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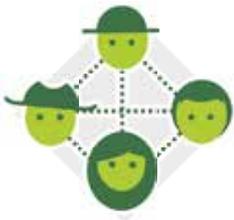
Making the case for agroecology

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Special Issue - Agroecology and Sustainable Development - October 2016

Agroecological farming systems are increasingly seen to have the potential to meet the triple challenges of productivity, sustainability and poverty eradication. What will be needed to achieve all this, and ensure we reach the Sustainable Development Goals' ultimate target of 'leaving no one behind'? Food Chain's October 2016 issue explores some of the barriers to scaling agroecology, and pathways for systems change with evidence from Africa, Asia and Latin America.

Food Chain is an international journal for all those involved in developing the supply of high-quality foods from 'farm gate to plate' and those who use food processing to alleviate poverty and hunger.

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Heartfelt impact of agroecology

My name is Madelyn Álvarez Díaz and I am a peasant. I also coordinate the agroecological peasant-to-peasant movement in the Cienfuegos province, in Central Cuba. On our family farm, we use agroecological methods to cultivate and also to improve our soils. Before we got the land, it was a dairy farm and the soil was very rocky. We have managed to improve our soil by mulching, with living fences, and by using effective microorganisms. Nowadays, our soil is rich and of good quality. Good quality soil means that the food we produce is healthy and nutritious. When you visit conventional farms, you see entire fields dedicated to a single crop. We agroecological farmers don't think this way. We think of diversification and the need to produce year-round. Therefore, we grow a little bit of everything.

To me, any farmer who tries to improve her soils and her quality of life, and thinks of ways to care for her plants and the environment, is an agroecological farmer. My work as a promoter

of agroecology starts when I meet a farmer who would like to farm using agroecological principles. We work together, and always start by identifying which agroecological practices they already use.

In the past, Cuban farmers practiced agroecology simply to improve their soils and to help one another. In recent years, as the movement has grown, these farmers have become conscious of the work they do and have started to collectively determine their own political processes. Self-reflection and self-determination are impacts of agroecology. Personally, I have also experienced this impact. Peasants are the most modest and natural people you will ever meet. I feel proud of being one and doing my bit by caring for the environment and helping solve humanity's current problems. I am in love with the work that I do, not everyone can say that about their work."

Interview by **Georges Félix**, PhD candidate at Wageningen University, the Netherlands and **Diana Quiroz**, editor at ILEIA. Photo: **Diana Quiroz**

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ILEIA would like to acknowledge the Alliance for Food Sovereignty in Africa (AFSA) for the inspiration to name this issue: 'Making the case for agroecology'.



Proving the potential of agroecology

This issue of *Farming Matters* explores how to demonstrate the critical role agroecology can play in responding to the challenges of our time.

ILEIA team

Agroecology is ever more present in our food and farming system. In recent years, this approach to farming and food has gained visibility and recognition among food producers, scientists, citizens and policy makers alike. It is heartening that farmers increasingly take up agroecological practices, while both social movements and multilateral institutions such as the FAO develop policies on agroecology. However, the transition to a fundamentally different food system still has a long way to go. It cannot be stressed enough that the way our food system is currently organised is incompatible with principles of equity, peace, biodiversity conservation and economic and environmental sustainability. Perverse subsidies supporting input intensive production systems and production chains that benefit a few agro-input providers and retailers, in the context of an urgent need to address climate change, biodiversity loss and malnutrition, point to the need for radical change. Here lies the potential of agroecology as a food system that can contribute to solutions for many of these challenges. But, while many successful agroecological examples exist, it is generally not yet regarded as the most effective food system. This tension is partly explained by the way society looks at impact. The multifaceted benefits of agroecology cannot be measured through the traditional 'productionist' lens.

Looking at progress Understanding the impact of agroecology requires that we assess 'progress' through a different lens. In simple terms, starting from the notion that yield per hectare of one single crop is

not the *be all and end all* measure of progress. New ways of measuring impact can highlight two important elements of our food systems. First, to show what is wrong with dominant ways of producing and distributing food. As Patrick Holden argues in his article on the 'true cost of food' (page 12): if the environmental damage and the social costs of our current food system were actually accounted for, food in many places would not be so cheap. Second, to make explicit the various benefits from alternative systems such as agroecology. The impact of agroecology at any level, whether in the field, farm, community or across a

Solutions that address the needs of farmers and society at large emerge from participatory processes (see interview on page 24).

Photo: Clara Nicholls



nation or continent, is more adequately assessed in terms that reflect people's well-being in all facets of life, including environmental sustainability. It requires a departure from oversimplified ratios that consider farming to be nothing more than conversion of material inputs (e.g. fertilizers, hectares) into commodities (e.g. yields). Our intention is not to downplay the importance of yield, but to place it in the context of many other, equally important, economic, social and environmental indicators. Shiney Varghese, on page 8, illustrates that this approach can provide decision makers with sufficient information to allocate resources in ways that generate the greatest positive impacts.

Monitoring change and impact

In many instances, 'new' ways of measuring impact are not actually new. We can learn a lot from farmers who have been monitoring change and the impact of their decisions since time immemorial. The stories and perspectives in this issue are grounded with farmer's responses to the question, "how do you assess the impact of agroecology?" Their answers serve as a reminder of the richness in diversity of worldviews and that there is no one way to practice, let alone measure, the impact of agroecology (pages 16-19).

Similarly, Jan Douwe van der Ploeg (page 36) explains how peasants constantly 'read' their own and others' farms to improve their on-farm natural and social resources. His call to recognise and learn from peasant's ways of measuring impact is echoed by Clara Nicholls who calls for researchers assessing impact to work in a participatory way with farmers (see interview on page 24). Moreover, urban farmers in the city of Kaduna, Nigeria (page 20) refer to indicators such as the increase in reliability and spread of income, their ability to send their children to school and consuming a greater variety of fruits and vegetables.

Further, agroecology transcends the farm, and for example, includes the development of new markets. This is a reminder of the challenge of measuring impact: capturing multiple dimensions such as farm



Impacts from agroecology go beyond yields of individual crops.

Photo: Eduardo Lopez Rosse

resource use, health and citizens' ability to choose and shape the way food is produced and; assessing impact holistically and at different levels such as fields, farms, communities, markets and regions. A story from Bolivia (page 28) provides an example of measuring the impact of short production chains, taking into account farmers and consumers' level of satisfaction as well as the access, availability, utilisation and stability dimensions of food security. Likewise, a story from Burkina Faso (page 30) shows how a holistic impact assessment can reveal nuances, such as equal distribution of benefits, that may otherwise go unnoticed.

Finally, even if there is more than enough captivating evidence that agroecology works, the power and influence vested in keeping the current food system in place should not be underestimated. For this reason, the 'movement' dimension of agroecology is especially relevant. Engaging in socio-political processes is paramount – of course armed with plenty of evidence and an appropriate lens through which to observe and value change.

Indicators for agroecology

Some things simply can't be measured, nor is it feasible or practical to measure everything. Yet, in order to appreciate impact it is often useful and practical to use a repeatable measurement or observation. This is where indicators come in handy. Indicators, both quantitative and qualitative, can be seen as proxies for things that we cannot directly measure and also serve

different purposes for different users. For example, in assessing soil quality, a researcher may consider soil organic matter a useful indicator while a farmer may prefer to assess soil quality with its colour, smell or feel. Factors such as the speed and ease of measurement, the level and time-frame of assessment and the sensitivity of the indicator are all considered when selecting indicators.

Photo: North Market



Indicators as a tool for

changing policy and practice

A set of indicators derived from integrated agroecology and food sovereignty principles can be used to support policy making for agroecology and to assess progress along the agroecological transition. This article is based on the Institute for Agriculture and Trade Policy's (IATP) previous work on indicators.

Shiney Varghese

Agro-chemical and fossil fuel intensive agricultural food systems not only destroy the environment but also ignore both the health implications (of the crops/food produced), and the socio-economic implications (for the people engaged in producing that food). Agroecological approaches, in contrast, see food production as one, albeit crucial, component in the larger web of life. They draw on science, but are built on the firm foundations of traditional knowledge; and they seek to enhance ecological integrity while attempting to address food sovereignty concerns. While industrial farming operations are dependent on outside (and often fossil fuel-based) inputs like herbicides, synthetic fertilizers, antibiotics and genetically modified crops, local food and farming systems minimise off-farm inputs by rotating crops, integrating livestock production, and following agroecological practices. For those who see ecological approaches as necessary for achieving the food, water, health, poverty and environmental targets of the post 2015 agenda, agroecology with its emphasis on local, shared knowledge is not only central to maintaining ecosystem integrity, and revitalising rural economies but also to realising the food sovereignty of those involved in food production and consumption.

Meeting global challenges Many readers are likely well familiar with the three fundamental aspects of agroecology – a scientific discipline, a practice, and a movement. While it has long been known as a scientific discipline, agroecology as a practice and a movement has come of age at a time when there is growing support around the world for changing agricultural practices in response to natural resource depletion and climate change.

Agroecological approaches are developed in the context of an increasing support for less chemical-intensive, more resource use efficient, ecological approaches to agriculture – especially systems that produce healthy food for local markets while also ensuring fair wages and safe working conditions to agricultural workers. This approach is supported not only by farmers and workers engaged in farming, but also by parents interested in healthy food choices for their children, by food workers and chefs interested in supplying healthy food alternatives to consumers, and by local governments interested in rebuilding local economies. Such agricultural-food systems have the potential to provide a whole host of benefits – from environmental to social to health to local economy.

Agroecological transition However, in most agricultural research and policy circles, these benefits are not assessed or valued adequately in a

There is relatively little data to show how agroecological farming systems positively impact the environment, farm economics, public health and the food sovereignty of the community at large

holistic manner. Most agricultural research supports the industrial farming systems, with an almost exclusive focus on crop productivity and cash income. But there are two problems with this primary focus on industrial agriculture.

First, it puts any other methods of farming at a distinct disadvantage, since there is relatively little data to show how agroecological farming systems positively impact the environment, farm economics, public health and the food sovereignty of the community at large. As a result, whole systems of food and farming get excluded from research and policy support. Second, policy recommendations stemming from current mainstream research often propose single vector solutions (which in fact may exacerbate the crisis on another vector) to the complex set of ills resulting from industrial food and farming systems. For example, faced with the problem of low productivity associated with resource depletion, researchers working on industrial farming systems may propose modifying seeds with in-built traits such as improved water resource use efficiency or drought resistance. However, there is little examination as to whether such seeds are in conflict with either ecological, or socioeconomic interests of the communities that grow, harvest and/or consume the crops, or whether adoption of these seeds will support the food sovereignty of communities concerned.

To truly measure the value and sustainability of agroecological approaches to local food and farming systems, we need indicators that are multidimensional and cross-disciplinary, and that fully capture the range of outcomes contributing to the success – economic, environmental, socio-political – of the system. This recognition led us at the IATP to develop a set of indicators that would help identify the markers of agroecological practices. In developing those indicators, the



Photo: Silvia Quarta

Agroecological approaches have the potential to provide a whole host of benefits - from environmental to social, health and to the local economy. Photo: Silvia Quarta

report, *Scaling up Agroecology* (2013), not only looked at the interconnections between agroecology and food sovereignty, but also at policies and practices needed to make agroecological approaches central to food and farming systems.

From principles to policy We wanted to situate the scaling up of agroecology very firmly in the context of food sovereignty. Thus we drew up seven principles – five principles informed by an ecosystem-based approach shared by all strands of agroecologists; and two principles recognising the pivotal role of small scale producers and workers in ensuring their food sovereignty both in terms of their tremendous agroecosystem knowledge base and also in terms of the democratic control of local institutions.

We started with the principles of agroecology and food sovereignty, and for each of those principles we listed a set of practices. Corresponding to each particular practice, we developed some indicators of

success – ecological as well as socioeconomic – to help policy makers understand what makes a particular practice agroecological: it is not simply about ecological benefit, but also about addressing the questions raised by political ecologists and their critique of modern agricultural systems. Against each of the principles and corresponding practices, we went on to identify policy support needed to promote wider adoption of those practices. In developing these indicators, feedback from our partner organisations and from many individuals was crucial. A matrix of principles, practices, assessable indicators and policy support is found in Appendix 1 of the report.

Indicators of success For example, let us take one of the five agroecological principles: ‘Agroecological practices enhance beneficial biological interactions and synergisms among agrobiodiversity components thus resulting in the promotion of key ecological processes and functions.’ We identified two practices (from amongst many) that could help

It is not simply about ecological benefit, but also about addressing the questions raised by political ecologists and their critique of modern agricultural systems

Agroecological versus top-down approaches

Not only farmers faced with environmental challenges, but also national and international agricultural research and policy establishments concerned with food security, have been concerned with natural resources (soil, water, biodiversity) related challenges. Initiatives such as Sustainable Intensification and Climate Smart Agriculture proposed by technocrats, and supported by international actors including philanthropy capitalists and state and international agencies, are top-down responses to climate related challenges to food security. Climate Smart Agriculture is advanced by UN agencies such as FAO in intergovernmental spaces such as the

United Nations Framework Convention on Climate Change (UNFCCC). Moreover, for example, the Global Alliance on Climate Smart Agriculture includes stakeholders such as Yara and Haifa Chemicals Ltd – agribusiness corporations selling fertilizers. While initiatives such as Sustainable Intensification and Climate Smart Agriculture may at times also include sustainable practices, these are fundamentally different from agroecological approaches. This is because the latter’s roots lie in a political and economic critique of modern agricultural systems, a holistic ecosystem analysis as well as being founded on a sound local knowledge base.



We started with principles of agroecology and food sovereignty and for each principle listed corresponding practices and indicators. Photos: Silvia Quarta

contribute to promoting key ecological processes and functions: having democratically controlled, local renewable energy programs and water resource development that respects ecological limits; and having crop diversification programmes that integrate crops, vegetables, livestock, trees and fish in the ecosystem.

Next we identified how such practices can contribute, on the one hand, to ecosystems, and on the other hand, to socioeconomic benefits to the community. In this case these practices could help global efforts in: biodiversity conservation; water conservation; climate mitigation and adaptation. In this instance the increased ecological functions could be measured in terms of water quality improvement of runoff; increased plant biodiversity; increased soil microbial diversity. At the same time, the synergies among economic, ecological and climate adaptation benefits (especially stability in terms of assured farm outputs from unit of land by integrating trees, crops, vegetables, livestock and fish in the agroecosystem) could help contribute to enhancing socioeconomic conditions of the community.

The next step was to identify the supportive policy environment to promote these practices. For these practices to be adopted widely by communities, it is necessary that agricultural, water and energy policies prioritise the use of natural resources (such as land and water) for food production, local energy security and local water security.

Rooted in food sovereignty

Similarly, corresponding to the two principles recognising the pivotal role of small scale producers, we listed sets of practices, a set of ecological indicators and socioeconomic indicators, and finally the policy support needed for scaling up those practices around the world.

To take another example, we start with the principle that ‘agroecological movements enhance abilities of small scale producers and workers to self-organise, retain, reproduce and redefine cultural practices to

pursue sustainable and gender-sensitive livelihood strategies; and effectively influence social and policy processes as well as governmental decisions’.

A corresponding practice would be mutual support among farmers and their communities to establish locally controlled democratic institutions, including cooperatives that have a mission and vision to promote key ecological processes and functions.

Here too, we identified indicators to assess how such efforts by agroecological movements can contribute to on the one hand to ecosystem sustainability and on the other hand to socioeconomic benefits to the community. Practices such as developing local democratic institutions with clear commitment to ecological sustainability can ensure not only that livelihood strategies at community level are ecologically sustainable, but also contribute to the empowerment of local communities, increased economic viability of traditional livelihood practices, revitalised rural and agrarian economies. Once again for such practices to spread widely, it is necessary, though not sufficient, to have pro-democratisation policies that recognise women’s central roles in agricultural and food systems, revitalise rural economies, minority cultures as well as marginalised livelihood practices.

Together, these agroecology policy options can achieve a number of interlinked goals that are part of any sustainable development agenda, including, but not limited to: climate adaptation for agriculture, stability of farm outputs, community access to micronutrient rich food and local food security while ensuring long term ecosystem sustainability. The important role of the corresponding indicators is that they can be used to track change and show whether we are heading towards the vision of agroecology firmly rooted in food sovereignty.

Shiney Varghese (svarghese@iatp.org) is a senior policy analyst for water, agroecology and global governance at the Institute for Agriculture and Trade Policy.



Photo: The Sustainable Food Trust

The true cost of food

Patrick Holden is a farmer and director of the Sustainable Food Trust, an organisation in the United Kingdom providing leadership, influencing research and policy and sharing information on the sustainable transition of food systems. In this article Holden tells his story of True Cost Accounting, an initiative that addresses the invisible costs of so called 'cheap food'.

Patrick Holden

The true cost of food has been an issue that has affected me since the beginning of my farming life. Ever since I started farming back in the 1970s, producing milk, wheat and carrots as sustainably as I could manage, but finding it difficult to compete with my neighbours who were using chemical production methods, heavily subsidised through the Common Agricultural Policy. It did occur to us that the root of the problem was connected to the failure of the market to take into account the cost of the damage done by such chemical methods to the environment and public health, evidence of which I

recently uncovered when I found a copy of an old article in the Guardian newspaper written in 1984 in my garage. It featured the Sustainable Food Trust board member Peter Segger and I asserting that intensively produced crops reliant on pesticides and fertilizers did not actually produce cheap food at all, despite what the price on the shelf may say.

Impacts from food production

Food production has multiple impacts both on and off the farm. These can often be negative, such as the pollution of rivers, the emission of greenhouse gases, the spread of antibiotic resistance, the degradation of soil,

the rise of obesity and the spread of disease. Yet none of this damage has featured in the balance sheet of farmers using chemical methods (for example, see box).

Large scale chemical farmers are not charged for the damage they cause

Although these costs are not reflected in the price of food, consumers are paying in other hidden ways, such as through taxes, health care costs, pollution clean up, water rates, as well as deferred costs including emissions causing climate change which will have to be paid for by subsequent generations.

Distorted markets Back in the 1980s, before a full understanding of the scale of the impact of uncosted damage to the environment and public health became clear, I naively assumed we could solve the problem in the marketplace. Throughout my years at the Soil Association we attempted to tackle this through the development of standards which allowed us to charge premiums for organic food. The intention was to ensure farmers received a fair income for the efforts they made in adopting more sustainable production methods. However, even though the organic market has grown, organic producers still have

to compete unfairly with a system that financially benefits the intensive, large scale chemical farmers who are receiving misdirected agricultural subsidies and are not charged for the damage they cause to the environment and public health.

More recently, I have come to realise that our economic system is distorted and totally fails to represent the reality of the costs and benefits associated with different methods of food production. But it wasn't until I set up the Sustainable Food Trust in 2011 that we began to develop the concept of True Cost Accounting.

Towards true cost This evolving way of thinking seeks to assess the costs and benefits of different food production systems. In doing so, those using production methods that are detrimental to the environment and society would have to pay for the damage they do, while those that are sustainable and deliver a wide range of benefits would be rewarded. This should ultimately have the effect of making food produced in a damaging way expensive, or ideally phased out, whilst sustainable food could become more affordable.

Armed with the necessary knowledge and data, governments would be able to introduce policy and economic measures that bring about the change needed. This could involve a mixture of 'carrots and sticks' such as taxes on damaging inputs and subsidies for sustainable practices.

In 2013 we held our first events on this theme. First a symposium in Louisville, Kentucky, followed by a two day event in London. This conference included speakers such as Pavan Sukhdev, leader of 'The Eco-

The cost of nitrogen fertilizer

The European Nitrogen Assessment has estimated that collectively, the costs of nitrogen related damage range as high as US\$355 billion, or up to US\$830 per person every year, about two thirds of which relates directly to agriculture. However, because farmers are not financially accountable for this damage, there is still a good business case for using nitrogen fertilizer – each dollar spent on nitrogen fertilizer brings a three-fold return on the investment for farmers.

The cost to public health

There is now increasing evidence of direct links between the intensification of our agriculture and food systems and the rapid rise of diseases resulting in unaffordable treatment costs. These include diet-related illness such as obesity, cardiovascular diseases, allergies, some cancers, and diseases of the immune system, many of which are being linked with changes in our farming and food system practices. Obesity alone has a global economic impact of around US\$2 trillion annually, or 2.8 % of global GDP, and it is estimated that in the United States it could be as high as US\$344 billion by 2018.

nomics of Ecosystems and Biodiversity' (TEEB), a global initiative focused on the economic benefits of biodiversity, and Professor Jules Pretty, author of key papers that put costs on externalities.

Diversified farms generate more environmental and social benefits than monocultures

In April 2016 we held another major event spanning three days in San Francisco. The True Cost of American Food conference brought together high level leaders, scientists and influential thinkers in the world of food and farming. Topics covered ranged from a detailed critique of production systems such as CAFOs (concentrated animal feeding operations), to hard hitting issues such as public health, to bigger picture questions such as how can we put a price on the 'priceless'.

Can we measure everything? As part of this conference we worked with Dr Harpinder Sandhu, of Flinders University South Australia, to develop a sustainability assessment tool that could be applied to individual farms. During the course of his

research, Sandhu assessed three US farming operations, including organic dairy farms supplying the Straus Organic Creamery in Petaluma, Joel Salatin's diversified Polyface farm in Virginia and Jim Erdahl's corn and soy farm in Minnesota. In each case, Dr Sandhu created his own accounting system of the farm which included all inputs and outputs, not only product sales, but also environmental and social impacts.

Sandhu uses ecological economics to quantify and give a monetary value to environmental and social benefits and costs such as pollution, pollination, soil carbon sequestration, health outcomes and knowledge generation. For example, with his accounting system, Sandhu illustrates the value of knowledge generation on Polyface farm which runs regular farm tours and workshops. Or, for the organic dairy farms, he illustrates the environmental costs associated with animal feed and manure management and for the corn and soy farm there are environmental costs associated with GHG emissions from fertilizer use. In summary, this accounting system illustrates that diversified farms generate more environmental and social benefits than monocultures. Sandhu: "When these benefits are included, farm products [from diversified farms] present better value to society as a whole than the so called cheap beef and milk from feedlot systems, which isn't really cheap at all."

Academics like Sandhu approach the complex task of quantifying and putting a price on the costs of producing food in many different ways. In the longer term it would be helpful if they could work towards a common methodology so that comparisons could be drawn more easily. One question is whether it is pos-

Patrick Holden, a farmer since the 1970s, set up the Sustainable Food Trust in 2011 and began the campaign for True Cost Accounting. Photo: Steph French





Shakirah Simley of Bi Rite Market talking about why the future of food should be about local production and social equality. Photo: The Sustainable Food Trust

sible, or even ethical, to value everything. We can only attach surrogate (not actual) costs to animal suffering, species extinction or a breathtaking view, for example. Yet, agricultural policies dictate the food systems we have, and these are set by politicians and largely based on harsh economics. So while we need to recognise the limitations and the potential traps of placing a monetary value on everything, doing so is necessary for the widespread transition to more sustainable food production, processing and consumption.

Challenges Of course our advocacy of True Cost Accounting has its challenges. Being an issue of immense complexity, spanning the worlds of economics, public health, ecosystems, environment and society, it requires an integrated approach. Unfortunately, at least until recently, these different worlds have tended to operate in siloes. For true cost accounting to work, we must share knowledge and data, and adopt a more systemic way of thinking.

Another major issue is conducting the research and gathering the information. At the moment we have relatively little data on the costs of agricultural externalities, and while we are currently drafting a report that will bring together the known research, there remains a huge amount of work to do. Governments urgently need to fund and support research in this area, specifically looking at the impact of agriculture on things such as public health and the environment, but crucially, attempting to put monetary values on these impacts.

A political opening This data is sorely needed as we rework agricultural policy post-Brexit. With potentially quite dramatic subsidy changes looming on the horizon, we must take this as an opportunity to put sustainability at the heart of future policy. There are encouraging signs that a consensus of opinion is emerging and that such an approach will be the best way to improve the economic environment for sustainable food production. As an example Dame Helen Ghosh, chief executive of the National Trust, a conservation organisation in the UK, just made national headlines when she called for a major shift in post-Brexit farm support with all future subsidies needing to be directly connected with tangible, measurable and ultimately monetised public benefits. Even a few years ago, when Dame Helen was permanent secretary at Defra (Department of Environment, Food and Rural Affairs), calling for such a change in the framework of farm support would have been inconceivable.

So, although more than 30 years have passed since Peter Segger and I were calling for such changes in the Guardian article of 1984, at last the external conditions have arisen whereby such actions could become politically possible.

Patrick Holden (patrick@sustainablefoodtrust.org) is a dairy farmer and director of Sustainable Food Trust in the United Kingdom (www.sustainablefoodtrust.org).

Voices

from the **field**

When *Farming Matters* asked farmers around the world how they assess the impacts of agroecology, this is what they said:

"Agroecology produces food for all life forms"

Ablacé Campaoré, peasant and activist in Burkina Faso

"I was born a peasant. I grew up in the countryside and I have never stopped farming. Now I am also part of a peasant organisation.

When you look at the way agroecology is lived in Burkina you can easily see the extent of its impact. There is life in the soil, you feel how plants cohabit with microorganisms, and you see the work of man.

On an agroecological farm, you may notice that vegetables are sometimes slightly damaged by bugs. These crops are not completely destroyed or wasted, they can still be eaten. Insects do not carry their own tools to grow their own food. This is the way life is. Agroecology pro-

duces food for and nurtures other life forms as well.

You may ask if this is really agroecology? In agroecology you can feed livestock from your crops, or you plant companion crops that produce smells and flavours that minimise damage by insects. That is a real cohabitation, working together with and not against nature."



Photo: Diana Quiroz

Interview: Georges Félix and
Diana Quiroz

“Farmers and agronomists increasingly support agroecology”

Saad Younis Dagher, farmer and extensionist in Palestine

“I am a farmer, an agronomist, and I also volunteer for the Arab Agronomists Association, providing technical support to farmers transitioning to agroecology.

I know that I have arrived at an agroecological farm when I look at the diversity of plants. If there is diversity of vegetables and fruit trees and these are mixed together I know they practice agroecology. I also look at the soil. If the soil is rich in organic matter and if I see compost I recognise that I am in an agroecological farm. Also, I look at the weeds. If the weeds are dead, and the crops alive, it means that herbicides are being used. The same goes for insects.



Photo: Diana Quiroz

If I find dead insects, then it is likely that the farmer uses pesticides and insecticides.

I think we can first measure the impact of agroecology by looking at the increasing number of farmers and agronomists who practice and support agroecology. A second indicator of impact is the reduced use of chemicals by farmers and also the increased use of local seeds. These are some of the indicators by which we can measure the impact of agroecology.”

Interview: Georges Félix

“Agroecology promotes integration”

Abel Morales, farmer and agroecological coordinator in Cuba

“I am a farmer and I also coordinate the agroecological movement of the National Association of Small Farmers (ANAP) in a municipality of Camagüey, a province of Central Cuba.

In order to measure its impact, we first need to take into account the objectives of agroecology. These are: to obtain healthy products through clean processes and in harmony with the environment and all the elements of our natural surroundings. Taking these fundamental objectives into account, I would say the impact of agroecology is very positive.

Socially, agroecology pro-

motes integration through family and community farming. In terms of production, sustainability is achieved through biodiverse and holistic farming. The economic impact of agroecology is great

because farmers don't need to invest in external inputs or off-farm technologies.

A close look at plant-soil-animal interactions in an agroecological farm shows how these are fully integrated. Plants speak for themselves when agroecology is practiced. If you visit an agroecological maize field, you notice the many and different insects. These are biological control agents, you know!”



Photo: Diana Quiroz

Interview: Georges Félix and Diana Quiroz

“Agroecology has changed our lives for the better”

Bu Siyami, rice farmer in Indonesia

“As a farmers’ daughter, I have always been engaged in farming activities. In 2004 I got married and moved to another city.

There, my husband and I bought a pair of buffaloes and 0.1 ha of paddy field. In 2007 we joined a Farmer Field School organised by a local NGO to train farmers in organic rice production and the System of Rice Intensification.

After switching to organic, our quality of life improved. We increased the size of our paddy field and now own 0.25 ha and rent another 0.25 ha. We could also fix our house and buy more buffaloes. We now have five of them and sell at least one every year.

I no longer need to buy pesti-

cides or chemical fertilizers because we grow insect repelling plants and use buffalo manure on the fields. Many beneficial animals that protect our crops from pests live in our fields and our farm is less prone to infestations from pests. Our soil is also more fertile than our neighbours’.

Agroecology has changed our lives for the better. We do not depend on external inputs anymore. We do not produce waste either because we do not burn rice straw; instead we feed it to our buffaloes and their manure is recycled as biogas and natural fertilizer.”



Photo: Uma Khumairoh

Interview: Uma Khumairoh and Georges Félix

“Our dinner table conversations revolve around farming”

Anya van der Hoff, farmer in France

“We live for organic farming. Our grandparents and parents were peasants and our son is already contemplating his future as an agroecological farmer. The ultimate indicator of success is whether we can sustain our farm and way of life for generations to come. Thus the dinner table conversations in our family revolve around farming, particularly how to improve the way we manage our farm.

Another important way of seeing how well we are farming also relates to the dinner table. The food that an agroecological farming family eats is very telling. We grow what we like to eat and our food is fresh, diverse and seasonal.

When I visit other peoples’

farms I listen to the way they talk about farming. And I immediately search for diversity. Which varieties of crops are being used? How many? What other plants and ‘weeds’ are present? Are there natural areas or hedges providing habitats for birds, insects and other animals?”



Photo: Sébastien van der Hoff

Interview: Georges Félix

“Eating well, healthy and locally”

Sandra Pagalo, farmer and technical support staff for the indigenous womens organisation Kamachw, Chimborazo, Ecuador

Today we witness that we are no longer taking care of our natural resources. We use too many chemicals, farmers face major debts, we lose our seeds and our food sovereignty, we are sick and malnourished, and people are leaving rural areas.

Many of us are creating change. As peasants, we work with nature instead of with chemicals. Consumers also want to eat well – they tell us when we meet them in our agroecological markets.

We are trying to add value to our products. This allows us to make a little more money, while at the same time create new and

healthy products, and rescue our traditional crops such as Andean maize varieties. Our traditional maize has survived for thousands of years.

Agroecology leads to food sovereignty, stronger farmer organisations, a vibrant local economy and protection of the environment. It is synonymous with a life ‘in full’, in which man and nature interact, agrobiodiversity is enhanced and we can live well (*Buen Vivir*). We see that we have better health and nutrition and also better prices for our products. So agroecology is environmentally, socially and economically viable.



Adapted transcript from a presentation at the ‘Agroecological Journeys’ at the Polytechnical School of Chimborazo in Riobamba, Ecuador, July 2016.

“Converting to agroecology has brought me many benefits”

Madame Togolá, peasant in Mali

“I am a peasant and a member of a rural women’s convergence in Mali. I own a piece of land that allows me to produce for my family and to sell at the market. I didn’t use to own any land, but the peasant organisation that trained me in agroecology first made sure I had some land to work on. With their support, other women and I have obtained collective land rights.

I’ve noticed that applying chemical fertilizers on plants has only a limited effect. But when I use organic compost to fertilize my crops, plants keep on taking up nutrients and I don’t need to reapply as often. Besides saving me work, using this compost is almost a guarantee for higher yields. When you start using

chemical fertilizers you will need to keep increasing the amount if you want to sustain the yield. That is unsustainable.

Converting to agroecology has brought me many benefits. Not only do I produce more, but I also have rights. I know my land and my crops so well and everyone in town wants to buy my produce. This is because they know my vegetables are healthy, and so in this way they also benefit from agroecology.”



Interview: Diana Quiroz

Seeing is believing: urban agroecological transition

Agroecology has come to stay within the northern Nigerian state capital city of Kaduna. The farmers now produce more diversified products all year round. Over the past two years, the practice of intercropping has spread from farmer to farmer. Although formal support for their practices are lacking, the farmers remain hopeful that this will change. Is the recent fall in oil prices, which has prompted the Nigerian government to rethink their reliance on oil revenues, a blessing for family farmers?

Ahmed Inusa Adamu

The Kaduna River passes through the city of its namesake and empties its water into the river Niger. For more than a century urban farming has been flourishing along the river thanks to access to irrigation water and animal manure. Farmers buy manure from the many Fulani nomads camping at the periphery of the city and there are many smallholder poultry farmers scattered within the city from whom they can also buy manure. The major crops cultivated are cereals, vegetables and fruits, such as maize, tomatoes and cabbage for the city's urban markets. Until recently in Rafin Guza, a community of about 500 urban farmers, the dominant practice was monocropping. However, two years ago when a pest destroyed most of their tomato crop many concluded that there are alternatives. The pest was

identified as tomato leaf miner (*Tuta absoluta*) and is known locally as *tomato ebola*.

Increasing incidence of pests

Tomato leaf miner has devastated most of the tomatoes grown in the state of Kaduna as well as in other states of Nigeria, amounting to US\$5.02 million worth of damage nationwide. Increased incidence of pests such as these is just one of many reasons motivating farmers the world over to shift to more diverse farming systems. In Rafin Guza, some farmers experienced minimum damage from the pest. This is because tomato was not their sole crop. They were intercropping tomato with pepper, onion, garden egg, okra etc. Although the tomatoes were destroyed by the pest, they were able to harvest their other crops. These farmers, including several community leaders, had



Besides diversifying their crops, farmers reduce the amount of herbicides they are using.

Photo: Ahmed Inusa Adamu

taken it upon themselves to diversify their cropping systems – some having started up to 30 years ago, breaking from the practice of specialising in the same crop that their fathers had.

The practice of intercropping spread amongst the majority of farmers in the community when the benefits of the practice became clearly visible. Although not formally referred to as a set of indicators, the farmer-to-farmer learning and uptake of this practice was underpinned by observing indicators of success on each others farms. Farmers took it upon themselves to assist each other and prove which practices are most successful with the help from a set of indicators that reflect their own ambitions and goals. They are rarely visited by extension workers and there are no current efforts by government or other organisations to evaluate their achievements.

“This system of farming gives us more income and more food to feed our family”

Farmers’ indicators “This system of farming gives us more income and more food to feed our family. It also saves us from the devastating effect of tomato ebola,” said Adamu Musa, one of the urban farmers practicing intercropping. According to him several indicators are useful for demonstrating the benefits from their systems.

First, intercropping helps them grow a greater variety of crops which in turn enables them to sell more food in the market. The result is not only an increase in income but also an increase in ‘income spread’ as they sell their produce at different times of the year. A very clear indicator of this is that Adamu Musa now sends his children to one of the city’s private schools. Moreover, more than 80 % of the harvesting and retailing of vegetables is carried out by women who, as a result, share in the benefits from increased income. Asma’u: “I now earn 500 *naira* (US\$1.60) each day, which I am saving for my granddaughter’s wedding.” The increase in amount and stability of income is also indicated by the larger customer base which the farmers experience as more urban retailers are attracted to their fresh fruit and vegetables and buy directly from their farms.

Second, farming families are healthier. Many farmers attest to the fact that their children and wives are healthier than before as they consume a greater



Farm gate market where retailing is mainly done by women. Photo: Ahmed Inusa Adamu

variety of vegetables and fruits. Third, the farmers confirm that their soil health has improved. This is because it is always covered by crops and therefore protected from erosion caused by rain splash, a particular problem during the rainy season. Fourth, the practice of intercropping also helps to control other pests. For example, farmers report that pests such as tomato fruit worm (*Helicoverpa armigera*) are less prevalent when practicing intercropping.

Enough evidence? These indicators have proven useful amongst farmers to support the spread of an agroecological practice, yet despite the evidence of success farmers still face challenges to take further steps in the agroecological transition. For instance, even though the Kaduna State Agricultural Development Project is present within their municipality, farmers in Rafin Guza have spent many years without seeing any of the project staff. They lack new information which could be useful to overcome some of their practical challenges such as the development of processing facilities that would minimise the losses of perishable products, access to pumps that would help with on-time irrigation, and strategies to mitigate flooding that has recently become problematic. Moreover, their fields are subject to land grabbing, with wealthy individuals eager to convert urban farmland into housing.

The farmers are hopeful that the past neglect by government agriculture programmes and NGOs supporting farmers will change with the present govern-

ment's resolve to revive agriculture as an alternative to oil. In 2015, the government started to support farmers to form producers' cooperatives. This may lead to several benefits such as accessing irrigation equipment and processing facilities, and the creation of new markets. Importantly, this form of organisation may enhance their ability to exchange ideas and information – particularly with farmers in other cities. Farmers in Rafin Guza have been advised to form a cooperative that deals with multiple products, not only to ensure that their diversification strategy is supported but also in response to their experience with rice farmers from other communities taking over and monopolising the cooperative's resources.

There is little formal data on the impact of agroecology

Support for agroecology The farmers' experience, supported by their indicators, justifies their growing enthusiasm for agroecological practices such as diversification by intercropping. Yet there is little formal data on the impact of agroecology, nor is there a formal approach supporting the spread of these kind of practices. There is a role for researchers to work with farmers to develop and analyse innovative systems such as agroecological management of insect pests. On top of this, with additional support from well trained and dedicated extension workers, agroecology can gain ground, not only among urban farmers but amongst Nigeria's rural population as well.

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Farmers are hopeful that neglect by government agriculture programmes is a thing of the past.

Photo: Ahmed Inusa Adamu



There are no recipes in agroecology. Instead, its manual is in the heart and minds of those who practice it, which is evident in their interactions with the environment and other people. Harmony with nature and nutrition takes precedence over profits. This anchors our culture, shapes our identity and sets the parameters for our transformation as a society.

Personally agroecology has enabled me to learn from other women and to promote and create awareness about women's issues. Through agroecology, women have contributed to shaping a society and healthy communities based on justice and solidarity. This society is able to withstand and adapt to an ever changing environment – socially, politically and economically.

Finding indicators to measure these impacts is not easy, especially during this era concerned with statistics, costs and profits. Most assessments of agroecology focus on ecological benefits such as no use of chemical fertilizers and diversification, but very little attention is given to gender aspects. Such a bias hides the impact agroecology has as an instigator of social change and as a result, such changes are attributed to other causes such as policy shifts. How then to duly attribute important social change to agroecology?

Social integration and cohesion provide a foundation for society to tackle various issues, including gender inequality. Learning and sharing, at the core of agroecology, provides women with the space to meet regularly and mobilise for various issues including equality. Cohesion is strengthened through, for example, horizontal learning exchanges and by keeping cultural and religious practices alive with rituals and ceremonies. This creates social conditions that erode patriarchal barriers: women are mobilised and the silos of patriarchy that kept women within the homestead and crop fields are less now. This has changed the mindsets of policy makers, traditional leaders and men in the home. The evidence – seen in Africa, Latin America and Asia – is improvements in women's rights. These include access to and control over land, inheritance, and active roles in decision making by women.

No conventional accounting can capture the real profits from agroecology. But besides the fact that a billion rural farmers feed about 60 % of the world with diverse and nutritious crops, we do know that agroecology is changing the lives of women farmers and their communities. Through this lens, industrial agriculture, with its collateral damage to soil biology, the atmosphere and to social cohesion, cannot be justified.

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Agroecology for gender equality



“Impact studies are crucial for the amplification of agroecology”

Clara Nicholls is the president of the Latin American Scientific Society of Agroecology (SOCLA). For over three decades, she has worked in Latin America teaching, researching and, promoting agroecological alternatives to industrial agriculture, and providing technical advise to a number of peasant organisations. In this interview Clara argues for more participatory research to demonstrate that agroecology is a form of agriculture capable of producing enough good and accessible food without harming the environment.

Interview: Diana Quiroz

How has agroecology changed since you became involved in the movement?

Perhaps the biggest change has been in the way agroecology has been perceived over time. Agroecology was born in the 1980s in Latin America amongst small scale producers marginalised by the Green Revolution and who had no access to agricultural inputs. These farmers, often supported by NGOs, looked for ways around the marginalisation they were experiencing. A decade later, they started organising themselves and sought for ways to transfer successful initiatives creating farmer to farmer networks. Back in the day, scientists argued that agroecology could not feed the world and that it was only for the 'poor'. It was only in the 1990s that some universities became interested in agroecology. At the same time, NGOs began playing a stronger role as extensionists, and were instrumental in ensuring more research support for peasant agriculture amongst academics.

Agroecology has come a long way; it is not as stigmatised as it was 30 years ago. Many of us agroecological scientists know that this has been a strenuous struggle, but thanks to the continuous and joint effort of peasants, civil society, and academia, agroecology has gained worldwide momentum. Institutions such as the FAO and many universities, which previously questioned it, have now incorporated agroecology into their agendas. Clearly we must be careful as there are efforts to co-opt agroecology and strip it of its sociopolitical dimensions. This is why it is important to recognise the history and identity of agroecology, and particularly the impact of agroecology, and specially to evaluate its technical, social, economic and political achievements.

How can these achievements be evaluated?

To answer this question, I would like to outline the differences between agroecology and organic agriculture, which are often confused. Whereas organic agriculture is only a production model, agroecology as a science, offers the principles and methodological elements needed to evaluate, design, and manage diversified agroecosystems. For example, you can produce organic grapes following a handbook, but only agroecological

“You cannot measure impact without looking at the social, political and cultural dimensions, alongside the technical aspects”



Visiting Yamanuishi farm in Sao Paulo state, Brazil.

Photo: Clara Nicholls

knowledge enables us to redesign and diversify such vineyards, in order to maintain their soil fertility, pest regulation and productivity without external inputs. For instance, by applying agroecological knowledge you can tell why a field planted with GMOs is unsustainable: there is no diversity, no nutrient cycling and, it isn't socially fair. With agroecological knowledge you can even analyse the detrimental ecological and political impact of GMOs.

You cannot measure the impact of agroecology without looking at the social, political, and cultural dimensions, alongside the technical aspects. Anyone can have a productive agroecological farm, but following agroecological principles alone, without considering social equity and cultural appropriateness, is not enough. Agroecology is like a four-legged table where practice is only one of its legs. The same applies to organic agriculture. It may be healthy and friendly to the environment because of the absence of chemical inputs; it may be economically viable because it is profitable for farmers; and yet it may not be socially just or culturally acceptable because not everyone can afford to pay for certified organic foods or because peasant knowledge hasn't been taken into account. Thus the organic system may have three legs but it still falls down and is therefore not sustainable.

To measure the impact of agroecology you first need to determine the objective of your evaluation together with farmers and choose indicators according to this objective. For example, if you want to prove that agroecological farming has achieved more equity for peasants, then you need to think of the different attributes of agroecology's social dimension. Thinking of attributes helps in choosing the right indicators. In the case of equity, you can look at indicators such as the level of empowerment, organisation, self-determination, participation (especially of youth and women), self-consumption of their products, access to markets, etc. Once indicators have been chosen with stakeholders, you can determine how to measure those indicators. There are several ways of doing this and choosing a methodology depends on who you work with and the level of evaluation: families, communities, entire territories or anything in between. Our team, for



Teaching students how to use the A frame to mark contours on a hill side in Chiloe, Chile.
Photo: Clara Nicholls

example, has used a traffic light system assigning colours to the degree of vulnerability when evaluating resilience to climate change together with indigenous communities in Colombia and Mexico (see the short review to the didactic toolkit on page 41).

Why is it important to measure the impact of agroecology?

It is important to measure the impact of agroecology in order to demonstrate to the sceptics that agroecology is a form of agriculture capable of producing enough good and accessible food without harming the environment or contributing to greenhouse gas emissions. It is also important that society as a whole be informed about the impacts of agroecology and of the need to advocate for public policies that support small scale producers' and consumers' rights. For us scientists, it is important to know if the initiatives we promote are really reaching the levels of sustainability we strive for and if the principles on which the science of agroecology is based are being applied in practice. Impact studies are crucial for the amplification of agroecology.

What is the biggest challenge for developing indicators of impact?

We must increase our understanding of the importance of using participatory methods to develop indicators. Often, the things that are interesting to us scientists have absolutely no relevance for farmers. For example, as an entomologist I am interested to know whether a farm has insect pests and associated natural enemies, but it might be the case that this farm has never had problems with insect pests and the farmers' priorities are elsewhere. Moreover, it

“Sometimes we have a good discourse, but it is worth little if we don't translate it into practice”

is also important that indicators be accurate, sensitive, and easy to interpret. Sometimes indicators are reduced to numeric values that farmers don't understand and this has been one Achilles' heel of measuring the impact of agroecology.

Is measuring impact with indicators enough?

Unfortunately, much of the work we do in academia remains locked up in students' theses and scientific articles that no one else reads. Often the distance between the potential and actual political impact of researchers' work is huge. This is because the system rewards publications whether relevant or not. In addition to doing research, we scientists should also be activists and ensure that our work is a catalyst for change. And to generate change researchers must be close to people and farmers' organisations, because policy changes are seldom a result of the work of scientists or policy makers; they happen because social movements and civil society push for change.

We scientists cannot work alone, we need co-researchers and these co-researchers must be peasants and farmers. Neglecting this is a recipe for failure. Moreover research must foster and provoke political action. Mainstream science doesn't like this, but science isn't neutral either, especially as it is often in the service of certain political and economic interests. The only weapon we have is to show that agroecology works, we cannot leave everything to utopian dreams and discourse. Sometimes we have a good discourse, but it is worth little if we don't translate it into practice. Agroecology is a public good but in order to have an impact the research has to be relevant and emerge from a participatory process where the true needs and aspirations of peasants are well represented.

Clara Nicholls with students taking an agroecology short course organised by TWN-SOCLA in Zambia
Photo: Clara Nicholls



Agroecology ensures our future well-being

Today, many people from my generation are demanding vegetables and fruits that are cultivated in an organic and ecological way. These foods are simply healthier and taste better. Yet our reason for connecting with food producers and markets that embrace ecological production is because we need to ensure our food future. It is for our health and future well-being, and for that of our children. We need to bring stability and sustainability back into our food system.

As a young African with a farming background, like many out there, I cannot underestimate the contributions of agroecology to the sustainability of our fragile ecosystems. It is undeniable that African land is being destroyed by short sighted industrial monocultures. And it's evident that agroecology works to preserve the important resources and communities that are destroyed by industrial agriculture.

Agroecology is gaining interest amongst many small scale farmers in Africa and especially in Uganda where *they* still mostly control agriculture and food production. They are finding in agroecology elements of traditional African systems, reversing the trend towards monocropping and feeding themselves during lean seasons. Production does not encroach upon the health of their families, communities or natural resources. Unlike the 'production gospel' that only benefits seed monopolies and agrochemical dealers, agroecology does not promote profit at the expense of the environment or other people. It is unfortunate that some young producers are swept into believing the propaganda of quick returns from their farms. They turn a blind eye to healthy production techniques and ignore calls for sustainability.

I appeal to all fellow young African farmers, agronomists and food activists to resist the seed



Photo: Kirya Ivan

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of greed sown by multinational profit oriented agro-input dealers that force us to believe that the excessive consumption, waste and extreme destruction of resources we have today is normal and fair. Agroecology offers different ways of farming and eating that safeguard our future and that of those who will come after us.



Short chains bring long-term gains

In Bolivia, an assessment of short supply chains, facilitated and certified through Participatory Guarantee Systems, helps to show how agroecology impacts both consumers and producers. Happiness is an important dimension to this story.

Eduardo Lopez Rosse

Achocalla is a highland valley situated a few kilometres away from La Paz, Bolivia. There, small scale farmers produce about 20 % of the vegetables consumed by almost two million people in the cities of La Paz and El Alto. In the spring of 2010, Achocalla's Señor de Mayo Square became the backdrop of the first small producers' fair, which kick-started a nation-wide cycle of agroecological fairs aimed at fostering exchange between peasants, small producers, and consumers and to promote the consumption of agroecological foods.

Short chains Bolivia's political transition of 2006 led to a favourable regulatory and legal frame-

work for promotion and support of agroecological production. This includes a number of laws promoting food sovereignty and a national technical standard for Participatory Guarantee Systems (PGSs). One result has been the development of short chains, with agroecological standards guaranteed through participatory processes. There are municipal PGS, of which the bio-fair in Achocalla is an example. There are also communal PGS, promoting economic solidarity amongst indigenous groups; private PGS suitable for small producer organisations; and organisational PGS suitable for larger producer organisations.

The municipality of Achocalla set up their PGS in 2012, involving 275 families grouped into 13 communities. The agroecological guarantee committee of Achocalla Municipality (CGEMA) is responsible for

running the PGS, and is made up of producers, processors, service providers and consumers. The PGS has created direct relationships between producers and consumers, with benefits for both. For the farmers, the PGS has improved their chances of accessing differentiated local markets and raised their profile as agroecological producers. Meanwhile, citizens are no longer reduced to passive consumers.

But in spite of these achievements, the effectiveness of agroecological practices remains difficult to prove as indicators differ according to local circumstances and to who makes the assessment. This inconsistency compounds neglect from policy makers the world over, who often regard the idea of meeting future food and nutrition demands through agroecology as nonsense.

Proving impact In 2012, the NGO AVSF-Bolivia started a project named *Mercados Campesinos* (peasant markets) to assess the development and functioning of these new markets and to inform policy makers at the National Ecologic Production Council. They assessed three municipal PGS, Achocalla, Batallas (La Paz) and Caracollo (Oruro), and one private PGS, *Eco-Feria* in Cochabamba.

The assessment approach was based on four dimensions of food security – availability, access, utilisation and stability – and happiness. The happiness dimension, referring to the level of satisfaction of all actors in the chain was the most novel dimension of the assessment.

Producers, processors and consumers were all surveyed and asked to score indicators relating to each dimension of food security. Producers and consumers were asked different questions, reflecting their different roles in the PGS. For instance, for the happiness dimension producers were asked to rate, on a scale from one to five, how happy they are with their production, transformation and commercialisation tasks. While for this same dimension consumers were asked to rate their degree of satisfaction with the agroecological produce. Similarly, for the access dimension producers were asked about their household food expenditure budget and to rate the ratio between own production and expenditure and consumers were asked about their frequency of visits to agroecological fairs.

Happy municipalities The assessment enabled comparison between the four PGS and helped to explain reasons for different impact. Farmers, consumers and other actors in the Achocalla PGS expressed the most satisfaction. Sergio Quispe, the Vice President of CGEMA explains: “Achocalla is the star agroecologic municipality because all actors in the value chain work together and are supported by the municipal agroecology and social development platform.” The project showed how the short chain impacts farmers and consumers in a number of ways.

“I am very happy because I can feed my sons and sell our surplus production”

For example, Jose Copa, a farmer and handyman in Achocalla enjoys the reduced transportation and transaction costs: “I am very happy because I can feed my sons and sell our surplus production twice a month at the bio-fair.” And Jaime A. Pereira, a regular visitor to the bio-fair exclaims that, “I can find healthy vegetables, honey and cheese that look better, are fresher and cheaper than in supermarkets.” Farmers’ access to valleys and highlands in Achocalla enables diversified production and this also explains their satisfaction with their role as producers.

In general, the three municipality PGS had more positive impacts than the private PGS and this is largely explained by current policy which favours municipal PGS. The actors in municipal PGS have better access to financial support and other initiatives such as public procurement programmes. Moreover, many of the members of *Eco-Feria*, the private PGS, specialise in value-adding such as preparation of jams, *encurtidos* (pickles) and vegan foods and are not diversified producers as is the case in the other municipal PGS assessed.

The *Mercados Campesinos* project was able to prove the importance of short chains for both producers and consumers. The results are useful because they capture a whole agroecological chain, from farm to market, and take into account happiness as well as different dimensions of food security. The project provides insights for further public policies that support family farming and stronger relationships between peasants and consumers.

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Photo: Eduardo Lopez Rosse

There is no recipe for practicing agroecology, and neither is there for estimating its impacts. From taste to yield – from counting species to feeling empowered – farmers, researchers and consumers each have unique ways of tracking changes brought about by agroecology.

Indonesia

Taste keeps the spirit of food sovereignty alive

Back in 2012, Rumah Kopi Ranin opened a cafe based firmly on food sovereignty principles. The coffee shop is a dedicated place to appreciate the coffee production of smallholder family farmers from across Indonesia. Green coffee beans are sourced directly from small scale coffee producers. Visitors to the cafe experience food sovereignty by tasting it. Through taste they start to understand the important role of farmers in coffee production and also in taking care of agrobiodiversity and water. Taste, the simple indicator of quality, has triggered people to learn more about farming and connect with farmers. For this they facilitate farm visits. The initiative is proving that when people experience the exotic taste of coffee directly from the producers, they are attracted to the food sovereignty movement. After four years of operation, the cafe has become a



meeting place for coffee lovers, from academics to scientists, students, artist groups and coffee farmers planning joint activities in the spirit of food sovereignty.

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Smallholders' livelihoods and agroecology's potential

In Bilanga, eastern Burkina Faso, the local NGO ARFA (*Association pour la Recherche et la Formation en Agro-écologie*) introduced agroecologically-based farming techniques through farmer groups and farmer field schools. In this setting, a combination of the Anglo-Saxon Sustainable Livelihoods and the Francophone "*Agriculture Comparée*" approaches was used to assess agroecology's impacts. Such a multidisciplinary framework allows for a holistic and nuanced analysis of farmers' livelihoods and farming systems. Adopting the agricultural techniques proposed by ARFA incorporates the ecological principles of agroecology into the farming systems, increases yields and boosts adaptive capacity desperately needed in the region's context of degrading soils, loss of vegetation and changing rainfall patterns. Group membership strengthens farmers' social networks, builds capabilities through skills' improvement and diversification, provides access to farming tools and inputs, and contributes to

smallholders' socio-political empowerment. However, a closer look at the nuances between farmers reveals discrimination related to social position, group access and position, training quality, material pools and personal physical condition. The strong focus on agricultural techniques at the expense of agroecology's socio-economic, political and methodological principles leads to a situation where only some farmers enjoy the full potential of livelihood enhancement.

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Nicaragua

Farmers' experience with agroecology

In Estelí, northern Nicaragua, 2014 was considered the drought of the century until it rained even less in 2015. The impacts of climate change, particularly 'too much' and 'too little' rain combined with changing rainfall patterns, have increased smallholders' interest in adopting agroecological practices. These include agroforestry, companion planting and water harvesting. Some started this transition up to 20 years ago, but for most it was over the past five years. These practices are seen as an opportunity to mitigate the impacts of climate change by strengthening environmental resilience. While many farmers are wary of the additional labour needed to completely transition to agroecology, it is ever more important that they see positive impacts from their efforts. Fortunately, the changes observed are many and varied. Many agroecological farmers have detailed plans of their farms and a stronger focus on natural forest regeneration with a part of their land. Their diversified farms, including kitchen gardens, provide their families with a wide variety of fruits, herbs, medicinal plants, and vegetables. Farmers also

mention improvements to their soil quality and as time passes are seeing yields increase for a variety of crops. Moreover, farmers find that their use of agroecological practices contributes to their sovereignty, through increased knowledge of good farming practices, and reduced reliance on chemical inputs.

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The Netherlands

Food forests good for people and nature

Concern for the loss of biodiversity is just one reason driving a growing interest in 'food forests' as an alternative way of producing food. Food forests, a type of agroforestry, are designed and managed ecosystems. They are rich in biodiversity and unlike monocultures, that are susceptible to pests and other catastrophes, the higher complexity created with different vegetation layers and the presence of many animal species offer resilience. There are benefits for both humans as well as for

nature conservation. For example, farmers may plant particular species to attract birds that will regulate insect numbers, to attract other wildlife and to create a beautiful farm. In practice, how beneficial are they really? This question prompted a research project at Ketelbroek, the oldest food forest in the Netherlands. Jeroen Breidenbach and Emma Dijkgraaf have been searching for the most useful bio-indicators. They selected several easy-to-find species of birds, ground beetles and moths to monitor the succession of the food forest over, at least, the next 20 years. Some of the selected species are typical in young forests and some in old forests. This approach to monitoring biodiversity could be useful for measuring impact of other biodiverse food production systems. Of course, different species should be selected for different climate conditions.

For more information about **Ketelbroek** or **this research** contact **Wouter van Eck** (woutervaneck@telfort.nl).





Agroecology contributes

to the Sustainable Development Goals

A meta-analysis of 50 case studies from 22 African countries shows the contribution of agroecology to the attainment of the UN Sustainable Development Goals (SDGs). The trends revealed here make clear the potential of agroecology to sustainably increase food sovereignty while conserving biodiversity and respecting indigenous farmers' knowledge and innovations.

Michael Farrelly

M easuring the benefit of industrial agriculture is simple; you just count the crop yield per unit area. This is the basic indicator of conventional farming technology. However, the real world is much more complicated. While industrial farming claims to have raised yields, it has done so at great cost, with extensive soil damage, huge biodiversity loss and negative impacts on nutrition, food sovereignty and natural resources. By contrast, agroecology offers sustainable improvements, not only to yield but also to

many other aspects of life. Where conventional agriculture seeks to simplify, agroecology embraces complexity. Where conventional agriculture aims to eliminate biodiversity, agroecology depends on diversity, and builds upon it. Where conventional agriculture pollutes and degrades, agroecology regenerates and restores, working with nature – not against her.

Beyond yield Simply measuring yield is not enough – we need to establish new ways of measuring the impact of our agricultural systems. Many are grappling with the task of developing more holistic tools,

IMPACT > CROSS-CUTTING TRENDS

notably FAO and IPES Food (see page 40). Meanwhile, there is a recently established benchmark against which we can gauge our progress: the SDGs (see box).

Making the case for agroecology

The Alliance for Food Sovereignty in Africa (AFSA) is a Pan-African platform made up of farmer organisations and networks, championing small family farming production systems based on agroecological and indigenous approaches that sustain food sovereignty and the livelihoods of communities. Starting in 2013, AFSA and partners collected 50 case studies of agroecology from 22 African countries, with the aim of strengthening the case for agroecology as the bold future of farming in Africa. From adapting Sustainable Rice Intensification (SRI) to Ethiopian staples such as teff, wheat and finger millet to improving upon traditional systems of soil fertility management and setting up a national agroecology association in Togo, the 50 case studies document the experience of a diverse range of agroecological approaches, collectively involving several million farmers. The full collection is freely available online at <http://afsafira.org/case-studies/>.

To further strengthen the case for agroecology, AFSA member organisation, Tanzania Organic Agriculture Movement (TOAM), recently developed a simple tool to establish how these case studies contribute to the SDGs. Three project officers examined the 50 case studies, using the tool to record positive and negative impacts against the SDG goals and targets. A two-page checklist containing the most relevant ten SDGs and 32 subsidiary targets was developed and used to cross check each case study, ticking off all reported incidences of positive or negative impact. For example if a case study reported that the use of chemical fertilizers was reduced, then a tick would be placed against SDG Target 12.4, 'Reduce release of chemicals to water and soil and impacts on human health and the environment'.

Agroecology contributes positively to ten of the 17 SDGs

The Sustainable Development Goals

On 25th September 2015, the United Nations General Assembly adopted the 2030 Agenda for Sustainable Development, along with a set of 17 SDGs and 126 associated targets. The SDGs are a new, universal set of goals, targets and indicators that UN member states are expected to use to frame their agendas and policies over the next 15 years. The SDGs follow and expand on the millennium development goals (MDGs), which spanned 2001

to 2015. There is broad agreement that, while the MDGs provided a framework around which governments could develop policies, they were too narrow. And unlike when preparing the MDGs, the UN has conducted the largest consultation programme in its history to gauge opinion on what the SDGs should include. Read more: <https://sustainabledevelopment.un.org>



The number and percentage of case studies, from the total (50), that contribute to each of the ten most relevant SDGs.

Sustainable Development Goals	Positive impact recorded	
	No. of cases	% of cases
No Poverty	27	54 %
Zero Hunger	50	100 %
Good Health & Well Being	11	22 %
Quality Education	31	62 %
Gender Equality	17	34 %
Clean Water & Sanitation	14	28 %
Decent Work & Economic Growth	27	54 %
Responsible Consumption & Production	33	66 %
Climate Action	21	42 %
Life on Land	33	66 %

The trends Agroecology contributes positively in various ways to ten of the 17 SDGs (see table).

Notably, every case study showed a positive impact towards the goal, ‘End hunger, achieve food security and improved nutrition and promote sustainable agriculture.’ Positive impacts are seen in increased access to safe, nutritious and sufficient food; increased productivity and farmers’ incomes; sustainability of food production systems; and maintenance of genetic diversity. Celestino Ndungu, a farmer from Ndungu, Kenya explains: “Our farm was very poor. We used to gather the crop residues and burn them but now we make compost which we use as fertilizer. For three years now we have never used any chemical fertilizer or sprays. Secondly we used to buy vegetables for our family but today we sell vegetables, fruits and other crops for income.”

Two thirds of case studies reported positive impact towards the goal, ‘responsible production and consumption’, through sustainable management and efficient use of natural resources, reduced post harvest losses, and reduced release of chemicals to water and soil. This is well illustrated by Jones Thomson, farmer in Choma, Zambia: “As organic farmers we have always used local plants for pest control in our family. We encourage many wild plant species to grow on our fallow land and field margins that we can use as pesticides. Many of the plants have other uses too, such as increasing soil fertility or their flowers supporting pollinators that maximise our crop yields.” A similar number of the case studies also showed a positive impact towards the goal related to ‘quality education’. Many of the case studies report families using their increased incomes to send their children to school, as

well as farmers learning vocational skills through agroecology schools, and communities gaining knowledge and skills to promote sustainable development.

Lessons learnt The meta-analysis raised some concerns about duplication or crossover within the SDGs. For example ‘building resilience to climate related extreme events’ occurs as a target within the ‘No poverty’ goal, yet the issue occurs again as a separate goal, ‘Climate action’. Moreover, the collection of case studies shows additional benefits of agroecology that are not well captured in the SDGs. For example, farmers praised the low cost of the technologies used, the use of locally available and locally adapted resources, and the value placed on indigenous knowledge.

While more elaborate and precise tools are being developed by FAO to directly compare the impact of conventional versus agroecological methods, and by IPES Food to chart the transition from one to the other in search of a sustainable food system, this exercise was able to draw out some clear impact trends across a huge range of agroecological experiences. Some might call it ‘quick and dirty’, but we argue that this is a perfect example of the concept of ‘appropriate imprecision’.

Kicking goals These case studies are real life experiences and testimonies of farmers, pastoralists, and other small scale producers in communities across Africa. Mapping the case study findings against the SDGs provides a useful summary of a large body of information on agroecology, showing very clear trends of wide ranging benefits to the social, environmental and economic dimensions of African small scale producers’ lives.

Highlighting the contribution of agroecology to an important policy framework such as the SDGs makes a clear case for cross-cutting policy that supports agroecology. It is now up to policy makers and the agricultural research community to recognise this potential to meet the world’s needs and challenges.

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Planting sunflower seeds in Tanzania

Photo: Michael Farrelly



It is undeniable that the current agro-industrial food system plays a major role in creating and deepening the socioeconomic and environmental crisis facing our planet and its people. It is also clear that solutions will not come from reforming such a system, but from transforming it.

However, we are not starting from zero. In many parts of the world, industrial agriculture is not the norm and instead there is a great diversity of small scale farming models based on agroecology. These models generate local knowledge, promote social, economic, environmental and gender justice, as well as the identity and culture of people.

Agroecology is much more than a scientific discipline. It is a way of life for millions of women and men who prioritise the vitality of their territories over profit. It is also a social movement working towards food sovereignty. Agroecology is synonymous with collective rights and access to common goods. It fosters solidarity between rural and urban peoples, and diversity of knowledge and ways of building knowledge, recognising the crucial role of producers in innovation, research and breeding, as well as the central role of women and youth.

Agroecology builds popular control over food systems and addresses the homogenisation of diets by promoting the use of culturally appropriate local varieties. Moreover, it improves the health of rural workers and consumers by avoiding the use of pesticides. It also promotes the development of alternative institutions and mechanisms to support producers and consumers.

But the challenge is to go beyond these empirical and ideological convictions driving the movement for food sovereignty. We need to show that we are right and expand the social and political support for agroecology. For this purpose, it is essential to demonstrate that its benefits go beyond improved productivity, land use and quality of food, but that they can be the engine of social transformation, redefining power relations in the territories.

This requires a dialogue between different actors with their different ways of knowing. Without scientism, and recognising that agroecology is shaped by people on the ground – indigenous, peasants, women and youth. Producers, workers, consumers, environmentalists, and scientists, among others, must work together to build the evidence that allows us to captivate minds and hearts and make transformative change.

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How to move beyond ideological conviction



How peasants read their farm

Whereas yield increases are considered central in modernised agriculture, they can be seen as just one element of impact in peasant farming. In assessing their farms, peasants depart from the specificities of their farm, the ecosystem in which it is embedded, the society and the markets in which they operate, and the possibilities and limitations entailed in their own families. This holds even truer when peasants work with agroecology.

Jan Douwe van der Ploeg

At the heart of peasant agriculture there is a range of complex and interdependent cycles of observation, interpretation, readjustment, evaluation and learning. Peasants continuously observe the germination of seeds, the development of crops, and the performance of animals, amongst others. Changes they observe inevitably trigger peasants to ask *how* and *why*, which in turn prompts analysis of previous

decisions as well as internal and external factors.

Is the calf that looks so promising to be explained by previous decisions regarding the selection, mating and more generally, the genealogy of the animal? Or is it due to the feeding she got so far? Or maybe the absence of diseases? Or the effect of a new, more healthy stable? Peasant farmers 'read' the dynamics and impact of their own encounter with living nature, or farming, in a twofold way. One way is immediate, short term and applies at the micro level. But farmers

also look at the long term, which involves considering the interaction between farms, markets and wider society as well as the role of cooperation. Farmers weigh the possibilities to improve the availability and quality of on-farm natural and social resources and assess what is needed to do so. Both resource *use* and resource *development* are taken into account.

Continuous learning Diversity is central to peasant farming. From observing and analysing this diversity, peasants improve and innovate. This logic governs the selection of seeds and animal breeds, for example. Selection and breeding might lead to practical improvements such as higher yields, fewer losses, and stronger animals. Such improvements provide feedback for analysis, but even futile readjustments render new insights. This process is continuous and results in learning and in new knowledge.

There is always curiosity and the unbeatable drive to do things better

Routine is a mighty tool when farming in a sea of uncertainty. What proved to be useful and reliable in the past will be the compass for today's activities. But even so, alongside routine there is always curiosity and the unbeatable drive to do things better. Curiosity and drive trigger cycles of observation, interpretation, readjustment, evaluation and learning. This makes peasant farming a permanent search for improvements, novelties, knowledge and progress. Historically, the many small improvements on peasant farms added up to a steady and sustained growth of production. It wasn't

Farmers' market in Rome

Photo: Jan Douwe van der Ploeg



Farmers' cooperative meeting in Peru.

Photo: Jan Douwe van der Ploeg

until peasant agriculture started to get heavily squeezed and its development potential appropriated by others that growth rates diminished until misery abounded.

The art of farming The learning cycles of observation, interpretation and readjustment are not individual activities. They are *socialised* through exchange and communication between peasants and often involve comparisons that go beyond the individual farm. In this process, peasants use criteria in order to assess what is better and what is worse. These criteria are never one dimensional, they are rather multifaceted. When it comes to potatoes, for instance, peasants assess taste, storability, performance in the given ecological conditions, appearance, yield, and resistance to pests and diseases. Interestingly, aesthetics are among some of the most important criteria. 'Healthy looking' plants, 'beautiful' crops, 'generous' fields, and 'noble' cattle are unambiguous concepts amongst peasants.

These criteria are used at multiple levels. Some regard the fields and the animals, others regard the farm as a whole, and yet others regard the community and sometimes even the equilibrium between the agricultural sector and society as a whole. The different balances within the family, between family and farm, between land and animals, between past, present and future (see book review on page 41) also contribute to the aesthetics of the farm.

A well-balanced farm functions as an assurance. It is a promise for the future and a source of feedback. The different levels and the associated balances are clearly interdependent. Together the different criteria compose the 'moral economy of the peasantry': determining, in their view, how things should be. These criteria are especially activated if and when things strongly differ from how they *should* be.

The many cycles and the capacity to bring them into balance with each other are the 'art of farming'.

Together they explain why peasant agriculture has historically resulted in ongoing growth and development that is 'born from within' or in other words *endogenous* development. It also explains why peasant farming is often attractive: it is a journey of discovery, a search for new possibilities and it often allows those involved to emancipate, to move forward, to develop themselves as active and knowledgeable actors.

Modernised farming Although in industrial agriculture such cycles are not completely absent, they have been moved to the margins of the labour process. To begin with, farms have been reduced from diverse wholes to highly specialised units of production that basically convert external inputs into specified output for the food and retail industries. Unlike in peasant agriculture, land is no longer the main resource but has been reduced to the venue where agriculture takes place. Second, the labour process now follows a script written by outsiders. Third, specialisation and standardisation have strongly reduced, if not nearly eliminated, heterogeneity in and between farms, rendering comparisons rather useless.

As a result, in this type of farming there is hardly any interest anymore in careful observation, interpretation and readjustment. Growth is now paramount. Development is now exogenous (originating from outside). Modernised agriculture critically depends on the application of resources obtained on the capital market, on the use of external technologies, on knowledge developed elsewhere, on external organisational schemes and logistics and even on the use of external labour. Yield increase of a single crop has become the main indicator of success. The many problems that have resulted from this type of farming are well known.

Contrary to what those making profit from industrial agriculture have us believe, in industrial agriculture

the issue of evaluation of the farm is relatively simple. Yields, input use and incomes are assumed to run in parallel. High input use is a prerequisite for high yields, and high yields will lead to good incomes provided the farm size is adequate. This fits well with how the wider global economy is currently organised as high yields ensure that enough raw materials are made available for the food industry, large retail and export, and high input use creates a market for upstream agribusiness such as the seed and chemical industries.

Repeasantisation and agroecology Alongside industrial agriculture there remain, both in the global north and the global south, large and growing segments of peasant agriculture. This is in part thanks to the agroecological movement.

Agroecology explicitly socialises the processes of observation, interpretation and readjustment

Agroecology reorients farming towards less use of external inputs and improved efficiency of internal resources. Agroecology is, in many respects, about returning to and strengthening peasant farming. It explicitly socialises the processes of observation, interpretation and readjustment through farmer field schools, farmer-to-farmer learning, field visits, experimentation, etc. These types of learning methods are also applied to new issues such as health, animal

Peasants obtain better prices for their products through agroecological markets, adding value and creating cooperatives. Photos: Jan Douwe van der Ploeg



welfare, climate change, gender equality, product quality, nutrition, and marketing.

What is valid for peasant farming in terms of evaluating the farm is particularly relevant when peasants work with agroecology. Agroecology implies a transition; it is a self-propelling process of change, learning from changes and their effects, continuously translating the enlarged body of knowledge and new experiences into complementary changes.

A beautiful production and a well-balanced farm result in an adequate livelihood, in well-being and in prospects for the future. While incomes are an integral part of all this, peasant farmers perceive income in a very specific way. They are not interested in profits or in the 'net farm results' as calculated in standard farm accountancy. As very clearly argued by the Russian scholar Chayanov, incomes are perceived by peasant farmers as the result of their labour (as 'labour income'). They typically do *not* calculate their own labour and other internal resources as costs.

The clean part Strategic for peasant producers is the difference between sold produce and bought inputs; this is often referred to as 'the clean part'. This income is regarded as 'clean' because it is for the peasants and their families themselves. Together with the food produced for the household, it cannot be touched or claimed by others. The concept of the 'clean part' was developed by peasants in order to be able to evaluate and control the relation between their farms and the markets. It connects the dynamics in the fields and stables with the well-being of the family.

Assessing the 'clean part' is a powerful tool for agroecology, precisely because it highlights the result of a particular double movement that is central to agroecology: reducing external input use and the associated costs, while obtaining better prices for their products. The latter takes place through organising peasant agroecological markets, augmenting quality and adding value, and creating cooperatives. Peasant producers and their families will always ask: how does this income or 'clean part' relate to the time, effort and energy we have invested in the labour process?

The 'clean part' may also translate to agriculture as a whole: If the 'clean part' is acceptable to peasants, then the agricultural sector is likely to be sound and not in need of perverse subsidies. It means that agriculture will be able to finance its own further development. The agroecological transition has shown the

**Peasant farmers
perceive income in a
very specific way**



Seeding sweet potato.

Photo: Jan Douwe van der Ploeg

potential to generate a clean part that is both acceptable for individual farmers and able to generate benefits to society as a whole.

If citizens, social organisations, researchers and policy makers are able to apply a similar view when assessing the dynamics and impacts of different types of farming, they will be able to strongly contribute to making clear, to society as a whole, that peasant-led agroecology is not only a promise but equally a necessity for today and for the future.

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If the 'clean part' is acceptable to peasants then the agricultural sector is likely to be sound.

Photo: Jan Douwe van der Ploeg

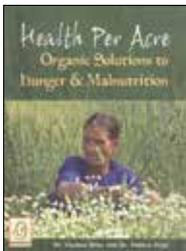




From uniformity to diversity

Emile A. Frison (Lead coordinating author). 2016. IPES-Food. 96 pages.

The current industrial agricultural system can provide great amounts of food, but at what price? This report, published by the International Panel of Experts on Sustainable Food Systems (IPES-Food), argues for a diversification of agricultural practices, as opposed to the industrialised monocultures, in order to reach a more sustainable food system. The authors analyse the main failures related to widespread industrial highly-specialised systems: environmental, economic, and social ones. But, although these drawbacks are real, industrial systems keep thriving and expanding: according to the authors this is because they are strongly tied to a whole industrial food system through feedback loops and 'lock-ins', which hinder change. After presenting evidence of the positive sides of diversified agroecological systems compared with the industrial monocultures in terms of production, health issues, and environmental conservation, the authors develop recommendations, turning the 'lock-ins' into opportunities for change: for example, developing new indicators for evaluating the success of agroecological agriculture, in contrast to the yield focused indicators related to industrial agriculture.



Health per acre

Vandana Shiva & Vaibhav Singh. 2011. Navdanya/ Research Foundation for Science technology & Ecology, New Delhi, India. 80 pages.

<http://www.navdanya.org/attachments/Health%20Per%20Acre.pdf>

Despite being a fairly aged publication, this book deals with extremely up to date issues. It strongly supports agricultural diversification as a solution to the challenges India is facing: agrarian crisis, rising food prices, hunger and malnutrition. The commonly used 'yield per acre' indicator is here contra posed to a 'nutrition per acre' one that focuses on the amount of nutrients provided by an agricultural system. Drawing from an introduction on health and nutrition – what are the kind of nutrients that need to be supplied for a healthy body? Where to get them from? – the authors lead us through a variety of Indian case studies that show that the amount of nutrients provided by one acre of organic intercropped farmland is much higher and more various than the amount of nutrients produced by an acre of conventional farmland. The authors thoroughly break down the thesis supporting the green revolution of the past, or the currently debated genetically modified organisms, as solutions to hunger and malnutrition, showing how a nutritious and balanced diet is connected to the food production system much more strongly than we think.



Soil to sky: of agroecology VS industrial agriculture

Infographic published by Christensen Fund

<http://blogs.worldwatch.org/nourishingtheplanet/infographics/>

In this infographic, The Christensen Fund explores the pros and cons of agroecology and industrial agriculture, comparing them at all the different levels in between the 'soil and sky'. This analysis of distinct agrarian systems does not only involve the environmental dimension, as the title might suggest, but also social, economic and health issues, cleverly put together in this accessible and cartoon-like version of our world. The infographic touches a variety of topics, such as climate strategies, unemployment and migration, local economy, nutrition, wildlife habitats, nutrient cycling and soil erosion. The outcome, as you might have guessed, is a clear endorsement of agroecological strategies as better solutions to the current environmental, economic and social struggles we are facing.



Peasants and the art of farming: A Chayanovian manifesto

Jan Douwe van der Ploeg. 2013. Fernwood Publishing. 168 Pages. ISBN: 9781552665657

In this book, Jan Douwe van der Ploeg offers a reflection of the far reaching and complex transformations of food systems that have occurred at the micro level as a result of liberalisation and globalisation. Focussing on the structure and dynamics of peasant farms and the historically highly variable relations that govern the processes of labour and production within the peasant farms; the author argues that peasant agriculture can play an important, if not central, role in increasing food production sustainably. However, peasants today, as in the past, are materially neglected. By building on the work of Chayanov, this book seeks to address this neglect and to show how important peasants are in the ongoing struggles for food, food sustainability and food sovereignty. The book focuses on the balances entailed in farming and how peasants deal with these, such as the balances between healthy and diverse food for the family, labour quality and drudgery, the farming family's connection with the past and with the land, soil quality and animal health, linkages with culture and the local economy etc. According to the author, the continuous assessment of the farm's performance following these criteria is not only what makes peasant farming unique, but also provides guidance for understanding the multiple benefits of farmer-led agroecology.

More on measuring impact

Here are a few more examples of the variety of tools and issues related to assessing the impact of agroecology.

From our own archive, **Tracking change** (ILEIA Newsletter 12.3, 1996) shows that back in 1996 the search for valid and relevant indicators of sustainable development was already a hot topic. The involvement of grassroots actors in assessing and monitoring their environment is the common thread presented in this issue of the magazine.

Agroecology: the ecology of sustainable food systems (Gliessman, 2014). In this revised version of Gliessman's book, the 'Transition to Sustainability' section specifically focuses on changing from a conventional to an agroecological system, introducing sustainability indicators and the use of an ecosystem framework as evaluation tools.

Didactic Toolkit for the Design, Management and Assessment of Resilient Farming Systems (Third World Network, SOCLA,

REDAGRES) (<http://www.twn.my/title2/books/pdf/Didactic%20Toolkit.pdf>). This manual provides simple and pragmatic tools suitable for farmers and technicians who want to evaluate the resilience of a farming system, convert to an agroecological one, or monitor adaptive responses on a farm.

Farming for the Future: Organic and Agroecological Solutions to Feed the World (Friends of the Earth, 2016) (<http://www.foe.org/projects/food-and-technology/farming-for-the-future>).

This report presents an extensive review of research around organic and agroecological farming. While debunking myths about the current food system, the authors provide evidence of agroecology as a solution for feeding our world in the best possible way.

With the Sustainable Development Goals recently approved, several blogs have highlighted the contribution of family farming and agroecology to meeting



these goals. Groundswell International has dedicated several blog entries to this topic (<http://www.groundswellinternational.org/agroecology/agroecology-and-the-sustainable-development-goals/>). And, the World Rural Forum has brought out a report, **Family Farming and the Sustainable Development Agenda** (<https://www.ruralforum.net/en/news/2016/08/family-farming-and-the-sustainable-development-agenda>), which shows the importance of family farming, specifically for the goal on eradicating hunger.

Raising voices: lessons learnt from a documentation workshop in Jordan

In 2016, ILEIA conducted a workshop in Amman, Jordan, with the support of the European Union, Oxfam and IUCN-ROWA. This article describes some of the lessons from the workshop, where all participants, ranging from project staff to herders and Bedouins, engaged in a documentation and systematisation process and produced an article that will soon be published in a booklet.

Laura Eggens and Jorge Chavez-Tafur

Many interesting agricultural initiatives take place in the Middle East but few of these are shared in written form. As a result, there is a feeling that nothing much happens there, while the opposite is many times the case. To address this, a project involving practitioners from Jordan, the Occupied Palestinian Territory and Egypt was set up. As part of this project, between April and May 2016, a documentation workshop with participants from the three countries was organised. The goal of the workshop was to use a structured documentation process and produce articles that share lessons from pastoralists' initiatives and experiences. Most of the participants had never published any of their written work before. Many had not even considered writing down their stories.

The 24 participants were invited to join a 'sandwich' process: two workshops separated by an intermediate period back home. Participants prepared for the workshop with some introductory reading on documentation and by selecting an experience from their work as a case to describe and analyse in the workshop.

First things first The first workshop started with a discussion around the general context of

pastoralism in the Middle East – the difficulties to find relevant resources in Arabic, and the role that field practitioners can have in filling this gap. Participants then looked at what documentation actually is, the main principles that shape a documentation process (e.g. that it is participatory), the main conditions needed (organisational support, a critical view), and the main barriers to documenting experiences.

Next, participants started their own documentation process. Based on a set of templates they started drawing clear boundaries around the chosen cases (identifying the area covered, the starting date and duration, the main objectives and the context in which the experience took place). Participants then described all activities and the results of their experience. A third session focused on the analysis, starting with selection of criteria that can be used to evaluate an experience (e.g. environmental impact or repeatability), and then identifying indicators to assess if these criteria were met. With clear criteria and indicators, participants went on to look at the underlying reasons, factors or conditions which contributed, in a positive or negative way, to the results of the experience.

A second meeting Participants returned to the second workshop with a first draft of an article about their chosen case. This second meeting could



Participants from Jordan, the Occupied Palestinian Territory and Egypt joined two workshops.
Photo: Jorge Chavez

best be described as a *writeshop* as the intention of each participant was to improve upon the first draft of their article. After an introductory session, the participants critically examined their own and their peers' articles. The peer review process was a particularly valuable learning experience. Two rounds of peer revision took place: a first one with members of their own team, as people who knew about each experience and its context, and a second one with groups that were new to the documented cases. This second group helped to identify extra details needed to make the story understandable to an outsider.

The foundations of the documentation process made it easier to pinpoint where extra attention was needed. It became clear that a common pitfall amongst participants was that their articles were more descriptive than analytical.

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“I always saw my experience as just a story. But now I see how special it really is”

Challenges and results The positive attitude and interest shown by all participants helped enormously. But it was not easy to run a workshop in both Arabic and English, requiring continuous translation and switching of languages. Facilitating a workshop in a foreign language is always a challenge, but it becomes even more complicated when writing is involved as it was impossible to provide quick feedback. In this setting, the (guided) peer review sessions became even more important.

Working towards a written output such as published articles provides an incentive to keep working on the documented cases, even if engaging in a critical process is confronting. Moreover, writing helps people see the significance of different aspects of their work. As one participant said, “I always saw my experience as just a story. But now that I have written it down, I see how special it really is.” Publishing written work gives the authors and their work recognition, and it allows them to share their experiences on a global scale.

Many participants had never met other herders from neighbouring countries. This workshop showed that they could learn from each other. It also showed the advantages of a documentation process to raise their own and other herders' voices, and make them heard.

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Documentation and systematisation?

The terms ‘documentation’ and ‘systematisation’ are often used interchangeably. Although, documentation is used in this article, systematisation more aptly captures the whole meaning: a process which seeks to organise available information on an experience, analyse it in detail to understand what and how it happened, draw conclusions which will help generate new knowledge, and present this new knowledge in an appropriate, shareable format, for instance as an article. Systematising experiences through

well written articles is one way of demonstrating impact. Such an article provides evidence of what works and what doesn't and enables the reader to draw lessons from others' experiences. The process of analysis and writing also enables the writer to draw lessons from their own experiences.



How to amplify agroecology

“Agroecology is a process. You cannot expect a process to be perfect immediately. But once you make a step, you are moving.” With these words, Ugandan farmer Jowelia Mukiibi captured both the essence of the agroecological transition and the attention of her audience: over 70 people representing 30 organisations doing groundbreaking work on agroecology around the world.

Janneke Bruil and Jessica Milgroom

From 10-13 May 2016, the AgroEcology Fund (AEF) and the Alliance for Food Sovereignty in Africa (AFSA) brought grassroots organisers, advocates and donors together in a Learning Exchange to share experiences and ideas about how to amplify agroecology. The AEF is a consortium of progressive foundations that are committed to supporting agroecological solutions across the globe. The exchange in Uganda aimed to facilitate learning among participants about amplifying agroecology through sharing ideas and experiences, and for the AEF to learn how they could better support this work. Through various dynamic sessions, a rich, collective pool of knowledge was built about strategies to amplify agroecology. As facilitators of the meeting, we share here some of the most compelling insights.

Strengthen farmers' organisations Strengthening farmers' organisations is fundamental in amplifying agroecology because, together, farmers can create a grassroots movement capable of influencing mindsets and policy. Strong and genuine farmers' federations can give networked farmers a space to express themselves and advocate for their own rights. Insights about how best to strengthen

farmers' organisations point to farmer-to-farmer learning, as that allows farmers to confidently build knowledge from experience.

Put women at the forefront

Women are an important source of agroecological knowledge. Valuing and promoting this knowledge must, therefore, be central to any amplification strategy. Putting women at the forefront can be done by ensuring that they play leadership roles in farmers' organisations, involving them in campaigns, supporting their struggles, enabling them to learn from other farmers and providing them with opportunities for technical, political and economic education. Members of the Korean Women Peasant Organisation

Every morning the meeting was opened with a *mística*, a ceremony that connected participants with each other and the deeper purpose of the work.

Photo: ILEIA





Small group sessions facilitated dynamic discussions and in depth sharing of ideas and experiences.

Photo: Scott Fitzmorris

(KWPA) built on their skills and self-confidence after an exchange visit with women farmers in Thailand that combined practical and political training.

Create direct relations with consumers Urban citizens are one of the central agents of change in the agroecological transition. Connecting farmers and consumers enables farmers to sell diverse products directly, and to receive vital feedback on their products. The Agroecological Collective of Ecuador organised a nationwide campaign to promote ‘community baskets’ that bring healthy, agroecologically produced foods to low income urban families. Such connections are particularly effective when they are embedded in local culture, organised as a joint initiative with shared values between consumers and producers, and accompanied by awareness raising efforts.

Strengthen agroecology schools Agroecology schools around the world are an effective way to engage people in agroecology. They rely on the principle of peer-to-peer learning among farmers and often also include two-way learning processes between policy makers and farmer groups. The Peasant Workers Association of Nicaragua (ATC), the Zimbabwe Smallholder Organic Farmer Forum (ZIMSOFF) and others shared lessons from their own schools. They concluded that the schools must be autonomous

from government and universities, and function best when run by a farmers’ organisation. Many successful schools started at the regional or national level, after which they were replicated at the local level by trained farmers.

Share knowledge Sharing knowledge about agroecology from farmer to farmer is an important way to spread practices. This is especially effective when knowledge sharing is based on local, ancestral wisdom, respects the values, principles and culture of the farming communities and responds to concrete needs. Many participants agreed that knowledge sharing is best done through living examples as opposed to relying on theoretical assumptions.

Support work on the ground and document it Supporting farming communities on the ground can help them to diagnose and prioritise their problems; identify and test agroecological principles and to engage in learning networks. This fosters the emergence and spread of localised examples. In order to achieve wide, systemic change, it is critical to document and disseminate successful practical experiences, learn from this work, and find ways to leverage the lessons. Documentation and dissemination provides evidence that agroecology works, generates insights for policy change and strengthens the agroecology movement.

Advocate For long-lasting change, it is necessary to insert agroecology into policy as part of a bottom-up process. Engaging in dialogue with local and national government authorities about how to support agroecology as a tool to fight hunger, poverty and environmental degradation can be very effective, as well as educating people about existing laws and ways to protect their rights. Policy advocacy for agroecology generally works well when it is embedded in broad collaborations among farmers, researchers, and civil society organisations. La Vía Campesina emphasised the need to support farmers to advocate

What is amplification of agroecology?

The notion of ‘amplification’ of agroecology was the central theme of the Learning Exchange in Uganda. This was chosen as opposed to ‘scaling up’, with its connotation of linear, pre-planned replication, which is contrary to the way agroecology best develops. For the participants it was seen as the transformation of food systems, rather than just the spreading of a set of

techniques. Importantly, it places agrobiodiversity, the struggle for land, control over seed and local knowledge at the centre of this change processes. Amplification of agroecology was seen as a long-term, ongoing transition process that is led by social movements, but encompasses all actors in the food system, including consumers.



A field trip to visit local farmers generated discussion and reflection within the group about the crucial role that knowledge plays in agroecology.

Photo: Scott Fitzmorris

for their rights, and to facilitate their active participation in policy dialogues.

Communicate and reach out

Communication and outreach is fundamental for amplifying agroecology, as it is necessary to make the case that agroecology is the food system of the future. Campaigners have found that humor and cultural references can be effective tools in communication. Solid data and research to debunk claims made by agribusiness is helpful to raise awareness about agroecology. Social media, multimedia, documentary films and curriculum development were mentioned as strong outreach tools.

Resist and transform Many campaigns are based on resisting the industrial agriculture model, corporate power over productive resources, and policies that marginalise small farmers. Agroecology offers living, inspiring *alternatives* that envision a new agricultural system through the transformation of education, science, culture and policy. As industrial agriculture undermines peasant family farming rather than supporting it, many participants agreed that industrial agriculture and agroecology cannot co-exist. It is therefore crucial to promote a transformative type of agroecology.

Create a new narrative Framing and messaging emerged as central elements in amplifying agroecology because agroecology is based on a completely different set of values about food, nature and people than the industrial system. A special session was dedicated to building a new narrative around agroecology. The conclusions were that it must be based on the notion that agroecology is a viable vocation, rather than a sign of backwardness. The narrative should make clear that agroecology can bring employment, income and well-being, approach agroecology as a knowledge system in its own right and present it as a continuous process of transition.

Develop effective ways to work together

Various participants stated that to amplify agroecology, a variety of actors have to be on board, who can bring different experiences and knowledge to the table. This can be achieved by working in inclusive coalitions. In such coalitions, it is necessary to clarify the role of each partner, to develop a set of core principles to help partners work well together, and to create tools for problem solving. These were some of the important insights for GRAIN, ETC Group and La Vía Campesina as they worked together to protect farmer seed systems. Different participants pointed at the need to avoid economic dependence between partners in a coalition.

Fund flexibly To achieve the amplification of agroecology, funding diverse organisations is essential. As agroecology is embedded in very different contexts, participants emphasised the need for flexibility of both grantees and donors to allow for adaptation of plans and strategies. Funding schemes should include long-term core funding that aims to reach the grassroots. Donors should not overly focus on quantitative outcomes, but rather on qualitative changes achieved through flexible, trust-based relationship with grantees. Ideally, funding for agroecology is based on shared values between donors and grantees, is regenerative and happens at a landscape or bioregional level.

The insights shared here are drawn from years, and sometimes even decades, of experience. Having a space to share these lessons with each other as well as with donors made this, in the words of one participant, “a landmark meeting.” More exchange and documentation is surely needed to understand better the respective contributions of practice, science and movement in amplifying agroecology. However, the collective insights and the dynamics of sharing that were forged at the Agroecology Learning Exchange will undoubtedly contribute to the agroecological transition for a long time to come.

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The learning, connections and inspiration that transpired during the Exchange will have a long-lasting impact on the agroecological transition. Photo: ILEIA



CALL FOR ARTICLES

Food Sovereignty in practice

For many people, food sovereignty remains an abstract term. Therefore, Farming Matters believes the time has come to 'unpack' it. What does food sovereignty look like in practice? And how is it taking shape in Europe, specifically? How do efforts to gain food sovereignty in Europe influence the rest of the world?

Food sovereignty is about people's right to healthy and culturally-appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems. In 1996 the international peasants' movement *La Via Campesina*, coined 'food sovereignty' as a policy framework that offers alternatives to the industrialised food and farming systems. In 2007, an alliance of social movements came together in a town called 'Nyéléni', located in Mali and formulated a vision on food sovereignty that has inspired farmers, academics, consumer groups, policy makers and activists around the world, including in Europe.

This process was a catalyst for European civil society. The second Nyéléni Europe Forum for Food Sovereignty will take place in Romania from 26-30 October, 2016, following the 2011 Forum in Austria. The event will bring together about 600 active citizens who are part of a growing food movement in Europe. They will share experiences and coordinate their strategies to reorganise food and farming for sovereignty.

Farming Matters will not only share the outcomes of this unique process, but also present ongoing initiatives in Europe in which people are claiming and building their own food sovereignty. This issue will showcase the strategies that food producers and (urban) citizens developed to create space for them-

selves in the context of the great economic power of large multinationals and supermarkets, low prices, high debts, a highly developed industrial production model, deserted rural areas, expensive land, financial crisis, and strict regulations that disfavour small producers.

What does food sovereignty mean to people in a European context? What are the groundbreaking experiences where consumers and producers create direct linkages and new markets? Where and how do new farming practices flourish? Why were these initiatives successful? What difficulties were encountered during these initiatives and how were they overcome? What is the role of youth? How has policy been helpful or not? What can be learnt from these experiences? What can be said about the role of movement-building?

Farming Matters aims to capture a range of initiatives related to food sovereignty from different parts of Europe, but also welcomes experiences that highlight the way that food sovereignty, or lack of it in Europe influences the rest of the world.

Articles for the March 2017 issue of Farming Matters should be submitted **before 1 December** at www.farmingmatters.org

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“OUR ECONOMIC SYSTEM IS DISTORTED AND TOTALLY FAILS TO REPRESENT THE REALITY OF THE COSTS AND BENEFITS ASSOCIATED WITH DIFFERENT METHODS OF FOOD PRODUCTION”

Patrick Holden, page 12

“You cannot measure impact without looking at the social, political and cultural dimensions, alongside the technical aspects”

Clara Nicholls, page 24

“BESIDES THE FACT THAT A BILLION RURAL FARMERS FEED ABOUT 60 % OF THE WORLD, WE DO KNOW THAT AGROECOLOGY IS CHANGING THE LIVES OF WOMEN FARMERS”

Elizabeth Mpofu, page 23

“‘Healthy looking’ plants, ‘beautiful’ crops, ‘generous’ fields, and ‘noble’ cattle are unambiguous concepts amongst peasants”

Jan Douwe van der Ploeg, page 36