A thematic analysis:

# LET'S DEMYSTIFY AGROECOLOGY

Development and Peace
CARITAS CANADA

## IN THIS PUBLICATION

# AgroecoWhat?

Agroecology is the science and practical knowledge behind sustainable agriculture. Based on peasant farming knowledge and practices, agroecology is a holistic approach to food production. It is a scientific discipline, a set of farming practices and a social movement. The global movement of peasants, La Via Campesina*, supports the concept of agroecology as a pillar of food sovereignty.

* La Via Campesina is the international movement that brings together millions of peasants, small and medium-size farmers, landless people, women farmers, indigenous people, migrants and agricultural workers from around the world. It defends small-scale sustainable agriculture as a way to promote social justice and dignity. viacampesina.org/en

Photo: Caritas Internationalis

## Some good sources:


IFOAM EU Group, TP Organic and ARC2020. 2012. "What is agro-ecology? From best practice exchange to policy framework." http://www.bartstaes.be/images/bartstaes/AgroEcologie/3.%20Agro_eco_inno_What_is_agro-ecology_BM_13Jul12.pdf

Silici L. 2014. "Agroecology. What it is and what it has to offer." International Institute for Environment and Development (IIED) http://pubs.iied.org/pdfs/14629IIED.pdf

Eat, Drink Better. 2010. Agroecological Farming vs Organic Farming: What's the difference? http://eatdrinkbetter.com/2010/07/12/sustainable-farming-organic-vs-agroecology/

FAO, 2016. Agroecology Knowledge Hub http://www.fao.org/agroecology/overview/en/

## A scientific discipline

Agroecology applies ecological concepts and principles to the management of interactions between plants, animals, humans and the environment to enhance food security and improve nutrition. With the development of ecology the scope of agroecology has broadened; ecological principles apply to agricultural ecosystem design and management, extending beyond cultivation to include landscapes and communites. Today, agroecology is more than a way of producing agricultural commodities; it encompasses the social organization of communities, for instance by creating local markets or changing the power dynamics between small family farmers and merchants. Over the past few decades, the practice of agroecology has grown and spread based on the sharing of farmers' innovations, and with the help of researchers.

## A set of agricultural practices

In agroecology peasant and small family farmers' knowledge and experimentation is the starting point. It requires a high level of knowledge and emphasizes inexpensive techniques adapted to local ecosystems. Agroecology proponents oppose a purely technical approach and promote instead a holistic perspective that values the knowledge and know-how of small family farmers. The agroecology movement is today one of the major pillars of food sovereignty.

## A social movement

Agroecology is not only a scientific discipline and a set of agricultural practices, it is also a movement rooted in local knowledge which makes sense to an international movement.

Food sovereignty includes the right of the peoples to healthy and culturally-appropriate food, produced through ecologically-sound and sustainable methods and respects peoples' rights to define their own food and agricultural systems. It places food producers, distributors and consumers at the heart of food systems and policies rather than the demands of the market and multinationals. Food sovereignty gives priority to local and national economies and markets, and empowers peasant and family farmer-driven agriculture, traditional artisanal fishing, pastoralist grazing (where livestock is herded to new pastures), as well as food production, distribution and consumption based on environmental, social, and economic sustainability. Food sovereignty defends the interests and inclusion of the next generation while emphasizing relationships that are free of oppression and inequality between men and women, peoples, racial groups, social and economic classes and generations.

Agroecology, like food sovereignty, requires that power structures in society be transformed.

### Some good sources:

Nyeleni newsletter, No. 13, March 2013
https://nyeleni.org/DOWNLOADS/newsletters/Nyeleni_Newsletter_Num_13_EN.pdf

## Diversification

Diversification is another key concept in agroecology. Agroecological practices are adapted to each ecosystem's specific characteristics and promote the respectful use of nature's locally available resources. Since agroecology is based on local realities, seasons, and cycles, both that which is produced and the ways in which they are produced are varied. The diversity of agroecological practices maximizes biodiversity and encourages interactions between plants and species, enhances long-term soil fertility, builds healthy and robust agroecosystems, and allows farmers to use safe techniques. As a result, agroecology does not adhere to any particular agricultural method.

Photo: Caritas Internationalis

### Agroecology and women

While men still enjoy most of the privileges associated with access to land, credit and other agricultural inputs, we cannot talk about agroecology without women. Throughout the world, women play a key role in food production. The United Nations Food and Agriculture Organization (FAO) has estimated that 60% to 80% of the food consumed by families is produced by women. Yet women's agricultural work is often overlooked.

Women are usually in charge of staple crops used to feed families, although a portion may be sold on local markets. Men generally grow cash crops, with the proceeds used to pay for housing and furniture. In this context, women are the guardians of traditional agricultural knowledge and pass on this knowledge. As well, since the food they grow feeds their children, they are often more open to new ideas that can help to improve the quality of what they grow and therefore improve their families' health.

Respect for and recognition of women's contribution, labour, and knowledge, as well as the development of more egalitarian relationships between men and women, and a more respectful relationship with the earth and living beings are integrated into agroecology's three components (scientific discipline, farming practices, and social movement).

## Can we really feed the world through agroecology?

The numbers prove that agroecological practices can indeed feed the human population. In the Global South, 85% of farmers are small family farmers who produce 60% of the food consumed in the world, using only 20% to 30% of arable land. Agroecological practices require little land. Agroecological peasants receive little financial and technical support from governments, and they do this despite the serious obstacles created by international trade and the commodification of agriculture.

Regardless of these barriers, we have considerable data to show that agroecological systems are as successful as industrial agriculture in terms of total production, while being more resistant to environmental stress.

Agroecological systems increase yields in areas where there is food insecurity. Such diversified agroecological systems may also pave the way to an increasingly diversified diet and an overall improvement in health.

A 2007 meta-analysis of 293 studies showed the level of organic agricultural yields compared to conventional method yields was -8% in countries of the Global North and +80% in countries of the Global South*.

Many factors could explain this difference, but researchers suggest that it could be due to the poor soil in developed countries, caused by the large-scale use of fertilizers over extended periods of time, and a lack of access to green manure for Global North farmers. It is also possible that, traditional farming knowledge has been lost in the developed world, but not in the Global South.

Despite these facts and the proven results, doubts persist about the ability of agroecology and small family farming to feed the planet. The prevailing discourse, promoted by the agricultural industry, insists on the need for industrial practices, chemical fertilizers, genetically modified organisms and commercial seeds in order to feed the world. But is their reasoning really based on the need to feed the planet or is it to sustain their business?

* It is important to note that organic production is one possible agroecological alternative, and that "agroecology" and "organic farming" are not interchangeable terms. However, studies have so far focused on organic farming practices.

### Some good sources:

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

Ecumenical Advocacy Alliance. 2012. "Nourishing the world sustainably: Scaling up agroecology." http://groundswell.wpengine.netdna-cdn.com/wp-content/uploads/Nourishing-the-World-Sustainably_ScalingUpAgroecology_WEB_-copy.pdf

## How can agroecology cool the planet?

Agriculture and the agri-food system as a whole are closely connected to climate change. On the one hand, this sector is responsible for more than one-third of greenhouse gas (GHG) emissions around the Globe. On the other, agriculture depends on specific climate conditions and is strongly affected by climate change. And this does not even take into account the role that healthy soil can play in carbon sequestration!

### Capacity to adapt

Agroecology can enhance small family farmers' capacity to adapt to climate change and can also help them recover from the effects of climate disasters. This is possible because agroecological practices strengthen agricultural systems' natural defenses, improve water and soil management, increase the quantity of nutrients, and promote diversified production system, which will not be affected in the same way by climate disasters.

### Reducing GHG emissions*

Globally, GHG emissions due to agricultural production alone are responsible for 11% to 13% of GHG emissions. If we add greenhouse gases emitted upstream (manufacturing of agricultural inputs) and downstream (product processing, transportation, and marketing) from agricultural production, as well as changes in land use due to agriculture (mainly deforestation), we arrive at a GHG level of 30% to 32%. When packaging, freezing and retail sales, as well as food waste, are accounted for, the global industrial agriculture system represents an estimated 44% to 57% of all GHG emissions.

Compared to the industrial model of agriculture, agroecological practices generate considerably lower levels of GHG. To begin with, small family farmers have less access to chemical additives, including nitrogen fertilizers, which are major $N_2O$ emitters. What's more, agroecological systems are designed to stimulate natural synergies so as to avoid dependency on fertilizers. Their smaller fields do not require the use of tractors and large agricultural machinery, which are big $CO_2$ emitters. The production of small family farmers is mainly for household use and local markets resulting in lower transportation emissions. Livestock breeding is rarely carried out in an intensive manner by small family farmers. Traditional small family farmers prefer breeding small and intermediate ruminants such as goats or sheep, or monogastric animals like pigs and chickens, which emit less methane than cows.

* This section is from Development and Peace's publication *Small Family Farmers: At the Heart of Climate Justice.* https://www.devp.org/sites/www.devp.org/files/documents/materials/small-fam-farmers-complete-v2-en-web.pdf

## Natural carbon sequestration in healthy soil

Only healthy, intact soil can act as a carbon sink. Estimates are that around 10% of global human-induced GHG emissions can be sequestered in the soil. Given that agroecological systems aim to improve the quality of soil and maintain its plant cover, they have an immense potential for carbon sequestration.

Thanks to sustainable use of local land, agroecological methods increase the capacity of the soil to sequester carbon. This capacity improves if crops cover the ground or if mulch or the remains of harvested crops are used to protect the soil, keeping it from drying out too quickly. Crop rotation, regular fallowing, and the use of compost and green manure are also important. These measures help reactivate nutrient cycling, increase soil fertility and protect biodiversity.

Photo: Caritas Internationalis

## False solutions: Climate-smart agriculture (CSA)

This term, first coined in 2009 and subsequently reused in 2010 by the Food and Agriculture Organization (FAO) of the United Nations, has surfaced as a "new conceptual framework that aims to simultaneously address" these interlinked challenges of food security and climate change.

As defined by the FAO, Climate-smart agriculture (CSA) "sustainably increases productivity, resilience (adaptation), [and] reduces/removes greenhouse gases (mitigation) while enhancing the achievement of national food security and development goals."

However, we perceive some significant weaknesses in this concept, particularly in regards to:

- The absence of criteria to distinguish sustainable models from those which are not, and the emphasis on productivity at the expense of the broader context and specific local issues;
- The absence of the concept of the right to food;
- The relatively limited definition of resilience which does not challenge the structures that make people vulnerable in the first place;
- The misplaced insistence on climate change mitigation while focusing on small-scale farmers and the failure to recognize the contribution of specific models and the historic responsibilities of developed countries regarding GHG emissions that result from such models;
- The technical focus of CSA demonstrated by the flagrant absence of a recognition of traditional rights and knowledge; and
- CSA encourages the use of GMOs and chemical fertilizers which, they say, are resistant to droughts, floods, temperature changes and other weather phenomena.

* This section is taken from a CIDSE publication entitled "Climate-Smart Agriculture: the Emperor's new clothes?" http://www.cidse.org/publications/just-food/food-and-climate/download/968_627002d1f77ab38e44b5370eeeeade09.html

### Some good sources about natural carbon sequestration:

Development and Peace. 2016. "Small Family Farmers: At the Heart of Climate Justice" https://www.devp.org/sites/www.devp.org/files/IMCE/files/advocacy/smallfamilyfarmers-web-v2-en.pdf

We believe that as long as a lack of clarity around the concept of CSA prevails, the term "Climate-smart" will continue to be misleading, paving the way for socially and environmentally detrimental practices.

The Global Alliance for Climate-Smart Agriculture (GACSA) risks diverting attention away from necessary changes. This could lead to a misplaced emphasis on building an enabling environment for international investments, developing markets and increasing the commodification of nature and agriculture, promoting technological fixes and increasing regional specialisation and international trade. These approaches bring nothing new to the public debate on food and agriculture.

The current vagueness of the concept and the many remaining questions, notably about GACSA's governance and vision, has allowed it to approve – via a simple and superficial "Climate-smart" label – a range of projects, alliances and initiatives which have little accountability and few monitoring mechanisms to ensure the legitimacy, coherence and transparency of their proposed approaches.

Photo: Caritas Internationalis

## Mother Earth, our common home

By focussing on biodiversity, feeding people, and prioritizing small family farmers, distributors, and consumers over market demands and transnational corporations, agroecology strengthens and protects our common home.

In his encyclical letter *Laudato Si'*, Pope Francis reminds us that "Caring for ecosystems demands far-sightedness, since no one looking for quick and easy profit is truly interested in their preservation." (36)

While the agro-industry privatizes ancestral knowledge and the labour of traditional farmers without their permission, agroecology promotes a collective approach to knowledge creation and to the protection of the common good and quality of life. With agroecology, there is no talk of patents or intellectual property rights, but rather of land and territories, culture, knowledge and know-how, and of living together harmoniously.

Reaping the benefits of agroecological approaches will require the creation of an enabling environment that must include policies, public investment, institutions, and research priorities. Agroecology provides a solid foundation for the development of food systems that are equally robust on all levels: environmental, economic, social and agronomic.

And, as Pope Francis says, "agriculture in poorer regions can be improved through investment in rural infrastructures, a better organization of local or national markets, irrigation systems, and the development of sustainable approaches to agriculture. New forms of cooperation and community organization can be encouraged to defend the interests of small producers and preserve local ecosystems from destruction. Truly, much can be done!" (180)

Source:

*Laudato Si'*, Encyclical letter of the Holy Father Francis. (2015)

## ABOUT DEVELOPMENT AND PEACE

The Canadian Catholic Organization for Development and Peace is one of the most established international development organizations in Canada. Founded in 1967 by the Catholic bishops of Canada, Development and Peace encourages Canadians to show solidarity towards their sisters and brothers in the Global South who are suffering the injustice of poverty. During its 50 years of existence, Development and Peace has invested $600 million in over 15,000 development projects in Africa, Asia, Latin America and the Middle East. It is a strong and diverse movement of Canadians from coast to coast taking action for justice so that the poorest can live in dignity and respect. Development and Peace is also Caritas Canada, a member of Caritas Internationalis, a confederation of over 160 Catholic relief, development and social service organisations.

**This analysis was written by the research and advocacy team at Development and Peace, March 2017.**

**Cette analyse est également disponible en français.**

Development and Peace
CARITAS CANADA

**1425 René-Lévesque Blvd. West, 3rd floor**
**Montreal, Quebec H3G 1T7**
**1 888 234-8533 | devp.org**

Cover photo: Caritas Internationalis