



Short Article

Sustainable Agriculture: The Role and Potential of Secondary Crops

The Food and Agriculture Organization of the United Nations (FAO) defines sustainable agriculture as a process that meets the following criteria (GTZ Sustainet, 2006): (a) ensures that basic nutritional requirements of present and future generations are met while providing diversified agricultural products; (b) provides durable employment, sufficient income, and decent living and working conditions for those engaged in agricultural production; (c) maintains, enhances or regenerates the production capacity of natural and renewable resources; (d) reduces the vulnerability of the agricultural sector and strengthens self-reliance; and (e) achieves all the above without disrupting basic ecological cycles and natural balances.

Empirical evidence indicates that the role of secondary crops is consistent with the above criteria and gives substantial support for sustainable agricultural development. Secondary crop-based agribusiness development will contribute to the stabilization of household food security by promoting crop diversification, improving and fulfilling nutritional requirements, absorbing farm labour and generating farm household income. In addition, secondary crops will play a role in maintaining diverse and environmentally friendly farming systems, functioning as a source of raw material for the food and feed industries, and stimulating rural economic growth. In particular these benefits will apply to farmers with limited or marginal land. Two examples, one from Indonesia and one from India, demonstrate how secondary crops support sustainable agricultural development.

Indonesia has conducted various projects on sustainable farming systems that have investigated annual cropping patterns. A review by Rusastra *et al.* (2004) indicated the cropping patterns involving secondary crops gave substantial improvements to food production and farmer income. However, policy support encouraging adoption of the necessary technology is limited and therefore has a weak influence on agricultural diversification at the micro and regional levels. Adoption of the optimal cropping patterns requires an improvement in the following areas: (a) accessibility of secondary or horticultural crop seeds; (b) special credit provision to cover higher production costs for agricultural diversification programmes; (c) application of labour-saving technology for land preparation, planting and weeding; (d) co-ordinated management of irrigation water availability for secondary or horticultural crops; and (e) extension services that particularly relate to new on-farm technology for rice (rainfed and minimum tillage) and non-rice commodities.

Sustainable agriculture has also been a focus of community-based watershed development in projects in Bhipur, India. Here, new technology has been introduced for water conservation across the

watershed, leading to more sustainable crop and fodder production (Cecoedecon's NGO, 2006). Water conservation increased crop yields. Technology for improving soil fertility and boosting productivity included green manuring, mulching, composting, using farmyard manure, and crop rotation of green-gram and mustard. Green-gram is a legume that fixes nitrogen in the soil and improves the soil fertility. As it takes only 2.5 months to mature, farmers can plant a crop of drought-resistant mustard that uses the remaining moisture in the soil. Both of these crops need little water and have a ready market.

The impact of these projects are: (a) yields of the main crops (wheat, mustard and millet) have risen; (b) enough fodder for the animals, and enough soil moisture to support a crop even during low-rainfall years; (c) overall prosperity in the village has increased as indicated by an increase in employment opportunities and consequent reduction in the migration rate; and (d) an increase in village food availability – the village has improved food production, met its own needs and improved the villagers' purchasing power.

A CAPSA study called "Identification of Pulling Factors for Enhancing the Sustainable Development of Diverse Agriculture in Selected Asian Countries (AGRIDIV)" (Sugino *et al.*, 2006) noted the importance of secondary crops in agriculture and rural development. The study proposed strategic policy and development actions that contribute to poverty alleviation through secondary crop-based agricultural diversification. These strategies are: (a) strengthen technology development for secondary crops; (b) promote contract farming, which provides benefits both to producers and consumers; (c) construct small-scale irrigation and storage facilities and provide farmers with market information; (d) credit schemes should focus on resource-poor farmers; (e) develop small-scale processing facilities; and (f) because the marginal productivity of input factors is relatively high, the relevance of input subsidy schemes should be considered.

More effective policy support will be achieved by supporting the role of farmers' groups and associations. This will solve small farmers' problems such as accessibility to technology, capital, management practices, and their bargaining position in the input and output markets. Finally, the rights of land ownership and use should be secured in order to motivate the farmers to invest in their own land. ■

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(References available upon request)

Flash **BREAKING****Easing Organic Agricultural Trade**

Organic farmers in developing countries will have greater access to world markets, thanks to two practical tools launched this week. The new tools will help streamline acceptance of organic agricultural products that are traded internationally. First is the Equitool. This tool facilitates trade while also safeguarding organic production according to local socio-economic and agro-ecological conditions. The second tool, IROCB (International Requirements for Organic Certification Bodies) is a set of minimum performance requirements for organic certification bodies that will enable importation of products certified under foreign control systems. The tools were approved at the final meeting of the International Task Force on Harmonization and Equivalency in Organic Agriculture, in Geneva.

FAO Newsroom, 2008. Easing Organic Agricultural Trade: New Tools Help Developing-country Farmers Market Organic Produce, <http://www.fao.org> (8 October 2008).

Urgent Support Needed for Pacific

Pacific Island nations have a need for rapid action to avert child malnutrition and increase the availability of affordable food, said Minister Pokotoa Sipeli from Niue, the Chairperson of the FAO's South-West Pacific Ministers for Agriculture group, at a workshop in Nandi, Fiji. Higher food prices force poor islanders to reduce consumption of foods or buy cheaper foods of poorer quality and low nutritional value, he said. The Minister expressed serious concern about the immediate and long-term future growth and development of the fragile economies and environments of Pacific island nations, and noted the need for urgent support and assistance to kick-start productivity growth and diversification.

FAO, 2008. Urgent Support Needed for Pacific Farmers and Food Consumers, <http://www.fao.org> (22 September 2008).

World's Crops to be Screened for Climate Traits

The Global Crop Diversity Trust, an international foundation, is funding a drive to screen thousands of crops for traits that will be useful in adapting food production to climate change. This year the Trust is providing funding for researchers in the developing world. Crops from banana to sweet potato will be screened to identify material that plant breeders can use to produce varieties adapted to conditions associated with climate change. Researchers will screen the crops by growing them in different stress conditions, such as high salinity or high temperature and assessing how well they grow. Varieties with positive traits will be put into an open-access database.

Nightingale, K, 2008. World's Crops to be Screened for Climate Traits. Scidev, <http://www.scidev.net/> (22 September 2008).

Increased Agrofuels Production Has Human Rights Implications

UN Special Rapporteur, Olivier de Schutter, issued a report in September that says the production of agrofuels has intensified the global food crisis and could thus infringe upon human rights. He noted that increased production of plant-derived transport fuels has helped make food more expensive by causing a significant amount of arable land to be shifted from food production to the production of bioethanol and biodiesel. The shift has also driven up the price of farmland making it unaffordable for small-scale producers. In response, critics claimed the impact of biofuels on food prices was marginal, and that it was possible for biofuels to make an important contribution to economic and social development.

ICTSD, 2008. UN Expert: Increased Agrofuels Production Has Human Rights Implications, <http://ictsd.net/> (18 September 2008).

Seed Aid, Agribusiness and the Food Crisis

Political and economic leaders want us to believe that the food crisis was a problem of production, suggests GRAIN, an international NGO that promotes sustainable development. There is a serious risk that simplistic production-focused responses to the food crisis, which avoid asking the really challenging policy questions, will result in a new wave of genetic erosion and livelihood insecurity by overriding communities' local seed systems. In response to the crisis multi-laterals such as the World Bank, European Commission and FAO, have allocated large amounts of funding for providing seeds and fertilizers in the belief that this will enable farmers to rapidly increase food production. This type of funding carries significant risks. There are well-established major drawbacks of bringing in seeds from outside sources. Yet, the advantages of local varieties are more widely acknowledged. With messages coming from world leaders and finance institutions that the time is ripe to get new technologies to small farmers to boost their production, it seems that farmers' local seed systems may well be threatened in many parts of the world. Farmers have to buy the private seeds, which have tight restrictions on their use. There is a risk of a globalized industrial food system controlled by agribusiness corporations that are not interested in local seeds or preserving biodiverse food systems. Control over farming is increasingly moving out of the hands of farmers and into boardrooms. Those that control the hybrid rice seed markets are the only ones whose profits are guaranteed. ■

Based on STWR, 2008. Seed Aid, Agribusiness and the Food Crisis, <http://www.stwr.org/> (9 October 2008).

Globalization of Food and Agriculture and the Poor

The world agrifood system is becoming increasingly globalized and far different in nature. Today, income distribution is more unequal, and many more poor households in rural areas are net buyers of food, all of which makes food price changes more relevant for billions of people. National governments and international actors are currently taking various steps to try to minimize the effects of higher international prices on domestic prices and to mitigate impacts on particular groups. As a result of globalization processes, the world food system has undergone a significant transformation indicated by: (a) the private sector and civil society have become more engaged in agricultural research and development; (b) small farmers being immersed in more commercialized agrofood systems, nationally and globally; (c) consumers in industrialized and developing countries are becoming a driving force for changes in the global food system. To help the poor in developing countries, the following domestic policies should be considered: (a) achieving peace and security in addition to macroeconomic policies; (b) the implementation of market-oriented reform policies that facilitate smallholder investment and avoid differential subsidies to large-scale operations; and (c) improving health care, education, and social protection programmes. With regard to developing international policies and institutions, the following aspects should be taken into account: global governance architecture of the food system; global trade policy reform in the interest of developing countries; international capital and aid; employment and social policy; global agricultural innovation and technology; and pro-poor environmental policy. ■

Based on von Braun, J. and Diaz-Bonilla, E., 2008. Globalization of Food and Agriculture and the Poor, IFPRI Issue Brief 52, IFPRI, <http://www.ifpri.org/> (September 2008).

Extreme Poverty in Bangladesh: Protecting and Promoting Rural Livelihoods

In Bangladesh, recent economic growth has not led to a major fall in poverty, least of all in rural areas. Around 40 per cent of people live in poverty, 25 per cent of which is described by the government as 'extreme poor' and rarely able to take advantage of the productive opportunities emerging from economic growth. The poorest in Bangladesh face limitations in exploring the potential of agriculture to enhance their livelihoods. These are: (a) actual and perceived risks of investing in new, possibly more remunerative, agricultural technologies and activities; (b) vulnerability to shocks and stresses and limited ability to mitigate or cope with these; (c) lack of access to capital and labour supply; and (d) limited access to information and voice to address exclusion. During shocks like drought and flood, the poor sell their productive assets to survive. Such negative coping strategies can undermine future productivity and livelihood. Social protection can ease these constraints. Preventing the use of negative coping strategies can help households keep their productive assets. Evidence shows that a seasonal safety net such as cash-for-work during *monga* (seasonal hunger) reduces negative coping strategies. For example, households employed in public works programmes made fewer distress sales of assets, and fewer of these were productive assets. Evidence from case studies in Bangladesh demonstrates positive interactions between social protection and agricultural growth at the household level. Core social protection components, combining protection, prevention and promotion seem to reduce the four constraints to engaging in productive activities that are faced by poor households. ■

Based on Holmes, R. et al., 2008. Extreme Poverty in Bangladesh: Protecting and Promoting Rural Livelihoods, ODI Project Briefing No. 15. ODI, <http://www.odi.org.uk/> (September 2008).

The Food Crisis: National and Global Challenges

In this short paper, Sumit Roy of Jadavpur University, India, argues that, while emergency measures such as those by the World Food Programme have to be supported, it is essential to investigate the nature, the root causes, and the long-term solutions of the food crisis. The paper provides an overview of the impact of the food crisis and highlights some of the responses of different countries. The paper highlights that in the immediate term the focus is on emergency food aid and urgent financial support to meet high food import bills so as not to worsen the balance of payments. In the medium to long term, however, the paper argues that resolving imbalances in demand and supply of food calls for devising policies at the national, the regional and the international level. The following are some of the main recommendations. First, increasing agricultural productivity has to be a key goal. This should be based on integrating inputs and outputs – through the supply of high-yielding varieties of seeds, fertilizers, and irrigation, supported by credit alongside remunerative output prices. Second, agriculture has to be given due importance in overall development, through increased expenditure on public investment for irrigation, infrastructure and marketing. Third, agricultural subsidies in developed countries should be curbed to allow developing countries access to their markets. At the same time developing countries should be allowed to adopt temporary measures to protect their agriculture. ■

Based on Roy, S., 2008. The Food Crisis: National and Global Challenges. Eldis, [http://www.eldis.org/\(2008\)](http://www.eldis.org/(2008)).

Flash EVENTS



Regional Workshop on Climate Change Strategies

1-5 December 2008

Kuala Lumpur, Malaysia

[Info:](#)

<http://www.adb.org/documents/events/2008/Climate-Change-Strategies/>

Global Potato Conference 2008

9-12 December 2008

New Delhi, India

[Info:](#)

<http://www.gpc2008.in/>

International Soybean Conference V

10-14 December 2008

Bhopal, India

[Info:](#)

<http://www.thesciencejobs.com/events/?p=198>

ICAFNS 2009: International Conference on Agricultural, Food and Nutritional Sciences

28-30 January 2009

Dubai, United Arab Emirates

[Info:](#)

<http://www.waset.org/wcset09/dubai/icafns/>

ICABE 2009: International Conference on Agricultural and Biological Engineering

28-30 January 2009

Dubai, United Arab Emirates

[Info:](#)

<http://www.waset.org/wcset09/dubai/icabe/>

Paper Review

Global Partnership in Poverty Reduction: Contract Farming and Regional Cooperation

Sununtar Setboonsarng, 2008, ADB Institute Discussion Paper No. 89, Asian Development Bank Institute, Tokyo, Japan, February 2008.

Close to 90 per cent of poor people in the Greater Mekong Sub-Region (GMS) – including Cambodia, Lao People's Democratic Republic, and Myanmar – are smallholders who depend on agriculture for their livelihood. In these less-developed GMS countries, contract farming has been expanding rapidly; its emergence mainly due to market and institutional failure. This prompted ADB to investigate the issues associated with contract farming, and to present its findings in the discussion paper, "Contract Farming and Regional Cooperation". Focusing primarily on GMS transition economies, the paper examines the positive and negative impacts of contract farming, briefly reviews different types of contract farming schemes and the way in which they can promote regional co-operation.

The paper has a section devoted to each of the following: defining contract farming; the importance of contract farming in accelerating the transition from subsistence to commercial production; the advantages and concerns relating to contract farming; strategies to deal with challenges in contract farming; different types of Asian contract farming schemes; contract farming as a viable means of promoting regional co-operation; and recommendations for the successful promotion of contract farming as a strategy for poverty alleviation in the context of agricultural globalization.

Contract farming has strong potential as a development tool for facilitating the transition from subsistence to commercial production, growth of the agro-processing industry, crop diversification, and in fulfilling new stringent trade requirements for export markets.

Contract farming offers benefits to farmers and agribusiness firms. Farmers benefit from: assured market access, and the steady and increased income this provides; a predetermined price; better access to credit; timely access to inputs and markets; support to shift from subsistence agriculture to market-oriented production; opportunities to learn business skills and about markets. The benefits for private firms are: improved cost efficiency and risk minimization by avoiding the purchase of land or the hiring of labour; improved quality consistency; better control over all inputs throughout all stages of production and processing; and a more politically acceptable operation than plantation schemes run by multinational firms.

Despite these benefits the paper singles out several concerns of contract farming. One concern is that the agribusinesses have a monopsony control over the farmers – that is the farmers only have one buyer. Consequently the strong bargaining position enables the businesses to potentially extract significant rents from smallholders

and leave them only marginally better off. The paper suggests two ways to overcome this problem: (a) strengthening the role of farmers' groups and NGOs to improve bargaining power, community-level enforcement, and contract management; and (b) stronger government regulation to control monopolistic exploitation. The first of these may also be a solution to another concern, poor contract enforcement, in which farmers, taking advantage of weak legal systems, find other buyers for their harvested crops, thereby depriving the agribusinesses of a return on their investments. Another problem is that the farmer takes responsibility for labour recruitment and control, and consequently the burden of farming practices may rest with the most vulnerable members of the household. Other concerns for the firms include: taking all the risk; and the necessity of establishing and maintaining highly skilled management to supervise the farmers. Generally there are concerns that contract farming can lead to a bias towards large farms, and that it is detrimental to people's health and the environment as a consequence of increased agro-chemical use.

General solutions to some of these problems, the paper suggests, include boosting the role of corporate social responsibility to promote the use of sustainable technologies to achieve positive social and environmental outcomes, and exploiting comparative advantage of the smallholders to ensure they, rather than the large farms, benefit from contract farming. The paper notes contract farming's potential as a tool for regional economic co-operation. For example, Thailand is actively pursuing such initiatives including allowing tariff-free importation of approved products produced under contract farming. Also the ACMEC (Mekong Economic Summit) in 2005 agreed to accelerate co-operation on this issue and to a memorandum of understanding on contract farming. However, readers looking for more detailed information about contract farming and regional co-operation may need to go beyond this paper.

This paper is useful because it provides: a concise and succinct overview of the pros and cons of contract farming, for both smallholder farmers and agribusiness firms; a well-considered synopsis of the potential solutions to the major concerns with contract farming; and a constructive list of recommendations to ensure that contract farming arrangements are inclusive of smallholders. ■

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