# FOOD DEMOCRACY: FEEDING THE WORLD SUSTAINABLY

Trócaire
Policy Paper
October 2018

Trócaire

**Food Democracy: Feeding the World Sustainably is published by Trócaire as part of its programme of Policy, Research and Advocacy**

## Acknowledgements:

Sincere thanks to the members of Trócaire's Global Advocacy Priority Working Group on Sustainable Agriculture and Climate Justice for all their inputs and to all external and internal reviewers.

**FRONT COVER:** Dollas and Stanley Njeru Kathiga, Embu County, Kenya inspecting their crops progress. Photo: Margaret Wanjiku

# CONTENTS PAGE

# ACRONYMS

| | |
|---|---|
| AFSA | Alliance for Food Sovereignty in Africa |
| AKST | Agricultural Knowledge, Science and Technology |
| CAADP | Comprehensive Africa Agriculture Development Programme |
| CFS | Committee on World Food Security |
| CSA | Climate Smart Agriculture |
| FAO | Food and Agriculture Organisation of the United Nations |
| FPIC | Free, Prior and Informed Consent |
| GHG | Greenhouse Gas |
| IAASTD | International Assessment of Agricultural Knowledge, Science and Technology for Development |
| IFAD | International Fund for Agricultural Development |
| IPBES | Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services |
| IPES | International Panel of Experts on Sustainable Food Systems |
| SDGs | Sustainable Development Goals |
| TEEB | The Economics of Ecosystems and Biodiversity |
| VGGT | Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests |
| WFP | World Food Programme |

# THE INTRODUCTION

"Modern agriculture is failing to sustain the people and resources on which it relies, and has come to represent an existential threat to itself".[1]

(IPES Food: 2016)

Sustainable agricultural systems are key to poverty eradication and sustainable development and to realising the goals of Agenda 2030, including ending hunger and ensuring the right to adequate food for all.

The current input-intensive, productivity focussed agricultural system is failing on multiple levels. It is promoting social inequalities and forced 'economic' migration from rural areas; it is leaving female-headed households behind and advancing inefficient and wasteful food chains. It is undermining the ecological conditions for agriculture, including fertile soils, biodiversity and a stable climate.

This paper situates the competing visions for the future of agriculture and food systems in the context of key social, economic and environmental challenges.

Drawing on both the growing literature on these issues and Trócaire's experience the paper presents Trócaire's vision for agriculture and food.

It is an introduction to Trócaire's understanding of agroecology and how agroecological approaches contribute to achieving the right to adequate food, livelihood security, resilience and womens' empowerment.

The paper examines the factors impeding the widespread adoption of more sustainable approaches to agriculture and identifies opportunities for enabling a transition towards agroecological approaches.

The paper concluding with a set of key messages for supportive actions at national and international levels.

**Sustainable agricultural systems are key to poverty eradication and sustainable development and to realising the goals of Agenda 2030...**

# 1. CHALLENGES FACING AGRICULTURE AND FOOD SYSTEMS

"The signs of increasing food insecurity and high levels of different forms of malnutrition are a clear warning of the urgent need for considerable additional work to ensure we 'leave no one behind' on the road towards achieving the SDG goals on food security and nutrition."

(FAO et al : 2018)[2]

**This paper explores what agriculture and food systems are best placed to reconcile responses to the multiple and interconnected concerns of food security, nutritional adequacy, environmental protection and social equity.**

The world is facing multiple inter-related challenges: social, economic and environmental. The convergence of these challenges is strongly evident in agriculture and food systems. A holistic response is essential for effectively addressing these issues.

This paper explores what agriculture and food systems are best placed to reconcile responses to the multiple and interconnected concerns of food security, nutritional adequacy, environmental protection and social equity.

*The State of Food Security and Nutrition in the World 2018* confirms a continuous rise in global hunger in recent years. More than 800 million people are undernourished and living in hunger.[3] A further 2 billion people are affected by micronutrient deficiencies and 1.9 billion are obese or overweight.[4] Acknowledging the progress in reducing the percentage of the global population living in hunger, the fact remains that the fundamental right to live free from hunger as stated in Article 11 of the International Covenant on Economic, Social and Cultural Rights (ICESCR) remains a huge challenge in many parts of the world.[5] Despite numerous commitments to end hunger, currently reflected in Sustainable Development Goal (SDG) 2, the United Nations Food and Agriculture Organisation (FAO) warns that "*the current rate of progress will not be enough to eradicate hunger by 2030, and not even by 2050*".[6]

## A. Social

**"Better than anyone else, smaller-scale food providers feed the hungry. If we are to eat in 2050 we will need all of them and all of their agricultural biodiversity."**[7] (Mulvany: 2017)

Three quarters of the world's 821 million hungry people are family farmers who produce most of the planet's food.[8] Family farmers comprise a significant proportion of the 2.5 billion people worldwide who make their living from the agricultural sector. On average in sub-Saharan Africa over 60 percent of the population work primarily in agriculture.[9] While food and agriculture generate increasing profits to agri-food transnational corporations, decent livelihoods remain elusive for

many of those who actually farm or are employed in the food system.

Such inequality acts as a disincentive to young people to remain in rural areas, promoting the flow of internal and international migration. Currently, in many low and middle income countries population growth is outpacing employment generation, while rapid urbanisation is not accompanied by commensurate growth in non-agricultural work. Accordingly, agriculture and the related food economy will need to absorb a large share of new workers. Transforming agriculture in rural areas in order to provide more and better employment, in particular for women and for youth is identified by FAO as a critical development challenge.[10]

Rural migration flows are not gender neutral. In the poorest and most marginalised areas they are characterised by extensive male migration. The 'feminisation' of agriculture in many parts of the world is reflected in the growing proportion of rural women-headed households. In many countries the female share of agricultural employment has increased significantly in recent decades, and women have become the majority of those employed in the sector.[11] While rural women play a major role in productive activities, gender inequality in agriculture is stifling productivity.

In sub-Saharan Africa, the productivity levels of female workers in agriculture are between 20 and 30 percent lower than their male counterparts.[12] This is explained in terms of the gender gap in access to resources. Systematic discrimination is evident in terms of access to land, credit and agricultural extension support. For example, in the sub-Saharan region, only 15 percent of landholders are women, women receiving less than 10 percent of credit and 7 percent of extension services.[13] Such discrimination helps to explain why the majority of people living in hunger are female.

Alongside productivity related questions are issues that relate to the wider functions of agriculture. For example, substituting human and animal labour with machinery and purchased chemical inputs has often resulted in usurping local traditional knowledge, devaluing the holders of that knowledge, which in many societies has primarily resided with women farmers.

## B. Economic

**"The prevalence of monoculture production heightens vulnerability to catastrophic breakdowns in the food system— more than 75% of the world's food comes from just 12 plants and five animal species."**(The Global Risks Report: 2018)[14]

Greater access to land, credit and agricultural extension are vital for integrating geographically and economically isolated small farmers, many of whom are women farmers, into agricultural and food systems. Industrial systems are based on intensive planting of monoculture crops, using genetically uniform commercial seeds and other costly external inputs. They represent a form of integration that moves costs onto farmers, with input prices set by corporate suppliers and declining terms of trade for primary commodities resulting in stagnant or even falling farm-gate prices. This squeezing of farm incomes is driving many farmers into crippling and unsustainable levels of debt while also compromising the ability of many households to purchase food. [15]

The vulnerable financial situation of many farmers is further accentuated by diminishing yields over time as synthetic fertilisers become less effective. For example, the usage of synthetic nitrogen fertilisers and phosphate fertilisers by South Asian rice farmers rose substantially over several decades in order to just maintain yields.[16] As an ever greater share of the value and power moves up supply chains, the inequality between an increasingly concentrated number of agri-business corporations and the hundreds of millions of peasant farmers grows. Evidence of market concentration is illustrated by the commercial seed market where 3 companies control half the market, in the fertiliser market where 7 companies control virtually all sales, and agrochemicals where 5 companies control 68% of the market.[17]

While small scale farmers continue to produce the largest share of the world's food, they are doing so on a declining share of farmland.[18] As the dominance of economies of scale in agriculture and food systems grow, small scale farmers are further disadvantaged in the intensifying competition for control over natural resources. This is particularly the case in contexts where land governance is weak. Competition for land resources, driven by increased demand for food, fibre, fodder and fuel as well as by other competing land uses, including tourism, urbanisation and financial investment driving the concentration of control over the natural resource base.

## C. Environmental

**"Steps are needed to improve sustainability and resilience throughout the food system. Among the changes that could help are increasing crop diversity,… and…reducing waste along supply chains"** (The Global Risks Report: 2018 )[19]

It is becoming increasingly clear that agriculture and food systems have emerged as a major driving force behind the planet's environmental degradation.[20] Over the past fifty years, greenhouse gas (GHG) emissions resulting from 'Agriculture, Forestry and Other Land Use' have nearly doubled, and projections suggest a further increase by 2050.[21] The sector produces an estimated 21 percent of total global GHG emissions.[22] This percentage rises when emissions produced by the use of energy in primary agriculture, such as fuel for tractors and energy used in food processing/trade and consumption of food are included. Industrial agriculture is mainly responsible for the sector's GHG emissions.

Specialised industrial agriculture is intrinsically linked to developments in food retail and consumption patterns. Mass food retail and distribution mean reduced food costs and wider food choice for many consumers. However, major food waste is associated with reduced food costs.[23] The energy used to produce food that is lost or wasted represents as much as 10 percent of the world's total energy consumption making the food waste footprint equivalent to 3.5 Gt CO2 of GHG emissions per year.[24]

This intensive agriculture and food systems model is further associated with rapidly increasing biodiversity loss. Up to three quarters of the diversity of genetic food crops has been lost in the last century, up to 22 percent of the 8,700 livestock breeds are at risk of extinction worldwide and 31 percent of fish stocks overfished. A third of the world's land is degraded due to erosion, compaction, salinisation or chemical pollution. [25] Following four regional assessments of biodiversity and ecosystem services covering the Americas, Asia and the Pacific, Africa, as well as Europe and Central Asia, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) highlighted the interconnections between achieving the UN's SDGs, the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets, and the Paris Agreement on climate change, which all depend on the health and vitality of the natural environment in all its diversity and complexity. IPBES highlight that *"acting to protect and promote biodiversity is at least as important to achieving these commitments and to human wellbeing as is the fight against global climate change"*.[26]

Biodiversity is especially crucial to the stability and resilience of food sources. With climate change set to challenge agricultural resilience more *"biodiversity will play an essential part in the adaptation and mitigation actions needed to cope with climate change and ensuring continued sustainable supplies of healthy food, providing adaptive capacity, diverse options to cope with future change and enhanced resilience in food production systems"*.[27]

# 2. COMPETING VISIONS FOR THE FUTURE OF AGRICULTURE AND FOOD

"Business as usual is not an option. Agriculture has always been the interface between natural resources and human activity. Today it holds the key to solving the two greatest challenges facing humanity: eradicating poverty, and maintaining the stable climatic corridor in which civilization can thrive." (José Graziano da Silva, FAO Director General)[28]

The reality of these challenges calls for a transition to sustainable agriculture and food systems that ensure food and nutrition security for all, decent livelihoods, social and economic equity whilst conserving biodiversity and the ecosystem services on which agriculture depends.

We require a transition that demonstrates how farming systems can be regenerative and build upon and add to natural capital, rather than being increasingly dependent on external inputs that are becoming scarcer, that the system cannot absorb, and that more often than not contribute to negative externalities[29]; we require a transition that recognises the importance of 'true cost accounting' systems which measure the hidden costs of products or practices, such as The Economics of Ecosystems and Biodiversity (TEEB) global initiative. [30]

The question of what policy and governance measures can best deliver such a transition is highly contested. Indeed, the context in which Goal 2 of the SDGs is being implemented has been likened to a battlefield where opposing worldviews on modernity and food and nutrition are supported by diverse production, marketing and distribution systems.[31]

## A. Business as Usual

**"We risk paradigm maintenance. Current proposals for responses to climate change seek to maintain current power structures and basically amount to business as usual or worse."** [32] (Newell & Taylor: 2018)

These competing views found new forms of expression in the wake of the food price crisis of 2007-2008. Instead of being the impetus for transformative change, many responses merely accentuated a business as usual approach through superficial shifts in language or 'quick-fix' technological initiatives. Agri-businesses and proponents of the status quo have used 'feed the world narratives' to keep the focus on increasing yields through Green Revolution technologies, particularly in Africa. Terms such as 'sustainable intensification' and 'climate smart agriculture' (CSA) have sought to integrate ecological concerns with food security imperatives at a superficial level. Initiatives in

the area of fisheries and marine resources have used similar approaches by advancing the idea of a 'blue economy'.

The language of CSA has been rapidly incorporated into policies and programmes at national and international levels. For example, many sub-Saharan African countries reference sustainable intensification or CSA in their climate change commitments under the UN Framework Convention on Climate Change.[33] A key criticism of CSA however, is that it has brought together, reframed and rebranded a disparate set of agricultural practices and technologies under a new label without delivering anything radically new.[34]

'Nutrition sensitive agriculture' is similarly based on 'silver bullet' solutions. The food fortification industry is supporting the shift in dietary patterns around the world towards increased uniformity. Dietary uniformity based on agro-biodiversity loss however, has significant negative implications for human and environmental health.[35] The 2017 report *Unravelling the Food-Health Nexus* argues that many of the most severe health impacts of food systems can be traced back to industrial agriculture practices, including the intensive use of chemicals and the mass marketing of ultra-processed foods.[36]

'Modernisation' through structural transformation, to enable farmers to move out of agriculture and engage in better paid industrial and service-based employment is similarly flawed.[37] In reality there is a major gap between urbanisation and commensurate job creation that points to the importance of supporting agriculture and food systems that generate local employment opportunities.[38]

**"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…".**[39] (FAO: 2017)

## B. An Alternative Paradigm

In the wake of the food price crisis of 2007-2008 an alternative response to the 'business as usual' approach has gained momentum. The seminal report taking stock of the state of global agriculture and food systems under the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD), *Agriculture at a Crossroads* recommended a thorough and radical overhaul of present international and national agricultural policies in order to meet the challenges of achieving food security in a sustainable way.

The IAASTD report recognised that diversified small scale farming is responsible for the majority of food produced globally. The report recommended that agricultural knowledge, science and technology (AKST) development should focus on diversified farming systems that maximise the use of local resources and build on farmers' traditional knowledge in order to support small-scale farmers. The report draws specific attention to the merits of AKST being directed towards agroecological systems:

*"… A focus on agroecology can enrich the production and deployment of new farming practices and technologies that are environmentally, socially and culturally sustainable"*[40]

Since the publication of the IAASTD report, the case for agroecology has continued to gain momentum. In February 2015, agroecology's status as a global social movement was articulated in the International Forum on Agroecology 'Nyéléni Declaration':

*"Agroecology is the answer to how to transform and repair our material reality in a food system and rural world that has been devastated by industrial food production and its so-called Green and Blue Revolutions. We see Agroecology as a key form of resistance to an economic system that puts profit before life…. Our diverse forms of smallholder food production based on Agroecology generate local knowledge, promote social justice, nurture identity and culture, and strengthen the economic viability of rural areas."* [41]

The report by the UN Special Rapporteur on the Right to Food to the UN Human Rights Council on "Agroecology and the Right to Food" addressed how agroecology supports the core dimensions of the right to food. It linked food *availability* to raising productivity at field level, food *accessibility* to the effects of agroecology on rural job creation and raising incomes and food

*adequacy* to the benefits accrued from more diverse production with healthy diets and nutrition. The report also addressed how agroecology contributes to sustainability and adaptation to climate change.[42]

More recently, the FAO has taken a lead, organising a series of regional meetings and two international symposiums on agroecology as well as creating an on-line agroecology knowledge hub.[43] In 2018 the FAO proposed the Scaling Up Agroecology Initiative with the view of transforming food and agricultural systems so that they can support the achievement of the SDGs.[44] FAO's 2018 Guide for Farmer Field Schools in Africa on the Integrated Management of the Fall Armyworm on Maize provides a practical example of the value of agroecological approaches.

The Guide advises farmers to use plant diversification and biopesticides amongst a range of locally based solutions rather than chemical pesticides which may not work but are expensive and dangerous.[45]

The adoption of the new European Consensus on Development, in which the EU and its Member States have committed to support agroecological practices indicates a greater awareness of agroecology among policymakers and an effort to coordinate action. A joint statement by the European Council, the European Parliament and the European Commission states support *for "agroecological practices and actions to reduce post-harvest losses and food waste, as well as to protect soils, conserve water resources, halt, prevent and reverse deforestation, and maintain biodiversity and healthy ecosystems."*[46] In April 2018 the French development agency (AFD) gave practical expression to this commitment when France co- launched the agroecological transition support project in West Africa with an €8 million investment.[47]

## C. Trócaire's Vision for Sustainable Agriculture and Food Systems

In order to realise agriculture's potential to deliver on the right to adequate food and nutrition for all in a sustainable way, Trócaire believes it is necessary to transition from the current industrial system towards food systems that achieve high productivity but also promote biodiversity, resilience and social equity. Taking a human rights based approach, Trócaire supports accountability to and the participation of small scale food producers and marginalised groups, including rural women, youth, indigenous peoples and pastoralists in taking a lead in influencing and changing processes and policies that impact on their wellbeing and livelihoods.

**"By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality"**
(SDG 2, Target 2.4)[48]

## Agroecology and the 2030 Agenda

Agroecology is relevant to the promotion and delivery of goals across Agenda 2030. While this is most evident in relation to SDG2 on hunger eradication, food security and sustainable agriculture, agroecology is also relevant to the achievement of targets under SDG1 on poverty eradication, SDG3 on healthy lives, SDG4 on inclusive education, SDG5 on gender equality, SDG6 on water availability, SDG8 on sustainable economic growth, SDG 10 on reducing inequality, SDG 12 on sustainable consumption and production, SDG 13 on climate change, SDG 15 on protection and sustainable use of ecosystems, SDG 16 on inclusive societies and SDG 17 on global partnership.

Based on growing evidence from Trócaire's livelihoods programmes, the convergence of visions across social movements and the increasing number of stakeholders equating a sustainable transition in food systems with agroecological approaches, Trócaire is committed to promoting an alternative transformative model of agriculture and the use of low-input local agricultural systems, based on agroecological principles.[49]

While country programmes and local partner organisations that Trócaire works with are at different stages in the transition process, all livelihoods programmes are promoting more sustainable practices, with some supporting wider-than-farm ecosystem management.

In order to realise the potential agroecological approaches present in terms of meeting the needs of future generations while ensuring no one is left behind today, Trócaire seeks to support the scaling out and scaling up of agroecology.

Trócaire supports the horizontal reach of agroecology at farmer to farmer level, working with like-minded civil society organisations and networks, as well as advocating for a more enabling policy environment that provides incentives and safety nets for farmers as they seek to adopt new practices and the time it takes to realise their full benefits.

# 3. AGROECOLOGY

"Agroecology is a way of redesigning food systems, from the farm to the table, with a goal of achieving ecological, economic and social sustainability. Through transdisciplinary, participatory, and change-oriented research and action, Agroecology links together science, practice, and movements focussed on social change." (Gliessman, 2016)[50]

**Agroecology is a science, a set of practices and a movement for change.**

## a) What is Agroecology?

Agroecology is a science, a set of practices and a movement for change. As a *science*, agroecology can most simply be summarised as the application of ecological concepts to agricultural practices. As a *practice*, agroecology seeks to integrate these ecological concepts with locally-held knowledge about seeds, plants and soils, in order to design farming systems that mimic natural processes, thus creating beneficial biological interactions and synergies among the diverse components of the agroecosystem.

For example, agroecology practitioners seek to improve soil and plant quality through available biomass and biodiversity, rather than battling nature with chemical inputs. Key practices of agroecology include crop rotations, application of green manures, use of polycultures, agroforestry systems, enhancing soil health through mulches and cover crops, and using natural plant-insect and plant-plant interactions to control weeds and pests.[51]

But agroecology is more than just a different way of farming, it is also a *movement* that directly challenges the dominant corporate-controlled industrial -food system. For some practitioners it is a core part of their social and political identity, representing a way of life, and is an expression of 'food sovereignty'. It therefore defies formulaic replicability and is better understood in terms of guiding underlying principles which serve to distinguish agroecology from other approaches.

## b) Principles of Agroecology

Figure 1 represents an overview of key characteristics of agroecology.[52] In this representation key principles are organised under the following four pillars:

i) The *economic* pillar emphasises the potential income opportunities and financial benefits arising from diverse production, shorter value chains and local markets.

ii) The *political* pillar underlines the importance of territorial rights and participatory decision making processes in fostering an enabling environment for scaling out and scaling up agroecology through supportive public policies and investment.

iii) The *environmental* pillar highlights the importance of nourishing biodiversity and soils as a means to

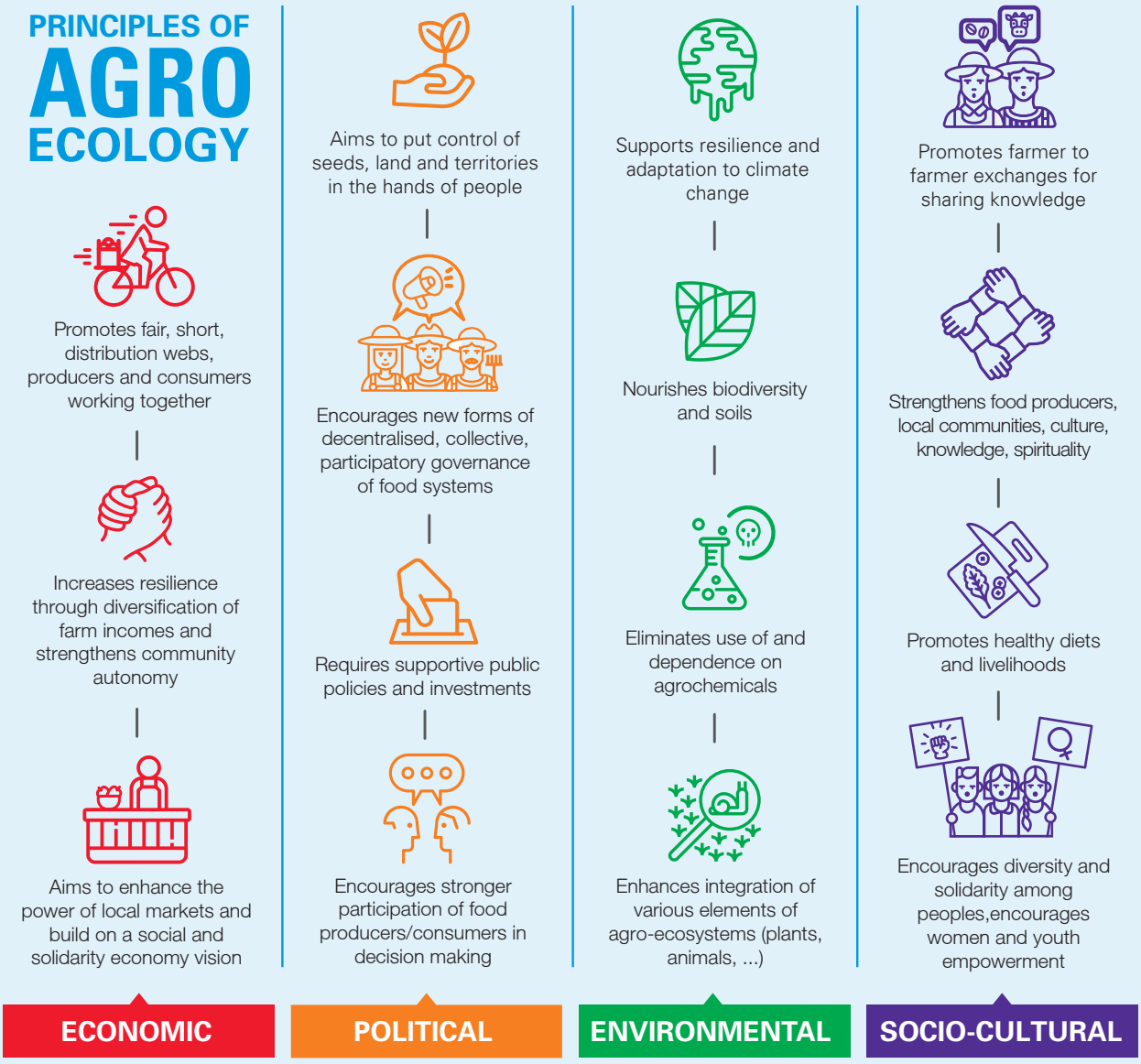
strengthening ecosystem services, including regulating services such as climate, natural hazards and pest control.

iv) The *socio-cultural pillar* draws attention to the co-creation of knowledge: developing an understanding of farm and community level agro-ecosystems through the sharing of information held by local people with scientific knowledge about plant-soil and plant-plant interactions, and the provision of a diverse array of food products cultivated in home gardens and farm plots providing household food security in the first instance.

Synergies between the pillars affirm the holistic nature of agroecology. Collectively, the principles support transitioning the entire food system away from dependence on fossil fuel-based chemical inputs, uniform seeds and agricultural export orientation, and towards an alternative paradigm that encourages small and family farmers to produce diverse, healthy and nutritious foods primarily for themselves and their communities.

As the concept of agroecology gains traction among a wider range of actors it is important to ensure principles reflecting agroecology as a science, practice and movement are respected.

**Figure 1: The principles of agroecology**




Source: CIDSE.org

## c) Agroecology at work

Trócaire's agricultural programmes are increasingly focused on building knowledge and awareness of bespoke interventions that promote agroecology. In recent years, Trócaire has worked with partner organisations promoting agroecology amongst farmers in Guatemala, Honduras, Nicaragua, Ethiopia, Kenya, Malawi, Rwanda, Uganda, Zimbabwe and Pakistan.

Drawing on evidence in the wider literature[53], supplemented by documentation from our partners and the communities they work with on the benefits they have seen from agroecology, this section considers the social-cultural, economic and environmental benefits of transition on the right to food and health, livelihood security, building resilience and women's empowerment.

### *The right to adequate food and other health benefits*

Agroecology alone cannot ensure the availability and access of adequate food for all, but it does support ways in which dietary diversity may be enhanced. Examples include the emphasis on polycultures and mixed crop-livestock systems within agroecological farms that help to ensure key nutrients are available throughout the year, smoothing out hunger gaps. Other practices including the integration of livestock into farming systems, such as dairy cattle, pigs and poultry, serve to provide a source of protein, as does the incorporation of fish, shrimp and other aquatic resources into farm systems, e.g. in irrigated rice fields and fish ponds. Diversified agricultural production has been linked specifically to increased consumption of key nutritional elements often missing in diets based around staple cereal crops.[54]

## Agroecology, Diet and Healthy Communities in Ekwendeni, Malawi[55]

In Malawi, the high reliance on maize production by subsistence farmers is a key constraint to sustained agricultural productivity. Long-term soil deterioration from continuous maize cropping results in continuous declines in productivity and food insecurity. Subsidy programmes by the government of Malawi supporting the purchase of synthetic fertilisers have helped the country's farmers to maintain yields.

However, despite short-term gains, inorganic fertiliser application has negatively affected soil and environmental quality. Dependency on chemical fertilisers is also not sustainable, as these inputs are prohibitively expensive for most Malawian farmers when not subsidised.

In 2000, the Ekwendeni Hospital launched the Soils, Food and Healthy Communities (SFHC) Project. This ongoing project initially brought researchers from the University of Western Ontario and Michigan State University together with people from the villages surrounding the town of Ekwendeni. Educational activities and participatory research were conducted with 80 separate agricultural communities.

Farmers were provided with information about the impact of edible legumes and leguminous cover crops. These plants replenish and enhance nitrogen and recycle important soil nutrients like phosphorous, while providing protein and iron-rich seeds and foliage for human consumption.

A participatory research model was adopted, with farmer-researcher teams consisting of representatives chosen by villagers formed to provide more information about the management options of the legume technologies.

In this 'horizontal' model of research and extension, the farmer-researcher teams helped conduct applied farmer-to-farmer research and training for the larger community based on the specific needs, interests and norms of the population.

As the project has evolved, improved cropping models began to produce higher amounts of crop residues and improve soil fertility as well as provide diversity of nutrient-enriched legumes. Depending on growing conditions, legume options contributed between 30 and 90 kilogrammes of nitrogen per hectare per year, which helped increase maize yields and led to food security and dietary diversity improvement.

Communities also learned about management, marketing opportunities, and the ability of legume diversification to suppress pests. Additionally, the farmer-researcher teams educated households on climate change and managed a community seed bank for legumes.

A special issue of the *Journal of Development Studies* on "Farm-Level Pathways to Improved Nutritional Status" presented evidence from various locations showing that diversity in household agricultural production has direct and important linkages with dietary diversity and nutrition.[56]

Agroecology not only provides dietary benefits to those growing the food, but also to those buying it. Consumers are increasingly demanding a healthier diet and a closer connection to food producers. Social movements around the globe – many with significant leadership by women's and indigenous organisations – are coalescing in campaigns for a healthy food system built on an environmental and human rights ethos. [57]

A further related human health benefit of adopting agroecology is the avoidance of risks associated with the use of synthetic pesticides. Exposure through pesticide use, drift and residues in food and water have resulted in a high occupational, accidental, or intentional exposure to pesticides that can result in hospitalisation or even death. UNEP's 2013 *Cost of Inaction* report estimated that the accumulated health costs of acute injury alone to smallholder pesticide users in sub-Saharan Africa will be approximately US $97 billion by 2020.[58]

Field surveys from various countries have shown that a very high proportion of farmers and agricultural workers exposed to pesticides through their work are suffering acute health effects: including 100 percent of women picking cotton after pesticides were sprayed in Pakistan.[59]

***Enhancing Rural Livelihoods and Local Economies***

Hunger today is mostly related to poverty and increasing the incomes of the poorest is the best way to address it. Supporting small producers can "*help break the vicious cycle that leads from rural poverty to the expansion of urban slums, in which poverty breeds more poverty*".[60]

A common thread within studies on agroecology is that diversified farming systems can provide additional opportunities for household income generation, especially for women.[61] In terms of income-generating opportunities, the addition of fruit trees, vegetables, root crops, beans, pulses, medicinal plants, fish and animals to the farming system generates surplus foods that can be marketed locally or, in some instances, at more distant outlets for specialised agroecological products.

Academic research commissioned by Trócaire examining the situation amongst rural households in western Guatemala found that those adopting full agroecology enjoyed greater livelihood opportunities than their counterparts farming semi-conventionally.[62] This is because the more diverse range of products grown by agroecology farmers enabled better integration into local markets.

These linkages allowed those households to generate higher levels of agricultural income than their semi-conventional peers, which, in turn, has improved their ability to purchase food and other items. Also by producing a range of crops in their own farms and gardens, agroecology-based households rely less on purchasing agricultural goods to meet their domestic needs, and therefore can conserve their scarce financial resources.

The Guatemala study further shows how agroecology can improve farmer livelihoods through the reduction of input costs.

The on-farm production of organic fertilisers in agroecological systems reduces farmers' reliance on costly external inputs. This in turn makes smallholders less dependent on local retailers and moneylenders.

For farmers who implement industrial type practices, these cost savings can be significant, helping them to end the cycle of dependency on inorganic fertilisers and break free of the 'pesticide treadmill'. Indeed, this is one of the most commonly cited benefits of agroecology for small-scale farmers observed across Trócaire programmes.

## Guatemala: Agroecology Increasing Farmers' Incomes and Supporting Local Economies

Data collected by Trócaire in western Guatemala indicates that rural households practicing agroecology fared better than their compatriots using semi-conventional farming methods.

In 2016, Trócaire with local partner organisation Red Kuchub'al prepared a research call with the aim of estimating food and resilience related

The FAO highlights how agroecological household incomes are helped stabilise through having a variety of income sources from differentiated and new markets, including diverse products, local food processing and agritourism.[64] With such a range of livelihood activities, based on local resources and labour that provide food to local markets, agroecology promotes rural economies, generating additional income and keeping money circulating within local villages and towns.

***Increasing resilience***

Agroecology is an effective strategy for building resilience amongst small scale producers, local communities and ecosystems to both economic shocks and climate-related stresses. Biodiversity loss, unsustainable water usage, degradation of soils and the impacts of climate change are all compromising factors in the continuing ability of natural resources to support food production. Agroecological approaches contribute to regenerative agricultural systems, mitigating climate change as well as improving resilience to more extreme related weather events and the risks associated with the spread of pests, weeds and diseases related to global warming.

**"By reducing dependence on external inputs, agroecology can reduce producers' vulnerability to economic risk. Enhancing ecological and socio-economic resilience go hand-in-hand- after all, humans are an integral part of ecosystems."**
(FAO:2018) [65]

Many small scale farmers recognise the resilience building properties of agroecological practices. A multi-country study that explored resilience of African smallholder farming systems to climate variability and change between 2007 and 2010, revealed farmers' priorities for strategies to adapt to climate change included improving soil fertility with green manures and organic residues, conserving water and soil, conserving indigenous fruit trees and other locally adapted crop varieties, and using alternative fallow and tillage practices to address moisture and nutrient deficiencies – all tried and tested changes among small scale farmers who have adopted agroecological practices in Western Guatemala.

The Programme for Territory and Rural Studies at the University of San Carlos in Guatemala were to the fore in the research team which carried out the research in 2016. Although the sample size was small (ten households practicing agroecology and ten similar households practicing semi-conventional agriculture) the results indicate significant differences in income levels.

The agroecology farmers realised significantly higher levels of agricultural incomes in comparison to their semi-conventional peers. Agroecological farmers claimed to generate enough income to live off the land throughout the year while their semi-conventional counterparts claimed they needed to supplement their farm incomes with off-farm employment.

This outcome is related to a number of factors including:

- the attainment of comparable yields in crops such as maize but without reliance on expensive inputs, including chemical fertilisers, pesticides and herbicides
- better locally based market integration associated with more diverse production and
- lower dependency on food purchases for meeting food and nutritional needs; food related weekly expenditure in agroecological households on average representing just 47% of that among semi-conventional households.

The research is accompanied by a video resource which looks at the development of agroecological production chains and the important role of farmer co-operatives in marketing diverse agroecological product lines, illustrating how agroecology provides for farmer livelihoods while also contributing to strengthening local markets, local economies and employment.[63]

approaches in the agroecology toolbox.[66]

One of the largest comparative studies on agroecology and industrial agriculture analysed farmers' resilience to hurricanes in Nicaragua. The study used a participatory research approach involving 19 NGOs, 45 farmer-technician teams, and 833 farmers. They measured key indicators on 880 plots paired under the same topographical conditions, covering 181 communities of smallholders from southern to northern Nicaragua.

This coverage, and the mobilisation of farmer–technician field research teams, was made possible by the Movimiento Campesino a Campesino (MCAC), a widespread smallholders' network for sustainable land management. Through simple field research techniques, they found significant differences in agroecological resistance between plots on "conventional" and "sustainable" farms in Nicaragua after Hurricane Mitch. The study used an innovative approach for measuring resilience, which suggested that higher levels of agroecological diversity corresponded with generally lower vulnerability to hurricane loss, and higher sustainability.[67]

Further studies have yielded similar findings. For example, practices such as terrace bunds, cover crops and agro-forestry were shown to have also delivered greater resilience to the effects of Hurricane Mitch in other parts of Central America.[68] Additionally studies post Hurricane Ike in Cuba found agro-ecologically managed farms suffered a 50% loss compared to a 90% loss on more industrial type farms, and furthermore showed a faster productive recovery than monoculture farms. [69]

Dollas Njeru Kathiga, Embu County, Kenya. Photo: Margaret Wanjiku

## Dollas and Stanley Njeru Kathiga's Journey to Resilience

Dollas and Stanley depend on their two acre farm in Embu County, Kenya for meeting their household needs. Dependence on expensive external inputs including seeds and chemical fertiliser has eroded their farming income over time.

In 2017, Dollas participated in a Community Resilience and Climate Change Adaptation project. The project involved training sessions on agroecology and visits to a demonstration farm. Dollas shared the details of each training with Stanley and they implemented a range of new techniques including sunken and raised beds, compost manure and food forestry on their own farm.

Though the adoption of these practices is very recent, significant changes have already been observed. The greater diversity of crops grown, including maize, sorghum, millet and vegetables (such as kales and spinach) provide the household with an improved diet.

Stanley commented that previously the family rarely had vegetables in their diet due to the fact that these had to be bought from the market and as they were quite expensive it was not a priority to have them.

The use of Zai pits has also increased farm yields while notable savings from the phasing out of external inputs has further contributed to boosting household income.

As water is scarce in Embu County, Dollas with Stanley and other family members plan to develop a number of water pans that will provide irrigation water when there are long dry periods. Stanley has also begun to grow local indigenous tree species in order to improve the microclimate and intends to encourage neighbouring households to do likewise.

In addition to the nutritional and economic value that agroecology is generating for the household, Stanley has also noted how the adoption of agroecological practices has made relationships within the household stronger and closer.

Dollas says she now feels more involved in decision making regarding household farming initiatives and other household decisions. They hope to continue this journey and see their farm prosper into the future.

**"In principle, agroecology can benefit women most, because it is they who encounter most difficulties in accessing external inputs or subsidies. But their ability to benefit should not be treated as automatic; it requires that affirmative action directed specifically towards women be taken" (Special Rapporteur on the Right to Food:2010 )**[70]

***Rural Women's Empowerment***

Agroecology has the potential to foster womens' empowerment, but this is not an automatic outcome. Specific characteristics of agroecology as a movement promote inclusiveness and opportunities for women to take a lead role as advocates for change. However, deeply embedded socialised gender relations may influence womens' visibility while also having a substantial impact upon the way any new agricultural intervention or technology is experienced by women and men in specific contexts. For example, if a new technology means that cropping intensity increases, or if new lands are taken into cultivation (e.g. through introduction of irrigation), then the burden of increased workloads may fall particularly on women.

Agroecological education, as evidence from Brazil shows, can be an important agent for rural sociological change, not only to challenge the dominance of an industrial agriculture developmental model, but also to empower women and men to challenge and disrupt the traditional sexual division of labour in rural communities, and gender regimes more generally.[71]

Where gender components are explicitly included, agroecology can help to transform women's livelihoods and position within rural societies. For example a study by La Via Campesina and the Asociacion Nacional de Agricultores Pequenos in Cuba found that the shift away from monocultures to agroecology challenged traditional gender roles and power relations inside peasant families. Peasant women reported that in a monoculture system, the crop belonged to the male head of household, and all earnings from the sale of that crop went to him.[72] But as the farms diversified, the roles and income earning opportunities within the family also diversified. Men still managed some crops, but the addition of animals, vermiculture and medicinal plants, gave women control over decisions and income in those areas.

Supporting women's use of local biological diversity about which they have specialist knowledge – including through bio-enterprises from species such as shea butter, baobab and others – can also have an empowering impact, providing a basis for new food and livelihood opportunities, as well as deriving socio-economic benefits such as collective organising, developing new skills and improved status within their households and communities.

Reflecting the principles of agroecology, Trócaire adopts a holistic approach to rural womens' empowerment: supporting gender equitable rights of access and control over natural resources, access to credit and agricultural extension as well as inclusive decision-making at all levels.

## Agroecology and Opportunities for Womens' Empowerment

- Agroecology as a movement presents opportunities for advancing womens' empowerment- women taking lead roles as advocates for change.
- Agroecology values biodiversity and traditional knowledge - women play a lead role in seeds and biodiversity management and are often the custodians of traditional knowledge supporting a more influential role in the household and wider community.
- Agroecology supports better health and lower health expenses – providing access to a diversity of crops, fruits and livestock products – improving households nutritional autonomy and eliminating exposure to synthetic pesticides.
- Agroecology creates economic opportunities through the diversification of income sources and focus on local/ niche markets that may contribute to womens' greater economic independence.

# 4. BARRIERS TO ADOPTION

**Transitioning towards agricultural and food systems that require fewer external inputs, most of which are sourced locally or self-produced do not present obvious opportunities to the industrial agriculture and food system.**

Despite the growing evidence of the potential contribution agroecology can make to achieving the SDGs, there are significant barriers to the widespread adoption of agroecological approaches.

The FAO Scaling up Agroecology Proposal document highlights how the agricultural political economy underpins many of the barriers to the uptake of agroecology, including: lack of awareness of agroecology among policymakers, the necessity of an enabling environment, lack of political and economic support that prioritises sustainable approaches, research, education and extension systems, market systems and the lack of coordinated action and collaboration in policy and governance.[73]

This section highlights four key barriers to adoption, namely the concentration of power, the policy environment, investment flows and social perceptions of agriculture and food.

***Concentration of Power***

*"[The] mismatch between the potential of agroecology to improve food systems outcomes, and its potential to generate profit for agribusinesses, may explain why it has been so slow to make its way onto the global political agenda."* (IPES Food: 2016)[74]

Despite small scale farmers producing most of the world's food and accounting for the vast majority of agricultural investment, power within agriculture and food systems has been progressively moving towards corporate interests. Evidence of this concentration of power is expressed in terms of the market dominance of a limited number of actors in multiple sectors, from commercial seed markets to food processing and retail systems. Data technologies which may connect inputs to farm equipment and retailers to consumers represent new drivers in this process.[75]

This dominance finds expression in how agricultural and food challenges are framed, for example in 'feed the world narratives' and best addressed, for example in the development of new ranges of input-responsive crops.

Transitioning towards agricultural and food systems that require fewer external inputs, most of which are sourced locally or self-produced do not present obvious opportunities to the industrial agriculture and food system. Nor do they align with the financialisation of food systems, which views food in speculative terms.

How narratives are framed impacts on policy decisions at all levels. Intellectual property laws that promote dependencies on input dependent seed varieties whilst seeking to restrict the rights of small scale producers to save, use, sell and exchange seeds illustrates how legal frameworks discriminate in favour of large scale commercial interests.

***Policy Environment***

A frequently cited obstacle to farmer adoption of agroecological practices in a number of Trócaire programme countries relates to the subsidised distribution or in some cases the political use of chemical fertilisers and hybrid seeds. For Trócaire programme countries in sub-Saharan Africa national agricultural policies are influenced by continental policy frameworks and visions.

The Comprehensive Africa Agriculture Development Programme (CAADP) launched in 2003 as Africa's policy framework for agricultural transformation, food security and nutrition is focussed on boosting yields of primary commodities through intensive agricultural practices. Such practices include the use of expensive external inputs, such as chemical fertilisers and pesticides, producing crops for export markets and mono-cropping.

The new European Consensus on Development[76] does include a commitment to support agroecological practices but the challenge of co-ordinated action and collaboration is clear. While France has announced financial allocations for the adoption of agroecological practices a study of UK agricultural development assistance found that "*since 1 January 2010, no funds at all have been spent on or been committed to projects with an explicit focus on development or promotion of agroecological innovations and practices*".[77]

The authors of this study had originally intended an analysis of wider European development aid flows, but due to the "*lack of availability of complete data on such flows from most European countries*" were unable to do so.

Ireland has prioritised combating hunger in its international development policy and co-facilitated the process leading to the adoption of the SDGs. However, a growing emphasis has been placed on building business links and trialling agri-food strategies (e.g. Ireland-Kenya Agri-Food Strategy 2017-2021).[78] Proposals to further develop agri-business initiatives such as the Africa Agri-Food Development Programme (AADP) need to be based on evidence of pro-poor objectives and pro-poor impacts.

***Investment Flows***

Policies that reinforce the industrial agriculture and food system have further implications for investment in research, innovation, learning, agricultural training, extension and agronomic support. The "one size fits all" approach of industrial agriculture is complementary with efficiency concerns and results frameworks that focus primarily on productivity outcomes.

Agroecology on the other hand does not lend itself to 'off the shelf' interventions but is location specific requiring local research and innovation. This critical difference may discourage public research and extension services from promoting agroecology. However, this also means using public investment to promote an industrial approach that largely ignores the more complex interconnections agriculture has with the environment, human health, water, energy and social systems.

Additional obstacles to the wider adoption of agroecological practices include: the absence of insurance schemes to mitigate income and food security risks to resource poor family farms during agroecological transition; failure to protect territorial rights, including land, water and seeds; neglect of local infrastructure that impede access to markets; and the non-promotion of markets for agroecology-based products.

***Perceptions of Agriculture and Food***

As public resources for research, innovation, agricultural training, extension and agronomic support are limited, their alignment with industrial agriculture not only impacts on resource availability for the co-creation of knowledge between practitioners and scientists, farmer to farmer extension but also on the attitudes of both producers and consumers towards agriculture and food.

In a literature review prepared for Trócaire on agroecology in Zimbabwe the lack of supporting institutional and policy frameworks has meant that it is civic organisations and NGOs who are to the fore in promoting agroecological innovations. Since NGOs tend to focus on the poorest and most marginalised households, the review highlighted the potential misrepresentation of agroecology as an agriculture 'for the poor'.[79]

The industrial agricultural and food systems model is also promoting a disconnect between producers and consumers. Reduced food costs and 'wider food choice' is associated with highly processed foods. Demand for fast food and the expectation of cheap abundant food has contributed to a relative devaluation of food and major food waste in developed countries.

# 5. ENABLING TRANSITION

"As an approach based on sustainability that is people-centred and knowledge-intensive, agroecology matches the transformative approach that the 2030 Agenda calls for."[80] (Scherf: 2018)

**The ability of the poor and marginalised to take a lead in influencing and changing their situation, exercising power is fundamental to the promotion of agroecology.**

An enabling policy environment that favours diversification over monocultures, nutrient cycling over chemical inputs, and strengthens local food economies over servicing long value chains moderated by corporations is required to support the uptake of agroecology.

Such an environment would ideally provide positive incentives to buffer the risks farmers face while undergoing the transition to agroecology. The primary drivers of agroecology are small scale food producers who are increasingly connected into national, regional and global social movements. Narratives shaping agricultural and food policies need to be designed with these producers and those that work in rural areas.

***Food Democracy***

The ability of the poor and marginalised to take a lead in influencing and changing their situation, exercising power is fundamental to the promotion of agroecology. The global campaign for an International Convention on the Rights of Peasants being a practical assertion of peasants empowerment.[81]

At the national level, the Association of Rural Workers (ATC), in Nicaragua representing over 80,000 farmers, illustrates how participatory processes, engaging peasant farmers and rural communities serves to design and drive transformative agroecological approaches. The ATC established an internal commission on agroecology, which carried out a process of documentation and analysis of experiences by peasant farmers throughout the country. This includes practices such as nutrient cycling, traditional seed saving, or combining animal production with reforestation. In doing so, they created a nationwide 'directory' of agroecological family farmers – including many who had never considered themselves agroecological or even heard the word before – and prepared the ground for peasant to peasant sharing of agroecological knowledge. [82]

Democratic spaces that facilitate small scale farmers, other marginalised groups and their representative civil society organisations to be heard in policy processes is central to a human rights based approach and to achieving the ambition of Agenda 2030.

***Territorial Rights***

The ability of small scale producers to participate in reshaping agriculture and food systems is premised on a number of enabling factors, not least, their guaranteed access and use of productive natural resources, including land and seeds. As competition for natural resources intensifies so too do dispossessions, evictions and related conflicts. A recent Global Witness report identified

agribusiness as the sector most associated with violent attacks on human rights defenders[83]. Within this context, it is extremely challenging for many rural communities to invest the time, energy and knowledge intensity needed to develop agrocological farming systems.

Similarly, farmers' and their community seed banks which are the principal source of seeds for food crops in Africa underline the importance of farmer managed seed systems. Through customary practices including selection, saving and enhancing local seeds, farmers seeds represent a diverse and ecologically resilient basis for biodiverse and agroecological food production. Their importance however is increasingly undermined by policies which favour industrial seeds.

At the 2015 Africa Regional Symposium on Agroecology, participants called for increased control and management of natural resources by local communities in order to encourage the shift towards sustainable and ecological agriculture. Specific mention was made of territorial planning processes that would involve integrating context specific agroecological practices into local development plans. [84]

***Innovative Markets***

To be economically sustainable agroecological farmers also need markets. The potential to develop supportive initiatives at local level are perhaps greatest, with local government usually being more accessible than distant national or international mechanisms. Initiatives at the local level potentially including public efforts to support local markets and raise awareness amongst consumers of the multiple benefits associated with agroecological produce.

Red Kuchub'al, a Trócaire partner in Guatemala[85] supports barter and local and national marketing in preference to supermarkets and long, international value chains. Local to national marketing of processed products in food sovereignty partner outlets is a specific strategy used to develop a more solidarity oriented economy. The network has expanded, to include small scale member associations processing various products in an artisanal way for new innovative markets.

More direct interventions are illustrated by public procurement programmes, sourcing sustainably grown local food for schools, hospitals and other public institutions. [86] Governments such as Brazil have demonstrated how public procurement policies are successful in supporting agroecological producers while significantly reducing the number of people who are food insecure.

**At the 2015 Africa Regional Symposium on Agroecology, participants called for increased control and management of natural resources by local communities in order to encourage the shift towards sustainable and ecological agriculture.**

**Systematic changes are needed in policies and institutions to ensure that agroecological alternatives have space to breathe and grow.**

***Policy frameworks***

Systematic changes are needed in policies and institutions to ensure that agroecological alternatives have space to breathe and grow.[87] Guided by Agenda 2030, the international community is tasked with supporting a transformative and sustainable agricultural and food system that leaves no-one behind. The alignment of a range of policies in multiple sectors including agriculture, trade, investment, health, environment, development and industry are key to creating conditions that support rather than hinder agroecological initiatives.

The FAO is the custodian UN agency for a number of indicators relevant to SDGs 2,5,6,12, 14 and 15. The organisation has taken a lead role in multiple processes and initiatives to profile the value of agroecology. Amongst these is the Scaling Up Agroecology Initiative which aims to support national agroecology transition processes.

The initiative is particularly concerned with improving the evidence base on agroecology, assisting countries in the development of policies for agroecology with the participation of non-state actors and building connections for transformative change by working with diverse stakeholders supporting knowledge exchange and dialogue amongst governments, producers, consumers at national, regional and international levels.[88]

FAO has also identified the Decade of Family Farming as an opportunity to raise awareness in the international community about the importance of family farming to food security and linking family farming and agroecology with sustainable development. Similarly in relation to the UN decade of action on nutrition FAO identified the opportunity to link family farming and agroecology with the achievement of health and nutrition objectives.

The reformed Committee on World Food Security (CFS), which is hosted by FAO represents a unique multi-stakeholder policy forum that integrates the voice and accommodates the evidence of those most affected by the decisions under discussion in an effort to make global governance work for rights-based policy coherence.[89]

Efforts to bring agroecology to the fore in the work of CFS is reflected in the mandate given to its High Level Panel of Experts to produce a report on 'Agroecological approaches and other innovations for sustainable agriculture and food systems that enhance food security and nutrition'. As the adoption of outcomes from CFS initiatives are voluntary, however, a particular concern is the insufficient visibility given to outcomes and their follow up. Governments have a particular responsibility in addressing these challenges.

For Ireland, whose international policy for international development has been informed over recent years by the vision statement of "*a sustainable and just world, where people are empowered to overcome poverty and hunger and fully realise their rights and potential*"[90] frameworks for action have yet to recognise and actively support agroecological transitions.

Ireland's lead role on the SDGs, its commitments in the EU Consensus on Development, membership of the three UN Rome based food agencies (FAO, IFAD, WFP) and the CFS alongside Ireland's recognition of the importance of an integrated approach to climate change, food security, nutrition and agriculture present a clear basis for integrating agroecological approaches across relevant policies.

# 6. KEY MESSAGES

More enabling policy frameworks and actions at multiple levels are required to realise the potential contribution agroecology can make to the achievement of the SDGs, including the realisation of the right to adequate food, to income and livelihoods, social equity and ecosystem resilience.

At national level this potential can be harnessed through the implementation of legal frameworks that uphold the rights of peasant farmers as well as developing and implementing policy frameworks that enable and support agroecological transitions.

Civil society organisations have an important role to play in raising awareness and sharing evidence of impacts with relevant policy-makers.

**At the national level, governments should:**

- encourage recognition and support the participation of peasant/ small scale farmers in agriculture and food system policy processes.
- uphold obligations to protect land and environmental defenders, applying in full the UN Declaration on Human Rights Defenders (HRDs) and ensure investors respect the rights of land and environmental defenders in their activities and supply chains.
- promote the responsible governance of land and resources through the incorporation of Free Prior and Informed Consent (FPIC) into domestic laws and development of effective follow up implementing measures.
- domesticate the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT) in the context of national food security.
- refrain from endorsing agreements or developing policies in the areas of intellectual property and trade that weaken farmer managed seed systems.
- mainstream agroecology in agricultural education, research and extension programmes.
- preference credit schemes that facilitate peasant / small scale farmers trialling of new practices and provide public guarantees or insurance against major risks during transition rather than supporting the adoption of well-funded and often subsidised industrial fertilisers, pesticides, herbicides and seeds.
- support local value addition, short supply chains and the development of innovative market systems.

## International institutions should:

- adopt holistic indicators for sustainable agriculture and food systems in the context of advancing Agenda 2030.
- ensure participative spaces for peasant /small scale farmers and their social movements exist within all relevant multilateral institutions and forums to enable them to inform policy agendas in areas that affect them, including trade agreements, agricultural research and climate policies.
- support meaningful and effective policy convergence process on agroecology in the CFS as well as promoting the use and application of CFS outcomes at all levels.
- strengthen the recognition of territorial rights, including land rights in human rights frameworks, institutions and instruments.

## Ireland should:

- recognise agroecology in international development policies and related frameworks for action that underpin policy decisions.
- allocate financial resources supporting the development of agroecological innovations, research and practices in partner countries.
- support the development of a multiannual action plan for the Scaling Up Agroecology Initiative.
- conduct sustainability impact assessments of current agricultural policies and agri-food strategies, including how the private sector is or can contribute towards the development of equitable, inclusive , sustainable and solidarity based agricultural economies.

Stanley Njeru Kathiga, Embu County, Kenya. Photo: Margaret Wanjiku

# 7. ENDNOTES


1 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. www.ipes-food.org

2 FAO, IFAD, UNICEF, WFP and WHO. 2018. The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition. Rome, FAO

3 ibid

4 Op.Cit. IPES FOOD (2016)

5 United Nations International Covenant on Economic, Social and Cultural Rights, see Article 11 at https://www.ohchr.org/EN/ProfessionalInterest/Pages/CESCR.aspx

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

7 Mulvany, P. (2017) Agricultural Biodiversity is sustained in the framework of food sovereignty, Biodiversity, 18:2-3, 84-91 https://www.tandfonline.com/doiabs/10.1080/14888386.2017.1366872?journalCode=tbid20

8 FAO. (2018). FAO'S Work on Agroecology: A pathway to achieving the SDGs http://www.fao.org/3/i9021en/I9021EN.pdf

9 Clapp, J. et al (2018) The global political economy of climate change, agriculture and food systems, The Journal of Peasant Studies, 45:1, 80-88: https://www.tandfonline.com/doipdf/10.1080/03066150.2017.1381602?needAccess=true

10 Op.Cit. FAO. (2017).

11 ibid

12 FAO. (2011). The State of Food and Agriculture. Women in Agriculture: Closing the Gender Gap for Development http://www.fao.org/docrep/013/i2050e/i2050e.pdf

13 FAO. (2013). Coping with the food and agriculture challenge: smallholders' agenda. Preparations and outcomes of the 2012 United Nations Conference on Sustainable Development (Rio+20) http://www.fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Coping_with_food_and_agriculture_challenge__Smallholder_s_agenda_Final.pdf

14 World Economic Forum. (2018). The Global Risks Report 2018 http://www3.weforum.org/docs/WEF_GRR18_Report.pdf

15 Cordes, K. (2011) *The Impact of Agribusiness Corporations on the Right to Food* in: De Schutter, O. and Cordes, K. (eds.) "Accounting for Hunger: The Right to Food in the Era of Globalisation" Bloomsbury. London

16 FAI (2008). Fertiliser Statistics, Year 2007-2008. Fertiliser Association of India. New Delhi. http://faidelhi.org

17 Op.Cit. IPES FOOD (2016)

18 GRAIN and La Vía Campesina media release | 28 May 2014 *Hungry for land: small farmers feed the world - with less than a quarter of all farmland* https://www.grain.org/article/entries/4952-hungry-for-land

19 Op.Cit. The Global Risks Report 2018

20 Farming Matters (March 2018) Agroecology: a path towards the Sustainable Development Goals https://farmingmatters.org/wp-content/uploads/2018/04/Farming_Matters_special_maart_2018_web.pdf

21 http://www.fao.org/news/story/en/item/216137/icode/

22 FAO (2016) The State of Food and Agriculture http://www.fao.org/3/a-i6030e.pdf

23 Op.Cit. IPES FOOD (2016)

24 FAO (2018) The 10 Elements of Agroecology Guiding the Transition to Sustainable Food and Agricultural Systems http://www.fao.org/3/I9037EN/i9037en.pdf

25 Op. Cit. FAO. (2018). FAO'S Work on Agroecology: A pathway to achieving the SDGs

26 IPBES Media Release (2018): Biodiversity and Nature's Contributions Continue Dangerous Decline, Scientists Warn https://www.ipbes.net/news/media-release-biodiversity-nature%E2%80%99s-contributions-continue-%C2%A0dangerous-decline-scientists-warn

27 ibid

28 Op. Cit. FAO (2016) 'The State of Food and Agriculture: climate change, agriculture and food security'

29 FAO (2016) Mainstreaming Ecosystem Services and Biodiversity into Agricultural Production and Management in East Africa https://europa.eu/capacity4dev/file/29933/download?token=77UVE14A

30 http://www.teebweb.org/event/true-%C2%AD%E2%80%90cost-accounting-in-food-and-farming/

31 Prato, S. (2017) Facilitating corporate capture or investing in small-scale sustainable agriculture and agroecology? In Social Watch Sustainable Development Report 2017. http://www.socialwatch.org/taxonomy/term/738

32 Peter Newell & Olivia Taylor (2018) Contested landscapes: the global political economy of climate-smart agriculture, The Journal of Peasant Studies, 45:1, 108-129 https://www.tandfonline.com/doi/pdf/10.1080/03066150.2017.1324426

33 Many countries have included the term 'Climate Smart Agriculture' in their intended nationally determined contributions (INDCs) http://www4.unfccc.int/submissions/INDC/Submission%20Pages/submissions.aspx

34 Op. Cit. Clapp,J. et al (2018)

35 Pimbert, M, & Lemke, S. (2018) Using Agroecology to enhance dietary diversity in UNSCN News 43 http://www.ahgingos.org/documents/Documents/2018/UNSCN%20News%2043%20Pimbert%202018.pdf

36 IPES Food (2017) Unravelling the Food–Health Nexus: Addressing practices, political economy, and power relations to build healthier food systems. The Global Alliance for the Future of Food and IPES-Food.

37 Op. Cit. Prato, S. (2017)

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

39 ibid

40 IAASTD (2009) *Agriculture at a Crossroads: Global Report http://www.fao.org/fileadmin/templates/est/Investment/Agriculture_at_a_Crossroads_Global_Report_IAASTD.pdf*

41 "Declaration of the International Forum for Agroecology" February 27, 2015. Nyeleni, Mali.

42 http://www.srfood.org/en/report-agroecology-and-the-right-to-food

43 http://www.fao.org/agroecology/en/

44 FAO (2018) Scaling Up Agroecology Initiative http://www.fao.org/3/I9049EN/i9049en.pdf

45 FAO (2018) Integrated Management of the Fall Armyworm on Maize http://www.fao.org/resilience/news-events/detail/en/c/1100581/

46 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:42017Y0630(01)&from=EN

47 http://www.ecowas.int/agro-ecological-transition-support-project-in-west-africa-is-now-a-reality/

48 https://sustainabledevelopment.un.org/sdg2

49 https://www.Trócaire.org/sites/default/files/resources/policy/Trócaire_strategic_plan_2016-2020.pdf

50 Gliessman, S. (2016) Transforming food systems with agroecology, Agroecology and Sustainable Food Systems, 40:3, 187-189 https://www.tandfonline.com/doi/full/10.1080/21683565.2015.1130765?scroll=top&needAccess=true

51 Op. Cit. IAASTD (2009) Agriculture at a Crossroads: Global Report

52 https://www.cidse.org/publications/just-food/food-and-climate/infographic-the-principles-of-agroecology.html

53 De Schutter, O. Report submitted by the Special Rapporteur on the right to food to the Sixteenth Session of the Human Rights Council https://www2.ohchr.org/english/issues/food/docs/A-HRC-16-49.pdf

54 Op. Cit. IPES FOOD (2016)

55 http://soilandfood.org/approach-organization/

56 https://www.tandfonline.com/doi/abs/10.1080/00220388.2015.1018908?journalCode=fjds20

57 https://www.agroecologyfund.org/grantmaking

58 UNEP. (2013) *The Cost of Inaction on the Sound Management of Chemicals* http://web.unep.org/chemicalsandwaste/what-we-do/policy-and-governance/reports-and-publications/costs-inaction-initiative

59 Watts, M. with Williamson, S. Replacing Chemicals with Biology: Phasing out highly hazardous pesticides with agroecology https://www.panna.org/sites/default/files/Phasing-Out-HHPs-with-Agroecology.pdf

60 Op.Cit. De Schutter, O. Report submitted by the Special Rapporteur on the right to food to the Sixteenth Session of the Human Rights Council

61 For example, see Khadse, A. (July 2017)' Women, Agroecology and Gender Equality' Focus on the Global South India https://focusweb.org/system/files/women_agroecology_gender_equality.pdf

62 https://www.Trócaire.org/resources/policyandadvocacy/agroecology-western-guatemala

63 https://vimeo.com/236742325

64 FAO (2018) The 10 Elements of Agroecology http://www.fao.org/3/I9037EN/i9037en.pdf

65 ibid

66 Altieri, M. et al (2015) "Agroecology and the design of climate change-resilient farming systems" *Agronomy for Sustainable Development,* Volume 35, Number 3. https://link.springer.com/article/10.1007/s13593-015-0285-2

67 Holt-Gimenez, E. (2001) Measuring farmers' agroecological resistance after Hurricane Mitch in Nicaragua: a case study in participatory, sustainable land management impact monitoring http://www.panna.org/sites/default/files/HurricaneMitch-Agroeco.pdf

68 Op. Cit. IPES FOOD (2016)

69 https://viacampesina.org/en/wp-content/uploads/sites/2/2013/07/Agro-ecological-revolution-ENGLISH.pdf

70 Op.Cit. De Schutter, O. Report submitted by the Special Rapporteur on the right to food to the Sixteenth Session of the Human Rights Council

71 Schwendler, S.& Thompson L. (2017) An education in gender and agroecology in Brazil's Landless Rural Workers' Movement, *Gender and Education* 29:1, 100-114

72 Op. Cit. Khadse. A (July 2017)

73 FAO (2018) Scaling Up Agroecology Initiative

74 Op.Cit. IPES Food (2016)

75 McKeon, N. (2018) Global Food Governance https://www.sef-bonn.org/fileadmin/Die_SEF/Publikationen/GG-Spotlight/ggs_2018-02_en.pdf

76 https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:42017Y0630(01)&from=EN

77 Pimbert, M. and Moeller, N.(2018) Absent Agroecology Aid: On UK Agricultural Development Assistance Since 2010 https://www.google.ie/search?q=Pimbert+study+on+UK+AID+funding+to+Agroecology&oq=Pimbert+study+on+UK+AID+funding+to+Agroecology&aqs=chrome..69i57.15702j0j7&sourceid=chrome&ie=UTF-8

78 https://www.teagasc.ie/media/website/about/international-food-security/Ireland-Agri-Strategy06112017.pdf

79 Agroecology in Zimbabwe: Its practice, benefits and potential for supporting resilient smallholder livelihoods (unpublished Trócaire research literature review)

80 Scherf, B.(2018) Agroecology – A Pathway to Achieving the SDGs in Rural 21 02/18 https://www.rural21.com/english/current-issue/detail/article/agroecology-a-pathway-to-achieving-the-sdgs-00002857/

81 The adoption of the Declaration of the Rights of Peasants by La Via Campesina http://base.d-p-h.info/en/fiches/dph/fiche-dph-8094.html

82 McCune, N. (June 2014) "Peasant to Peasant" the social movement form of agroecology" *Farming Matters* http://edepot.wur.nl/399534

83 Global Witness (2018) AT WHAT COST? Irresponsible business and the murder of land and environmental defenders in 2017 https://www.globalwitness.org/en/campaigns/environmental-activists/defenders-annual-report/

84 https://www.ileia.org/wp-content/uploads/2016/07/FINAL-Africa-Seminar-with-layout.pdf

85 https://kuchubal.org/

86 Op.Cit. IPES FOOD (2016)

87 Altieri, M. & Nicholls, C. (2012) Agroecology Scaling Up for Food Sovereignty and Resiliency https://www.researchgate.net/publication/285246565_Agroecology_Scaling_Up_for_Food_Sovereignty_and_Resiliency

88 Op. Cit. Scherf, B. (2018)

89 Op. Cit. McKeon, N. (2018)

90 https://www.irishaid.ie/media/irishaid/allwebsitemedia/20newsandpublications/publicationpdfsenglish/one-world-one-future-irelands-new-policy.pdf

Trócaire, Maynooth,
Co. Kildare, Ireland
T: +353 (0)1 629 3333
F: +353 (0)1 629 0661
E: info@trocaire.org
www.trocaire.org

Trócaire, 50 King Street, Belfast,
BT1 6AD, Northern Ireland
T: +44 (0) 2890 808030
F: +44 (0) 2890 808031
E: infoni@trocaire.org
www.trocaire.org

ROI Revenue Number: CHY 5883
NI Revenue Number: XR10431