



Sustainable agriculture and food security in LDCs

The most critical issues facing LDCs today are poverty and hunger. These issues related to each other and to environmental degradation.

LDCs are primarily agricultural economies with nearly 70% of the population engaged in agriculture. The vast majority of the poor and food insecure are in rural areas. Therefore poverty alleviation and food security must start in these areas.

The outcome of the World Food Summit states that, "food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life." It requires that food is available locally and that people have the means to acquire it, either by growing it or purchasing it, throughout the entire year.

Productivity of LDC agriculture is relatively low. Land degradation is a major problem, due to increasing population pressure, erosion, water scarcity and the breakdown of traditional systems for soil fertility. Farmers have little support from their Governments, with African countries spending only 3% of their budget on agriculture, disproportionate to the size of the sector in terms of employment and economic activity. Twenty years ago most LDCs dismantled marketing boards, extension services and credit support and opened up agricultural markets to subsidized exports from developed countries. This decimated agricultural sectors and most turned from net food exporters to net food importers within a decade - the LDCs food import bill rose from \$9 billion in 2002 to \$24 billion in 2008.

International finance organizations and bilateral donors advised several LDCs to set up production and export capacity for cash crops. While some countries, such as Tanzania, have been successful in this regard, this focus often distracted political attention and crowded out investment from staple food production and its supportive infrastructure and institutions.

In addition, post harvest losses in LDCs are large, with at least one third of food produced being lost before reaching consumers due to spoilage, poor storage and transport facilities. On-site processing of agricultural products is limited by energy poverty; 92% of rural households in sub-Saharan Africa have no electricity.

Environmental degradation contributes to food insecurity. Natural ecosystems provide most of the world's poor with food, fuel, medicine, building materials and cultural identity. These systems are being systematically degraded and destroyed, and their regenerative and strategic productive capacity jeopardized. Unsustainable land management practices lead to scarcity of water for both drinking and agriculture.

The changing climate increases extreme weather events in LDCs (extreme temperature, floods and droughts) and unpredictable changes in weather patterns that affect agriculture. Extreme weather events

in LDCs increased fivefold from the period 1970-79 to 2000-10, resulting in over USD 14 billion losses. Land use changes, forestry and agriculture account for over 70% of LDC greenhouse gas emissions.

Environmental degradation, low agricultural productivity, high post harvest losses, limited connections to markets, energy poverty, limited education and non-agricultural opportunities, hunger and thirst lead millions of desperate people to leave rural areas each year for the cities, only to find that life is often no better.

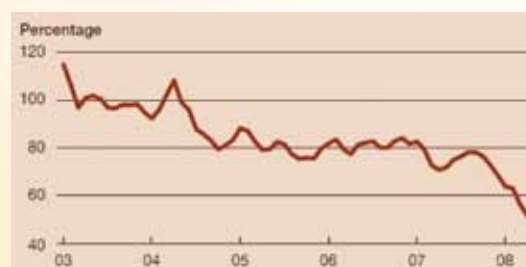
To check this vicious circle, rural areas in LDCs must be revitalized, transforming them into vibrant places with a clear perspective for families and young people. For this we need a fundamental transformation, even a revolution, in agriculture.

This revolution should not be based on expensive, imported external inputs. Governments spend large amounts of their foreign currency reserves on agrochemicals (synthetic fertilizers, pesticides, herbicides, fungicides). LDCs import over 90% of the agrochemicals used in agriculture. Many of these chemicals are dangerous, with pesticides being a top cause of occupational mortality and morbidity, and they are difficult to provide to rural farmers at the right time. It is problematic that the global seed, agrochemical and biotechnology market is dominated by few companies, with the four biggest controlling 60% of global agro-chemical, a third of seed and almost 40% of biotechnology supply.

The prices of oil and agrochemicals are increasing, due to the increasing price of fossil fuels, used in agrochemicals, and mineral phosphorous, used in synthetic fertilizer. The agricultural input index skyrocketed just before the first food price crisis of 2008. As can be seen in figure 1, the ratio of food prices to input prices fell steadily over the 2004-2008 period. Farmers were not profiting from higher food prices because their input prices were increasing much faster.

In the light of the above, going down the high-external-input-dependent, industrial agriculture route places LDCs in a situation of extreme vulnerability.

Figure 1 - Development of the output to input price ratio: food versus inputs



Source: FAO, *The State of Agricultural Commodity Markets 2009: High Food Prices and the Food Crisis - Experience and Lessons Learned*, Rome, 2009, p. 35



But there is another way - one that builds upon and gives value to LDCs strengths: sustainable agriculture. It focuses on ecological and not chemical intensification of agricultural production.

Sustainable agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects. It combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life.

Sustainable agriculture includes ecological agriculture, organic agriculture, agroecology and regenerative agriculture. Sustainable agriculture practices include composting, mulching, crop rotations, inter-cropping, agro-forestry, biological pest control measures, green manures, nutrient recycling, integrating livestock into farming systems, preventing erosion, and water harvesting.

Building strong soils and improving soil fertility is key to sustainable agricultural practices, and increases soil water retention and resilience to climatic shocks such as higher temperatures, droughts, floods and storms. Moreover sustainable agriculture, with its focus on building agro-ecological systems, promotes the use and further development of indigenous varieties, well adapted to local conditions and agricultural practices, and the associated knowledge. These traditional varieties are disappearing from farmers' fields worldwide at very high rates, and with them goes the associated wealth of traditional knowledge and culture.

Research by the UN and numerous other bodies demonstrates that sustainable agriculture improves food supply, nutrition and livelihoods in LDCs. For example, a UNEP-UNCTAD analysis of 114 cases in Africa revealed that a shift towards organic agriculture production increased yields by 116%. Moreover the positive impact endures as it is based on strengthening the five types of capital in farming communities—human, social, natural, financial and physical. The UN Special Rapporteur on the Right to Food reports that small-scale farmers can double food production within 10 years in critical regions by using ecological methods, and calls for a fundamental shift towards agroecology as a way to boost food production and improve the situation of the poorest.

Relying on locally available regenerative resources instead of expensive imported external inputs reduces LDC's vulnerability to external price shocks. Using local resources also has a positive multiplier effect on the local economy by creating jobs and improving incomes and food security in the whole community. This catalytic effect, in particular when combined with locally deployed renewable energy, brings new life to rural communities and creates conditions for self-sustaining growth.

Markets for products produced in a sustainable manner are expanding rapidly; the global market for certified organic products has tripled in the past decade, reaching USD 55 billion in 2009. LDCs are tapping into these premium priced expanding markets, earning higher incomes and improving their food security. One third of the world's certified organic farmers are in LDCs.

Despite the clear benefits few, if any, LDC Governments or donors to LDCs give serious attention or funds to support the development of sustainable agriculture. Some are developing organic policies or

programmes (e.g. Uganda, Tanzania) but most provide no support. In fact, the sustainable agriculture sector is taxed by subsidizing or giving away agro-chemical inputs. One notable exception is the regional government in Tigray, Ethiopia, which provides extension services in sustainable agriculture techniques, particularly composting, prevention of soil erosion and water harvesting. This region has seen crop yields double and agrochemical use decrease by 95%.

There is an urgent need for a fundamental shift in national and donor policies. Funds to agriculture should increase manifold. For poverty alleviation, and thus food security, GDP growth in agriculture has at least double the effect as growth in other sectors. How these funds are spent is even more important. The focus should be on:

- Supporting small-scale farmers (the main source of food for the world's hungry) to improve their incomes, food security and access to markets, including local markets.
- Increasing production of staple, non-traded, traditional and indigenous crops and livestock for local, domestic and regional markets. This provides varied nutritious food for local populations and protection from volatility caused by financialization and speculation in internationally traded agricultural commodities.
- Promoting the development of sustainable agriculture systems, both production and markets.

Therefore the best investment is to:

- Identify and eliminate perverse policies and subsidies e.g. for agrochemicals.
- Significantly increase the share and effectiveness of public expenditure for agricultural development in general and for sustainable agriculture in particular.
- Train farmers in sustainable agriculture practices and improve related extension systems.
- Provide incentives and platforms for farmers, other actors in the value chain and policymakers to share knowledge and experiences with sustainable agriculture.
- Develop and disseminate the knowledge base on sustainable agricultural practices through participatory research and farmer field schools, supporting and building upon the strength of farmers' knowledge and experience.
- Support farmers in creating groups for knowledge sharing, production planning, joint marketing and problem-solving.
- Reward farmers practicing sustainable agriculture with access to local and other markets, and improving physical infra-structure for transport, communication and marketing and Government and other procurement programmes.
- Minimize post harvest losses through improved storage, roads and electrification, and by bringing processing closer to the harvest area.
- Combine sustainable agriculture production with renewable energy.
- Recognize stability in land management and tenure systems as important policy issues related to enhanced soil fertility. Land reform, including strengthening of women's land rights, remains topical.
- National support measures for sustainable agriculture supplemented by reformed international trade policies that truly support sustainable agriculture. This should include more policy space for developing countries to use effective instruments to promote food security, farmers' livelihoods and rural development.

