



SCALING UP AGROECOLOGY INITIATIVE

TRANSFORMING FOOD AND AGRICULTURAL SYSTEMS IN SUPPORT OF THE SDGs

A PROPOSAL PREPARED FOR THE INTERNATIONAL SYMPOSIUM ON AGROECOLOGY 3-5 APRIL 2018

MISSION OF THE INITIATIVE

In the transformative spirit of the 2030 Agenda, we will work with food producers, governments and other stakeholders to strengthen agroecology – as a promising approach –, harnessing a range of sustainable practices and policies, knowledge and alliances to achieve equitable and sustainable food systems in support of the SDGs.

This document presents the *Scaling up Agroecology Initiative*, a vision to bring agroecology^a to scale and transform food and agricultural systems to achieve the SDGs. The document responds to four key questions: “What is the **potential of agroecology** to contribute to the 2030 Agenda?” (*Section 1*); “What are the key **challenges and opportunities** to scale-up agroecology?” (*Section 2*); “Which **core areas of work** should the *Scaling up Agroecology Initiative* focus on?” (*Section 3*); and “What is the **way forward** for the *Scaling up Agroecology Initiative*?” (*Section 4*).

FAO, as the lead agency, will be inviting UN agencies and other partner organizations to discuss and join the Initiative. It is intended to be presented and launched at the “2nd International Symposium on Agroecology: Scaling up Agroecology to achieve the Sustainable Development Goals” in April 2018 in Rome.

SECTION 1

AGROECOLOGY AND THE SUSTAINABLE DEVELOPMENT GOALS

The 2030 Agenda for Sustainable Development calls for a transformation in food and agricultural systems. The Agenda is a framework for achieving integrated sustainable development in its three dimensions – environmental, social and economic. It calls for all people to be critical agents of change in the process.

Agroecology is key to transforming food and agricultural systems. Growing scientific evidence and local experiences demonstrate how agroecology facilitates and contributes to transition to food and agricultural systems that are environmentally sustainable, economically fair, viable and socially equitable.

Agroecology embraces the spirit of the 2030 Agenda:

- **Agroecology helps to achieve multiple objectives through integrated practices, supported by coherent cross-sectoral policies.** Agroecology addresses the environmental, economic and social dimensions of agri-food systems. It seeks innovative and holistic solutions to the complex and interrelated challenges of poverty, hunger and malnutrition, rural abandonment, environmental degradation and climate change.
- **Agroecology places people at the centre.** Agroecology empowers people to be critical agents of change in the transformation of their food systems. It recognizes and brings together knowledge and experiences of diverse actors – including, women, youth, food producers, traders, consumers, policymakers, scientists and citizens.
- **Agroecology contributes directly to multiple SDGs.** The eradication of poverty (1) and hunger (2), ensuring quality education (4), achieving gender equality (5), increasing water-use efficiency (6), promoting decent jobs (8), ensuring sustainable consumption and production (12), building climate resilience (13), securing sustainable use of marine resources (14) and halting the loss of biodiversity (15) (see Annex 1).

^a To better understand the term “Agroecology” a short description is given in Annex 2.

Scaling up agroecology matches the transformative ambitions of the 2030 Agenda and will support countries to meet their commitments. Transitions require innovations in policies, rural institutions and partnerships, as well as in the production, processing, marketing and consumption of nutritious food, leading to sustainability and equity throughout the entire food and agricultural system. Scaling up agroecology requires overcoming key challenges while harnessing emerging opportunities. Transitions require putting in place long-term processes that must start urgently.

SECTION 2

CHALLENGES AND OPPORTUNITIES TO SCALE UP AGROECOLOGY

Many successful examples of agroecology exist at local and national levels and are based on traditions and local knowledge, on innovative solutions and recent scientific information. In certain cases, they have been scaled up with the support of public policies and networks of knowledge exchange, and by strengthening rural institutions and improving access to markets. Based on the results of the international and regional symposia on agroecology^b organized by FAO, and based on the salient features of agroecology (see Annex 2), key challenges have been identified that are holding back wide-scale agroecological transitions, as well as opportunities for action. From this analysis, the proposed core areas of work of the *Scaling up Agroecology Initiative* are described below:

CHALLENGES

- **Lack of awareness of agroecology among policymakers.** Despite many successful agroecological experiences in all regions of the world, there is a lack of awareness among key decision-makers of the potential of agroecology to tackle multiple challenges and contribute to achieving the SDGs.
- **Agroecological transitions require an enabling environment.** Food producers who wish to transition to a more sustainable path face constraints and risks. An enabling environment is necessary to provide positive incentives and buffers for food producers while they transform their systems, which takes time to realize the full benefit.
- **Political and economic support needs to prioritize sustainable approaches.** There is a need to catalyse national policies in support of more sustainable food systems through innovative and integrative approaches – such as agroecology and ecosystem based resources management– that respond to multiple social, environmental and economic challenges. High-input, resource-intensive agricultural production systems have increased productivity but incur heavy costs, such as environmental degradation and negative social impacts, which are borne by today's society and future generations. The policies that promote these agricultural production systems, including current research priorities, need to be redirected to create a level playing field for agroecology and other sustainable agricultural approaches that take into consideration the externalities of food systems.
- **Research, education and extension systems do not sufficiently respond to the needs of agroecology as an approach to effectively transform food and agricultural systems.** Agroecological systems are diverse, maximising the synergies between different components (e.g. soil, water, crops, livestock, trees, aquatic plants and animals, human processes) to deliver greater resource-use efficiency and resilience. Managing these interactions depends on *locally adapted knowledge*. Despite growing calls for change, in many cases, current research, education and extension systems focus on single disciplines, increasing yields of single commodities and top-down technology transfer models. To scale up agroecology, rural education and extension systems need to be strengthened and a different modality of knowledge *co-creation* which combines scientific knowledge with the knowledge of food producers needs to be promoted.
- **Current market systems are not responding to agroecological approaches.** Markets that are developed as vertical value chains for single products do not match the needs of diversified agroecological production systems or the needs of consumers for diversified and healthy diets, particularly those of small-scale food producers and poor urban consumers. In recent years, policies have focused on strengthening global value chains, ignoring the important role of local and regional markets. Putting more emphasis on local/regional markets is needed to encourage diversified production and improve access to healthy food for improved diets. Successful models which re-connect producers and consumers, rural and urban areas (such as community-supported agriculture schemes, public procurement programmes, e-commerce and participatory guarantee schemes) need to be strengthened, and agroecological producers need improved access to these market opportunities.

^b 1st International Symposium on Agroecology for Food Security and Nutrition (September 2014); Regional Seminar on Agroecology in Latin America and the Caribbean (June 2015); Regional Meeting on Agroecology in Sub-Saharan Africa (November 2015); Multi-stakeholder Consultation on Agroecology for Asia and the Pacific (November 2015); International Symposium on Agroecology for Sustainable Agriculture and Food Systems in China (August 2016); Regional Symposium on Agroecology for Sustainable Agriculture and Food Systems in Europe and Central Asia (November 2016); Regional Consultation on Agroecology: adapting to climate change in semi-arid areas for sustainable agricultural development (November 2017).

- **Lack of coordinated action and collaboration in policy and governance.** Agroecological transitions require greater integration among sectors, disciplines and actors to achieve multiple objectives. Policies need to be integrated across scales (local, national and international) and sectors (from agriculture, fisheries and forestry to economic, social and environmental sectors) to achieve coherence through a territorial approach. In particular, agroecological systems require a governance system that coordinates actions at the landscape and territorial scale. Worldwide, the tendency has been towards sector-specific policy-making lacking global and national governance mechanisms, regulatory systems for monitoring and accountability.

OPPORTUNITIES

- **There is widespread recognition that agricultural models based on high-input, resource-intensive production systems have reached their limit.** Key actors from governments, international institutions, civil society and organizations of food producers have demonstrated their commitment to shift to a new paradigm based on agroecology. *“High-input, resource-intensive farming systems, which have caused massive deforestation, water scarcities, soil depletion and high levels of greenhouse gas emissions, cannot deliver sustainable food and agricultural production. Needed are innovative systems that protect and enhance the natural resource base while increasing productivity. Needed is a transformative process towards ‘holistic’ approaches (such as agroecology)”^c.*
- **Agroecological solutions already exist – in policies and in practice.** A multitude of agroecological systems exist throughout all regions of the world, spread across landscapes and seascapes, and in different food production sectors, often rooted in family farming and other small-scale production systems. In a number of cases, public policy support has played a key role in the up-scaling of agroecology. For example, in aquatic systems the ecosystem approach to fisheries has had traction at national level and has been supported by the Plan of Implementation of the World Summit on Sustainable Development. These experiences serve as an invaluable resource for understanding the essential links between communities, knowledge, culture, biodiversity, landscapes, economy and governance. Transition processes will be strengthened by drawing from successful agroecological experiences.
- **Scientific knowledge of agroecology is rapidly increasing, and organizations of food producers and civil society hold significant practical, traditional and local agroecological knowledge.** Combining scientific and experiential knowledge is the key to unlocking agroecological innovations.
- **Network connections can enhance sharing of knowledge and solutions between actors.** Modern society is increasingly connected, including rural areas that were previously isolated. This presents new opportunities for exchanging knowledge, sharing experiences and expressing solidarity in the face of common challenges, between various state- and non-state actors. The Agroecology Knowledge Hub managed by FAO is one such example of a platform for knowledge exchange. South-South Cooperation is a particularly promising modality to support the up-scaling of agroecology.
- **Agroecology addresses climate change adaptation and mitigation.** Agroecological strategies including diversification and crop-livestock-tree integration increase resource-use efficiency and resilience to climate change. At the same time, agroforestry and improved agricultural production practices maintain and improve the capacity of soils to sequester carbon. Agroecology can therefore provide options for balancing trade offs between adaptation and mitigation.
- **Rural youth and migration.** Millions of new jobs will need to be created to meet the aspirations of rural youth. Agroecology provides a promising solution as a source of decent rural employment, one that offers a choice and alternative to urban or international migration. Agroecology is based on a different way of agricultural production that is knowledge intensive, environmentally friendly, socially responsible, innovative, and which depends on skilled labour. Meanwhile, rural youth around the world possess energy, creativity and a desire to positively change their world. What they need is support and opportunities.
- **Growing consumer demand for healthy diets.** There is an increasing demand for healthy diets, including in urban areas, and an urgent need to diversify diets as a response to rising malnutrition in all its forms (undernutrition and obesity) and associated non-communicable diseases (NCDs). There is also a growing awareness of the existing links between environmental and social issues including climate change, nutrition and health. Integrated agroecological systems can address this demand, while simultaneously promoting soil health and reducing environmental degradation. Innovative markets are emerging at local and territorial levels in synergy with diversified production

^c **FAO (2017).** *The future of food and agriculture – Trends and challenges.* Rome

systems. These markets contribute to the conservation and sustainable use of biodiversity, add value to local products thus improving local income and livelihoods, and make healthy food for improved diets more easily accessible to consumers.

- **United Nations Decade of Family Farming (2019-2028).** Worldwide agroecology is rooted in agricultural heritage systems based on family farming, and the knowledge of family farmers is essential for sustaining the local innovation processes of agroecology. Of the 815 million hungry people in the world, paradoxically, 70 percent are family farmers who make their living from agriculture, herding, fisheries and forestry. Increasing the resilience of their production systems, livelihoods and self-provisioning of nutritious foods are key to eliminating hunger. The prospective Decade of Family Farming offers an important opportunity to raise awareness of, and support for, the inter-linkages between agroecology and family farming. In particular, there are opportunities for collaboration in the areas of awareness and knowledge creation, promotion of best agroecological practices for smallholder and family farmers, increased pro-poor investments in the direction of agroecology contributing to selected SDG indicators, and implementation of national policies and programmes.
- **United Nations Decade of Action on Nutrition (2016- 2025).** The Nutrition Decade provides a unique opportunity to highlight the contribution of agroecology for sustainable food systems that deliver healthy diets and improved nutrition. Food production is an important ecosystem service. Agroecology can produce the food needed for human nutrition through increased dietary diversity, promotion of underutilized traditional crops and sustainably produced animal-source products. It also improves the nutritional status of households, in particular those of smallholder family farmers, either directly or indirectly through pathways such as promoting decent rural employment, or improving resilience to climate change. Agroecology contributes to the Nutrition Decade's vision of addressing malnutrition in all its forms by applying sustainable food production and effective natural resource management for healthy diets.

The Scaling up Agroecology Initiative aims to accompany and support national agroecology transition processes through policy and technical capacity that builds synergies between countries. It will build alliances among different stakeholders, strengthen networks and allow co-creation of knowledge and knowledge sharing. The Initiative will develop, implement and continuously improve tools, instruments and guidance documents for guiding national agroecological transitions.

The Initiative focuses its efforts on three areas of work that are key to harnessing the opportunities and overcoming the challenges identified in Section 2.

The Initiative will provide a framework for concerted action. Harnessing the potential of agroecology to transform food and agricultural systems requires a framework for coordinated action and collaboration among a range of actors. The *Scaling up Agroecology Initiative* responds to this need.

The Initiative builds on existing experiences and strengths. It builds on the outcomes of international and regional symposia on agroecology^d as well as activities implemented at national, regional and international levels. The Initiative will also respond to Member States' request to "continue to strengthen ...work on agroecology"^e. It will capitalize and bring together the work and efforts of the many partners and stakeholders who have been actively involved in agroecology and build a new, forward-looking framework for action.

It will develop knowledge, policy guidance and networks needed to guide agroecological transitions (see the 3 areas of work below). This guidance will address the levels of agroecological transitions, including: agroecological practices, agroecosystem re-design, diverse agroecological food systems, and strengthening the enabling environment.

The Initiative will act at national, regional and global levels. National experiences will be shared at regional and global levels to develop improved guidance based on a range of different experiences. An increasing number of countries (as well as states and municipalities) are showing interest in agroecology and requesting support from inter-governmental bodies to guide transition processes. The Initiative will therefore focus its work in countries which request support to plan and implement transition processes. It will bring together the best expertise from different countries and from international and regional agencies to support national processes.

AREA OF WORK 1. KNOWLEDGE AND INNOVATION FOR SUSTAINABLE FOOD AND AGRICULTURAL SYSTEMS

The Initiative will support local and national efforts to deliver solutions for context-specific needs by generating and co-creating knowledge and conducting capacity-building and training activities. It will strengthen field-based capacity to sustainably manage agro-ecosystems across entire landscapes and seascapes by supporting food producers' organizations, extension agents and inter-disciplinary researchers helping countries achieve food security. It will also enable knowledge sharing across countries and regions that require new solutions to changing climates. The Initiative will demonstrate the impact of agroecology by expanding the evidence base, exploring research gaps and supporting data collection at national level.

TARGETS

- Increase knowledge base/capacity on agroecology in 50 countries, including through promotion of South-South / triangular cooperation that connects demands of support with existing expertise (Years 1-10)
 - Improving the evidence base on agroecology and ecosystem-based approaches at regional and global levels (Years 1-2)
 - Collection of relevant data at national level in 15 countries (Years 3-10)
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^d <http://www.fao.org/agroecology/overview/global-dialogue/en/>

^e COAG (2016). Report of the 25th Session of the FAO Committee on Agriculture.

AREA OF WORK 2. POLICY PROCESSES FOR TRANSFORMATION OF FOOD AND AGRICULTURAL SYSTEMS

The Initiative will assist countries in the development of policies for agroecology with the participation of non-state actors. It will provide technical support to countries and seek to harness existing international instruments and decisions of inter-governmental bodies, including the 2030 Agenda, to support agroecological transition. It will catalyse cooperation throughout the UN system to strengthen agencies' capacities to support agroecological transition processes.

TARGETS

- Provide technical support to at least 20 countries in agroecological transition processes including through the promotion of South-South / triangular cooperation that connects demands of support with existing expertise (Years 1-10).
- Support 20 countries in developing and implementing agroecology. (Years 1-10)
- Provide technical guidance on agroecology to support the implementation of policy decisions of inter-governmental bodies (such as the Committee on World Food Security and the Convention on Biological Diversity) upon request in up to 20 countries (Years 1-10)
- Develop technical guidance on the implementation of existing international instruments* in relation to agroecology in 20 countries (Years 1-10)
- Support governments in their SDG reporting by developing guidance on monitoring – including data collection and policy analysis – for the Goals relevant to agroecology in 30 countries (Years 1-10)
- Provide guidance to 20 countries on securing access to natural resources, knowledge and investments to empower women and youth to play a leading role in agroecological transitions (Years 1-10)
- Present outcomes to relevant UN fora, including the Economic and Social Council of the United Nations (ECOSOC) and High Level Political Forum, and coordinate joint activities with relevant UN-wide initiatives such as the prospective United Nations Decade of Family Farming (2019-2028), the UN Decade of Action on Nutrition (2016-2025), the UN International Year of Artisanal Fisheries and Aquaculture (2022) and the FAO Globally Important Agricultural Heritage Systems (GIAHS).
- Contribute to the post 2020 biodiversity framework (Years 1-2)
- Support efforts to report on progress achieved to the governing bodies of relevant UN agencies (e.g. FAO's Committee on Agriculture) (Years 1-10)

*Including but not limited to: International Treaty on Plant Genetic Resources for Food and Agriculture; the global plans of action on plant, animal, forest and aquatic genetic resources of the Commission on Genetic Resources for Food and Agriculture; Convention on Biological Diversity; Voluntary Guidelines for Sustainable Soil Management; Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security; Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security; Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries and Voluntary guidelines for mainstreaming biodiversity into policies, programmes and national and regional plans of action on Nutrition.

AREA OF WORK 3. BUILDING CONNECTIONS FOR TRANSFORMATIVE CHANGE

The Initiative will work with all stakeholders – governments, producers' organisations, consumers, civil society, research and the private sector – and support networks and platforms for knowledge exchange and dialogue at national, regional and international levels. It will ensure collaboration and coordination among UN agencies.

TARGETS

- Develop (in 2018) and implement a joint programme of work on agroecology with partners joining the Initiative (from 2018 to 2030).
 - Present the joint programme of work for discussion and approval to relevant governing bodies (Years 1-3)
 - Increase awareness of agroecology at all levels and building alliances, including with producer organizations, consumer groups, policy-makers, young people, women's groups, private and public investors (Years 1-10)
 - Develop tools and guidance for inclusive food systems and innovative markets involving both producers and consumers in 20 countries (Years 1-10)
 - Contribute to increase innovative alliances between producers and consumers in at least 10 countries
 - Contribute to develop Agroecology Cities networks in the framework of the Milan Pact
 - Catalyse the engagement of women and youth organizations in production, processing and marketing initiatives that create decent working opportunities in 20 countries (Years 1-10)
 - Provide guidance to 20 countries on securing access to natural resources, knowledge and investments to empower women and youth to play a leading role in agroecological transitions (Years 1-10)
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FAO is convinced that a wide cooperation among partners and a wide range of actors and institutions is necessary to scale up agroecology in order to achieve the SDGs. Efforts will focus on the four areas of work described above. The best way to engage with partners will be discussed with UN partners during the preparation of the joint programme of work on agroecology.

Three types of partnerships are envisaged:

➤ **UN Agencies and Bodies.**

Role: UN agencies and bodies will partner to identify priorities and strategies for the Initiative and to implement specific activities, building on synergies between normative work and operational functions.

Opportunities: The Initiative will enhance synergies with ongoing UN efforts – mainly the 2030 Agenda, but also including the Decade of Family Farming, the UN Decade of Action on Nutrition, the International Year of Artisanal Fisheries and Aquaculture, the Global Initiative on Decent Jobs for Youth, the Rome-Based Agencies collaboration on home-grown school meals and the Sustainable Food Systems Programme of the 10-Year Framework for Programmes on Sustainable Consumption and Production Patterns.

➤ **Governments.** The Initiative will invite all interested Members as partners.

Role: Governments will advise FAO and its partners on priorities and strategies for the Initiative and partner to implement specific activities.

Opportunities: The Initiative will seek cooperation with regional bodies such as the Community of Latin American and Caribbean States and the New Partnership for Africa's Development to support regional cooperation on agroecology. It will also seek cooperation with relevant targeted initiatives, such as the G20 Initiative for Rural Youth Employment.

➤ **Non-state actors.** The Initiative will work with partners to implement specific activities on an ad hoc basis, including food producers' organizations, consumers, civil society, research institutions and the private sector.

Role: Implementing specific activities of common interest at local, national, regional and international levels.

Opportunities: Non-state actors have played a vital role in developing, implementing and advocating for agroecology. Family farmers have developed the knowledge, capacities and networks that must be at the core of creating sustainable food systems. National, regional and international research institutions are pioneering transdisciplinary research to tackle complex problems facing food and agricultural systems. Consumers and the private sector create the demand and also opportunities for inclusive and equitable food systems.

JOINING EFFORTS TO SCALE UP AGROECOLOGY Working together can have a catalytic impact, enabling and empowering Members, communities and family farmers to scale up agroecology and achieve the transformative vision of the 2030 Agenda: A world with sustainable and inclusive food and agricultural systems, where the health of both people and the planet thrives; where food security and nutrition is assured for all present and future generations; where the scourge of poverty is eliminated; where the fundamental contributions of women are valued and respected; and where core human values of dignity, freedom, equity and human rights are upheld. Agroecology can provide pathways to help achieve this bold and transformative vision.

ANNEX 1– SDGs, TARGETS AND INDICATORS RELEVANT TO AGROECOLOGY



End poverty in all its forms everywhere

Relevance of agroecology. Family farming, herding and artisanal fisheries and aquaculture provide livelihoods for many of the world’s rural poor. Agroecological approaches support food producers in reducing production costs, translating into greater income, economic stability and resilience.

RELEVANT SDG TARGETS	INDICATORS
1.2 By 2030, reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions	1.2.2 Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions
1.4 By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance	1.4.2 Proportion of total adult population with secure tenure rights to land, with legally recognized documentation and who perceive their rights to land as secure, by sex and by type of tenure
1.5 Build the resilience of the poor and reduce their exposure and vulnerability to climate related events and other socio economic shocks and disasters	1.5.2 Direct disaster economic loss in relation to global gross domestic product (GDP)
1.b Create sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions	1.b.1 Proportion of government recurrent and capital spending to sectors that disproportionately benefit women, the poor and vulnerable groups



End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Relevance of agroecology. Agroecological systems optimize the use of local and renewable resources. This enables agricultural production systems to harness ecosystem benefits such as pest control, pollination, soil health and erosion control while ensuring productivity. The conservation and sustainable use of biodiversity leads to robust ecosystem services and sustainable agriculture.

RELEVANT SDG TARGETS	INDICATORS
2.1 By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round	2.1.1 Prevalence of undernourishment 2.1.2 Prevalence of moderate or severe food insecurity in the population, based on the Food Insecurity Experience Scale (FIES)
2.2 By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	2.2.1 Prevalence of stunting (height for age <-2 standard deviation from the median of the World Health Organization (WHO) Child Growth Standards) among children under 5 years of age 2.2.2 Prevalence of malnutrition (weight for height >+2 or <-2 standard deviation from the median of the WHO Child Growth Standards) among children under 5 years of age, by type (wasting and overweight)
2.3 By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment	2.3.2 Average income of small-scale food producers, by sex and indigenous status
2.4 By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain	2.4.1 Proportion of agricultural area under productive and sustainable agriculture

ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality	
2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed	<p>2.5.1 Number of plant and animal genetic resources for food and agriculture secured in either medium or long-term conservation facilities</p> <p>2.5.2 Proportion of local breeds classified as being at risk, non-at-risk or at unknown level of risk of extinction</p>



Ensure healthy lives and promote well-being for all at all ages

Relevance of agroecology. By minimizing the use of potentially harmful agro-chemical inputs, agroecology reduces agriculture’s negative effects on both human and environmental health.

RELEVANT SDG TARGETS	INDICATORS
3.9 Substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination	<p>3.9.1 Mortality rate attributed to household and ambient air pollution</p> <p>3.9.2 Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)</p> <p>3.9.3 Mortality rate attributed to unintentional poisoning</p>



Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Relevance of agroecology. Agroecology depends on knowledge adapted to local context by food producers. It delivers relevant and practical knowledge through empowering peer-to-peer systems, enhanced with the knowledge of formal scientists.

RELEVANT SDG TARGETS	INDICATORS
4.3 By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university	4.3.1 Participation rate of youth and adults in formal and non-formal education and training in the previous 12 months, by sex
4.4 Substantially increase the number of youth and adults who have relevant skills, for employment, decent jobs and entrepreneurship	4.4.1 Proportion of youth and adults with information and communications technology (ICT) skills, by type of skill
4.5 Eliminate gender disparities in education	4.5.1 Parity indices (female/male, rural/urban, bottom/top wealth quintile and others such as disability status, indigenous peoples and conflictaffected, as data become available) for all education indicators on this list that can be disaggregated



Achieve gender equality and empower all women and girls

Relevance of agroecology. Women have a central role in agroecology. They are active in many parts of the food system, from the home, to the field, to the market and beyond. Agroecology has the potential to advance women’s rights, empowerment and autonomy.

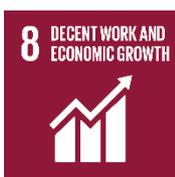
RELEVANT SDG TARGETS	INDICATORS
<p>5.1 Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws</p>	<p>5.a.1 a) Proportion of total agricultural population with ownership or secure rights over agricultural land, by sex; and (b) share of women among owners or rights-bearers of agricultural land, by type of tenure</p> <p>5.a.2 Proportion of countries where the legal framework (including customary law) guarantees women’s equal rights to land ownership and/or control</p>



Ensure availability and sustainable management of water and sanitation for all

Relevance of agroecology. Agroecology prevents surface water and groundwater pollution. It promotes practices that are efficient in water use, enhance soil water retention, and value locally adapted crops that require less (or no) irrigation, allowing safer and more sustainable aquifer storage, recovery and recharge.

RELEVANT SDG TARGETS	INDICATORS
<p>6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally</p>	<p>6.3.2 Proportion of bodies of water with good ambient water quality</p>
<p>6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity</p>	<p>6.4.1 Change in water-use efficiency over time</p>
<p>6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate</p>	<p>6.5.1 Degree of integrated water resources management implementation (0-100)</p>



Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

Relevance of agroecology. Agroecological approaches create new decent rural employment opportunities for youth and women. The increased resilience of agroecological production systems helps to better maintain existing jobs, supporting rural livelihoods and communities.

RELEVANT SDG TARGETS	INDICATORS
<p>8.3 Support productive activities, decent job creation, entrepreneurship, creativity and innovation</p>	<p>8.3.1 Proportion of informal employment in non-agriculture employment, by sex</p>
<p>8.5 By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value</p>	<p>8.5.1 Average hourly earnings of female and male employees, by occupation, age and persons with disabilities</p> <p>8.5.2 Unemployment rate, by sex, age and persons with disabilities</p>
<p>8.6 By 2020, substantially reduce the proportion of youth not in employment, education or training</p>	<p>8.6.1 Proportion of youth (aged 15-24 years) not in education, employment or training</p>

10 REDUCED INEQUALITIES



Reduce inequality within and among countries

Relevance of agroecology. Agroecology gives priority to the most marginalised sectors of society: rural women, youth, family farmers and indigenous peoples.

RELEVANT SDG TARGETS	INDICATORS
10.2 By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	10.2.1 Proportion of people living below 50 per cent of median income, by age, sex and persons with disabilities

11 SUSTAINABLE CITIES AND COMMUNITIES



Make cities and human settlements inclusive, safe, resilient and sustainable

Relevance of agroecology. By promoting a territorial approach to development, agroecology encourages the development of integrated plans for urban and rural development, with urban areas recognising the multiple benefits that sustainable landscapes can provide them.

RELEVANT SDG TARGETS	INDICATORS
11.4 Strengthen efforts to protect and safeguard the world’s cultural and natural heritage	11.4.1 Total expenditure (public and private) per capita spent on the preservation, protection and conservation of all cultural and natural heritage, by type of heritage (cultural, natural, mixed and World Heritage Centre designation), level of government (national, regional and local/municipal), type of expenditure (operating expenditure/investment) and type of private funding (donations in kind, private non-profit sector and sponsorship)

12 RESPONSIBLE CONSUMPTION AND PRODUCTION



Ensure sustainable consumption and production patterns

Relevance of agroecology. Agroecology enhances diversification of diets and food and nutrition security. Agroecological food systems have proven, in many local contexts, to be exemplary providers of high-quality nutritious, healthy and adequate diets, preserving and promoting local food traditions and traditional knowledge. By shortening value chains agroecology contributes to the reduction of food losses and waste.

RELEVANT SDG TARGETS	INDICATORS
12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	12.1.1 Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies
12.2 By 2030, achieve the sustainable management and efficient use of natural resources	12.2.1 Material footprint, material footprint per capita, and material footprint per GDP 12.2.2 Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP
12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	12.3.1 Global food loss index
12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international	12.4.2 Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment

frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	
12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	12.5.1 National recycling rate, tons of material recycled
12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities	12.7.1 Number of countries implementing sustainable public procurement policies and action plans
12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	12.c.1 Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels



Take urgent action to combat climate change and its impacts

Relevance of agroecology. Agroecology helps mitigate against climate change and its impacts. It reduces the emission of greenhouse gases by promoting integrated production systems that are less dependent on energy from fossil fuels and that store and fix carbon. By promoting diversified and integrated production systems, agroecology facilitates resilience and adaptation to a changing

climate.

RELEVANT SDG TARGETS	INDICATORS
13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries	13.1.1 Number of countries with national and local disaster risk reduction strategies
13.2 Integrate climate change measures into national policies, strategies and planning	13.2.1 Number of countries that have communicated the establishment or operationalization of an integrated policy/strategy/plan which increases their ability to adapt to the adverse impacts of climate change, and foster climate resilience and low greenhouse gas emissions development in a manner that does not threaten food production (including a national adaptation plan, nationally determined contribution, national communication, biennial update report or other)
13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning	13.3.2 Number of countries that have communicated the strengthening of institutional, systemic and individual capacity-building to implement adaptation, mitigation and technology transfer, and development actions



Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Relevance of agroecology. In aquatic systems the Ecosystem Approach to Fisheries (EAF) and to aquaculture (EAA) demonstrates an agroecological approach. The Ecosystem Approach ensures that the management of living resources applies an integrated approach to fisheries within meaningful boundaries, taking into account knowledge and uncertainties in the biotic, abiotic and human components.

RELEVANT SDG TARGETS	INDICATORS
14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans	14.2.1 Proportion of national exclusive economic zones managed using ecosystem-based approaches
14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics	14.4.1 Proportion of fish stocks within biologically sustainable levels



Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Relevance of agroecology. Agroecology works with local communities, food producers to prevent land degradation and restore degraded areas. Agroecology helps to conserve the biodiversity and ecosystem services that underpins food production.

RELEVANT SDG TARGETS	INDICATORS
15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements	15.1.1 Forest area as a proportion of total land area 15.1.2 Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type
15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally	15.2.1 Progress towards sustainable forest management
15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world	15.3.1 Proportion of land that is degraded over total land area
15.4 By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development	15.4.1 Coverage by protected areas of important sites for mountain biodiversity 15.4.2 Mountain Green Cover Index
15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species	15.5.1 Red List Index
15.6 Promote fair and equitable sharing of the benefits arising from the utilization of genetic resources and promote appropriate access to such resources, as internationally agreed	15.6.1 Number of countries that have adopted legislative, administrative and policy frameworks to ensure fair and equitable sharing of benefits
15.9 By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts	15.9.1 Progress towards national targets established in accordance with Aichi Biodiversity Target 2 of the Strategic Plan for Biodiversity 2011-2020



Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Relevance of agroecology. Agroecology supports strong and inclusive producers’ organisations that enable the sharing of knowledge, solidarity, representation of their concerns at the policy level.

RELEVANT SDG TARGETS	INDICATORS
16.7 Ensure responsive, inclusive, participatory and representative decision-making at all levels	16.7.2 Proportion of population who believe decisionmaking is inclusive and responsive, by sex, age, disability and population group



Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development

Relevance of agroecology. Scaling up agroecology calls for increased cooperation between productive sectors, social actors and countries.

RELEVANT SDG TARGETS	INDICATORS
17.6 Enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms, including through improved coordination among existing mechanisms, in particular at the United Nations level, and through a global technology facilitation mechanism	17.6.1 Number of science and/or technology cooperation agreements and programmes between countries, by type of cooperation 17.6.2 Fixed Internet broadband subscriptions per 100 inhabitants, by speed
17.9 Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation	17.9.1 Dollar value of financial and technical assistance (including through North-South, SouthSouth and triangular cooperation) committed to developing countries

ANNEX 2 - AGROECOLOGY IN A NUTSHELL

The 10 Elements of Agroecology: Guiding the Transition to Sustainable Food and Agricultural Systems

Today's food and agricultural systems have succeeded in supplying large volumes of food to global markets. However, high-external input, resource-intensive agricultural systems have caused massive deforestation, water scarcities, biodiversity loss, soil depletion and high levels of greenhouse gas emissions. Despite significant progress in recent times, hunger and extreme poverty persist as critical global challenges. Even where poverty has been reduced, pervasive inequalities remain, hindering poverty eradication.

Integral to FAO's *Common Vision for Sustainable Food and Agriculture*ⁱ, agroecology is a key part of the global response to this climate of instability, offering a unique approach to meeting significant increases in our food needs of the future while ensuring no one is left behind.

Agroecology is an integrated approach that simultaneously applies ecological and social concepts and principles to the design and management of food and agricultural systems. It seeks to optimize the interactions between plants, animals, humans and the environment while taking into consideration the social aspects that need to be addressed for a sustainable and fair food system.

Agroecology is not a new invention. It can be identified in scientific literature since the 1920s, and has found expression in family farmers' practices, in grassroots social movements for sustainability and the public policies of various countries around the world. More recently, agroecology has entered the discourse of international and UN institutions.ⁱⁱ

What makes agroecology distinct?

Agroecology is fundamentally different from other approaches to sustainable development. It is based on bottom-up and territorial processes, helping to deliver contextualised solutions to local problems. Agroecological innovations are based on the co-creation of knowledge, combining science with the traditional, practical and local knowledge of producers. By enhancing their autonomy and adaptive capacity, agroecology empowers producers and communities as key agents of change.

Rather than tweaking the practices of unsustainable agricultural systems, agroecology seeks to transform food and agricultural systems, addressing the root causes of problems in an integrated way and providing holistic and long-term solutions. This includes an explicit focus on social and economic dimensions of food systems. Agroecology places a strong focus on the rights of women, youth and indigenous peoples.

What are the 10 Elements of Agroecology?

In guiding countries to transform their food and agricultural systems, to mainstream sustainable agriculture on a large scaleⁱⁱⁱ, and to achieve Zero Hunger and multiple other SDGs, the following 10 Elements emanated from the FAO regional seminars on agroecology^{iv}:

Diversity; synergies; efficiency; resilience; recycling; co-creation and sharing of knowledge (describing common characteristics of agroecological systems, foundational practices and innovation approaches)

Human and social values; culture and food traditions (context features)

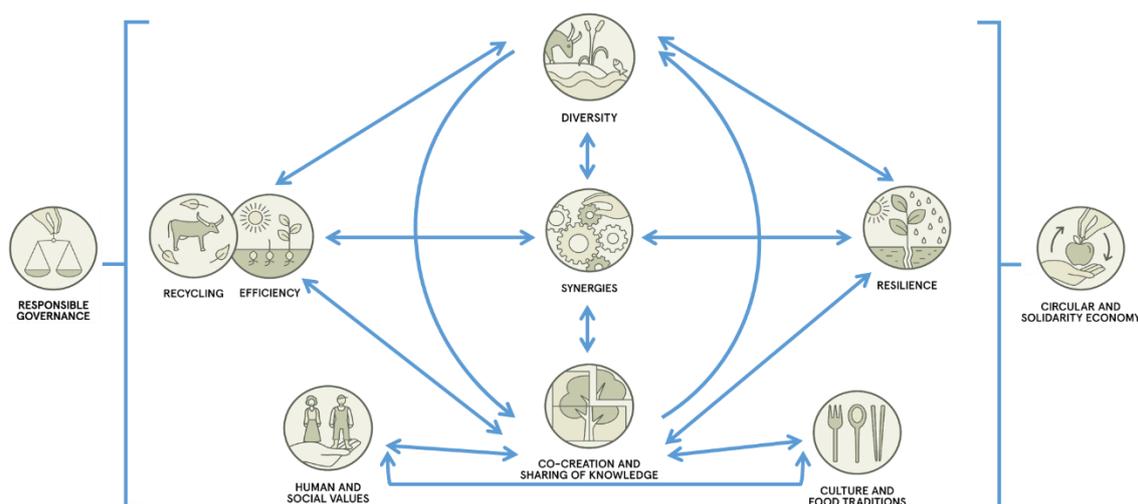
Circular and solidarity economy; responsible governance (enabling environment).

The 10 Elements of Agroecology are interlinked and interdependent.

Why are the 10 Elements useful and how will they be used?

As an analytical tool, the 10 Elements can help countries to operationalise agroecology. By identifying important properties of agroecological systems and approaches, as well as key considerations in developing an enabling environment for agroecology, the 10 Elements are a guide for policymakers, practitioners and stakeholders in planning, managing and evaluating agroecological transitions.

The 10 elements of Agroecology



DIVERSITY. Diversification is key to agroecological transitions to ensure food security and nutrition while conserving, protecting and enhancing natural resources.

CO-CREATION AND SHARING OF KNOWLEDGE. Agricultural innovations respond better to local challenges when they are co-created through participatory processes.

SYNERGIES. Building synergies enhances key functions across food systems, supporting production and multiple ecosystem services.

EFFICIENCY. Innovative agroecological practices produce more using less external resources.

RECYCLING. More recycling means agricultural production with lower economic and environmental costs.

RESILIENCE. Enhanced resilience of people, communities and ecosystems is key to sustainable food and agricultural systems.

HUMAN AND SOCIAL VALUES. Protecting and improving rural livelihoods, equity and social well-being is essential for sustainable food and agricultural systems.

CULTURE AND FOOD TRADITIONS. By supporting healthy, diversified and culturally appropriate diets, agroecology contributes to food security and nutrition while maintaining the health of ecosystems.

RESPONSIBLE GOVERNANCE. Sustainable food and agriculture requires responsible and effective governance mechanisms at different scales – from local to national to global.

CIRCULAR AND SOLIDARITY ECONOMY. Circular and solidarity economies that reconnect producers and consumers provide innovative solutions for living within our planetary boundaries while ensuring the social foundation for inclusive and sustainable development.

Agroecology considers key environmental, social and economic characteristics, processes and enabling environment factors, and their interactions, typical of diversified agricultural systems that are guided by agroecology principles and practices. It also recognizes the great potential of agroecology collective action processes to foster knowledge sharing, and deepened understanding, that enable behavioral changes in food systems that are required for sustainable agriculture to become a reality.

ANNEX 3 – FURTHER READING

FAO. 2015. Agroecology for Food Security and Nutrition: Proceedings of the FAO International Symposium, 18-19 September 2014, Rome, Italy

FAO/INRA. 2018. Constructing markets for agroecology – An analysis of diverse options for marketing products from agroecology, by Loconto, A., Jimenez, A. & Vandecandelaere, E. Rome, Italy.

Gliessman, S.R. 2015. Agroecology: The Ecology of Sustainable Food Systems, Third Edition, CRC Press.

HLPE. 2013. Investing in smallholder agriculture for food security. A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security, Rome.

IPES-Food. 2016. From uniformity to diversity: a paradigm shift from industrial agriculture to diversified agroecological systems. International Panel of Experts on Sustainable Food systems.

Méndez, V. Ernesto, Christopher M. Bacon & Roseann Cohen (2013). Agroecology as a Transdisciplinary, Participatory, and Action-Oriented Approach, *Agroecology and Sustainable Food Systems*, 37:1, 3-18

Rosset, P.M. & Martinez-Torres, M.E. 2012. Rural Social Movements and Agroecology: context, theory and process. *Ecology and Society*, 17(3): 17.

ⁱ FAO's Common Vision for Sustainable Food and Agriculture balances the social, economic and environmental dimensions of sustainability across agricultural landscape and seascape mosaics. It outlines general principles for sustainable food and agricultural systems that are highly productive, economically viable and environmentally sound, contributing to equity and social justice. The five FAO principles for Sustainable Food and Agriculture are: 1) improving efficiency in the use of resources; 2) conserving, protecting and enhancing natural ecosystems; 3) protecting and improving rural livelihoods, equity and social well-being; 4) enhancing the resilience of people, communities and ecosystems; 5) promoting good governance of both natural and human systems.

ⁱⁱ Examples include: the International Assessment of Agricultural Knowledge, Science and Technology for Development, which called for an increase and strengthening of agroecological sciences in 2008; the 2011 Report on Agroecology and the right to food, presented by the Special Rapporteur on the right to food to the UN Human Rights Council; the Ecological Organic Agriculture Initiative of the African Union and the Community of Latin American and Caribbean States (CELAC) that have promoted agroecological practices and policies at regional level; the Ecosystem Approach (including pillars of ecological wellbeing, human wellbeing, and governance), endorsed by the Convention on Biological Diversity and applied by FAO through its Ecosystem Approach to Fisheries and Aquaculture since 2000.

ⁱⁱⁱ Brazil's *Fome Zero* programme provides a telling example. *Fome Zero* proved instrumental in reducing extreme poverty (from 17.5 percent in 2003 to less than 3 percent in 2013) and eradicating hunger. The programme involved a large number of policy and development instruments, including support for agroecological food production and consumption (**Instituto Brasileiro de Geografia e Estatística**. 2013. *Pesquisa nacional por amostra de domicílio: segurança alimentar* (available at: www.ibge.gov.br/home/estatistica/populacao/).

^{iv} The 10 Elements of Agroecology were developed through a synthesis process. They are based on the seminal scientific literature on agroecology – in particular, Altieri's (1995) five principles of agroecology and Gliessman's (2015) five levels of agroecological transitions. This scientific foundation was complemented by discussions held in workshop settings during FAO's multi-actor regional meetings on agroecology from 2015 to 2017, which incorporated civil society values on agroecology, and subsequently, several rounds of revision by international and FAO experts.

Altieri, M.A. 1995. *Agroecology: The Science of Sustainable Agriculture*. CRC Press.

Gliessman, S.R. 2015. *Agroecology: The Ecology of Sustainable Food Systems*. 3rd Edition. Boca Raton, FL, USA, CRC Press, Taylor & Francis Group.