



Short Article

Maintaining Multifunctionality through Agricultural Diversification

The functions of land are many, and the functions of land used for agriculture exceed those of only production. The multifunctionality of agriculture land, especially in paddy wetland areas, has recently received substantial attention in Monsoon Asia (Se-lk Oh, 2003; Groenfeldt, 2005; Kada, 2006). This is true for those countries that use rice as an import substitute commodity and, concomitantly, as a source of livelihood for the people as well as a main vehicle to achieve food security. In addition, some developing countries face the problem of conversion of productive agricultural land. To respond to the problem, in the case of Indonesia, a programme to make use permanent of agricultural land was implemented. This sparked questions regarding whether this programme could maintain the sustainability of agricultural wetland areas. And, whether there are any policy measures to complement the respective programmes for the benefit of all. In this regard it is necessary to define the multifunctional dimensions of agriculture, particularly paddy cultivation, and the general policy support to maintain multifunctionality. Indonesia's case will be elaborated in some detail, and focus specifically on the reorientation of rice agribusiness development and the prospect of agricultural diversification in order to maintain multifunctionality in irrigated wetland areas.

There has been a gradual expansion of the concept or meaning of multifunctionality. In general, agriculture has two main functions, namely providing agricultural products and non-food functions (OECD, 1998). Korean agriculture, for instance, provides three groups of non-food services: food security, ensuring rural viability and environmental protection (Se-lk Oh, 2003). In view of the specific nature of rice farming, agriculture contributes to environmental sustainability in terms of flood mitigation, water resource conservation, preventing land erosion and landslides, conserving organic waste, cleaning the air we breathe as well as air temperature mitigation (Agus *et al.*, 2002). The landscape, biodiversity, eco-tourism and recreation are also valuable non-food uses derived from the use of agricultural land.

Most of the non-food functions can be characterized as positive externalities. These functions have a number of characteristics, they can be seen primarily as public goods as well as joint products, and are not easy to estimate (Se-lk Oh, 2003). Moreover, the non-food effects of agriculture are not uniform throughout the country. They depend on farm structure, commodity composition, farming practices, technologies, climate as well as the economic and environmental conditions.

At least three policy options can be considered: (1) the protection of arable lands from alternative uses; (2) price policy support during the harvesting season; and, (3) direct payment to farmers. Groenfeldt (2005) suggests broader and more comprehensive government intervention consisting of four basic levels, as follows: support to farmers, support to the rural communities, support to rural areas and support to the agricultural sector. Decentralized, location specific, farmer-led research would become relatively more important for a multifunctional approach. In addition, Othman (2006) suggests that a mix of mechanisms to encourage environmentally sustainable agriculture needs to be established. Agricultural policy should relate to the aggregate economy

and the environment rather than on a sectoral basis.

In Indonesia, in irrigated wetland areas, especially during the wet season, rice farming plays an important role in farmer income. Recently, rice farming in the region faced severe internal constraints and challenges (Simatupang and Rusastra, 2004), more explicitly: (a) a sliding trend in competitiveness indicated by decreasing total factor productivity and the profitability of rice farming; (b) marginalization of farming capacity due to declining competitiveness and land size ownership; (c) a falling trend in production growth due to the diminishing trend in harvested area and stagnant yields; (d) the rising trend of rice production variability due to uncertain climate; and (e) internal constraints related to natural resources of land and water, technology, input factors and capital.

Based on the internal factors mentioned, an appropriate strategy for rice development in the near future is to optimize and improve the efficiency of the rice agribusiness system through enhanced resource utilization, and improving rice farming efficiency as well as post-harvest efficiency. In addition, rice agribusiness development should be dedicated to raise the income and food security of rice farming households in conjunction with bolstering national food security, as well as stimulating the rural economy. The objectives mentioned differ completely from the previous paradigms that focus on buttressing national food security but at the expense of farmer income and welfare.

The final concept, and perhaps the most strategic, is agricultural farm diversification. Empirical evidence reveals that farm diversification significantly improves farmer income and is environmentally sustainable (Salim and Supriyati, 2006). On this occasion, the roles of secondary crops are substantial. Horticulture generates higher income than secondary crops, however, capital use is intensive and they are subject to high risk.

In general, wetland diversification has good prospects but faces technical, economic, social and cultural constraints. The following strategic policies should be taken into account (Simatupang *et al.*, 2003): (a) improve the availability and accessibility of technology, capital and extension services for non-rice commodities; (b) develop irrigation infrastructure (pump irrigation, during the dry season in particular), improve yield and institute a price stability programme for high-value commodities; (c) empower farmer groups and develop functional and institutional (profit sharing) linkages with other agribusiness elements in order to boost production, generate additional farmer income and sustainability diversity farming.

Through farm diversification, multifunctionality and poverty reduction can be achieved simultaneously. Agricultural sustainability, specifically a guaranteed agricultural land programme, can be maintained if farmers' income and welfare can be improved. Policy support for non-rice commodity development, secondary crops in particular, is a must

Written by I Wayan Rusastra, Programme Leader of R&D, UNESCAP-CAPSA, Bogor, Indonesia.

FlashBREAKING



Java Earthquake Destroys Productive Assets

The Indonesian (Yogyakarta and Central Java) earthquake has left approximately 100,000 farming households without their productive assets and sources of income. For many of these households it will be difficult to replenish their stocks of agricultural inputs; they might descend into poverty if no help is forthcoming. FAO, consequently, calls for \$5.6 million to restore the agricultural sector, including trading markets and veterinary laboratories as well as to ensure that irrigation systems are repaired and farmers have seeds as well as fertilizers before the next cropping season in October.

FAO, 2006. FAO Calls for Over \$5 Million to Help Indonesian Earthquake Victims, <http://www.fao.org/newsroom/>, (6 June 2006).

Growing Food for the World

One-tenth of humanity resides in rural India, in villages haunted by the perennial specter of harvesting too little food. But now a country that long struggled to feed itself is making preparations to feed the world. Multinational companies are wagering that India could parlay its tropical climate and the latent energies of hundreds of millions of farm dwellers into a position as an agribusiness powerhouse. The vision is to link India's small farmers to global supply chains in agriculture, just as its software writers and call-centre workers have been linked to other segments of the global economy. Global investors are pouring money into ventures to export Indian farm goods, or exploring ways to do so. The trend is fueled in part by the growth of a large Indian middle class and companies interested in serving that market are betting that they can use their foothold in India to cater to the world.

Giridharadas, Anand, 2006. Growing in India: Food for the World. International Herald Tribune, <http://www.iht.com/articles/2006/>, (31 May 2006).

Food Security Alert in Western China

Several provinces in western and northern China are facing food shortages due to a prolonged drought. Five million hectares of winter crops are estimated to have been lost or damaged as a result of inadequate rainfall and higher temperatures, and the areas planted with spring crops have been reduced substantially. The worst-affected provinces are among China's poorest regions and over half of the rural households live below the poverty line as well as having limited access to food.

FAO, 2006. Severe, Prolonged Drought Threatens Food Security in Western China, <http://www.fao.org/newsroom/>, (15 May 2006).

China to Share Farming Expertise with Poorer Nations

China will send at least 3,000 agricultural experts on three-year assignments in rural communities in developing countries to help improve food security. Tesfai Teclé, FAO assistant director-general for technical co-operation, said this would be a major contribution towards achieving the MDG of halving hunger by

2015. The Chinese scientists and technicians will share practical expertise relating to irrigation, agronomy, livestock, fisheries and post-harvest handling of agricultural produce.

Zhao, Huanxin, 2006. China to Share Farming Expertise with Poorer Nations. Science and Development Network, <http://www.scidev.net/news/>, (22 May 2006).

Fiscal Policy for the Poor

Growth, poverty reduction and social peace are all undermined when public expenditure management and taxation are weak and when the fiscal deficit as well as public debt are not managed successfully. Large-scale aid and debt relief cannot work without a good fiscal system. The macroeconomic frameworks of many poor countries are improving, but the full potential of fiscal policy will not be realized until good and accountable expenditure and taxation systems are built. Good fiscal policy can boost economic growth through well-chosen public investment, provided the growth widens the tax base generating the potential for higher public spending on poverty reduction. As such, a poor country's ability to meet the MDGs depends to a large extent on improving the quality of fiscal policy in poorer countries. When examining the effect of fiscal policy on poverty we need to consider the effect of public expenditure and also consider how the resources to fund this expenditure are raised. The impact that public spending has on the poor will be affected by whether they are financed from higher taxation or from deficit financing and inflation. We require better tools to understand spending impacts, which include monitoring peoples' perceptions of whether beneficial change is occurring in their daily experience of the state and its spending as well as taxation decisions

Based on Addison, Tony *et al.*, 2006. Fiscal Policy for Poverty Reduction, Reconstruction, and Growth. UNU Policy Brief No. 5, 2006, <http://www.wider.unu.edu/publications/policy-brief/>, (May 2006).

Farm Investment Slows Migration

More investment by governments in agriculture and the right farm policies would help keep rural populations on the land, thereby reducing migration, according to FAO. In the past 50 years some 800 million people have moved from the countryside to the cities. Rural dwellers currently represent over half 60 per cent of the population of developing countries. The continuing exodus is clearly bound to have profound social, economic and environmental repercussions. However, appropriate agricultural policies can do much to regulate the rate of rural out-migration and ease the pressure on urban centres. The FAO study reveals that not only are governments and communities not investing enough resources in agriculture but they are also failing to appreciate the sector's indirect, non-food importance in the development process. Agriculture's indirect contributions are not well understood, seldom analysed in the context of development and rarely reflected in national or rural development policy formulation. Agricultural growth has often helped reduce poverty more than any other economic sector. The sector has dramatic effects on poverty and hunger not only in rural areas but in urban ones too. Every percentage point in agricultural growth is equivalent to a 1.5 per cent decrease in poverty at the national level, though the benefits are not necessarily distributed evenly between town and country

Based on FAO, 2006. Farm Investment Helps Slow Migration, <http://www.fao.org/newsroom/>, (2 June 2006).

Village Women Become their Own Bankers

Poor village women are among the 5.7 million borrowers from the Grameen Bank, the social phenomenon that three decades ago put micro-credit on the global development marquee. Starting in 1998, 125,000 women in the WORTH pilot project in Nepal launched almost 100,000 businesses and saved \$4 million in three years. The number of women who can read and write has tripled, their savings have more than doubled, their business has quadrupled and total business revenues have increase eightfold. The women have taken an "Appreciative Planning and Action" approach and made it work for them. Groups of women each find a member or another woman in their village who knows the sounds and letters of the alphabet and, with comic book materials, teach themselves to read, write and keep simple accounts. Trained "Empowerment Workers" visit the groups regularly to help them overcome obstacles, but they are not the teachers. The women are their own teachers, seeking knowledge among themselves and from the materials provided. Last year this project saved an estimated \$10 million and the revenue from the micro-enterprises approached \$20 million. WORTH is now being replicated in Cambodia, Kenya, Uganda, Mozambique, Tanzania, Ethiopia and (DR) Congo. This project has proven that women can be successful bankers as well

Based on Lappé, Frances Moore, 2006. Village Women Become their Own Bankers, Wowing the World of Finance, <http://www.gnn.tv/articles>, (23 May 2006).

Plant Genetic Resources Treaty 'Vital' for Food Security

Throughout history, humans have used some 10,000 plant species for food. But today, our diet is based on just over 100 species due to the introduction of a small number of modern and enormously uniform commercial varieties. FAO claims that genetic resources are the raw materials farmers and scientists need to develop new varieties to address potential challenges such as plant pests and climate change. However, every country depends on the genetic diversity of plants in other countries and regions to guarantee food security for their own people. The treaty on plant genetic resources for food and agriculture negotiated by FAO's member states, which came into force in June 2004, will create a multilateral system of access to plant genetic resources. This system, whose purpose is to safeguard the genetic diversity of crops, applies to a list of 64 plant species, selected on the basis of food security and interdependence criteria, including wheat, rice, potatoes and maize, the staple components in the diet of a large proportion of the world's population

Based on Truth about Trade & Technology, 2006. Plant Genetic Resources 'Vital' for Food Security, Says FAO, <http://www.truthabouttrade.org>, (12 June 2006).

Flash EVENTS



First International Conference on Sustainable Irrigation Management, Technologies and Policies

5 - 7 September, 2006

Bologna, Italy

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15th Australian Weeds Conference

Adelaide Convention Centre, Adelaide, South Australia

24 - 28 September, 2006

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Crises in Agriculture and Resource Sectors:

Analysis of Policy Responses

The Coast Plaza Hotel, Calgary, Alberta, Canada

15 - 17 October, 2006

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Symposium on Impact Evaluation of Global Warming and Approach to Risk Analysis

in East Asia

31 October - 4 November, 2006

Taipei, Taiwan

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Book Review

The State of Food and Agriculture in Asia and the Pacific 2006

RAP Publication 2006/03, Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific, Bangkok, 2006

Asia and the Pacific is a dynamic region which faces many problems and opportunities regarding poverty and food security. Agriculture has a major role in alleviating poverty and ensuring food security. Therefore, it is advantageous to be aware of the state of food and agriculture in this region. This publication tries to provide such an overview; it claims to be a forward-looking regional analysis of the Asia-Pacific region and an incentive to well-informed discussions concerning policies that enhance food security for the poor and improve the situation of agricultural production and producers. The publication consists of two parts. The first part gives a general overview of the state of food and agriculture in Asia and the Pacific in 2006. The second focuses in more detail, but still with a general view, on issues concerning disaster risk reduction and trade liberalization. Throughout the publication is a 'concern for the food security of both producers and consumers.'

In the first part the 'State of Food and Agriculture' is described in four sections: "1) poverty and the role of agriculture; 2) production, the environment and natural resources; 3) food consumption and nutrition; and 4) marketing, trade and food security". Section 4 also includes a box concerning contract farming in globalized food chains. The state of food and agriculture is described for Asia and the Pacific as one region, but individual countries and regions are mentioned separately if their situations differ. This section also shows that in general, the situation has improved greatly over the last decades, but that poverty and food insecurity are still widely prevalent. The developments of production of diverse crops, of fishery and of forestry are also presented. The authors indicate that it is difficult to improve the situation by means of price policy, because high prices are beneficial for producers, but harmful to poor consumers. However, it should be kept in mind that many consumers are also producers and that initial negative effects might be offset by adaptations of both production and consumption patterns to the new prices. This part of the publication does not only give a description of the state of food and agriculture, but also offers directions for possible improvements in the situation and provides points to note that one should keep in mind in discussions. The opportunities and constraints of contract farming are described in the box in the trade section, but the policy recommendations given in the box do not relate to contract farming per se. The function of the box is unclear.

The second part consists of two sections. The first section illustrates natural disaster risk reduction and is less descriptive than the first part. However, it is more focused on measures to minimize risks and the negative effects of natural disasters. The authors impute a large role to science in order to understand the causes and effects of disasters to ensure the right measures be taken. Science can also contribute to risk reduction by developing crops that are more resilient to disasters like floods or droughts. Another role is given to the markets: international markets to prevent shortages post disaster as well as stabilize prices; and insurance markets to prevent income losses.

The second section looks at trade liberalization and is more evaluative. The effects of trade reforms on poverty are evaluated. The authors point out that producers and consumers will adapt to the effects of trade reforms, which is expected to have positive effects on the eventual outcome of the reforms. Trade reforms should always be pro-poor. Protectionism is evaluated as a measure that should be avoided where possible, but might sometimes be a useful tool to stabilize prices or to maintain employment in a certain sector. The section ends with a list of general lessons about agricultural trade liberalization.

In short, this publication proves its claim to be a catalyst to well-informed discussions. It provides a good overview and offers points for discussion whilst also suggesting directions to improve the situation. While it could be considered as a good starting point, more detailed information is required to have really well-informed discussions. The publication also aims to be forward-looking, but the various themes require more depth to be truly forward-looking. For example, the relation between agriculture and rural development, in general, merits more attention in view of eradicating extreme poverty and hunger, the first objective of the MDGs. Although no predictions are made, the publication is obviously focused on improving the competitiveness of farmers and food affordability for the poor in the future. Let us hope for and work towards this better state of food and agriculture in Asia and the Pacific

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