



Workshop 4.4: Transitions towards sustainable agriculture: From farmers to agro-food systems

Convenors: **Claire Lamine and Egon Noe**

Sustainability Hot Spot Analysis: A streamlined life-cycle assessment towards sustainable food chains

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The "Sustainability Hot Spot Analysis" is a semi-quantitative LCA method to assess social and environmental effects along entire value chains and to identify relevant aspects for a product specific sustainability management. The streamlined LCA method draws on the methodological development of the Hot Spot Analysis - a reliable and low-cost tool for environmental assessments. We present the more comprehensive assessment method based on stakeholder involvement and a case study of the strawberry value chain. We discuss the strengths and weaknesses of the tool within a broader context of alternative tools and approaches to shift agro-food systems towards sustainability.

MIPS as a tool for sustainable food chains framing

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We applied MIPS methodology for an evaluation of natural resources drawing linked to food production and consumption. We assessed the material intensities of some Italian foodstuffs (pasta, organic, conventional and parboiled rice, orange juices) along the value chains. Farming phase is the most material demanding in rice production, while in pasta chain electricity and fuels for industrial processing are contributing mainly. A second analysis concerns the natural resource consumption due to nutrition in 25 European countries. We observed that diets with a strong share of meat and animal products have the highest impact also in terms of material requirements.

Moving towards low-input rice cropping practices: Past experiences and future challenges for Japan

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Since the 1990s, the nitrogen fertilizer application rates for rice cropping have declined significantly while yields were maintained in Japan. This study intends to draw some implications of the transition towards low-input practices through examining the technical developments and relative advantages of these practices for rice farmers. The increased relative advantages in a number of several aspects have acted as drivers for farmers to adopt low-input practices. The experience highlights the importance of clarifying positive merits of low-input practices in social and economic aspects besides environmental benefits in order to increase adoptability of low-input practices.

Are supermarkets an appropriate tool for facilitating the transition to low agrochemical use farming practices?

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Our hypothesis is that the influence of supermarket on farmers' low input practices is limited by the very production system that they have contributed to build. Actually, despite the creation by some supermarkets brands, of schemes referring to non chemical tools the supermarkets' contribution to advanced low input practices can be questioned: they have kept pesticide intensive standards for fruit quality while the EU regulation is now getting up to their standards. Only a shift in the consumer demand thanks to increase awareness on the pesticide issue and the choice of other retail circuit might lead to a change.



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The role and attitudes of agricultural advisors in implementing sustainable pest management in European agriculture – A cross national case study in NL, FR, UK and DK

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How will agricultural extension deal with the growing “greening” challenge facing European agriculture? Will the growing commercialization of agricultural extension favour or limit innovative processes turned toward low pesticide use? Research, implemented in the framework of ENDURE network and based on data collected in Denmark, France, Netherlands and United Kingdom analyse the attitudes of different advisors and advisory organizations regarding pest management issues. Results show that with no strong economical driving forces, advisors and farmers will very likely continue to be stuck into “optimization” processes, with no strong innovative and radical changes in pest management strategies.

Identifying barriers and opportunities for transitions towards more sustainable agriculture through system analysis. The case of Vereda La Hoya, Colombia

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The paper presents two studies which investigated farmers’ reasoning and behaviour with regards to the mis-use of personal protective equipment and pesticide among smallholders in Colombia. First, the research approach is described. The structured mental models approach and the integrative agent-centred framework are presented. They permit to understand the farmers’ reasoning and behaviour in a system perspective. Second, the studies’ convergent results are summarized. Not only the factors, but the social dynamics influencing farmers, were identified. Finally, suggestions for interventions are provided, which are not limited to a technical fix, but address the underlying social causes of the problem.

Plant protection: Precaution in dealing with hormonally active agrochemicals demands shared responsibilities between actors of the whole agricultural system

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The use of agrochemicals is still a highly controversial issue. Referring to the precautionary principle, the objective of the project start₂ is to develop strategies, which help reducing risks by hormonally active agrochemicals. Our research findings underpin the fact, that the use of agrochemicals is complex and dependent on more than the individual attitudes of the farmers. Successful management strategies for risk reduction thus need to involve all actors within this system.

Good Agricultural Practice (GAP) as a vehicle for transformation to sustainable citrus production in the Mekong Delta of Vietnam

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Pressure from the emerging Vietnamese middle class for access to “safe food” has prompted changes in the food supply chain from: individual farmer → middle man → traditional markets (formal, informal and hawkers), to: farmers organised in cooperatives or groups → supermarkets. This change gained significant government support resulting in the introduction of policies and support for “safe vegetable production” and the establishment of Vietnamese Good Agricultural Practice (VietGAP) standards. This paper examines GAP as a framework to secure food safety and sustainable production, and the Farmer Field School as a platform for GAP implementation, under Vietnamese smallholder conditions.



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Food and the City. New emerging roles for public institutions and civil society in the promotion of sustainable local food systems

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Recently a growing engagement of urban local public institutions in promoting sustainable food systems can be witnessed. Examples are the procurement of local and organic food to hospitals or schools, and cities and metropolitan regions establishing 'urban food strategies' to address sustainable food as integral policy issue. This implies an important rupture with the past, when food governance was mainly considered a matter of private market forces in which local institutions outside agriculture hardly had a role to play. This paper aims to analyze the relevance and contribution of new urban food strategies in enhancing transitions to sustainable food systems.

Drivers of transformation in the agro-food system. GAS as co-production of Alternative Food Networks

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The growth of alternative, localized, sustainable food systems, founded on grassroots initiatives aimed at re-localizing and re-connecting production and consumption, is widely recognized as a significant process of innovation of the mainstream agro-food system. The increasing success of the different expressions of this process is well documented and it is gaining progressively the attention of the public opinion. The authors of the paper read this process through the lens of transition theories and consider alternative agro-food networks (AAFNs) in the light of the concept of 'niches'. Indeed, they develop around alternative techno-economic paradigms, creating alternative patterns of food production, consumption and distribution.

Transforming agri-food systems in peri-urban area of Northern Thailand

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Using case study and farmer-researcher partnership approach the paper investigates the development processes whereby smallholder farmers have changed their farming structures to pesticide-free vegetable production systems in peri-urban areas of Chiang Mai, Thailand. The key driving forces include farmer's development paradigm in agri-food systems with values-based orientation, consumer interaction, relationships with supermarket, and institutional support. Many farmers are unable to adapt to new forms of institutional and regulatory systems. The direct marketing to local consumers has increased agro-biodiversity, which is foundation of farm resilience. The paper concludes that social organization and coordination enhances technological capacities and entrepreneurship of smallholder farmers.

Reducing the dependence on pesticides: A matter of transitions within the whole agro-food system

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Within Endure NoE, different components of agrofood systems (farmers' practices, extension services strategies, retailers' guidelines, research governance and involvement of civil society) have been studied in France, Switzerland, the Netherlands, the UK, Denmark, Italy and Hungary. The confrontation of national situations allows identifying common obstacles and leverages for robust transitions towards more sustainable crop protection practices and to show that these not only concern farmers but the larger socio-technical system, its interdependencies and/or lack of coordination. In this perspective this paper intends to be a contribution to current debates within transition theories. It also characterises the different national contexts' specificities to which these obstacles and leverages can be related.