2024 International Symposium of
the Association for Regional Agricultural and Forestry Economics
sponsored by the Japanese Society of Organic Agriculture Science

Scaling up Agroecology from the Policies to Practices: Transforming Our Research and Education Systems

Presentation 1: Advancing Agroecology through Policy Dialogue and Advocacy at Different Levels: Focus on Initiatives Supported by FAO

Mr. FERRAND Pierre

Agricultural Officer (Agroecology & Ecosystem Services),

Food and Agriculture Organization of the United Nations (FAO)

Abstract:

In the next 35 years, we expect complex and interconnected challenges that will put an unprecedented pressure on agriculture. It is widely recognized already that the current food systems are not sustainable. They account for 80% of deforestation, 29% of greenhouse gas emissions and the leading share of biodiversity loss (UNCCD, Global Land Outlook, 2022). In particular, they currently threaten 86% of at-risk species and are expected to drive approximately 70% of the projected loss of terrestrial biodiversity (Chatham House & UNEP, 2021). Continued loss of biodiversity threatens pollination, natural pest control, and soil health—all ecosystem services upon which agriculture, global food security, and approximately 2.5 billion people's livelihoods depend (CBD, 2019). They also contribute to environmental pollution, land degradation and the scarcity of water resources, while being vulnerable to climate change. They do not address the triple burden of malnutrition (which concerns over 2 billion people) and they maintain social inequity and loss of cultural values. Also, climate change is already reducing food security and affecting water security for millions of people in many locations / communities and globally for Indigenous Peoples, small-scale food producers and low-income households (IPCC 6th assessment report).

Systemic responses are required to adapt agricultural and food systems to the interrelated challenges posed by climate change. Agroecology is considered as a transformative pathway towards sustainable food systems.

In FAO, agroecology is seen as a holistic way to operationalize the new FAO Strategic Framework and promote transition to sustainable agriculture and food systems. It supports the 4 Betters (production, environment, nutrition, life) and integrates them to achieve efficient, inclusive, resilient and sustainable agri-food systems. A 4-pronged approach is promoted in line with FAO's mandate: 1/ Generating evidence and strengthening credibility of agroecology; 2/

Aggregating and disseminating agroecological knowledge; 3/ Testing and implementing in the field through projects; 4/ Fostering policy dialogue and advocacy on agroecology.

After briefly introducing the global challenges we are up against, and the relevance of agroecology to help addressing them, this presentation will focus on 3 specific initiatives supported by FAO to advance agroecology through policy dialogue and advocacy at different levels (practitioners, legislative bodies, executive bodies).

First, we will introduce the regional (Asia-Pacific) Working Group on Agroecology established under FAO's TAP-AIS project to discuss the integration of agroecology into the agricultural education and extension systems. This working group is co-facilitated by FAO and the Asia-Pacific Islands Rural Advisory Services Network (APIRAS), in collaboration with the Asia-Pacific Association of Agricultural Research Institutions (APAARI).

Then, we will present the experience of the Latin American and Caribbean Parliament (PARLATINO) in drafting a model law on agroecology with the technical support from FAO (to advance agroecology through legislative support).

Finally, we will highlight the experience of developing the ASEAN Policy Guidelines on agroecology transition as part of the support provided to the Lao facilitated initiative for agroecology in ASEAN by the Agroecology and Safe Food System Transition project (to advance agroecology through policy support to member countries).

Biography:

Mr. Ferrand holds a Master of Science in Agriculture, Environmental and Food Sciences and a Master of Science in Tropical Agriculture Development from respectively ISARA and CNEARC in France.

As an agronomist, specializing in tropical agronomy and rural development, he has been working for nearly 20 years in implementing food security, agriculture, and rural development projects in several countries, with a strong focus on Southeast Asia.

He has worked for over 13 years with a French NGO (GRET) in various countries from Africa and Asia. In particular, he facilitated the emergence of the Agroecology Learning Alliance in Southeast Asia (ALiSEA, https://ali-sea.org) as part of a regional project focusing on the Mekong Region (2015-2018). This contributed promoting an agroecological transition in Southeast Asia, bringing together all relevant stakeholders active in the field of Agroecology (Civil Society Organizations, Research centers, Government officials, Private sector).

He joined FAO in December 2018 and spent over 4 years in the regional office for Asia and the Pacific in Bangkok, Thailand as Agriculture Officer and Regional focal point for Agroecology and the UN Decade of Family Farming, providing backstopping and supervision to a broad range of projects. In July 2023, he moved to FAO HQ in Rome, Italy, where he works on agroecology and ecosystem services within the team "Ecosystem Approach to Crop Production Intensification" (NSPED) under the Plant Production and Protection (NSP) Division. His role involves supporting the Agroecology Knowledge Hub, the Agroecology Coalition, the Global Action on Pollination Services for Sustainable Agriculture, and providing technical backstopping to a broad range of field projects.

Presentation 2: The 'Agroecological Turn' in French Agronomic Research: New Areas of Knowledge and New Training Practices

Dr. CHIFFOLEAU Yuna

Director of Research,

the National Institute for Research on Agriculture, Food and the Environment (INRAE)

Abstract:

Agroecology is much more than a fusion of agronomy and ecology. Depending on the author, it can refer to an interdisciplinary field of research, a set of agricultural practices that make the most of natural regulators, or even a social movement in favour of small-scale, autonomous agriculture (Wezel et al., 2009). The aim of this paper is to show how French agronomic research has taken the 'agroecology turn' and contributed to the renewal of training in this field.

We will begin with a brief presentation of the four fields of knowledge highlighted in 2016 in the programme document of INRAE and CIRAD to meet the challenges of the agroecological transition (Côte, Soussana, 2016). We will then show how interdisciplinary programmes have been implemented in France to produce knowledge in these different fields, but also to cross-reference them.

However, as Meynard (2017) explains, agroecology does not just involve exploring new fields of knowledge at the interface between the life sciences and the social sciences. It also requires us to change the way we work: to develop systemic approaches; to make the most of local knowledge and combine it with scientific knowledge; to reposition agriculture and farms within food systems; and finally, to relearn how to learn, by facilitating collective learning to encourage adaptation and innovation.

We will use two examples to show how research can move in this direction. The first example will be the European DIVINFOOD project, which relies on 9 multi-stakeholder living labs to develop knowledge and training on short and mid-tier chains valuing minor cereals and legumes in agroecology (Massari et al., 2023; Chiffoleau et al., 2024). The second example is the Local Food Mixed Technology Network, a scheme funded by the French Ministry of Agriculture of Food Sovereignty, which enables the co-construction of collective expertise and training for the development of local food systems enhancing agroecological practices.

From these two examples, we will conclude by highlighting how participatory research can influence the direction of public policy, so that factors favourable to agroecology are better taken into account.

References

Chiffoleau Y., Dourian T., Enderli G., Mattioni D., Akermann G., Loconto A., Galli F., Emese G., Perényi Z., Colombo L., Massari S., Desclaux D., 2024. Reversing the trend of agrobiodiversity decline by co-developing food chains with consumers: A European survey for change. Sustainable Production and Consumption, 46, 343-354. https://doi.org/10.1016/j.spc.2024.02.032

Côte F., Soussana J.-F., 2016. Agro-écologie : le positionnement des recherches de l'Inra et du Cirad. Paris, Inra/Cirad.

Massari S., Galli F., Mattioni D., Chiffoleau Y., 2023. Co-creativity in Living Labs: fostering creativity in co-creation processes to transform food systems. JCOM, 22(03), A03. https://doi.org/10.22323/2.22030203

Meynard J.-M., 2017. L'agroécologie, un nouveau rapport aux savoirs et à l'innovation. OCL, 24 (3). https://www.ocl-journal.org/articles/ocl/full_html/2017/03/ocl170014/ocl170014.html

Wezel A., Bellon S., Doré T., Francis C., Vallod D., David C., 2009. Agroecology as a science, a movement and a practice. A review. Agronomy for Sustainable Development, 29, 503-515. https://doi.org/10.1051/agro/2009004.

Biography:

Yuna Chiffoleau is an engineer in agronomy, has a PhD in sociology and is director of research at the National Institute for Research on Agriculture, Food and the Environment (INRAE) in France. Specialising in economic sociology, she is interested in how social organisations can shape a more sustainable, fairer and more democratic economy in northern countries. Applied to the agri-food sector, her work focuses in particular on the revival of short supply chains and the development of local food systems, which she analyses and supports from the perspective of agroecology in the broadest sense. She leads several interdisciplinary and participatory research projects on the development of more sustainable value chains and food systems, including the European DIVINFOOD project. She also co-manages the joint technology network on local food in France (RMT Alimentation locale), through which she facilitates the co-construction of collective expertise and training on this theme. She is involved in a number of Masters-level courses, especially one at the University Paris-Saclay combining ecology and social sciences. Finally, she acts as an expert for public authorities at European, national and local level, as well as for private players, including large companies, as part of their corporate social responsibility strategy.

Presentation 3: Agroecological Research, Extension, and Education in California: A Case of the University of California, Santa Cruz

Dr. MURAMOTO Joji

Assistant Cooperative Extension Organic Production Specialist,

University of California, Santa Cruz

Abstract:

In California, the number one agricultural state in sales in the US ($59 billion in 2022), large-scale monocultural specialty crop production dominates the agricultural landscape, and the concept of agroecology has yet to be fully recognized in policymaking. However, California also leads the US in organic production in sales ($3.6 billion in 2021) and the number of certified organic farms (3,061 in 2021) and agroecological research has helped this growth for the last 40 years. This paper discusses the history, current status, and challenges of agroecological research, extension, and education in California, focusing on UC Santa Cruz (UCSC)'s agroecology programs.

[Research and Extension in organic strawberries] Organic strawberry research at UCSC began in the late 1980s when virtually no one believed such production was possible. Collaborating with Jim Cochran of the Swanton Berry Farm, UCSC's Stephen Gliessman conducted a comparative on-farm study of conventional and organic strawberries from 1987 to 1990, demonstrating that organic strawberry production is commercially viable with some price premium. Since then, UCSC's agroecology research team has conducted a series of studies to overcome production barriers in organic strawberry production, including soil-borne disease management using broccoli crop rotation and anaerobic soil disinfestation (ASD), and lygus pest management using alfalfa trap crops. A participatory Mother-baby trial was used to disseminate the newly developed ASD approach. These efforts greatly contributed to the expansion of organic strawberry acreage in California; as of 2023, organic strawberry acreage exceeded 2,000 hectares, representing 13% of total strawberry acreage in the state.

[Agroecological education]: Gliessman started UCSC's agroecology undergraduate class in the Department of Environmental Studies, Division of Social Science in 1981 and published "Agroecology" textbook (the 1st ed. in 1997, and the 4th ed. in 2023). In 2020, an undergraduate agroecology major with a B.A. was developed in the Department, in which students will learn about ecological concepts that can be applied to developing sustainable agricultural systems and will develop their understanding of agriculture's social, political, and economic aspects. Students will also engage in hands-on experiences and obtain research, fieldwork, production, and communication skills to achieve multiple sustainability goals in complex, social-ecological food systems. The UCSC Center for Agroecology used to have a six-month apprenticeship program for environmental horticulture to teach how to grow and market organic crops. In 2019, the program transitioned back to a student-managed farm. Currently, about 80 paid students manage the farm under the staff's supervision, and most of the fresh organic produce from the farm feeds on-campus students, of which many are food-insecure due to the extremely high living costs in Santa Cruz, via free organic salad bar at the campus cafeteria and other venues.

[Other agroecology programs] UC Davis and UC Berkeley also have strong Agroecology programs, and undergraduate students from these and UCSC campuses can intern at any of these campuses and UC Agriculture and Natural Resources programs across the state. Many agroecology-oriented non-profit organizations in California strive to improve farmworkers' working conditions and support livelihoods, sustainable farming practices, and cultures of historically underserved “BIPOC” farmers.

Biography:

Dr. Joji Muramoto, a soil scientist and agroecologist, is an Assistant Cooperative Extension Organic Production Specialist at the University of California, Santa Cruz (UCSC). He received a B.S. (Ag.), M.S. (Ag.), and Ph.D. (agricultural chemistry majoring in soil science) from Tokyo University of Agriculture, Japan, and moved to UCSC as a researcher in 1996. Since then, he has been conducting research and extension on fertility and soilborne disease management in organic strawberries and vegetables in coastal California. In 2019, he was hired as the first specialist in the UC system fully dedicated to organic production with a statewide responsibility for research and extension in organic agriculture.