Moving from vulnerability to resilience in Africa

In August 2012, the Seidu family had to cope with the bad harvest. Like many farming families in northern Ghana, they had to adopt the 'one-zero-one' strategy for the children and the 'zero-zero-one' strategy for themselves. 'One' represents a meal, 'zero' is no meal. So during the lean season, their four children had breakfast in the morning, nothing at midday, and a meal in the evening.

Peter Gubbels

For months, Seidu and his wife ate only one meal a day. From the plot they farmed in 2011 they only harvested three 84 kg bags of maize. "Two years ago we harvested seven bags from the same land" said Seidu.

Millions of farmers around the world are facing a similar situation. The World Food Programme estimates there are 842 million undernourished people in the world today.

Growth – but not for everyone

To better understand the causes and impacts, let's take a closer look at Ghana. In the savannah zone where over 80% of the population is engaged in farming, the Northern Region is the third most populated region in the country. The World Bank found that between 1992 and 2006, the number of people in the north living in poverty increased by 0.9 million. Even worse, a 2012 food security survey found that 12% of the poorest households had been forced to adopt 'zero-zero-zero', going entire days without eating at all.

Ghana is often touted as a global success story in reducing hunger and poverty, and in 2008-09, Ghana increased agricultural production by more than 7%, one of the highest growth rates in the world at that

Farmers in the Sahel seeing how crop yields can be maintained even in years of poor rainfall, by planting in large basins. Photo: Groundswell International

time. Export crops grown in the wetter and more fertile south such as cocoa, cashew, cotton, palm oil and pineapple are described as the engine of growth for the whole economy. As a result, Ghana has already achieved the first of the Millennium Development Goals by halving the prevalence of hunger, and is on track to reducing by half the proportion of people living on less than $1.25 per day.

Strong economic growth co-exists with chronic poverty, hunger, debt and near emergency levels of child malnutrition, also visible elsewhere in the Sahel region where over 20 million people across nine countries are struggling with food insecurity. This paradox can be explained by marginalisation, unequal access to assets, services, and productive resources, leading to increased vulnerability of farmers, particularly women, to cope with globalisation and climate change.

Because farmers are backward?

Small scale farmers are backward, it is said. They lack technical know-how, economies of scale. To be competitive within globalisation, they must integrate in global value chains and adopt intensive, industrial agriculture. According to this view, farmers that are not capable of doing so have to make room for those that are. But the true facts paint a different picture – 70% of the world's food is produced by small scale farmers, and they have proven to be highly innovative and to have great adaptive capacity.

Then when a crisis does occur, humanitarian assistance isn't cheap. In 2011-12 alone, more than 18 million people in the Sahel required humanitarian assistance costing 1.6 billion dollars. Enabling small scale farmers to become more resilient would not only be far more cost effective, it would also be socially just.

The dominant food regime During recent decades, agriculture and food have become increasingly shaped by international organisations and multinational companies. The Green Revolution and waves of neo-liberal reforms have given rise to systems that undermine assets such as land, local markets and a sense of community that small scale farmers rely on for their very existence.

This has transformed farming into export-focused monocropping, and encouraged the use of chemical fertilizers, irrigation and agrochemicals. Yields have certainly increased in many areas, but this type of agriculture has also resulted in the degradation of land and other natural resources, especially in ecologically fragile, drought-prone areas. The Intergovernmental Panel on Climate Change estimated that 12 million hectares of agricultural land has now become unproductive.

Local communities had to make way for development projects, mining companies, or large scale agri-

Family farmers in Burkina Faso. Photo: Janneke Bruil

cultural enterprises. For many, this meant displacement or resettlement in less productive areas, with communities and their social safety nets often disintegrating in the process. In addition, tens of millions of farmers were caught in a debt trap and unable to repay investments in inputs like hybrid or genetically engineered seeds, fertilizers, pesticides or irrigation.

Trade policies Trade liberalisation and privatisation through structural adjustment programmes has increased the vulnerability of small scale family farmers. In many countries, markets were flooded with cheap, imported foods to the detriment of local farmers, processors and retailers. And industrialised countries are still pushing for trade agreements that further increase the access of multinational processors and retailers into developing country markets, including the sale of their own heavily subsidised agricultural products.

New alliance The World Bank, major agribusinesses including Syngenta and Monsanto, and the US government have joined the G8's New Alliance for Food Security and Nutrition. This is a continuation of the same approach to increase productivity via large scale commercial agriculture using Green Revolution technologies. But the world

Farmer managed natural regeneration has proved to be an effective way for farmers to increase tree cover on previously degraded land. Around Bankass, in Mopti region, Mali, what used to be a treeless plain is now covered in trees. Photo: Groundswell International

already produces more than enough food to feed everyone if it were equitably shared and food waste reduced.

In short, continuing poverty and vulnerability are to a large extent an outcome of the dominant agriculture and food system. A more equitable, resilient and sustainable agriculture and food system is urgently needed that builds on the well being of small scale peasant farmers. Political will is needed for governments to invest massively in farmer exchange and experimentation on low-cost and sustainable agroecological systems linked to local markets.

Building resilience with agroecology

In face of the grim challenges posed by powerful corporate forces, what is remarkable is the innovativeness and resilience of small scale family farmers, and their determination to retain their autonomy and their way of life. In response to the vulnerabilities generated by climate change, increased population, and the penetration of the Green Revolution, many farmers across the globe have started to adopt alternative practices. One response has been to diversify, as is the case with the beekeepers in Zimbabwe (page 26) and farmers' tree nurseries in Sudan (page 30). In areas still untouched by the industrialisation of agriculture, farmers have continued to innovate using the resources at hand and in line with local needs and opportunities. Farmers, NGOs and scientists working with them developed and distilled a set of principles from their experiences which became known as agroecology (see box).

Agroforestry systems for example have proven to be a low cost and effective way to improve soil fertility and resilience. One of the most remarkable examples has occurred in the Sahel, where a strong farmer movement has led to the restoration of millions of hectares of degraded farmland. This has come about by farmers mimicking their centuries old, traditional methods of maintaining soil fertility through the use of natural fallows. When land was much more abundant, farmers enabled the natural revegetation of land by indigenous trees and shrubs. This slowly restored soil fertility by bringing up nutrients from lower soil layers, fixing nitrogen, providing shade, reducing high temperatures, producing leaf litter, and protecting the soil from erosion.

Trees would grow back from the extensive webs of living roots and stumps lying hidden beneath farmers cleared fields and from new seedlings sprouting from seeds dropped by birds, in animal droppings or water. The practice has returned, further developed and spread from farmer to farmer as a new form of 'simultaneous fallow'. By selecting fast growing, high biomass producing indigenous trees to grow on permanently cropped farmland through a process called 'farmer managed natural regeneration' (FMNR), farmers in parts of the Sahel have succeeded in reversing the long term trend of tree loss on agricultural land. Farmers used to see trees as reducing crop production because of shade. By radically increasing the density of trees and applying the innovation of heavy pruning at the beginning of the rainy season, farmers use the tree leaves as a mulch and source of organic matter.

Villagers, both men and women, have reported significant benefits. These include: improved soil fertility, improved agricultural production, increased volume of firewood for home use or sale, enhanced biodiversity, reduced soil erosion, and much improved soil water absorption and retention. Through FMNR, farmers have found a way to greatly increase tree density on their land while minimising competition with food crops. Besides pruning, trees require minimal maintenance and withstand drought. FMNR is accessible even to the poorest families. It requires no expenses beyond additional labour, but greatly increases the resilience of the farming system, especially when combined with contour bunds and other agroecological soil and water conservation techniques.

In combination with secure access to land, such an approach may make agriculture an attractive prospect again for rural youth and for future generations. Motivating the youth to take up a life in agriculture is a struggle in many parts of the world, as the young German farmers on page 29 attest.

As we see in this issue of *Farming Matters* the use of agroecological practices leads to increased productivity and incomes for farmers, enhanced food security, improved capacity to adapt to changing climates, regeneration of natural resources and a greater autonomy for farmers. This is the experience of farmers in Bolivia on page 20, for example.

These benefits are the building blocks for decreasing vulnerability and helping to create a more resilient agriculture. They increase the ability of farming families and communities to adapt and recover from shocks and stresses. Agroecology is now supported by an ever broader part of the scientific community as the best way to sustainably improve food systems around the world. It features prominently in the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). It is strongly recommended by the United Nations Environment Programme, the UN Special Rapporteur on the Right to Food and an increasing number of other influential individuals and organisations.

Agroecology as a social movement

Calling for such new policies is useless without a political commitment to social change. However, this is challenged by the powerful influence of neo-liberal thinking about agriculture. Social change, as much as developing the technical aspects of agroecology, is an essential prerequisite for ending poverty and hunger, and building resilience.

It is unlikely that rural hunger will ever be eliminated without the enthusiasm and social force of family farmers around the world. The causes of hunger and low productivity are overwhelmingly social and political. Favourable policies for agroecology are better enabled through the mobilisation of small scale farmers, and collective action also leads to more innovation and learning, as in the case of ATC in Nicaragua (page 36). This is why agroecology is also recognised as a social movement.

At the global level, redirecting governments and multilateral institutions towards supporting more equitable, resilient and sustainable agriculture and food systems requires a radical shift in priorities, research, and investment patterns. It also requires the recognition of the important role of local food systems, as is seen in Portugal (page 12). This will only come about through the power of social movements in which smallholder farmers work in alliance with like-minded organisations.

Agricultural researchers, policy makers and others who are committed to ending hunger and poverty must act now to support family farmers in developing and practicing agroecology.

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Agroecology

Agroecology sees the farm as a system built on a healthy soil as its basis. Some of the core principles of agroecology include:

- recycling nutrients and energy on the farm rather than introducing external inputs;
- integrating crops and livestock and increasing agrobiodiversity;
- focusing on interactions and productivity across the whole system rather than on individual species.

In contrast to neo-liberal modernisation, agroecology is based on techniques that are not delivered top-down, but developed from farmer knowledge and experimentation, co-created with scientists. Local knowledge systems are indispensable, and agroecology takes strength from existing socio-cultural structures such as local institutions governing natural resources.