Strategies for Increasing Food Production in Sri Lanka: Some Suggestions for Government's Food Production Drive

Prof. H.P.M.Gunasena

Advisor,
Ministry of Agricultural Development and Agrarian Services.

Abstract

The agricultural sector of Sri Lanka is of considerable economic significance as it forms the major source of employment and livelihood of nearly 72% of the population. The current initiatives of the government to accelerate the development of the agricultural sector are most timely to address the issues relating to domestic food production as a means to increase farmer incomes and reduce poverty, particularly in the rural areas of the country. The agricultural sector has not performed satisfactorily in the past two decades due to various reasons; vagaries of weather, escalating cost of inputs and scarcities of labour. As a result of lagging agricultural production food imports have increased tremendously and the country is virtually becoming a food importing country. Unlimited food imports could have serious repercussions such as rural unemployment and underemployment and increase poverty. Therefore multiple strategies have to be adapted through an innovative agricultural research and extension system. The overall strategy to increase the productivity of the agricultural sector should focus on human resources development, improving access to resources, improving markets, infrastructure and institutions, technology development and dissemination of information through an effective extension system.

Introduction

The Economic Policy Framework of the Government has emphasised on food self sufficiency and nutrient security through modernization of agriculture, with particular attention on increased production, processing and value addition using updated post harvest technologies. The main objective of this policy is to improve the livelihoods of both the urban and rural people, with more emphasis on the rural populations who are dependent of agriculture as the main form of employment. This approach is of utmost importance to promote rural development and reduce wide spread poverty in the rural areas of the country. The poverty incidence in Sri Lanka is relatively high in comparison with similar levels of income and remained more or less static in the last ten to fifteen years. Wide regional disparities exist, about 8% in the Colombo district and 30 % in the Moneragala and Hambantotota districts. Unfortunately little has been done to identify the determinants of poverty and the factors underlining the movement of poverty among the regions. It is very clear that to reduce poverty, agricultural development has to be accelerated, through various strategies; accelerated production programmes such as the "*Api Wawamu – Rata Nagamu*", through an effective national agricultural innovation and extension system.

Performance of the agricultural sector

The agricultural sector of Sri Lanka has not performed satisfactorily and lost its momentum over the past two decades. The crop yields are low by all standards, land use intensity is far below the average and household incomes are at the lowest ebb as never witnessed before. The rising cost of production and high cost of living have made farmers to give up agriculture. The farm - gate prices have not kept up with the rising cost of production, mainly inputs and labour. This sector has been confronted with various problems such as low genetic productivity of crops and often subjected to the vagaries of weather. The area under rice has declined over the years due to urbanisation and lack of labour and incentives for maintaining production. Abandoned rice field are a common sight in most of the urban areas of Colombo, Kurunegala and Gampaha districts. The current extent of production is 817,000 ha with a sown extent of 525,643 ha and 291,649 ha in the Maha and Yala seasons respectively.(Central Bank Report, 2007).The rice yields have remained constant from 2004 to 2007 with an average of 4112 kg/ha and the total production of 3,138,000 tonnes. Today, about 800,000 farm families depend on rice cultivation for their livelihoods. This means that about 4 million people are dependent on paddy farming. Stated differently, about 20% of the country's population has a significant dependency on paddy farming. Therefore the performance of the paddy farming is a serious economic, social and political concern for the country. The paddy yield has made only a slight increase during the past decade; the yield /ha in 1998 was 3636, which was increased up to 4137 kg/ha in 2006. The Department of Agriculture estimates a yield potential of 12 t/ha for new high yielding varieties, although at field level the achievement is less than half of the potential yield. If the farmer's yield is increased to 5 t/ha, then the supply could be increased to meet the demand. How can this be done? The national yield is calculated on the overall performance of the rice sector, which include both the high and low yielding areas of the country. The farmers in the Granary areas such as Polonnaruwa, Ampara, Batticoloa, Anuradhapura, Hambantota and Mahiyangana produce very high yields of over 5 t/ha even at present; hence efforts should be concentrated in these areas to make this country self sufficient in rice. In 2006 wheat imports were in the region of 952, 000 tonnes costing Rs. 25.89 million (Central Bank report, 2007); this expenditure could be averted if the rice production is increased.

Other field crops have not shown any dramatic increase except for Bombay onions and maize (Central Bank report, 2007). There is no clear trend in yield in other field crops, given the highly weather dependent nature of production. The increase in maize yield is probably due to the recent introduction of hybrid seeds. Maize is used by the livestock provender industry

and most of the requirements are imported. Soybean extents have also shown an increase from 650 ha in 2001 to 3000 ha in 2005. Fruits and vegetables are often seen as money spinners, both in the domestic and export markets. Sri Lanka produces about 190,000 tonnes of vegetables annually. The fruit production has decreased, which may be due to weather factors or unrestricted imports. The per capita consumption is low compared to other countries such as Malaysia and Thailand and much lower than in the developed world. The use of unimproved varieties and obsolete cultivation technologies lead to poor yields. The small scale nature of growing, lack of support systems for farmers and poor marketing facilities have restricted the absorption of newer technologies that are available in the region.

The gradual reduction of agricultural land, agricultural population and agricultural labour, land degradation and declining per capita land pose a threat to future productivity. The majority of those engaged in agricultural production are small growers, holding land extents less than 0.2 ha. The per capita land availability is declining further due to population pressure, urbanisation, industrial and housing development. The water scarcity is another problem, and forecasts indicate severe shortage of water in the next 25 years. There is also a competitive demand for water by expanding industry at the expense of the agricultural and domestic demand. The water scarcity is a wider issue, but severely felt in the drier areas of the country. The decision to dig deep wells as a solution to water scarcities in the dry zone has created further problems due to the falling of water tables and slow recharge rate of wells. The Ministry's decision to renovate 100,000 tanks was a wise decision as water storage is the long-term solution to this problem. Besides, water harvesting techniques have been introduced to the dry zone areas to harvest rainwater for domestic purposes and on a limited scale for growing crops.

The foregoing information clearly indicates the problems associated with increasing agricultural production in the present context to meet the basic needs of the population. It has to be noted that the easier options for increasing production such as expanding the area of cultivation or adding extra amounts of fertiliser is no more available. In the years to come, Sri Lanka, similar to other countries will have to produce more and more food from less and less land. The threats to food self sufficiency and security will be the rising commodity prices, land diversification for various other non agricultural purposes, slow rate of agricultural growth, stagnation of farmer incomes, environment degradation and climate change and changing consumer habits, food demand and the rise in super markets.

The fundamental challenge facing agricultural development in Sri Lanka are, firstly, to increase domestic food production in a sustainable manner to meet the food requirement of the increasing population and secondly, to increase the volume of exports Therefore , Sri Lanka has to increase domestic food production so that it could target to match with the increasing demand. Every effort has to be made in this direction using local resources and any available external aid. At present Sri Lanka imports large quantities of food, most of which could be produced locally. During 2003 – 2006 rice imports declined, but due to the current food crisis in 2007/2008, 88,000 tonnes were imported at a cost of Rs, 4.26 million. The local sugar production is only 8% of the requirement and 481,000 tonnes of sugar was imported at a cost of Rs.17.06 million. The import of milk and milk produced increased from Rs.13,401 million to Rs.20,688 million . The imports of other food items such as garlic, pulses, chillies, onions, potatoes also increased over the years. The fruit imports mainly oranges, apples, grapes, and fruit juices cost the country Rs. 1503 million (Ministry of Agriculture Development and Agrarian services,2008). The liberalised trade has been a major disincentive for the growers to increase local production. In other words, Sri Lanka is virtually becoming a food importing country. The agricultural sector employs 31% of the population, but over 72% are dependent directly or indirectly on agriculture in the rural areas. The unlimited commitment on food imports could lead to serious repercussions such as rural unemployment, and underemployment, increased poverty leading to a volatile situation where the poor becomes politically helpless and in despair. Examples of rural youth unrest causing social and economic problems have been witnessed in many parts of Asia. Therefore, to overcome these problems, proper agricultural and food production policies have to be developed and implemented.

Strategies for Increasing Agricultural Productivity

The overall strategy for increasing productivity of the domestic agricultural sector should focus on the following criteria: investment on human resources, improving access to productive resources and remunerative employment, improving markets, infrastructure and institutions, technology development through demand driven research and dissemination of proven technology to the end users, sustainable natural resources management, internal trade and macroeconomic policies and good governance. Some of the selected direct measures are discussed below:

One of the basic requirements for increasing agricultural productivity is the availability of inputs at reasonable cost. In most cases the farmers have no access to these inputs due to either non availability at the time required or high cost. Hence they resort to the use of inputs of lower quality, resulting in poor yields. Most countries, even the African countries use hybrid seeds, while Sri Lanka continues to use traditional seeds and plant materials. The hybrid seeds have the advantage that the yields are higher and uniform, but the seeds have to be replenished every season which is costly compared to the use of local seed. It is necessary that hybrid seeds should be freely available, but the seeds imported by private seed merchants are very expensive. They are not even tested under local conditions and often fail to sustain the subsequent seasons. Department of Agriculture has made some attempts to develop hybrid seeds of vegetables such as tomato, brinjal, bitter gourd and several other crops, but their availability is limited due to small quantities produced and poor distribution systems. The availability of fertilizers and agrochemical at reasonable cost is also an aspect that needs attention. The annual imports of fertilizer from 1998 - 2007 has been in the region of 500,000 tonnes at a cost of Rs.21.5 million. Fertiliser subsidy for rice has been in operation for several years, but is not clear whether it is used for rice or other crops as lots of malpractices have been reported in the distribution systems.

Agricultural marketing has been an intractable issue. Government institutions have failed and

private sector efforts have been totally inadequate. Although the ultimate solution lies in making markets more competitive, interventionist measures have to be introduced to make such developments. Unsatisfactory marketing has been responsible for increasing the prices of consumer goods as seen in the recent past. Rice is a case in example. In addition, spoilage, poor packing, lack of grading and storage facilities have contributed to the loss of agricultural produce, which in turn results in higher prices. Therefore the biggest incentive for increasing agricultural production is the development of marketing channels to enable the producers to obtain reasonable prices for their commodities. To satisfy the farmers and encourage continued production the produce has to be marketed through proper channels. Today, both the producer and the consumer get a raw deal, while the middlemen exploit the situation. The modern concept of value chain development throughout the entire system from production and marketing and consumption or "agri-business" should be introduced. The value chain involves primary production, input supplies, intermediate services, primary processing, secondary processing and front-line marketing and sales. Value addition will enhance the prices by about 25 -400% depending on the crop and the level of processing. The value addition from paddy to rice increases the price by 35%, soybean to flour by 25% and potato to potato chips by 400% (Ali, 2008).Generally processing by using machinery will boost agricultural production by 10-15%.The value chain approach will consider the expectations of all the stakeholders. It will make agriculture a business rather than a way of life. Moving a step further, branding of products will expand both local and international markets. Branding has been adopted by some private companies for tea and rice and many other consumer products in the processing industry.

Technology Generation and Application

There is considerable evidence that agricultural research has led to significant increases in productivity and enhanced incomes of the farmers. The classic example is the Green Revolution era when the cereal crop yields doubled due to the use of improved varieties coupled with high input use. In Sri Lanka the rice yield which was only 1.2 mt/ha in 1960s increased up to 3.7 t/ha in 1980's and the total rice production increased by three fold. The improved rice varieties were very attractive for the farmers and with little extension support the adoption rate was as high as 90%. The phenomenal achievement of cereal yields averted a famine in India in early 1970s and a serious food shortage in many other countries, including Sri Lanka. However, these technologies have created havoc in all the countries which adopted them due to severe environment degradation. The excessive use of chemical fertilizers has turned the soils sick, while pesticides have polluted the environment, with long- term repercussions. The Green Revolution has become Brown and efforts should be made to make it Ever Green. The Green Revolution technologies were more pro-rich than pro-poor, more for landed than landless and more for men than women. The inequity in technology adoption has worsened the situation for the poor and increased poverty in rural areas.

Agricultural research in Sri Lanka is conducted by a large number of state sector research institutions and a few private sector organizations. Due to the proliferation and fragmentation of state agricultural research institutions, the research is not well organized, lacks focus and out comes have been insignificant. The main problem is that the research is not directed to solve the problems of the poor farmers. Unlike other Asian countries, there is no apex body with sufficient authority to define research plans and agendas, coordinate and provide funds for priority research and implement them. It is necessary to put in place a strong and foreword looking apex body to coordinate and oversee research as part of a national agricultural innovation strategy (Janssen,2003). The Sri Lanka's national research system has to be fully reorganised to orient their research for the benefit of the farming community of the country. The current investment on agricultural research is only 0.2% of the agricultural gross domestic product (AGDP), which is highly inadequate. The funding also gets mixed up with the subsidies for fertilizers and other credit programmes; hence gets distorted in farmer decision making. The subsidies are roughly three times higher than spending for research and extension. It is necessary for the government to decide the best way of spending public funds for agricultural development.

In general, agricultural research is a neglected area of this country, but unless new technologies are generated and put into use the economy will always stagnate. Technology, in agriculture or industry is the path to development of any country and Sri Lanka is sadly lagging behind compared to other countries; among the Asian countries China and India have made massive advances in technology generation and application.

If the research is to benefit the poor farmers, they will have to adopt them. There are several issues that arise here. If the farmers are to adopt the research they have to be directed towards their needs and should not carry uncertainties and risks. Some technologies developed for harsh climates are highly unreliable due to lack of research into development, assessment and refinement. The farmers should be adequately educated and willing to adopt the technologies. The new technologies have to be appropriate to the farming conditions and the farmers should have the knowledge and the required skills to use them. The most valuable resource in Sri Lanka is the human population, which is currently 20 mn. Even illiterate men and women can be made productive provided the the training is relevant and demand driven. This means that sufficient investments have to be made on developing human capital. Therefore, education has to be given the highest priority, to encourage the rural youth who are evading agriculture to attract them for farming. This will be the best investment as agriculture will remain as most economic activity in the rural areas for many years to come, and to dissuade youth from searching for white collar jobs. Attracting youth to farming will be the gate way for future agriculture in Sri Lanka and the whole of the Asian region. They will be able to harness the better flow of sophisticated knowledge and skills in developing agriculture and enhance agricultural productivity.

New technologies are being continuously introduced to agriculture to enhance productivity and one of them is the use of biotechnology. Sri Lanka, like other developing countries, is pinning great hopes on biotechnology to increase food production alleviate poverty and malnutrition and even to solve economic problems. Biotechnology involves the use of living organisms or parts of living organisms to generate new methods of production, make new

products and find ways to improve the quality of life through diverse applications in medicine, agriculture, industry, energy and environment management. Biotechnology is not new as fermentation for making alcohol, beer, vinegar, curd etc. are well known. But, modern biotechnology has broken more barriers such as DNA finger printing and genetic mapping, functional genomics and marker assisted breeding and transgenic or genetically modified crops. The most compelling case for biotechnology is its capability to contribute to increasing crop productivity, conserving biodiversity and land saving technology, more efficient use of inputs and sustainable production (Patil, 2008). The biotechnological research in Sri Lanka is at an infant stage and no serious breakthroughs have been made so far. Micro propagation or tissue culture is being widely used for the propagation of horticultural and floricultural plants, again on a limited scale. The biotechnological research and generation of technologies are high cost and require highly trained scientists and infrastructure, the settings which are available in developed countries. In Asia, China and India has made massive technology advancements through heavy investments on biotechnological research. Biotechnology is a pro – rich, however, its applications should not be too costly and within the reach of the farmers.

There is a growing trend towards organic products world over, hence organic agriculture offers scope for farmers to produce healthy foods for the local and export markets. The high input agriculture has created immense health problems such as cancer, diabetes and cardiovascular diseases, hence the preference for pollutant free foods are increasing. Some health conscious European countries such as Sweden, Norway, Denmark, Switzerland and Austria have converted to organic agriculture long ago. Organic farming is relatively new to Sri Lanka, yet the progress has been rapid. Organic tea, cashew, desiccated coconut, spices; few varieties of fruits are the main exports, with tea as the major product. Sri Lanka can be on the forefront in the export of organic products, which should be encouraged. Organic certification is a problem and Sri Lankan standards have to be developed in line with the international standards such as the International Federation of Organic Agriculture Movement (IFORM). The organic agriculture programmes are practiced by the private sector and the achievements have been substantial in terms of product diversification and exploration of markets.

In most countries, conventional agriculture is blended with modern intensive crop production systems. One of them is the controlled environment agriculture which involves the scientific production of crops under controlled environments. This system harnesses the genetic potential of the crops under controlled environments, which cannot be achieved under normal field conditions. The initial cost of this technology is high, but out weights due to high yield, high incomes and the ability to grow several crops year round. The common crops grown are bell peppers, tomato, green cucumber, broccoli, lettuce and strawberry. The yield of tomato is about 300 t/ha compared to 25 t/ha under open agriculture. These crops with better quality can compete in the international markets; they also cater to the hotels and tourist industry. This intensive system is ideal for middle class agriculturists for growing fruits, vegetables and foliage plants for export.

The devolution of the agricultural extension services to the provincial councils under the 13th Amendment to the Constitution of Sri Lanka has created two major linkage problems. First, there is a disconnect between the national Extension and Training Centre of the Department of Agriculture and Provincial departments of agriculture. Therefore, there is no common strategy or approach about how provincial extension programmes are being planned and implemented. Some of the provincial departments are performing satisfactorily, while a majority of them are backward, using outdated technologies for agricultural extension. These are the ones that lack resources, mainly managerial expertise and leadership skills. The second serious problem is the disconnect between the research which is centralized and the extension which is devolved to the provinces. Having a centre of excellence for agricultural extension is necessary for the research outputs to be carried to the farmers. Otherwise the whole effort in research investment will be wasted. In most countries the extension systems have been modernised, they use modern communication technology to reach the prospective clients (Anon,2007).

Conclusion

Sri Lanka's domestic agricultural sector has been performing below the potential over the past two decades. The crop yield has declined, the land use intensity is below average and the farmer's incomes are extremely low. The rising of input costs, high cost of labour and lack of proper marketing has mad e farming highly unprofitable. The need for achieving food self sufficiency is felt more than ever before and revitalizing the agricultural sector is most timely. It is necessary to analyze the reasons for this failure and take appropriate corrective measures. The formulation of forward looking policies and strategies and action plans for achieving the targets will be essential. Basic needs for modernising agricultural sector will be the development of human resources with the required knowledge and skills, demand driven pro-poor based research agendas, introduction of cost cutting and labour saving modern technologies, effective extension services, input supplies and support systems.

References

Ali, N. (2008). Agricultural mechanization and post harvest management for higher productivity and profitability. Proc. Science based agricultural transformation towards alleviation of hunger and poverty in SAARC counties, New Delhi, India, 5 – 7 March

Anon. (2007). Reviving Sri Lanka's agricultural research system – Towards more innovation and market orientation. The World Bank (Unpublished report)

Central Bank of Sri Lanka. Annual Report, 2007

Janssen, W. (2003). Trends in the organisation and financing of agricultural research in developing countries: Implications for developing countries. ISNAR Report No.22. The Hague: International Service for National Agricultural Research (ISNAR).

Patil, S. A. (2008). Cutting - edge technologies, new farming systems and diversification. Proc. Science –based agricultural transformation towards alleviation of hunger and poverty in SAARC counties, New Delhi, India, 5 -7 March.

■