Research on Agroecology

Current strengths and innovative futures for sustainable food systems

Bernard HUBERT

(INRAE, EHESS)

Chair of the French CRAI

TPP event 27 October 12:00 – 14:00

les dossiers
d'AGROPOLIS
INTERNATIONAL

Expertise of the scientific community

Special issue on partnership

Agroecological transformation for sustainable food systems

Insight on France-CGIAR research

Number 26
September 2021

Why this Dossier?

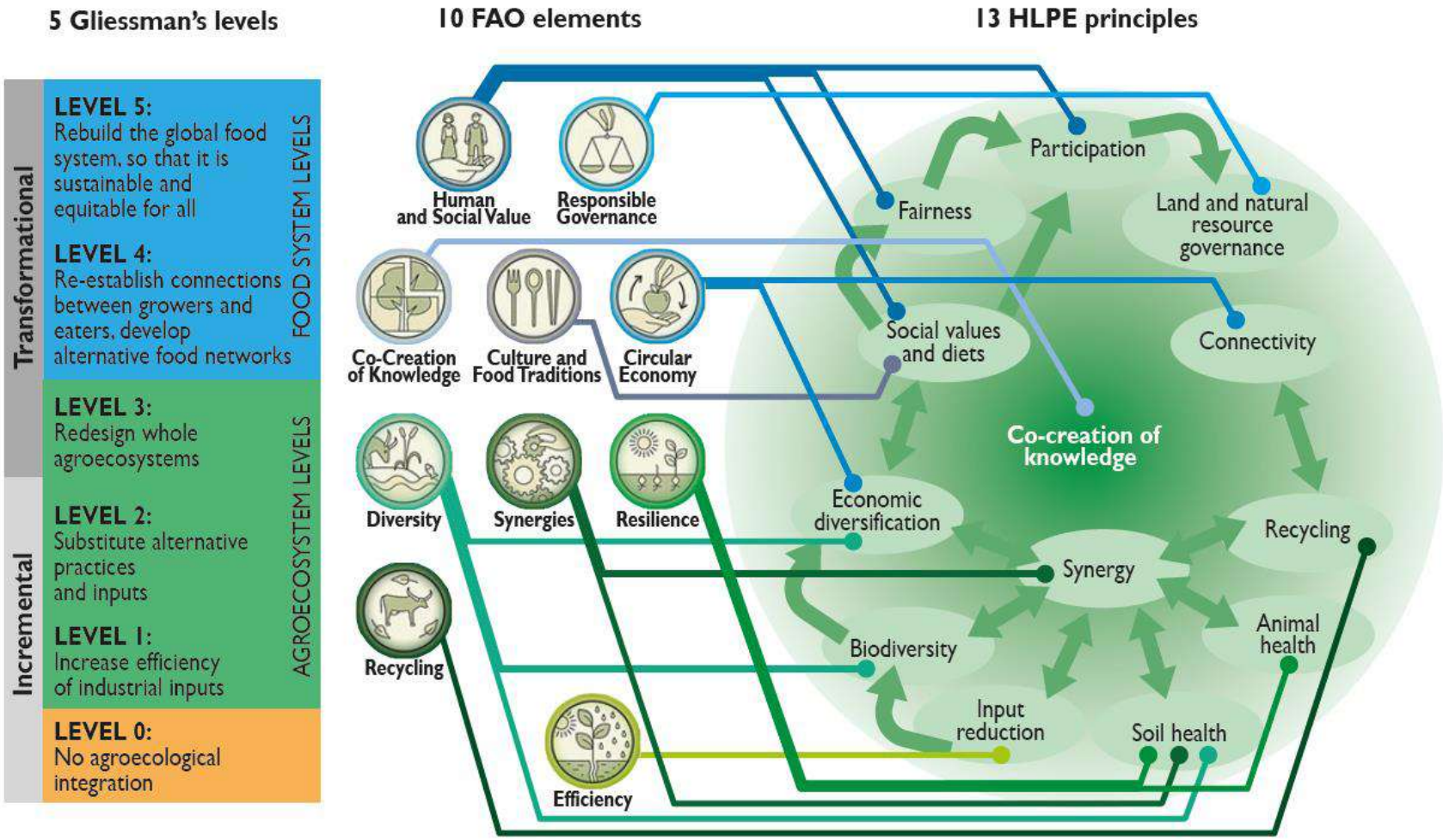
- The urgency of agroecological transformation of agrifood systems linked to SDGs has been one of the game changers discussed at the **UN World Food Systems Summit** this year.
- Clearly the diversity of agriculture on this planet heralds the way to a **variety of agroecological transition pathways** (different baselines, input usage levels, socioeconomic contexts and particularly different labour costs and availability), and also a **diversity in terms of means for public action** (subsidy levels that could be reoriented to incentivize change, research and extension, etc.).
- There are also similarities in terms of understanding the biology, ecology and socioeconomics of farming agroecosystems and their functioning, and how to manage risks, including those triggered by **climate change**.

Who contributes to this issue?

- Some **500 scientists and experts** from around **100 national and international universities and research organizations from France** (among others CIRAD, INRAE and IRD) **and abroad** and **from all CGIAR Centers.**

  This *Dossier* is not meant to be exhaustive, the research examples presented reflect the diversity and dynamism of scientific and technological research at national and international levels.

Linking 5 Gliessman'levels of food systems transformation, FAO's 10 elements and the 13 HLPE principles



What is in this *Dossier*?

- **Part 1 - AGROECOSYSTEMS**
- 1. Increasing the efficiency of practices in order to reduce the use of costly, scarce or environmentally damaging inputs
- 2. Substituting intensive external input use by biodiversity-derived ecosystem functions
- 3. Redesigning agroecosystems on the basis of a new set of ecological processes from farm and landscape*

- **Part 2 - FOOD SYSTEMS**
- 4. Identifying and overcoming constraints within food systems to achieve agroecological transitions at scale – reconnecting producers and consumers*
- 5. Building a new global food system based on equity, participation, democracy and justice

- **Part 3 - KEY PROCESSES, METHODS AND TOOLS FORAGROECOLOGY***

New research questions and a brand new way of doing research (1)

Changing the paradigmatic vision of food systems, leads to:

- address the **multifunctionality** of agriculture,
- recognize the urgent and imperious necessity **to respect ecosystems and marshal nature** and its resources, including biodiversity and its functions,
- then you need to address questions that have been overlooked by conventional approaches: soil biodiversity, ecosystem functioning, optimization of functions at plot and landscape levels, etc.

Moreover, agroecology is dovetailed with **principles** such as:

- fairness, social values, diets, land and local resource governance,
- which implies that **scientific research** must also focus on addressing questions linked to labor and market organization, stakeholder interactions, behavioral change mechanisms, social inclusion, public policies, added value distribution along supply chains, etc.

New research questions and a brand new way of doing research (2)

Agroecological approaches also imply new ways of doing research and contributing to innovation

- Agroecological transformation requires **hybridization** of scientific knowledge, technological and institutional innovations, local actors' capacities and knowledge, public policies, infrastructures and means.
- It is a **context-dependent process**, with multiple transformational solutions and pathways and **local innovation systems** have a crucial role to play.
- **Scientific research** therefore has to produce knowledge to fuel these local innovation systems through **new ways of cooperation** with stakeholders, including policymakers.
- This means accounting for **the complexity of agroecosystem functioning** in a diverse range of situations and settings, by connecting biological, technical and sociopolitical questions, using inclusive, systemic, interdisciplinary, participatory and transdisciplinary research.
- These are some of the ambitions of the **Transformative Partnership Platform** on Agroecology (TPP) that was jointly built by French research institutions and CGIAR.

Editorial and Scientific Board

DOI:10.23708/fdi:010082500

Each *Dossier* is available in hardcopy and digital format in English and French. Issues can be downloaded at:

- **Contacts:** amsallem@agropolis.fr / hubert@agropolis.fr

www.agropolis.org/publications/agroecology.php