

## Global Co-learning for Integrated Systems Research-in-Development (GCISR)

### Why should a co-learning forum connecting systems CRPs with non-CGIAR research/academic partners be needed?

There is no doubt that integrated systems research is a key to address complex, deeply systemic problems such as chronic poverty, food insecurity, natural resources degradation and scarcity in a rapid changing world. However, integrated systems research is still in its earliest stages in the sense that pieces of knowledge on this young science field are independently developed and scattered among diverse research/academic groups and organizations. Much of progresses on the young science field have been done by non-CGIAR research bodies that has not engaged with the CGIAR community, e.g. systems-based transdisciplinary foresight studies have been advanced by some research institutes but remained a research weakness of the community. Actual performance of systems CRP community over the past three years shows modest progresses made in spite of efforts of its scientists, reflecting a **marginality** given no ground-breaking work existed in the community and the lacking of exchanges with progress of systems science outside. At the same time, the GCIAR would need to benefit from the new growth in the integrated systems science discipline (i.e. the discipline of interdisciplinary systems studies) in higher education institutes for developing new capacity in systems research in the consortium for a long run.

Concerns have converged around the need to establish a globally open co-learning forum on integrated systems research involving scientists from both CGIAR centers and non-CGIAR research/academic bodies to create a new knowledge source for spurring innovative systems research. The Global Co-learning for Integrated Systems Research-in-Development (GCISR), being initiated by CRP-DS, is addressing this *broad, essential need*. As a **co-learning forum** GCISR will provide a platform for bringing together scientists from various disciplines and developers with an interest to **move towards a common aim/benefit** by answering a **common grand question**:

***How to effectively integrate human and agro-ecological systems across all dimensions in order to improve agricultural livelihoods in developing world - including drylands?***

The focus for the co-learning is **how** to advance the integrated systems approach for research-in-development towards system-level outcomes mandated by CGIAR. Topics shared by GCISR include, but are not limited to, the advances in:

- Critical and comprehensive reviews of the **current stage of knowledge, common research needs/questions**, and **new trends** on integrated systems approach to agricultural livelihoods and natural resource management research,
- **New ideas, developments** and **successful practices** of concepts, frameworks, methodologies and tools within the integrated systems approach for addressing better common research questions.
- Innovative options for **enhancing inter-disciplinarity** (especially between natural and social sciences) and **trans-disciplinarity** (i.e. equally footing, scientifically robust collaboration between science and practice domains). This includes, but is not limited to, progresses in the use of systems framework and/or modeling to enhance the viability of inter- and trans-disciplinary processes.

- Demonstrative cases for added values, and/or cautious costs, of integrated systems research towards achieving development outcomes.
- Sharing data, methods/tools towards co-producing collective scientific products as international public goods with co-authorships recognized.
- Strategies and options to strengthen systems thinking and practices in societal learning and decision-making systems.

### Why should non-CGIAR research/academic scientist get engaged?

At large, national research/academic institutes are key stakeholders of the societal efforts toward achieving the ultimate development outcomes mandated by CGIAR, through contributions to methodologies and scientific personnel (via graduates/post-graduates). Furthermore, scientific knowledge, from both the natural and social sciences, alone is necessary but not enough when it comes to addressing complex problems such as food insecurity, land degradation, climate change, social inequality and fostering sustainable transformations of current systems. When dealing with sustainable transformations, science increasingly is and will continue to be involved in the challenge of dealing with normative and value-related issues. In many cases, scientists in national academia often do not have access to enough knowledge, power and practice to sufficiently analyze the problem, as substantial knowledge lies in the hands of other societal actors. Cooperation with CGIAR, the largest global consortium in agricultural and natural resource management research-in-development, means having a major opportunity to contribute and benefiting the development context that traditional academia are lacking. In particular, the CRP-DS is a largest singular research-in-development institution in dryland systems research that can offer diverse options for scientific collaborations that bring mutual benefits.

Benefits of participation in GCISR include;

- Becoming part of a first global forum on integrated systems research-in-development for improving agricultural livelihoods and natural resource bases in developing world, especially dryland.
- Going beyond traditional discipline, toward improving interdisciplinary and transdisciplinary perspectives of group research by co-learning on options on knowledge integration to reach across disciplines and science-society interfaces.
- Increasing chances of obtaining funding for groups' efforts linked the GCISR via recognition as a global platform for disseminating innovations in systems-based research.
- Be updated with current stage of knowledge, common research needs/questions, and new trends on integrated systems approach to agricultural livelihoods and natural resource management research,
- Learn new ideas, developments and successful practices of concepts, frameworks, methodologies and tools within the integrated systems approach for addressing better common research questions, and enhance inter- and trans-disciplinary perspectives
- Sharing data, methods/tools towards co-producing collective scientific products as international public goods with co-authorships recognized.
- Be involved in CRP case studies freely selected from its global research sites network focusing on issues of interests in ways that maximize synergy, learning, and impact.

List of *current* non-CGIAR partners (continued to be updated)

Name	Position, Institute	Areas of expertise/interest in relevant with integrated systems approach
<a href="#">Grace Villamor</a> (confirmed)	Senior Researcher, <a href="#">ZEF</a> , <a href="#">WASCAL</a> , University of Bonn, Germany	Gender-responsive socio-ecological system analysis & modeling for negotiation/decision support in enhancing ecosystem services, food security
<a href="#">Asia Khamzina</a> (already a DS's partner)	Senior Researcher, <a href="#">ZEF</a> , <a href="#">WASCAL</a> , University of Bonn, Germany	Systems-based research approach to the restoration of degraded dryland
<a href="#">Alisher Mirzabaev</a> (general interest showed, <b>tbc</b> )	Senior Researcher, <a href="#">ZEF/ELD</a> , University of Bonn, Germany	Economics of land degradation, bioenergy, food security
<a href="#">Pius Kruetli</a> (general interest showed, <b>tbc</b> )	Director, <a href="#">D-USYS Td Lab</a> and <a href="#">World Food System Center</a> , ETH Zurich, Switzerland	Environmental decision-making of human systems, options for science-society collaboration on sustainability issues, procedural and distributive fairness, foresight studies
<a href="#">Johan Six</a> (general interest showed, <b>tbc</b> )	Professor, <a href="#">Sustainable Agroecosystems</a> and <a href="#">World Food System Center</a> , ETH Zurich, Switzerland	Rationales and management for sustainable agroecosystems, food value chains resilience,
<a href="#">Jonas Joerin</a> (general interest showed, <b>tbc</b> )	Research Associate, <a href="#">Human-Environment Systems</a> , ETH Zurich, Switzerland	Climate change adaptation, resilience and vulnerability studies (community livelihood systems, food systems), foresight studies
<a href="#">Ahmad Manschadi</a> (general interest showed, <b>tbc</b> )	Ass. Professor, <a href="#">University of Natural Resources and Life Science, Vienna (BOKU)</a> , Austria	Farming systems sustainability research, integrated crop systems modeling
<a href="#">Ulrike Tappeiner</a> (general interest showed, <b>tbc</b> )	Professor, <a href="#">Ecosystems and Landscape Ecology</a> , University of Innsbruck, Austria	Multi-scale ecosystems research with a focus on mountain areas, ecosystem services, sustainable development in the face of global change, foresight studies
<a href="#">Georg Leitinger</a> (general interest showed, <b>tbc</b> )	Ass. Professor, <a href="#">Ecosystems and Landscape Ecology</a> , University of Innsbruck, Austria	Landscape ecology, socio-ecological systems analysis and modeling
<a href="#">Birgit Mueller</a> (general interest showed, <b>tbc</b> )	Senior scientist, <a href="#">Helmholtz Centre for Environmental Research (UFZ)</a> , Germany	Models- enhanced understanding of socio-ecological systems under global change with a focus on human decisions, systems tool for support learning and communication in inter- and trans-disciplinary research, agro-pastoral systems in Eastern and

		Northern Africa.
<a href="#">Joerg Priess</a> (to be contacted)	Senior scientist, <a href="#">Helmholtz Centre for Environmental Research (UFZ)</a> , Germany	Socio-ecological systems analysis and modeling with a focus on land-use dynamics under global changes, scenario development and analysis, North Asian dryland
<a href="#">Luuk Fleskens</a> (confirmed)	Ass. Professor, Environmental Sciences, <a href="#">Wageningen University</a> , The Netherlands	Spatially explicit systems approach to research land degradation and restoration, foresight studies
<a href="#">Jacques Werry</a> (already a DS's partner)	Professor, <a href="#">Montpellier SupAgro</a> , France	Multi-scale agricultural systems analysis and modeling, model-based scenarios development and analysis, system tools for policy support
<a href="#">Hatem Belhouchette</a> (already a DS's partner)	Ass. Professor, <a href="#">CIHEAM-IAMM, UMR-System</a> , Montpellier, France	Multi-scale agricultural systems analysis and modeling, model-based scenarios development and analysis, system tools for policy support
<a href="#">Janice Ser Huay Lee</a> (general interest showed, tbc)	Postdoctoral Researcher, Department of Ecology and Evolutionary Biology, Princeton University, USA	Socio-ecological systems approach to research tropical agro-ecosystems with a focus on ecosystem services (incl. trade-offs) assessment, agent-based system tools for scenarios development and analysis
<a href="#">Mike Bithell</a> (to be contacted)	Assistant Director of Research in Computing, Department of Geography, University of Cambridge, UK	Socio-ecological/complex systems approach to research land-use change using agent-based system modeling
<a href="#">Derek T. Robinson</a> (to be contacted)	Geography and Environmental Management, Waterloo University, Canada	Coupled human-natural systems approach (typically via agent-based modeling) to assess impacts of land change scenarios and land-use policies on ecosystem functions, human well-being, and sustainable livelihoods
<a href="#">Trung Thanh Nguyen</a> (confirmed)	Senior Researcher, Environmental Economics and World Trade, University of Hannover, Germany	Bio-economic modeling of farming systems with a focus on ecosystem services (inc. trade-offs) assessment, eco-efficiency and livelihood analysis. livelihood
<a href="#">Thomas Koellner</a> (to be contacted)	Professor, Ecosystem Services, University of Bayreuth, Germany	Socio-ecological systems approach to assess ecosystem services (incl. trade-offs), human behavior in ecosystem management, life-cycle assessment of agro-productions at

		regional and global scales
<a href="#">Tien Tran-Minh</a> (confirmed)	Deputy Director General for Research, National Institute of Soils and Fertilizer Research, Vietnam	Farming systems research, ecological intensification, analysis of nutrient flows across farming systems, web- based GIS of nutrient balance assessments
<a href="#">Toshiya Okuro</a> (to be contacted)	Professor, Health and Security, Graduate School of Environmental Science, the University of Tokyo, Japan	Landscape ecological studies on desertification control and restoration of ecosystem services in drylands in Northeast Asia (mainly) and West Africa (occasionally)

The Integrated Systems Analysis and Modelling Group (iSAMG) of the CRP-DS is as part of the GCISR as an *open community of development and practices* in its science field.

DRAFT



RESEARCH  
PROGRAM ON  
Dryland Systems

The CGIAR Research Program on Dryland Systems aims to improve the lives of 1.6 billion people and mitigate land and resource degradation in 3 billion hectares covering the world's dry areas.

Dryland Systems engages in integrated agricultural systems research to address key socioeconomic and biophysical constraints that affect food security, equitable and sustainable land and natural resource management, and the livelihoods of poor and marginalized dryland communities. The program unifies eight CGIAR Centers and uses unique partnership platforms to bind together scientific research results with the skills and capacities of national agricultural research systems (NARS), advanced research institutes (ARIs), non-governmental and civil society organizations, the private sector, and other actors to test and develop practical innovative solutions for rural dryland communities.

The program is led by the International Center for Agricultural Research in the Dry Areas (ICARDA), a member of the CGIAR Consortium. CGIAR is a global agriculture research partnership for a food secure future.

For more information, please visit

[drylandsystems.cgiar.org](http://drylandsystems.cgiar.org)

Led by:



In partnership with:

