

Short Article

# Energy Security vs. Food Security at the Cost of Secondary Crops – India's Experiences in Finding Solutions

Biodiesel has steadily emerged in the last 6-7 years from a trial production in backyard type pilot plants to full industrial type production and marketing with wide and increasing acceptance by the diesel vehicle industry, the fuel trade, and the end-user in a wide variety of market segments. It is gaining popularity owing to its multitude benefits ranging from energy security, employment generation to low environmental problem and has now emerged as a viable technology option as a biofuel in many countries. As agrarian economy with more than 60 per cent dependent on agriculture sector, India cannot afford diverting the existing agricultural land parcels for the production of biodiesel as is done in Europe and USA. Therefore, the Government of India recommended *Jatropha curcas* as a biodiesel plant source for developing the biodiesel technology and therefore it was felt critical to ascertain that the cultivation of *Jatropha curcas*, envisaged as means of energy security especially in the rural India, does not interfere with the food and nutritional security concerns. The effects were visualized more on secondary crops because they were grown more or less in the same parcel of lands, which were competing for cultivation of *Jatropha curcas*. The concern was that the secondary crops may not be able to compete with energy plantation and would thus disappear.

In pursuit of building natural resources assets in rural areas and also towards horizontal expansion of agricultural areas in the wastelands, Ministry of Rural Development, Government of India through Department of Space, carried out nationwide wasteland mapping project using satellite based remote sensing data and assessed the wastelands at the national level. Subsequently using such valuable data, Ministry of Rural Development has implemented several wasteland development programmes. Based on this, the Ministry took up 'National Wastelands Updation Mission' project<sup>1,2</sup>. Using remote sensing of year 2003-2005, it was found that the wastelands have come down to around 56 Mha from 64 Mha in 1998, showing clearly that in 6 to 7 years there has been reduction to the extent of more than 8 Mha in the wastelands<sup>3</sup>. The National Wastelands Atlas indicates the fact that about 35 Mha of wasteland can be reclaimed and made suitable for cultivation, especially agro-horticulture, coarse gains amongst which secondary crops such as sorghum and maize, biofuel plantation, etc. were prominent. With appropriate interventions, efforts are made to rationalize the land use patterns and

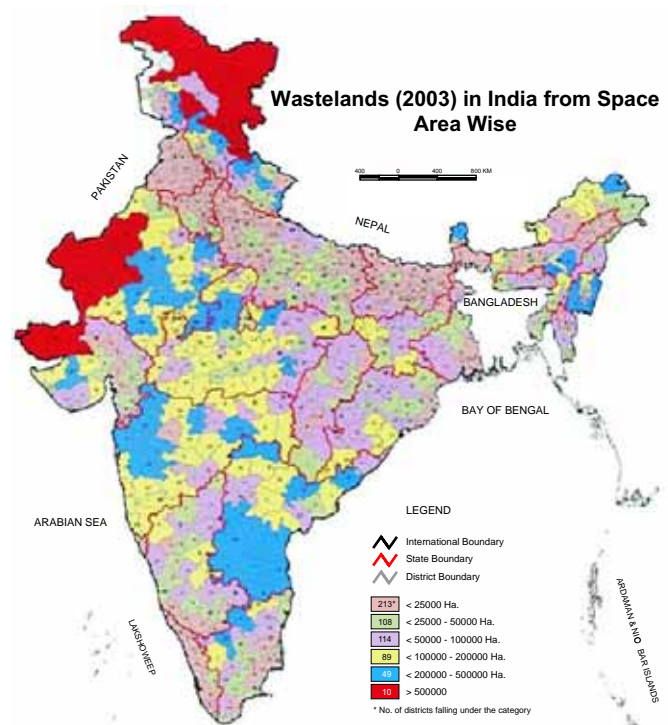


Figure. 1 India's cultivable wasteland to be converted to horticulture, biofuel plantations, secondary crops.

address the conflict arising out of food and energy security concerns. Site suitable for secondary crops as well as energy plantations was identified separately and separated out of the cultivable waste lands.

Satellite remote sensing based products enable 'wasteland identification' suitable for biofuel cultivation as well as secondary crops. In fact, 6 out of 9 categories of wastelands have been identified as potential areas for *Jatropha curcas* plantation as well as for extending cultivation of secondary crops. These include gullied and/or ravinous land and upland with or without scrub, shifting cultivation area, degraded land under plantation crops and degraded pastures/grazing land

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<sup>1</sup> Government of India, Ministry of Rural Development and National Remote Sensing Agency, 2000. Wasteland Atlas of India.

<sup>2</sup> Gautam N.C., Ravi Shankar G., Narasimha Rao K, Nagaraja R, Manoj Raj Saxena, Jayanthi S.C. & Suresh L. S., 2000. Statistical Analysis of Land Use/ Land Cover over India Using Satellite Based Remote Sensing Techniques, Indian Journal of Agricultural Economic Vol. 55, No. 2, April - June 2000.

<sup>3</sup> S. K. Srivastava, C. B. S. Dutt, R. Nagaraja, S. Bandyopadhyay, H. C. Meena Rani, V. S. Hegde and V. Jayaraman, 2004. Strategies for Rural Poverty Alleviation in India: A perspective Based on Remote Sensing and GIS-Based Nationwide Wasteland Mapping, Current Science, Vol 82, No 7, Oct 2004.

### Conference on Agricultural Biotechnologies Stresses Role of Smallholders

The international technical conference held in Guadalajara, Mexico, stated that agricultural biotechnologies in developing countries should address the specific needs of smallholders and, to do so, should encourage their participation and that of all stakeholders in the decision-making process. Making agricultural biotechnologies accessible to developing countries and ensuring that they respond to the particular needs of small-scale farmers and producers will require the support of FAO and other relevant international organizations and donors. This is particularly needed to strengthen national capacities in the development and use of appropriate agricultural biotechnologies directed to the needs of smallholders and producers in developing countries. The conference agreed on the key elements necessary to put agricultural biotechnologies at the service of the developing world: increased investments, international co-operation and effective and enabling national policies and regulatory frameworks.

FAO, 2010. Conference on Agricultural Biotechnologies Stresses Role of Smallholders, www.fao.org (4 March 2010).

### The Challenges of Food Security from the Perspectives of Asian Small-Scale Farmers

FFTC in partnership with Korea's National Agricultural Cooperative Federation (NACF) and Rural Development Administration (RDA) organized the international seminar on Agricultural and Food Policy Reforms: Food Security from the Perspectives of Asian Small-scale Farmers held in Seoul, Korea, 24-28 August 2009. The seminar deliberated on the diverse factors causing the instability and fluctuations in the prices of food products and farm inputs, with the intent to identify sound agricultural and food policy and strategies. It also reviewed the current situation, major issues and problems in food security and agricultural policy in Asia. Agricultural growth is the key to sustainable development and poverty reduction. Hence, in confronting the challenges of food security, agricultural development policy must be geared toward improving domestic food production toward self-sufficiency.

FFTC, 2009. The Challenges of Food Security from the Perspectives of Asian Small-Scale Farmers, www.agnet.org (30 December 2009).

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and underutilized degraded notified forest land. According to climatic conditions, and potentiality for plantation, 26 states of Indian Union have been selected for intensive *Jatropha curcas* plantation throughout the country. All these states put together have 40 million hectares of potential area which could be put to use for expanding diversified agriculture focused on agro-horticulture, coarse grain secondary crops, biofuels, etc. A considerable part has been identified where *Jatropha* could be planted without getting into the agricultural land use conflicts especially at the cost of secondary crops<sup>4</sup>.

It is important to highlight that these activities have been taken

### Dissecting the Poverty Trap in Agriculture: An Agribusiness Approach

Mr. Edward S. Tayengco, the president of the E.S. Tayengco Development Options and Economic Research Services said that mass poverty thrived among farmers of developed countries when they adopted the free-market policy but poverty incidence decreased upon adoption of the public utility policy. Under a public utility policy the symbiotic relationship between the agriculture and industry sector is strengthened and can contribute to the rapid and stable economic growth of developing countries. He also mentioned a new policy 'producer-controlled marketing boards' which objective is to control supply in order to 1) raise farm prices and income; 2) produce market power; and 3) increase production and marketing efficiency. He recommends the Department of Agriculture to study the desirability of organizing and operating boards of developed countries. This way, the Philippines may be a step closer to eradicating mass poverty in agriculture.

Dedicatoria, R M M., 2010. Dissecting the Poverty Trap in Agriculture: An Agribusiness Approach. SEARCA, www.searca.org (26 January 2010).

### Rethinking Poverty Reduction

Last year, the FAO announced that the number of hungry people in the world increased over the last decade. In 2008, the World Bank announced a significant decline in the number of poor people up to the year 2005. According to the World Bank's much cited 'dollar-a-day' international poverty line, which was revised in 2008 to \$1.25 a day in 2005 prices, there are still 1.4 billion people living in poverty, down from 1.9 billion in 1981. More than 80 per cent of the world's population live in countries where income differentials are widening. The poorest 40 per cent of the world's population account for only 5 per cent of world income, while the richest 20 per cent account for 75 per cent. The most important lesson is the need for sustained rapid growth and structural economic transformation. Governments need to play a developmental role, with implementation of integrated policies designed to support inclusive output and employment growth, as well as to reduce inequality and promote social justice.

Sundaram, J.K., 2010. Rethinking Poverty Reduction. Project-Syndicate, www.project-syndicate.org (15 January 2010).

up by end-user themselves to find ways towards addressing both food and energy security in rural India and made considerable investments in terms of promoting rural employment, diversified agriculture, soil and water conservation measures. It is also important to highlight such efforts that were based on the objective information from satellite remote sensing leading to harmonization of land uses and to bringing into focus the elements which are suitable for biodiesel plantations as well as growing secondary crops in the reclaimable wastelands.

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(References available upon request)

<sup>4</sup> The Mahatma Gandhi National Rural Employment Guarantee Act: Manual for Bharat Nirman Rajiv Gandhi Seva Kendra for Block and Gram Panchayat level, 2010, Ministry of Rural Development, Govt of India.

### Sustainet – Scaling up Sustainable Agriculture

Many sustainable technologies and approaches have been developed and tested locally for sustainable agriculture. But how can these be more widely adopted? Based on the analysis of 39 best practice projects on income generation, poverty eradication and protection of environment in India, Kenya/Tanzania and Peru/Bolivia, this article seeks to answer that question. In all three project regions, the identified best practices were first analysed in a self-assessment by the local partners who had developed these practices. In writeshops, the results were written down as success stories. Some of the success factors and obstacles in scaling up have also been depicted. Then, the 39 best practice projects have been analysed scientifically by ZALF (Leibniz Centre for Agricultural Landscape Research) through a decision-support tool 'ScalA' (Scaling-Up Assessment Tool) which it developed. Success factors in ScalA have been classified in seven categories, ranging from the attributes of the best practice to the political and institutional framework. ScalA assesses a total of 59 success factors in these categories. Results of the assessment indicate deviation (in percentage) from the ideal conditions for scaling up. The diversity of information integrated into ScalA allows for a detailed assessment of the scaling-up potential in different project phases. The tool can also be used at the project design stage, in order to ensure a high probability of success in scaling up. Moreover, ScalA can be applied during project implementation at 'adjustment points' to identify weaknesses and adjust the scaling-up strategy. In situations that do not scale up satisfactorily by themselves, decision-support tools like ScalA can assist with developing appropriate strategies. ■

Based on Rural 21, 2010. Sustainet: Scaling up Sustainable Agriculture, www.rural21.com (02/2010).

### Sustainable Utilization of Biomass and Other Organic Wastes As Renewable Energy Sources

The main challenge facing Asia region's energy sector is how to continue to provide sustainable services for economic growth without jeopardizing long-term prosperity. Some countries are now in the forefront of modernizing bioenergy, including efficient use of biomass for large-scale industrial heating, power generation, and co-generation. Efforts are also geared toward the commercialization of technologies. Issues on bioenergy and biofuel development are drawing much attention because of global concerns following high energy prices, environmental degradation, sustainability of current energy systems and the competition of food crops versus energy crops. A careful consideration and understanding of these and other factors and their linkages to bioenergy development must be carried out at all levels. Impact on food security is one of the core social factors to be considered in bioenergy development. Access to adequate and affordable energy is basic to guaranteeing the well-being and development of rural populations on a sustainable basis. The innovations and enhancement of energy-converting technologies have a stabilizing effect on the balance between food and energy security. In further promoting sustainable bioenergy development, there are several major areas that require particular attention: more aggressive technology transfer initiatives through information and communication campaigns; promoting second-generation biofuels, for providing a larger proportion of fuel supply sustainably, affordably, and with greater environmental benefits, by using biomass comprised of residual non-food parts of crops, as well as other non-food crops such as switch grass and *jatropha*. ■

Based on FFTC, 2009. Sustainable Utilization of Biomass and Other Organic Wastes As Renewable Energy Sources, www.agnet.org (24 December 2009).

### Climate, Agriculture and Food Security: A Strategy for Change

The Consultative Group on International Agricultural Research (CGIAR), established in 1971, is a strategic partnership of countries, international and regional organizations and private foundations supporting the work of international agricultural research centres and Challenge Programs. In collaboration with national agricultural research systems, civil society and the private sector, the CGIAR strives to foster sustainable agricultural growth through high-quality science aimed at benefiting the poor through stronger food security, better human nutrition and health, higher incomes and improved management of natural resources. Climate has been central to much of the work of the CGIAR centres and new technologies and knowledge resulting from this work include hardier crops and better ways to manage trees, livestock, water, soil and fish. Thus, the centres and other Challenge Programs have already contributed insights into the role of agriculture, forestry and fisheries in addressing both mitigation of, and adaptation to, climate change. The CGIAR Challenge Program on Climate Change, Agriculture and Food Security (CCAFS) is a new drive to help deal with an escalating problem. Developed by the Alliance of CGIAR Centres and the Earth System Science Partnership (ESSP), it aims to ensure that we can sustainably produce sufficient food, fodder and fibre for a growing global population under a changing climate. The CGIAR centres, their partners, and the international science community will continue to provide the solid basis of scientific understanding to assist policymakers as well as the public and private sectors in developing strategies for sustainable development and food security under climate change. ■

Based on CGIAR, 2010. Climate, Agriculture and Food Security: A Strategy for Change, www.cgiar.org (December 2009).

### Towards Food Sovereignty

Most of the world's food is still grown, collected and harvested by over 2.5 billion small-scale farmers, pastoralists, forest dwellers and artisanal fisher folk. This food is primarily sold, processed, resold and consumed locally, with many people deriving their incomes and livelihoods from seed to plate. Such localized food systems provide the foundations of people's nutrition, incomes, economies and culture throughout the world. But despite their current role in and future potential for meeting human needs and sustaining diverse ecologies, local food systems – and the organizations that govern them – are largely ignored, neglected or actively undermined by governments and corporations. Encouraging people to move out of the primary sector and get jobs in the largely urban-based manufacturing and service sectors is seen as both desirable and necessary, regardless of the social and ecological costs. However, regenerating autonomous food systems – with, for and by citizens – is a key challenge in this context. Reclaiming such spaces for autonomy and well-being depends on strengthening the positive features of local food systems and on large-scale citizen action grounded in an alternative theory of social change. This is the historical context that gave birth to the concept of 'food sovereignty'. Food sovereignty is a relatively new political concept, first brought to international attention at the World Food Summit organized by the United Nations Food and Agriculture Organization in 1996. Food sovereignty policy framework for food and agriculture is also a citizens' response to the multiple social and environmental crises induced by modern food systems everywhere. ■

Based on Pimbert, M., 2009. Towards Food Sovereignty. IIED, Gatekeeper no. 141, www.iied.org (November 2009).

## Investing in Food Security

Food and Agriculture Organization (FAO), Rome, Italy, November 2009.

**D**ebate on food and nutrition security is increasingly moving from a techno-managerial approach to human rights frameworks. While availability, accessibility and stability form the triads to ensure household level food security, there are host of other issues related to cultural, social and economic factors that govern the entire food economy. Historically, apart from family production, governments had major role in food supply for ensuring household level food security. However, increasingly, market led solutions are sought to be harnessed in order to ensure food security at the household level. At the macro level, policies related to agriculture development and trade also play crucial role in determining the trajectory of food security of countries. Private sector participation at the intersections of agriculture production, post-harvest value addition, seeds and technology and distribution, etc. are captured in this 30 page booklet "Investing in Food Security", which identifies 12 interesting areas for investment in order to address food security issues.

This booklet brings out rationale, situation analysis, possible intervention (through public and private investments) strategies in the areas of – agro-processing, storage and food safety, sustainable and intensive production processes, farm inputs including fertilizer, food safety measures, securing food future production through irrigation, mechanization for agriculture development, development of national seed systems, linking agriculture to nutritional security, livestock (meat) production and consumption, small-scale dairying and controlling trans-boundary animal disease for economic development– in order to ensure food security. It demonstrates that, investments in these aspects by public and private sectors would augment agriculture production, diversification, employment and ultimately household food security. What is distinctive is that it attempts to provide regional forecasts of market investment potential in these areas.

There are certain cross cutting prerequisites for harnessing the potential of investments in agriculture and allied activities outlined above. Public policy need to be focused on technology and R&D, rural infrastructure development including connectivity, creation and development of markets and market intelligence, human resource development, entrepreneurship development, credit and financial services and finally institutions and governance mechanisms. An important dimension in this respect would be learning from experiences elsewhere and adaptation to the conditions and stage of economic development of countries. This is where technical assistance and support from multilateral agencies like FAO and its technical wings become critical.

There is also a need, however, to address some of the structural features related to agriculture and rural societies in most developing countries. While landlessness is a perennial

issue of vulnerability and marginalization for millions of poor in most developing countries, dispossession and alienation of land (for industrialization) is increasingly becoming an issue of concern for millions of poor and subsistence farmers in most countries of South Asia and Africa wherein agriculture is a way of life! Apart from this, introduction of genetically modified seeds is still controversial in the context of the existence and notions of sustainable agriculture. These are some of the issues that need to be addressed for sustainability of agriculture.

While the 12 themes of the booklet are laudable, the inter-relationships need to be explored and enunciated further and be contextualized for different regions. For example, interlocking of markets is still a phenomenon in South Asian agriculture, where in credit, input and product markets remained in the clutches of exploitative intermediaries. Formal market penetration is slow and remained at the periphery even with the advancement of technology and communications. Similarly agriculture extension services are almost defunct in many countries. In such contexts, to what extent market based solutions for sustainable agriculture and food security needs to be elaborated.

What comes out as a central message from the booklet is that regulation and governance play important role in determining the efficacy and efficiency of market based interventions with respect to agriculture development and rural transformation and concomitant food security. While the role of the government is important as a regulator, it is also important to create mechanisms of community-led governance systems for effective and efficient interventions, be it in the form of co-operatives like seed and user groups for irrigation management, for extension services and contract farming.

One important dimension that the booklet acknowledges is that of nutrition security which would mean greater role for secondary crops, contrast to emphasis on rice and wheat based production. Thus, there is a need to address issues of technology, extension services and market interventions in terms of remunerative prices for these crops, implying greater government interventions as private market players may not be best to address such issues of balanced production especially among smallholders. Similarly premium for sustainable agriculture, through organic farming or integrated pest management would also require substantial facilitation by non-market actors. That market based solutions and PPPs have some limitations vis-à-vis promoting goals of sustainable agriculture and food security, needs to be recognized. ■

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