



Food and Agriculture
Organization of the
United Nations

SUSTAINABLE
DEVELOPMENT
GOALS

working for Zero Hunger

FAO'S WORK ON AGROECOLOGY

A pathway to
achieving the SDGs

CONTENTS

PAGES 4-5

INTRODUCTION

PAGES 6-7

KEY MESSAGES

PAGES 8-9

AGROECOLOGY
AND THE 2030 AGENDA

PAGES 10-11

A GLOBAL DIALOGUE

PAGES 12-19

AGROECOLOGY IN ACTION

PAGES 20-21

FACTS AND FIGURES

PAGES 22-23

AGROECOLOGY IN POLICY

PAGES 24-26

WAY FORWARD

PAGE 27

PUBLICATIONS





**"THE FUTURE OF
AGRICULTURE IS
NOT INPUT-
INTENSIVE BUT
KNOWLEDGE-
INTENSIVE.
WE NEED THE
INTEGRATED
APPROACH THAT
AGROECOLOGY
CAN OFFER."**

FAO Director-General
José Graziano da Silva

INTRODUCTION

**AGROECOLOGY
OFFERS A UNIQUE
APPROACH TO
MEETING THE
NEEDS OF FUTURE
GENERATIONS
WHILE ENSURING
NO ONE IS
LEFT BEHIND**

People-centred,
knowledge-intensive
and rooted to
sustainability,
agroecology matches
the transformative
approach called for
by the 2030 Agenda

To overcome the world's greatest challenges, the ambitious 2030 Agenda for Sustainable Development recognises the urgent need to take action and pursue policies directed at transformational change. Ending poverty and achieving zero hunger, while ensuring inclusive growth and sustainably managing the planet's natural resources, all in the context of climate change, will only be possible by committing to the sustainable world of tomorrow.

This calls for a transition to sustainable food and agriculture systems that ensure food security and nutrition for all, provide

social and economic equity, and conserve biodiversity and the ecosystem services on which agriculture depends.

Today's food and agricultural systems have succeeded in supplying large volumes of food to global markets, yet they cannot deliver sustainable development for all. High-external input, resource-intensive agricultural systems have contributed to deforestation, water scarcity, biodiversity loss, soil depletion and high levels of greenhouse gas emissions. Despite progress in reducing hunger, malnutrition – including stunting and wasting,



Women from the village of Boula-Ngara making a wind-breaking fence which allows them to cultivate a market garden.
©FAO/Sia Kambou



micronutrient deficiencies and overweight and obesity – affects a third of the world.

Agroecology offers a unique approach to meeting the needs of future generations while ensuring no one is left behind. With family farmers, including smallholder farmers, indigenous peoples, fisher folks, mountain farmers and pastoralists at its heart, agroecology seeks to transform food and agriculture systems, addressing the root causes of problems and providing holistic and long-term solutions based on co-creation of knowledge, sharing and innovation,

including the combination of local, traditional, indigenous and practical knowledge with multi-disciplinary science.

Although not a new concept, agroecology is today gaining interest worldwide among a wide range of actors as an effective answer to climate change and the interrelated challenges facing food systems, finding expression in the practices of food producers, in grassroots social processes for sustainability and the public policies of many countries around the world. Many successful agroecological approaches are today being scaled up through the

support of public policies, networks of knowledge exchange, and by strengthening rural institutions and improving access to markets.

By bringing together the valuable knowledge, capacities and experience of diverse actors including governments, research, civil society and producer organizations, international institutions and the private sector, FAO's engagement is adding strength to agroecology. Through coordinated action and collaboration, each partner has a key role to play in further promoting agroecology, and contributing to a better world.

KEY MESSAGES

Agroecology can contribute to accelerating the achievement of the 2030 Agenda.

Agroecological approaches address root causes of hunger, poverty and inequality, helping to transform food systems and build resilient livelihoods through a holistic, integrated way that balances the three dimensions of sustainability – social, economic and environmental – ensuring no one is left behind

Agroecology: win-win-win for people, planet and livelihoods.

Three-quarters of the world's 815 million hungry people are family farmers who produce most of the planet's food. Agroecological approaches focus on the critical agents of change – family farmers, indigenous peoples, fishers, rural women and youth. By marrying scientific evidence with local wisdom, and by shortening the market chain and bringing producer and consumer closer together, agroecology can contribute to satisfying our present and future food needs.

Agroecology – supported by an enabling policy environment - can help transition to sustainable food systems.

With an enabling institutional framework featuring integrated policies, partnerships and investments across sectors, agroecology can contribute to national development objectives. FAO continues to work with countries, playing a key role to bring stakeholders together to develop policies and learn from experiences in promoting and scaling up agroecology.

Agroecology is a living concept – together, we can help realise its full potential.

Investing in knowledge and innovation is key. Farmers need to be placed in the centre of co-innovation systems, allowing a process that combines both scientific and traditional knowledge that complement and reinforce each other. It is important to foster knowledge exchange and share practices, and to create opportunities for collaboration and innovation.



HAITI

Local farmers at Les Cayes sorting
Cajanus Cajan beans, a fast-growing,
disease-resistant bean seed for a
post-disaster seed reserve.
© FAO/G. Bizzarri



AGROECOLOGY AND THE 2030 AGENDA

From tackling hunger, poverty and inequality to responding to climate change to safeguarding biodiversity and expanding nutritional choice, agroecology echoes the goals of the 2030 Agenda.

The agroecology approach is holistic, balancing focus on people and the planet, the three dimensions of sustainable development – social, economic and environmental, while strengthening the livelihoods of smallholder food producers, indigenous peoples, women and youth

Agroecology contributes directly to multiple SDGs through integrated practices that cut across many areas. Along with the SDGs, agroecology can also contribute to realising the aims of the Paris Climate Agreement, the Convention on Biological Diversity and the United Nations Convention to Combat Desertification.

**AGROECOLOGY
CONTRIBUTES
DIRECTLY TO
MULTIPLE SDGs**

PERU

Forest nursery.
© FAO/A. Odoul





A GLOBAL DIALOGUE

In September 2014, FAO hosted the 1st International Symposium on Agroecology for Food Security and Nutrition. The Symposium, which involved representatives of FAO Member Countries, researchers, civil society, the private sector and the UN system, provided an opportunity to share experiences and discuss the contribution of agroecology to sustainable food and agriculture systems. Building on its outcomes, FAO convened a series of regional meetings to better understand the different contexts and specific local needs of agroecology. From 2015 to 2017, multi-actor regional seminars were held in five regions (sub-Saharan Africa, Latin America and the Caribbean, Asia and the Pacific, Europe and Central Asia, and the Near East and North Africa), involving 1 400 participants from 170 FAO Member Countries. Through a series of exchanges, the regional seminars revealed a diversity of perspectives, experiences, geographies, cultures, and approaches to agroecology. At the same time, they identified a number of commonalities between regions and across different approaches to agroecology – including shared challenges, opportunities and objectives, as well as common characteristics of agroecological systems, practices and approaches.

"With the 2014 symposium, FAO opened a window introducing agroecology in the cathedral of the Green Revolution. Now it is time to consolidate and scale up policies, partnerships and investments."

FAO Director-General
José Graziano da Silva

10 ELEMENTS OF AGROECOLOGY

Presented as a means to guide the transition to sustainable food and agricultural systems, these 10 Elements of Agroecology are based on seminal scientific literature on agroecology¹, and complemented by discussions during FAO's multi-actor regional meetings on agroecology from 2015 to 2017, civil society values on agroecology, and the review of international and FAO experts.

Each of the 10 Elements of Agroecology are interlinked and interdependent:

Diversity

Highly diverse, agroecological production systems such as agroforestry, silvopastoral systems, crop–livestock–aquaculture integration and polycultures contribute to a range of production, socio-economic, nutrition and environmental benefits.



Co-creation and sharing of knowledge

Agroecology depends on context-specific knowledge. Knowledge plays a central role in the process of developing and implementing agroecological innovations to address challenges across food



systems. Through the co-creation process, agroecology blends the traditional, indigenous, practical and local knowledge of producers with global scientific knowledge.

Synergies

Agroecological systems selectively combine the diverse components of farms and agricultural landscapes to build and enhance synergies.



Efficiency

Increased resource-use efficiency is an emergent property of agroecological systems. By optimising the use of natural resources such as soil, air, solar energy, water, agroecology uses fewer external resources, reducing costs and negative environmental impacts.





ITALY

1st International Symposium on Agroecology for Food Security and Nutrition, 30 September 2014.
© FAO/A. Pierdomenico

food security and nutrition while maintaining the health of ecosystems.

Responsible governance



Transparent, accountable and inclusive governance mechanisms at different scales are necessary to create an enabling environment that supports producers to transform their systems. Equitable access to land and natural resources is not only key to social justice, but also essential to providing incentives for long-term investments in sustainability.

Circular and solidarity economy



Agroecology seeks to reconnect producers and consumers through a circular and solidarity economy that prioritizes local markets and supports territorial development. Innovative markets that support agroecological production help respond to a growing demand from consumers for healthier diets.

¹ In particular, Altieri's (1995) five principles of agroecology and Gliessman's (2015) five levels of agroecological transitions: **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.

Recycling

By imitating natural ecosystems, agroecological practices support biological processes that drive the recycling of nutrients, biomass and water within production systems.



Resilience

Enhancing ecological and socio-economic resilience, agroecological systems have a greater capacity to recover from disasters such as drought, floods or hurricanes, and to resist pest and disease attack. Through diversification, producers reduce their vulnerability if a single crop or commodity fails. Reducing dependence on external inputs increases producers' autonomy and reduces their vulnerability to economic risk.



Human and social values

Agroecology places a strong emphasis on human and social values, such as dignity, equity, inclusion and justice, all contributing to sustainable livelihoods. It puts the aspirations and needs of those who produce, distribute and consume food at the heart of food systems. Agroecology seeks to address inequalities by creating opportunities for women and youth.



Culture and food traditions

By supporting healthy, diversified and culturally appropriate diets, agroecology values local food heritage and culture, contributing to



AGROECOLOGY IN ACTION

Combining traditional and modern scientific knowledge in innovative ways, these stories tell of successful agroecological approaches delivering viable and locally-adapted solutions to improve the livelihoods of people all around the world.

SCALING UP AGROECOLOGY THROUGH FARMER FIELD SCHOOLS

Farmer Field Schools (FFS) are an effective tool for sustainable agricultural development and for achieving the SDGs as they enable smallholder farmers to address local problems and provide them with critical information and decision-making tools. Agroecology underpins the FFS learning methodology, with results often developed through a process of knowledge co-creation and innovative practices. Working to integrate agroecology more into its work in countries, FAO is now

exploring synergies, seeking ways in which the FFS methodology can be applied to scale up agroecological approaches. Key activities combining FFS and agroecology in 2016 and 2017 included national and regional GEF-funded projects to strengthen the adaptation of farmers and agro-pastoralists to climate change in Angola, Burkina Faso, Mali and Mozambique, where participants also included representatives of multiple ministries to generate a holistic view of agroecology across sectors. Through an exchange of knowledge and experiences, participants shared information on a whole-system territorial approach to rural development, synergies in crop-livestock integration and explored pathways to support the scaling-up of agroecology based on examples of policy measures and processes carried out in other developing countries.

MARKETING THE NUTRITIONAL GOODNESS OF PURPLE AND PINK RICE FROM THE MOUNTAINS OF INDIA

The heirloom varieties of purple and pink rice are two indigenous rice varieties grown by family farmers in the Indian Himalayas at an altitude of 1 200 to 1 800 meters above sea level. These varieties, grown in small quantities and

consumed locally during festivals, are rarely sold on the market due to competition from lower-priced white rice. Although their production per unit of land is much lower compared to other varieties of rice, these purple and pink varieties beat the nutritional benefits of brown and red rice combined. Rich in fibre, they are loaded with antioxidants, Vitamin E, protein, iron, and other nutrients, while the low sugar content makes them an extremely desirable dietary option for heart patients, diabetics as well as for those with high blood pressure.





The Pan Himalayan Grassroots Development Foundation, a non-profit voluntary organization in the Himalayan states of Uttarakhand and Himachal Pradesh, work to promote sustainable, self-reliant development of the rice in villages. Supporting the Foundation, the FAO Mountain Partnership Secretariat is helping to explore sustainable markets for small farming families in the state of Meghalaya, with specific training aimed at producer groups, new packaging and exhibitions in New Delhi to help promote the products in niche markets.

Positive feedback from customers, retailers and hoteliers, is not only beneficial for the local community but boosts the food and nutrition security of those dependent on a rice-based diet.

MAINSTREAMING AGROECOLOGY IN LATIN AMERICA - A SHORT HISTORY

Focusing on the right to healthy food, Brazil's development of public policies on agroecology, together with other countries, has stimulated discussion of the approach in Latin America. Countries began mapping

MALI

Visit to the Sahelian Center for Training and Research in Agroecology-Agrobiology (CSFRA) of Banancoro.
© Yodit Kebede

AGROECOLOGY IS HAPPENING NOW ALL OVER THE WORLD

AGROECOLOGY IN ACTION

AGROECOLOGY IS A KEY TOOL IN THE TRANSITION TO SUSTAINABLE FOOD SYSTEMS

existing agroecology initiatives and policies in the region in 2013 following a specific agenda item of the Specialized Commission on Family Farming of MERCOSUR (REAF). This marked the start of conversations among countries on regulatory frameworks and national policies to promote agroecology, emphasising the need to establish specific credit lines, technical assistance and rural extension services.

Brazil committed to launching a regional initiative during the First FAO International Symposium on Agroecology for Food Security and Nutrition in 2014. Through the Community of Latin American and Caribbean States (CELAC), a regional seminar on Agroecology in Latin America and the Caribbean was organized in 2015, a joint event by CELAC, REAF, Brazil, and the Alliance for Food Sovereignty of the Peoples of Latin America and the Caribbean and FAO. The event, which featured exchanges on public policies and practical experiences in agroecology among different stakeholders, contributed to the implementation of the CELAC Plan for Food and Nutrition Security and the Eradication of Hunger. This process contributed to agroecology's status in Latin America as an

important component of national strategies to promote sustainable agricultural development and progress towards inclusive food systems, creating a virtuous circle among healthy food production, natural resource conservation and the strengthening of family farming and rural communities.

ECOSYSTEM SERVICE AND BIODIVERSITY FOR FOOD SECURITY AND NUTRITION AS A BLUE GROWTH INITIATIVE IN KENYA

Mangrove ecosystems have immense worth, providing a multitude of goods and services, stretching from clean water to



ARMENIA

A little girl with
fresh cherries.
©Marzio Marzot



climate regulation to sustaining the lives of coastal dwellers. Responding to declining areas of mangroves in Kenya, FAO, as part of the Blue Growth Initiative, has implemented a multi-faceted project with strong agroecological elements, including watershed management techniques to support improved ecosystem services at the same time as food, nutrition and livelihood security. After using different techniques to raise awareness of the importance of agrobiodiversity and environmental protection, the community was better able to sustainably manage

mangrove forests, and make income-generating activities more environmentally responsible. Through partnerships with various stakeholder groups, an estimated 268 122 seedlings were planted in 41 hectares of degraded mangrove forest areas, and three new mangrove nurseries were established in combination with aquaculture and bee-keeping activities. These activities to rehabilitate mangrove forests have benefits for both livelihood generation and ecosystem services. One significant result was increased biodiversity of fish fingerlings and others aquatic

animals within the restored areas. A crab hatchery was supported through a Public Private Partnership, and crab aquaculture activities were implemented in an environmentally responsible way. Crabs were marketed in local tourist hotels and abroad, with young entrepreneurs starting eco-aquaculture farms in collaboration with local restaurants. Strengthening cross-sectoral links through agroecology, specifically among coastal management, aquaculture and fisheries, forestry sectors, and community-based management, provides a roadmap for an agroecological transition. ►

AGROECOLOGY IN ACTION

SHARING AND CREATING KNOWLEDGE AMONG FOOD PRODUCERS IS AT THE HEART OF AGROECOLOGY

AGROECOLOGY IN THE HEART OF HUNGARY

Established in 2013, MagosVölgy Ecological Farm was set up by a young couple educated in agronomy and environmental management, with the ambition of creating a farm shaped by the principles of sustainability and utilizing local resources. Their attempts to get support for the enterprise foundered due to the farm's small size and the intercropping methods they wanted to adopt, which were not covered by government subsidies. Supported by FAO, the ecological farm has been able to connect to markets and to other technical networks, sharing information and knowledge on agroecological techniques and small-scale sustainable food production for urban people.

Now the farm employs seven young local people, focusing on utilizing genetic heritage and fostering agrobiodiversity. In 2016, they produced around 30 species and 100 varieties of organic vegetables using no-till, compost-mulch permanent bed techniques. The intention is to double the size of the cropping area, planting disease-resistant fruit trees to form an agro-pastoral system for the heritage breed cattle that are an integral part of the farm's nutrient

management plan. Two ponds are set to be developed to serve as water reservoirs, wetland habitats hosting multiple beneficial animals and balancing microclimate. The farm organizes regular events and open days, and plans are in place to start educational and agro-tourism related activities, highlighting the importance of nutritional education and the farm-to-table approach.





INDIA

A Rabari pastoralist family on the move in Kutch district, western India.
© Maldhari Rural Action Group

of chemicals and pesticides to ensure the soil remains pure and healthy. However despite their care over time, the beans of Jumla are threatened by the arrival to the area of higher-yielding crops that need less attention. Through an initiative led by the Mountain Partnership and financially supported by the Italian Development Cooperation, Jumla's bean production has doubled in the past three years thanks to better marketing and distribution of the high-quality product. Its market price has risen by 25 percent due to the added value of the Mountain Partnership Product label, adding 10 Nepalese rupees per kilogramme to the profit of farmers. As well as supporting the livelihoods and traditional cultures of local people, the involvement of women as farmers has also grown by 13 percent in the same period.

MORE THAN A HILL OF BEANS: DIVERSITY, PROSPERITY AND CULTURE IN NEPAL'S HIMALAYAS

Black, red, yellow and multi-coloured, the colourful beans grown at an altitude of 2 300 metres in the Himalayan valley of Sinja in the Jumla District of Nepal, have immense significance for the community that goes far and beyond their high nutritional value. The pulses

are tied to the local culture and religious festivals like "Janai purne", marking the end of the rainy month and beginning of the cold season. On this day, Newari farmers worship and feed frogs – seen as the rain god - to bless their crops, while cooking and consuming a typical mixed bean soup called "Kuwati". The beans are cultivated manually by local farmers in fields free

ACCESSING FUEL FOR COOKING IN DISPLACEMENT SETTINGS IN ETHIOPIA

In Ethiopia, a family, on average, needs about 4 kilogrammes of firewood each day to prepare food, based on the fact that around 80 percent of the food required by humans needs to be cooked. During crises, access to energy sources for cooking and heating is often

AGROECOLOGY IN ACTION

severely limited, and extensive collection of woodfuel around refugee camps can cause loss of forest cover and environmental degradation. This results in increased exposure to natural hazards and climate change, placing extra pressure on already vulnerable host communities. FAO, as a member of the interagency Safe Access to Fuel and Energy (SAFE), is supporting more than 50 000 refugee households (208 475 individuals) in Ethiopia through targeted interventions addressing the collection and use of energy for cooking, heating and productive uses. SAFE adopts a holistic, multifaceted approach which takes into account the mutually reinforcing linkages between energy and environment, nutrition, health, gender, protection and livelihoods.

Embracing agroecological approaches that enhance resilient and sustainable livelihoods in displacement settings, the initiative is based on four actions: 1) ensuring a reliable supply of energy by promoting sustainable natural resource management, sustainable bioenergy production and the use of alternative and renewable energy sources 2) Enhancing wood fuel supply by establishing multipurpose tree-planting programmes,

helping to meet future fuel demands while maintaining the diversity and ecosystem services of existing forest and woodlands 3) Promoting energy efficient cooking/heating technologies at household level, which can be locally produced and sold, contributing to the local economy 4) Lessening the burden on women by reducing the distances to collect wood for fuel, as well as reducing their vulnerability to gender-based violence.

CHINA

Zhejiang Huzhou
mulberry-dyke and
fish-pond system.
©Agricultural Bureau
of Huzhou
Municipality,
Zhe Jiang Province



OF SILKWORMS, FISH AND MULBERRIES, CHINA'S RECIPE FOR SUCCESS

Its name may be intriguing, but that is nothing compared to the fascination for what it describes. The Zhejiang Huzhou mulberry-dike and fish-pond system was developed by farmers' communities in east China some 2 500 years ago, combining traditional and agroecological knowledge in an ingenious technique that



THE STORY OF THE ZHEJIANG HUZHOU MULBERRY-DIKE AND FISH-POND SYSTEM WAS FIRST TOLD 2 500 YEARS AGO

brings together mulberry trees, silkworms and fish. By doing so, these farmers succeeded in creating a system of agriculture to respond to their needs while protecting biodiversity and a fragile landscape. The ancient technique sees mulberry leaves fed to beneficial silkworms, whose feces are then fed to fish in the pond. The organic materials that are accumulated in the pond (sludge), including fish's feces, are used as

fertilizers for mulberry trees. Based on synergies and recycling elements, this virtuous production circle relies on natural ecosystem services, and depends on a complex system of irrigation and drainage, traditionally known as “Zong Pu Heng Tang”. The Zhejiang Huzhou mulberry-dike and fish-pond system has for centuries supported ancillary businesses like silk manufacture, becoming part of the community's identity.

FACTS AND FIGURES

SDG 1

Poverty affects predominantly people that live in **rural areas** (about 80 percent of the poor worldwide) and **work in agriculture** (64 percent).

Agroecological approaches around the world have been shown to **improve farmers' income up to 30 percent** by, among other strategies, diversification, external input reduction and alternative marketing channels.

SDGs 2 13

Globally, hunger is on the rise: the number of undernourished people rose to **815 million people in 2016 from 777 million in 2015**. The vast majority live in **areas of conflict and climate change** related shocks. For instance, farms that adopted agroecological methods among 180 communities of smallholders **retained 40 percent more topsoil** and suffered **69 percent less erosion** after **Hurricane Mitch** hit Nicaragua.

SDGs 2 8 11 12

Food supplies became **17 percent more uniform** between 1961 and 2009. **One-third** of the developing world's population suffer from **micronutrient deficiencies** due to inadequate diets. Agroecology can play a pivotal role in addressing this situation, as demonstrated in Ecuador: **250 000 families**

committed in 2014 to acquire fresh, agroecological food locally to eat varied, healthy diets based on traditional food culture, resulting in a combined annual expenditure of up to **600 million USD**.

SDGs 5 8 10 16

Vertically coordinated value chains challenge small-scale farmers and have far-reaching implications for dietary patterns, nutrition and health. Supporting **successful market models** that **emphasize local and regional production** can encourage agroecological production and foster local economies. Such is the case of the **56 000 urban farmers, 85 percent of which are women** that provide varied, organic food to **170 000 consumers in Quito, Ecuador** with the **support of the Municipality**.

SDGs 1 2 4 5 12

Virtually all gender and development indicators indicate that **rural women**, who represent 25 percent of the world's population, fare worse than rural men and they **disproportionately experience poverty, exclusion and the effects of climate change**. Agroecological training for women can be instrumental in reversing this situation. The Barli Development Institute for Rural Women, in Madhya Pradesh, India,

has provided integrated training in agroecological techniques, health and nutrition to more than **8 500 women from over 850 villages** in the past 30 years. This has vastly improved the livelihoods of women and their communities, breaking the circle of poverty.

SDGs 1 2 8 10 16

It is estimated that **family farms produce more than**

KENYA

A Farmer Field School in Narok.
©FAO/Ami Vitale





80 percent of the world's food in value terms, yet smallholder farmers and family farmers are often excluded from policy design. Inclusive public policies are instrumental in supporting producers willing to transition towards agroecology. Established in 2013, the **Brazilian National Agroecology and Organic**

Production Plan is an example of such policies. Established in 2013, it provided technical assistance to promote agroecology to **132 000 households** in its first year, **45 000 people enrolled for training courses** and agroecological production was supported through the National School Feeding Programme.

SDGs 12 15

Biodiversity and its sustainable use is essential to maintain agricultural production. Yet up to **75 percent of the diversity of genetic food crops has been lost in the past century**, up to **22 percent of the 8 700 livestock breeds are at risk of extinction** worldwide and **31 percent of fish stocks are overfished**. Diverse and heterogeneous agroecological approaches can **preserve and increase** wild and domesticated biodiversity by **up to 30 percent** compared with conventional farming.

SDGs 12 13

Healthy soils are fundamental to sustainable agriculture. However, **33 percent of the world's land is degraded** due to erosion, compaction, salinization or chemical pollution and about **12 million hectares are lost each year** due to drought and desertification. **Agroecological techniques coupled with locally sourced practices** can restore and improve soil fertility and health. The combination of crop rotation, mixed cropping and 'zai', a local water collection technique, resulted in an **up to 130 percent yield increase** compared with conventional practices in three provinces of Burkina Faso.

AGROECOLOGY IN POLICY

**DRIVEN BY
STRONG
NETWORKS
OF DIFFERENT
ACTORS,
AGROECOLOGY
REQUIRES
POLICY
SUPPORT**

As agroecology proposes an integrated process of change through the whole food system, policy frameworks should include a strong governance component and address different sectors, from production to market. Priority policies will focus on food security, internal and local markets and support to family farmers and small-scale producers. FAO is ready to support countries develop a policy environment and frameworks to promote agroecological approaches.

Many successful examples of agroecology exist at local and national levels, providing innovative and contextualised solutions, based on the combination of science with traditional, indigenous, practical and local knowledge. In certain cases, they have been scaled up with the support of public policies, networks of knowledge exchange, strengthening rural institutions and improving access to markets.

Creating an enabling environment is critical to supporting agroecology, as producers wishing to transition to a more

sustainable path often face constraints and risks. Support will be needed in the short term through public policies that address structural barriers by providing positive incentives for diversification, while helping to buffer food producers in the crucial period when they transform their systems. Specifically, public policies in support of agroecology should address key challenges that hold back wide-scale agroecological transitions.

Agroecological transitions can, however, take advantage of a number of emerging opportunities. Agroecology simultaneously addresses climate change adaptation and mitigation, making it a promising option to implement the Paris Agreement. Agroecology also offers the promise of decent rural employment, contributing to the millions of new jobs that need to be created to meet the aspirations of rural youth. And agroecology responds to the growing public demand for diversified healthy food, helping to address widespread malnutrition.

PROMOTING AGROECOLOGY THROUGH POLICY FRAMEWORKS

► AGRICULTURAL POLICY

Policies that promote high-input, resource-intensive farming systems, including current research priorities, should be redirected to create a level playing field for agroecology and other sustainable agricultural approaches that take into consideration the external costs and benefits of food systems. 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

Dominant market models are not consistent with agroecological production. Markets that are developed as vertical value chains for single products do not match the needs of diversified agroecological approaches, particularly those of smallscale food producers. A diversity of markets that emphasise local and regional production and consumption can help encourage diversified agroecological production. Successful models include community-supported agriculture schemes, e-commerce and participatory guarantee schemes, which re-connect producers and consumers, rural and urban areas. Providing formal recognition of these alternative market models in

legal frameworks can support market access for agroecological producers.

► PUBLIC PROCUREMENT PROGRAMMES

Public procurement programmes can be used to promote agroecology and guarantee access to the market for agroecological production. These programmes should be adjusted to take into consideration the specificities and needs of producers, including scale, diversification of production, local values, and local varieties and products.

► INVESTMENTS, CREDIT AND INSURANCE

Establishing specific credit lines and investment schemes can help promote agroecological production. Credit lines that allow greater flexibility for food producers to buy local products and take decisions based on their own needs will support the autonomy and adaptive capacity of producers. Specific insurance products to support the agroecological transition phase can help overcome a significant barrier that food producers face in transitioning to agroecology.

► LAND TENURE AND ACCESS TO NATURAL RESOURCES

To allow agroecology to flourish, a strong governance system is imperative. Integrated implementation of the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries, and Forests in the Context of National Food Security would be an important move in the governance direction.

► RESEARCH, EDUCATION AND RURAL EXTENSION PROGRAMMES

Despite growing calls for change, current research, education and extension systems often 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 way of knowledge co-creation promoted.

► SANITARY AND PHYTOSANITARY MEASURES

To ensure access to markets for agroecological products, sanitary and phytosanitary measures should be adjusted. This needs to be anchored on effective risk assessment with appropriate control systems that allow food producers to meet food safety requirements. Information, training and capacity building processes are an important part of this process.

► COORDINATION 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 (from local to national and international) and sectors (from agriculture to other economic sectors policies, and from social policies to environmental ones), to achieve coherence through a territorial approach. In particular, agroecology calls for governance solutions that can coordinate actions at the landscape and territorial scale.

An enabling environment is essential for producers transitioning towards agroecology. Currently, about 100 laws from 28 countries cover agroecology and agroecological transitions to different degrees.

Source: FAO. 2018. FAOLEX Database. Rome.

WAY FORWARD

SCALING UP POLICIES, PARTNERSHIPS AND INVESTMENTS CAN HELP SUPPORT AGROECOLOGY.

Agroecology has immense potential as a means for governments to achieve their national development targets. Not only does the approach offer the prospect of zero hunger, poverty eradication, growth and sustainable resource management, but policies championing agroecology are sure to be embraced by the local population.

Scaling up agroecology from a practice of some countries to a practice of many would have a dramatic effect on sustainable agriculture, enhancing food systems worldwide. It promises to support the integration of more climate-resilient production systems, incorporating forestry, animal husbandry, fisheries and farming into an approach that could more effectively achieve progress across multiple SDG targets.

Successfully scaling up agroecology requires significant commitment at the policy level, a redirection of finances and investment, more inclusive and diversified food systems, strengthening the organizations of producers, and new partnerships between small-scale producers and entrepreneurs and the larger scale private sector actors.

FAO SUPPORT TO SCALING UP AGROECOLOGY

① Launch of the Scaling Up Agroecology Initiative - Transforming Food and Agriculture in Support of the SDGs

With the backing of UN partners and other committed actors, FAO is proposing a Scaling Up Agroecology Initiative, in line with existing plans and initiatives such





as the 2030 Agenda, the UN Decade of Family Farming, the Global Initiative on Decent Jobs for Youth, the UN 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. UN agencies and bodies, governments and non-state actors must come together in

a collaborative spirit if the potential of agroecology is to be achieved. To implement the Initiative, members are set to sign a 10-year joint work plan.

2 A neutral space for exchanging knowledge and experiences on agroecology

FAO will continue to play a role in bringing together a wide range of actors to learn from experiences,

to share policy lessons, and to collaborate in supporting and scaling up agroecology in the future. Beginning in 2014, the global exchange on agroecology has involved more than 1 400 participants from 170 countries (as of April 2018), bringing discussion of agroecology to a new level. FAO is committed to continuing to act as facilitator and to promote the benefits of agroecology. ►

WAY FORWARD



3 Supporting an environment that allows new and innovative governance structures to emerge

To take agroecology to the next level, a solid governance structure is essential. Laws, regulations, publicity awareness campaigns and fiscal incentives are all part of a framework that should cut across different sectors and integrate the whole value chain. Supporting the development of public policies that promote agroecology, FAO facilitates cooperation among countries with a solid governance structure on in the area.

4 Supporting funds and resources to mainstream agroecology

To allow agroecology to flourish, funds need to be mobilized to communities, organizations and countries to make transformation happen. FAO can play an important role in mobilising funds and resources, connecting donors with networks, and engaging the private sector by providing guidance on agroecology.

VIET NAM

Dong Son, a farmer working in a dragon fruit field. Since 1990, Viet Nam has reduced hunger by more than 80 percent.
©FAO/Hoang Dinh Nam

**FAO FACILITATES
COOPERATION
AMONG
GOVERNMENTS
AND
STAKEHOLDERS
IN PROMOTING
AGROECOLOGY
POLICY AND
PRACTICE**

PUBLICATIONS

GENERAL

FAO. 2013. *Food Wastage footprint: Impact on Natural Resources. Summary report*. Rome.

FAO. 2014. *Building a common vision for sustainable food and agriculture – principles and approaches*. Rome.

FAO. 2017. *The State of Food and Agriculture 2017. Leveraging food systems for inclusive rural transformation*. Rome.

FAO. 2017. *FAO Strategy on climate change*. Rome.

AGROECOLOGY SYMPOSIA

FAO. 2014. *Final Report for the International Symposium on Agroecology for Food Security and Nutrition*. Rome.

FAO. 2015. *Agroecology for Food Security and Nutrition Proceedings of the FAO International Symposium*. 18-19 September 2014, Rome, Italy. Rome. (Available in English, French and Spanish).

FAO. 2016. *Final Report of the Regional Meeting on Agroecology in Latin America and the Caribbean*. Brasilia – Brazil, 24-16 June 2015. Rome. (Available in English and Spanish).

FAO. 2016. *Report of the Regional Meeting on Agroecology in sub-Saharan Africa*. Dakar, Senegal, 5-6 November 2015. Rome (Available in English and French).

FAO. 2016. *Report on the Multi-stakeholder consultation on agroecology in Asia and the Pacific*. FAO, Bangkok, 24-26 November 2015. Rome.

FAO. 2016. *Summary for decision-makers. FAO Regional symposia on agroecology*. Rome.

FAO. 2017. *Report of the International Symposium on Agroecology in China*. Kunming, Yunnan, China, 29-31 August 2016. Rome.

FAO. 2017. *Report of the regional symposium on agroecology for sustainable agriculture and food systems for Europe and Central Asia*. Budapest, Hungary, 23-25 November 2016. Rome.

BIODIVERSITY

FAO & CBD. 2016. *Mainstreaming ecosystem services and biodiversity into agricultural production and management in East Africa. Technical guidance document*. Rome.

FAO. 2009. *International treaty on plant genetic resources for food and agriculture*. Rome.

FORESTRY

FAO. 2014. *The State of the World's Forests Genetic Resources*. Rome.

FISHERIES AND AQUACULTURE

FAO. 2016. *The State of the World Fisheries and Aquaculture 2016. Contributing to food security and nutrition for all*. Rome.

LIVESTOCK & PASTORALISM

FAO. 2015. *The Second Report on the State of the World's Animal Genetic Resources for Food and Agriculture*. Rome.

FAO. 2016. *Improving governance of pastoral lands. Implementing the Voluntary Guidelines on the Responsible Governance*

of Tenure of Land, Fisheries and Forests in the Context of National Food Security. Rome.

FAO. 2016. *The contributions of livestock species and breeds to ecosystem services*. Rome.

POLLINATORS

FAO. 2008. *Rapid assessment of pollinators' status. A contribution to the international initiative for the conservation and sustainable use of pollinators*. Rome.

FAO. 2016. *A quantitative approach to the socio-economic valuation of pollinator-friendly practices: a protocol for its use*. Rome

VOLUNTARY GUIDELINES

FAO. 2005. *Voluntary Guidelines to support the progressive realization of the right to adequate food in the context of national food security*. Rome.

FAO. 2012. *Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security*. Rome.

FAO. 2016. *Voluntary guidelines for Sustainable Soil Management*. Rome.

MARKETS

FAO. 2018. *Constructing markets for agroecology*. Rome.

[TOOLS/LINKS]

FAO. *Agroecology Knowledge Hub*. Available at: <http://www.fao.org/agroecology/en/>

FAO. *Family Farming Knowledge Platform*. Available at: <http://www.fao.org/family-farming/en/>

FAO'S WORK ON AGROECOLOGY

A pathway
to achieving
the SDGs



Today's food and agricultural systems have succeeded in supplying large volumes of food to global markets, but there is categorical evidence that they cannot deliver sustainable development for all. Almost three-quarters of the estimated 815 million hungry people in the world are food producers who make their living from agriculture, fisheries and forestry. Deforestation, water scarcity, biodiversity loss, soil depletion and high levels of greenhouse gas emissions are among the major challenges faced by the planet, as identified in the targets and goals of the 2030 Agenda for Sustainable Development. Malnutrition affects a third of the world, constituting a massive cost to health budgets in countries across the globe.

Agroecology offers a unique approach to meeting the needs of future generations while ensuring no one is left behind. With food producers at its heart, agroecology seeks to transform food and agriculture systems, addressing the root causes of problems and providing holistic and long-term solutions based on knowledge-sharing and innovation.

Featuring cases in different sectors and countries around the world, this publication introduces the agroecology approach to linking food, livelihoods and natural resources, presents the 10 Elements of Agroecology, and looks at ways of scaling up the people-centred approach to ensure its potential impact is fully realized, promising a brighter future for all.