

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

**A**gro-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

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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



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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

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## 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.