medicine.

Thailand
Kasetsart University > [KU] Faculty of Veterinary Medicine.

Laos
National University > [NUOL] Faculty of Agriculture.

Indonesia
Gadjah Mada University > [UGM] Yogyakarta

CIRAD > Research unit: AGIRS, INTERTRYP, MOISA, GREEN, QUALISUD.

Contacts

Thailand
Dr Aurélie BINOT
CIRAD, UPR AGIRS
dP Coordinator
aurelie.binot@cirad.fr
Tel.: +66 8 1401 6739

France
Dr Muriel FIGUIE,
CIRAD, UMR MOISA
dP Correspondent
muriel.figuie@cirad.fr

For further information
CIRAD Regional Office
http://asie-sud-est.cirad.fr/
Hevea research platform in partnership in Southeast Asia

- Tapping systems suited to clones and plantation types, to ensure sustainable rubber tree management.
- Tapping system diagnoses based on bark consumption and latex vessel physiological condition. Establishment of LD laboratories.
- Environmental impact of rubber plantations: carbon and water flux measurements and balances within plantations, identification and measurement of indicators.
  - Biochemical composition and structure of NL and latex, technological quality indicators.
- Design and completion of agro-economic surveys and supply chain analyses.

www.hrpp.ku.ac.th
How can rubber smallholders adapt to global challenges?

Global industry depends on millions of family rubber farms for a very specific raw material: natural rubber. Rubber is primarily grown in tropical Asia, and is booming, since it provides growers with regular incomes and requires little in the way of inputs. The platform covers a broad range of environmental conditions, from traditional rubber-growing zones in the South to expanding zones in the North, through an integrated, multi-disciplinary approach.

HRPP, a platform with around 100 researchers, teacher-researchers and students

Partners

Thailand
Kasetsart University [Bangkok] > Agricultural University in Thailand
Prince of Songkla University (Hatyai) > [PSU]
Rubber Research Institute of Thailand > [DOA-RRIT]
CIRAD > Research unit: Performance of Tree Crop-Based Systems, IATE, ECO&SOLS, AGAP.

Contacts

Thailand
Philippe THALER
CIRAD, UMR ECO&SOLS
dP Coordinator
philippe.thaler@cirad.fr
Tel.: + 66-2942-7627

France
Frédéric GAY
CIRAD, UMR ECO&SOLS
dP Correspondent
frederic.gay@cirad.fr

For further information
CIRAD Regional Office
http://asie-sud-est.cirad.fr/
Markets and agriculture linkages for cities in Asia

- Analysis of agrifood supply chains.
- Market monitoring.
- Quality approach, origin and quality labelling systems.
- Territorial changes and agricultural trade.
- Support for public policy and decision-making.
- Project management and assessment.

www.malica.org
How can sustainable food supplies to urban areas be reconciled with local agricultural development?

Between 2000 and 2010, urban population growth in Asia was running at 2.7% per year, i.e. another 378 million inhabitants. In order to feed cities and satisfy growing demand for diversity, safety and quality, value chains are restructuring and farming systems are being transformed. Urban markets create opportunities but also challenges for local farming systems. How should food supply chains be reorganised? How can incomes be stabilised among the poorest farming populations?

MALICA, a platform with some 30 researchers and teaching staff and 6 PhD students

Partners

Vietnam
CASRAD > Centre for Agrarian Systems Research and Development at the Food Crops Research Institute (FCRI). *Member of the Vietnam Academy of Agricultural Sciences (VAAS)*.

FAVRI > Fruits and Vegetables Research Institute. *Member of the Vietnam Academy of Agricultural Sciences (VAAS)*.

RUDEC > Rural Development Centre, Institute of Policy and Strategy for Agriculture and Rural Development (IPSARD).

Laos
Faculty of Agriculture, National University of Laos > [NUOL]

CIRAD > Research unit: INNOVATION, SELMET, MOISA.

Contacts

Vietnam
Minh Chang NGUYEN DANG
CASRAD
dP Coordinator
ndmchanh75@gmail.com
Tel.: + 84 916 600 628

France
Paule MOUSTIER
CIRAD, UMR MOISA
dP Correspondent
paule.moustier@cirad.fr

For further information
CIRAD Regional Office
Latin America - Caribbean

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Forests, Agriculture and Territorial Development in Amazonia

17 CIBA
International Consortium for Advanced Biology in Brazil

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Agroforestry Systems in Central America

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Public Policies and Rural Development in Latin America

20 CaribVET
Caribbean Animal Health Network
Forests, agriculture and territorial development in Amazonia

- Techno-economic analyses of farms, territories and supply chains.
- Remote sensing and mapping of land use changes.
- Advice on low-impact forest management.
- Assessment and management of landscape eco-efficiency.
- Methodological and technical support for livestock farming system intensification.
- Support for innovation processes on farms and within socio-technical networks.
- Participatory modelling for the management of territories and shared knowledge.
- Support for public policy and institutional dynamics fostering integrated crop-livestock-forestry operations.
How can we reconcile environmental protection and support for rural populations in this region, which plays a decisive ecological role on a global scale and has huge agricultural potential?

The Amazonia is not just a forest; it is also an area in which people live and a source of jobs and income for millions of people, with implications for global agrifood and energy supply chains. Promoting sustainable forms of development goes beyond mere repression as regards deforestation. The aim is to work with local stakeholders to develop alternative environmentally-friendly production systems and to rally each and every stakeholder in the area around this objective. An agrarian shift of this kind requires quality scientific outputs to which operators can relate, as well as training.

AMAZONIE, a platform with some 20 researchers and teacher-researchers. Ongoing interaction between scientists, students and farmers

Partners
Brazil
EMBRAPA Amazônia Oriental > Roraima centre.
Federal University of Pará > (UFPA) Núcleo de Ciências Agrárias e Desenvolvimento Rural (NCADR).

CIRAD > Research units: ART-DEV, SELMET, INNOVATION, TETIS; AIDA, BIOVVOOEB, BSEF, GREEN.

Contacts
Brazil
Marc PIRAUX
CIRAD, UMR TETIS
dP Coordinator
marc.piraux@cirad.fr
Tel.: +55 91 32 76 69 90

France
Lilian BLANC
CIRAD, UPR BSEF
dP Correspondent
lilian.blanc@cirad.fr

For further information
CIRAD Regional Office
http://bresil.cirad.fr
International consortium for advanced biology in Brazil

- **Pre-breeding**: crop improvement and creation of suitable varieties.
- Development of markers, characterisation of populations, genetic mapping.
  - Structural, comparative and functional genomics, metabolomics, genotyping, phenotyping.
  - Genetic transformation, DNA, RNAi and RT-qPCR analyses.
- Crops: banana, cocoa, coffee, citrus, cotton, eucalyptus, rice, etc.
- Agronomic interest in relation to biotic and abiotic constraints.
- Organisation of training courses (students, researchers).

www.ciba-network.org
How can we share the most powerful biological research techniques with southern countries so as to cope with change?

Strategies involving high-throughput analyses of genomes and their expression, associated with functional genomics and phenotyping, are set to speed up considerably the characterisation and exploitation of plant genetic resources. The aim of the CIBA consortium is to explore the adaptive diversity of cultivated tropical species so as to create the varieties best suited to the prevailing biotic and abiotic constraints. To this end, it is pooling top-level knowledge, skills, scientific resources and plant material collections.

**CIBA, a platform with some 40 scientists and teaching staff, and 27 students**

**Partners**

**Brazil**
- **EMBRAPA (CENARGEN), (CNPA, CNPAF), (CNPMF), (CPAC)**
- **Federal University of Lavras (UFLA)**
- **State University of Santa Cruz -Ilheus (UESC)**
- **University of Campinas (UNICAMP)**
- **Instituto agronomico (IAC)**
- **Luiz de Queiroz agricultural college, University of São Paulo (Esalq/USP)**
- **Cocoa agricultural research centre (CEPLAC)**
- **Paraná Institute of Agronomy (IAPAR)**

**CIRAD** > Research units: AGAP, RPB, Pests and Diseases, AIDA, BIOWOOEB.

**Contacts**

**Brazil**
- Fabienne MICHELI
- CIRAD, UMR AGAP
- Animator CIBA
- UESC (Ilhêus-BA)
- fabienne.micheli@cirad.fr
- Tel.: +55 73 36 80 51 96

**France**
- Dominique GARCIA
- CIRAD, UMR AGAP
- dp Correspondent
- dominique.garcia@cirad.fr

For further information
- CIRAD Regional Office
Carbon balance for coffee- and cocoa-based agroforestry systems.

Introduction of indications of origin or terroir.

Development of sustainable disease resistance management strategies.

Analysis and design of postharvest processing systems: from pod to merchantable cocoa and from coffee cherries to green and roasted beans.

Soil diagnoses on cocoa farms (fertiliser schedule recommendations).

Varetial improvement and breeding.

Product traceability.

Training course: “Become a cocoa expert”.

On-line training course in the sociological approach to agroforestry systems.

www.pcp-agroforestry.org
How can coffee and cocoa tree management within agroforestry systems boost the competitiveness of family farming?

In Central America, 90% of coffee- and cocoa-based agroforestry systems are in the hands of smallholders. These activities make a substantial contribution to development in the poorest countries (Honduras and Nicaragua). Moreover, natural resources and biodiversity are two of the region’s fundamental assets. Research is working to quantify the production of value and environmental services by such systems, varied and sustainable management strategies.

PCP AFS-PC, a platform with some 60 researchers, teaching staff members and Masters and PhD students

Partners

Central America
Centro Agronómico Tropical de Investigación y Enseñanza (CATIE) > Costa Rica International University for development through research (13 Latin American countries), agroforestry trials (Nicaragua).

PROMECAFE > regional cooperation between coffee research institutes.

CABI International > Centre for information and expertise on agriculture and the environment.

Costa Rica
INCAE > private management school (Costa Rica, Nicaragua)

International
CGIAR > Bioversity International

CIRAD > Research units: SYS-TEEM, ECO&SOLS, INNOVATION; ARENA, Systèmes de Pérennes, BioWooEB, GREEN, GECO.

Contacts

Central America
Andreas OSWALD
CATIE
dP Coordinator
andreas.oswald@catie.ac.cr
Tel.: +506 25 58 25 99

France
Patrick JAGORET
CIRAD, UMR SYSTEM
dP Correspondent
patrick.jagoret@cirad.fr
Public policies and rural development in Latin America

- Support for agricultural, environmental and rural development policy-making and alleviation of poverty and inequality.
- Training of decision-makers in public policy administration and land use planning.
- Capacity-building operations for producers’ organisations and local communities.
  - Analyses of changes in the role of the State and public-private partnerships.
  - Analyses of the globalisation of public policy.
  - Pluralist assessments of public policy instruments.

www.pp-al.org
How can we help the rural world and decision-makers revise their position using different rural development tools?

The PP-AL network studies the drafting and implementation of agricultural, environmental and rural development policies with a view to understanding their mechanisms and effects, particularly in terms of change in rural areas and the reduction of inequalities. The network's scientific partners analyse public policies and changes in public action, with the involvement of the different rural stakeholders and decision-makers.

PP-AL, a multi-disciplinary network with 120 researchers and teaching staff members and 30 Masters and PhD students

Partners

Argentina
INTA, UNPA, UNPL, UBA.

Brazil
UFRRJ-CPDA, UFRGS, UFSC, UNB, USP, UFPA, EMBRAPA, UNPE, MDA.

Costa Rica
CINPE-UNA, IICA, CATIE.

Chile
INDAP, CEPAL, UACH, RIMISP, UNCHILE, FAO-AL.

Ecuador
FLACSO

Mexique
IBERO, UNAM, IAEM, COLMEX, University of CHAPINGO.

Nicaragua
UCA-NITLAPAN.

Peru
UARM

Uruguay
UDELAR, IPA, PROCISUR.

France

INRA, IRD.

CIRAD > Research Units: ART-DEV, BSEF, GREEN, INNOVATION, MOISA, SELMET, TETIS.

Contacts

Brazil
Eric SABOURIN
CIRAD, UMR ART-Dev
dP Coordinator
eric.sabourin@cirad.fr
Tel.: +55 61 9973 9888

France
Gilles MASSARDIER
CIRAD, UMR ART-Dev
dP Correspondent
gilles.massardier@cirad.fr

For further information
CIRAD Regional Office
http://bresil.cirad.fr/
Caribbean animal health network

- Diagnosis and surveillance of priority animal and zoonotic diseases: avian influenza and Newcastle disease, classical swine fever, ticks and tick-borne diseases.
- Veterinary public health (rabies, salmonella and leptospirosis) and emerging diseases (porcine epidemic diarrhoea).
- Epidemiological surveillance: databases, guides and protocols, network assessment, regional surveys, etc.
- OIE reference laboratory for heartwater, OIE collaborating centre for the diagnosis, epidemiology and control of tropical animal diseases and for the reduction of zoosanitary risks following disasters.
- Training centre: epidemiology, diagnoses.
- DGAL approved laboratory.

www.caribvet.net
How can basic research help strengthen animal disease surveillance and control networks?

Biodiversity hotspots are often associated with the emergence of new pathogens. The Caribbean, which includes territories with highly contrasting ecological and socioeconomic situations, is one example. Research can help improve surveillance and control of such diseases by combining the most fundamental studies with the most operational applications. This integrative approach involves basic research, and also decision-makers, managers and surveillance stakeholders. The CaribVET regional network is one such approach.

CaribVET, Caribbean animal health network

Partners

Ministries and veterinary services in the 32 countries and territories of the Caribbean.

Universities > University of Guyana; University of the West Indies.

Research centres
> Centro Nacional de Sanidad Agropecuaria (CENSA, Cuba); CIRAD (UMR CMAEE).

Regional organisations
> Caribbean Community (CARICOM); Pan-American Health Organization (PAHO); United States Department of Agriculture, International Service (USDA-APHIS-IS).

International organisations
> [FAO]; World Organization for Animal Health (OIE); Inter-American Institute for Cooperation on Agriculture (IICA, CGIAR).

CIRAD > Research Unit: CMAEE.

Contacts

Guadeloupe
Jennifer PRADEL
CIRAD, UMR CMAEE
dP Coordinator
jennifer.pradel@cirad.fr
Tel.: +590 5 90 25 54 42

France
Thierry LEFRANÇOIS
CIRAD, UMR CMAEE
dP Correspondent
thierry.lefrancois@cirad.fr

For further information
CIRAD Regional Office
http://antilles-guyane.cirad.fr/
Mediterranean

21 SIRMA
Irrigated Systems in North Africa
Irrigated systems in North Africa

- Sustainability of irrigated agriculture models based on surface water and groundwater.
- Consideration of environmental constraints in managing farms and irrigation schemes.
- Building stakeholder capacity, support for professional organisations and public policy.
  - Dissemination and adoption of technical innovations in support of local initiatives.
  - Multi-scale studies of innovation processes and informal governance mechanisms.
  - Design of individual and group training courses.
  - Multi-criteria innovation assessment methods and impact studies.
  - Project identification, feasibility studies, management and assessment.
  - Crossed training and apprenticeships for young engineers and researchers from North Africa.
  - Environmental assessments.
  - Support for publication.

www.rcp-sirma.org
A network to support local irrigated systems and contribute to the global debate on irrigation.

North Africa has a shortfall in terms of agricultural production and its food security is fragile. It is also one of the places where climate change is the most sensitive, with a direct impact on water resource availability. The SIRMA platform is analysing irrigated systems against this backdrop of environmental and societal change, which is both particularly interesting and fraught with issues for the region’s economic future.

**Partners**

**Morocco**  
MENA Meknes > Ecole nationale d’agriculture de Meknès.  
IAV Hassan II > Institut agronomique et Vétérinaire Hassan II, Rabat.

**Algeria**  
ENSA Alger > Ecole nationale supérieure agronomique d’Alger.  
Centre Universitaire Khemis Miliana.

Université Mohamed Khider > Centre de recherche scientifique et technique sur les régions arides, Biskra.

**Tunisia**  
INAT > Institut national agronomique, Tunis.  
INRGREF > Institut national de recherche en génie rural, eau et forêts, Tunis.

**France**  
AgroParisTech, ENGREF, CIHEAM – IAMM, IRSTEA, IRD.  
CIRAD > Research Units: G-Eau, Tetis, Innovation

**Contacts**

**Morocco**  
Marcel KUPER  
CIRAD, UMR G-EAU  
Network Coordinator  
marcel.kuper@cirad.fr  
Tel.: +212 5 37 77 95 64

**France**  
Jean-Yves JAMIN  
CIRAD, UMR G-EAU  
Network Correspondent  
jamin@cirad.fr

For further information  
CIRAD Regional Office  
http://mediterranee.cirad.fr
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For further information
Partnerships office
dgdrs_international@cirad.fr
DGD-RS
CIRAD
Av. Agropolis
A 179/04
34398 Montpellier Cedex 5, France