Transforming Food and Agricultural Systems in Support of the SDGs: The Key Role of Agroecology

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A long history of agricultural ‘revolutions’

- Neolitic: 10,000 years
- Middle age (X s.)
- Industrial (XVIII-XIX)
- Green Revolution (1950-70)
- ...
Challenges of current agricultural models

- Decreased area of pasture and natural habitats
- Water pollution
- Increased agriculture production costs (costs of inputs dependent on oil prices)
- Increased use of (and resistance to) pesticides and herbicides
- Reduction of pollinators
- Decrease in soil health (fertility, earthworms, biodiversity loss, erosion)
- Increased diseases (cancer, celiac disease)
- Low diversity in food of poor nutritional quality
2014: 5 principles of Sustainable food and agriculture

1. Improving efficiency in the use of resources is crucial to sustainable agriculture.

2. Sustainability requires direct action to conserve, protect and enhance natural resources.

3. Agriculture that fails to protect and improve rural livelihoods, equity and social well-being is unsustainable.

4. Enhanced resilience of people, communities and ecosystems is key to sustainable agriculture.

5. Sustainable food and agriculture requires responsible and effective governance mechanisms.
Agroecology
multiple and evolving definitions

- “The application of ecological science (the science of how nature works) to the study, design and management of sustainable agriculture” (Altieri 1995)
- “The ecology of the food system” (Francis et al., 2003)
- “A science, a social movement and a practice” (Wezel et al., 2009)

→ more than 30 definitions of agroecology
Agroecology: Common points

Despite the diversity of situations observed in the regions, successful initiatives in agroecology share a number of common points:

» **Ecosystem based**: boosting efficiency in the use of natural resources (soil, air, sun, and water) through the synergy of components

» **Focus on** the recycling of elements

» **Makes a broad use of** agrobiodiversity

» **Diversification** of production systems and products in space and time.

» **Context-specific**: local solutions
Agroecology: main characteristics

1) Emphasizes the **interconnectivity** of all agroecosystem components and the complex dynamics of ecological processes that drive productivity, stability and resilience

2) Aims at the holistic approach to **agroecosystems** which are seen as complex systems in which ecological processes occur, e.g. nutrient cycling, predator/prey interactions, competition, symbiosis and successional changes.

3) **Reincorporates diversity** into the agricultural fields (variety mixtures, rotations, polycultures, agroforestry, crop-livestock integration, etc) and surrounding landscapes

4) Is highly **knowledge-intensive**, and is based on techniques that are not delivered top-down, but developed on the basis of farmers’ knowledge and experimentation
10 ‘ELEMENTS’ OF AGROECOLOGY

- Responsible Governance
- Diversity
- Synergies
- Efficiency
- Circular and Solidarity Economy
- Human and Social Values
- Co-creation and Sharing of Knowledge
- Resilience
- Recycling
- Culture and Food Traditions
Improve soil nutrition:
Incorporation of legumes in summer crops
Multicropping

- Wheat with clover
- Oat with vetch
- Sorghum with vetch
- Intercrop sunflower-vetch
Nodules of bacteria associated with the crop roots for fixing nitrogen.
State of Andhra Pradesh, India

Implementation of climate resilient Zero Budget Natural Farming (ZBNF) in the entire state of Andhra Pradesh. The ZBNF program in the first phase has USD 175 million and will cover, 500 000 farmers in 3 000 villages. The vision of the State Government is to universalize this programme to cover all 6 million farmers of the State by 2024.
4 Levels of transition towards Agroecology-based Sustainable Agriculture and Food Systems

- Progressive path towards greater environmental, social and economic sustainability
- From plots / farm level to Agroecosystem level to Food system
The Scaling up Agroecology Initiative

• Aims to accompany and support national agroecology transition processes through policy and technical capacity that builds synergies between countries
• Provides a framework for concerted action with other UN Agencies and partners
• Mobilizes resources to support agroecological transition
Measuring progress in agroecological transition

• Characterize the level of transition to Agroecology based on the 10 elements

• Using the 10 elements as criteria to define semi-quantitative indexes that take the form of scores from 0 to 4

• The scores of the four indexes are summed up and the totals are standardized on a scale from 0 to 100% to obtain the general score for the particular criterion
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<tr>
<th>Main dimension</th>
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<th>Core Indicators of Performance</th>
<th>SDG</th>
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<td>1</td>
<td>Soil Organic Matter</td>
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<td>Soil health</td>
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<td>Agrobiodiversity</td>
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<td>Dietary diversity</td>
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<td>Food Insecurity Experience Scale (FIES)</td>
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<td>Exposure to pesticides</td>
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<td>Women empowerment</td>
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<td>Youth employment opportunity</td>
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<td>Stability of income over time</td>
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<td>Income distribution</td>
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<td>9</td>
<td>Productivity</td>
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<td>Stability of productivity over time</td>
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<td>Social &amp; Cultural</td>
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<td>Secure land tenure (or secure mobility for pastoralists)</td>
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<td>Economic</td>
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<td>Governance</td>
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- SDG: Sustainable Development Goal(s)
HOW PUBLIC POLICIES CAN FACILITATE AGROECOLOGY TRANSITION?
AGRICULTURAL POLICY: The way success is measured in agriculture should be re-examined, moving beyond an emphasis on production alone to include a wider range of considerations – not least sustainable livelihoods, environmental protection and social inclusion.

- SUPPORTING PLURAL MARKET MODELS
- PUBLIC PROCUREMENT PROGRAMMES
- INVESTMENTS, CREDIT AND INSURANCE
- LAND TENURE AND ACCESS TO NATURAL RESOURCES
- RESEARCH, EDUCATION AND RURAL EXTENSION PROGRAMMES
- SANITARY AND PHYTOSANITARY MEASURES
- COORDINATION AND COLLABORATION IN POLICY AND GOVERNANCE
Towards agroecological laws

AGRICULTURAL LAWS
They mainly regulate the production obtained through the production of plants and animals and the sale of the results of these activities “
Agricultural law focuses on the regulation of agro-biological production activities, food legislation being one of its derivations

ENVIRONMENTAL LAWS
They cover many of the ecological aspects linked to agricultural activities: biodiversity in agriculture, protection of animal and plant species, agricultural wastes, recovery of contaminated land, agricultural use of water, relations between agricultural and livestock activities and climate change, organic farming, energy production by agriculture; biomass as renewable resources, agroforestry

→ Despite the numerous interferences between the two disciplinary fields, legal doctrine has preferred to keep agricultural and environmental laws separate
The current divisive approach used by legal doctrine is not unavoidable and for the future, the gradual construction of a new agroecological law is not a utopia.

On the contrary, there is a concrete possibility

- to legally challenge and renew theoretical models
- to promote legislation and jurisprudence capable of putting into dialogue, on the one hand, areas of law that until now have been separated and on the other hand, law and Agroecology
Introduction of important changes within the French rural code, so that Agroecology is integrated into legal frameworks and public policies.

Offers the possibility to create Group of Economic and Environmental Interest which is a collective of farmers wishing to engage in Agroecology. They will benefit from a priority or an increase in public support to make a transition to innovative and more competitive production systems.

Other aspects include support to young farmers, with credit facilities and access to land for sustainable food production with an agroecological approach.
National plan for the promotion of agroecological production
Law No. 19.717

Approved in 2019, it declares of general interest the **promotion of agroecological production, distribution and consumption systems.**

Creates the Honorary Commission responsible for preparing, coordinating and monitoring the implementation and execution of the national plan, with the participation of Ministries, Universities and CSOs.

Among its objectives are:

➢ Encourage and facilitate the **agroecological transition** and the incorporation of agroecological practices in **agricultural systems**

➢ Access to **local markets**, favoring the interaction between producers and consumers;

➢ Promote **training and research** in Agroecology
Thank you