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Big boost for Agricultural Research

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The Government in this year's budget has allocated Rs. 100 million to the Council for Agricultural Research Policy (CARP) for research in the crop, livestock, forestry and fisheries sectors. These funds are available to both the state and private sector institutions to undertake research on high priority research areas. The Council plans to allocate these funds through a Competitive Contract Research Grants Programme, which has been already advertised. These funds will be available for demand driven research to ensure high factor productivity to ensure sustainable domestic food supplies and excess for export. In the long term this investment will enable the country to achieve self-sufficiency in all domestic food needs and maintain a sustainable food production system. This investment will be of crucial importance to the growth of the economy as technological improvements are essential to increase agricultural productivity. Investment in agricultural research will increase returns to the farmers and farm labour thereby reducing poverty and meeting the future food needs at reasonable prices without irreversible degradation of the resource base. Accelerated investment on agricultural research is a must to Sri Lanka as it will not be able achieve reasonable economic growth and poverty alleviation without such investment.

Agricultural research has been underfunded in the past three decades. Research intensity or R&D investment as proportion of the agricultural GDP is lower in Sri Lanka as in the developing countries. In the developed countries the research intensity is about 5%, when compared to 0.6% in the developing countries. In Sri Lanka the figure is 0.52%. Due to inadequate funding and many other complex issues the national research system has not performed well in the past. Consequently the impact at farm level has been insignificant. It is strategically important to attract more funds for research, both from the government and other sources, private sector and donor funding to develop a dynamic research system to have significant impact at the farm level to face the challenges of the agricultural sector. The additional funds received this year will certainly help to make a good start to revitalize the national agricultural research system. In addition, efficient use of the existing resources of the research institutes should be increased through improved research management, organization and increased linkages to exploit the complementarities between various participants within the national agricultural research system. The research institutes will also be required to respond to new challenges from innovations in basic research and cutting edge technological advances made in the developing countries as the spill overs could be used at farm level without duplicating the research efforts and more cost effectively. It is also necessary to have more client-oriented research in order to enhance the relevance of research to the main clients, the farmers and the private sector entrepreneurs. In essence, a dynamic research system is essential to develop a dynamic food production system.

Agricultural research will be called upon to play a greater role in the future in increasing the productivity of the agricultural sector due to the increasing population and pressure on land and irrigation water which are rapidly shrinking resources. With the above constraints the country will have to depend on the research and human capital instead of attempting to expand the above resources, which may be impossible or if attempted it will be at a tremendous cost. Due to the open economic policies there will be far reaching implications for the national research system to exploit improved technology to meet the food demands of the increasing population. In the past emphasis has been on agricultural research based on the achievement made in the Green Revolution, which involved high input use and diversified cropping patterns. Although the productivity improved by severalfold in crops such as rice, wheat and maize it was associated with significant ecological damage. Now it is urgent to invest on technologies, which have the least ecological or social harm in order to provide more food and other farm products, expand employment and increased income to the farmers. The present trend is on the efficiency of input use and to sustain the natural resource base. Agricultural production has also shifted from earlier concept of increasing yield to utilizable production of the whole chain that links the producer and the consumer. This could be attributed to several factors. The Government is moving towards policy setting and infrastructure development role with the liberalization of the economy.

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The objective is to reduce the transaction costs while encouraging private sector greater access for resources, particularly, credit and information. A paradigm shift has taken place from primary production to development of secondary products as demanded by the consumer. This will bring better utilization of the primary products, value addition and income generation at each stage of the production - consumption continuum. This approach will closely integrate the agro-industries to the production system, unlike in the past where the agro-industry was considered a separate entity.

This approach will increase farm incomes and enhance employment opportunities at the rural level, which is crucial to the sustenance of agriculture. Therefore the research has to focus on completely different issues. While high productivity has to be maintained, product development will be primary key issue. This will include biochemical characterization and other physical components affecting nutritive or industrial processing of primary products, developing genes involving such qualities, germplasm enhancement, post harvest mechanization, storage and by product utilization. Therefore, research should not only focus on yields increments, but also on product utilization, which will generate more income and employment. Therefore a paradigm shift from technology development for the sake of it as done in the past has to be oriented to the type and quality of product as determined by the consumer demand and not by the available technology.

The state sector institutions handle agricultural research in Sri Lanka traditionally. The main ministries involved in agricultural research are the Ministry of Agriculture and Livestock through the Departments of Agriculture and Export Agriculture in the crop sector and the Department of Animal Production and Health and the Veterinary Research Institute in the livestock sector. The Department of Agriculture has three main crop research institutes, Horticultural Research and Development Institute, Field Crop. Research and Development Institute and the Rice Research and Development Institute and under them several regional research development centres catering to the regional needs. During the colonial period three separate institutes have been established for tea, rubber and coconut research as they formed the traditional exports of the country, which continues up to the present. These research institutes function under the Ministry of Plantation Industries. Other ministries involved in agricultural research are the Fisheries and Ocean Resources, Science and Technology and Forestry and Environment. An anomalous situation exists with regard to sugarcane and cashew, which were previously under the Ministry of Plantation Industries but now assigned to the Ministry of Cooperatives. The dispersion of agricultural research under several ministries also makes it difficult to manage research programmes effectively.

The universities also undertake considerable volume of research and these are mostly concentrated in the Faculties of Agriculture, Veterinary Medicine and Science. There are also two postgraduate Institutes for Agriculture and Science, which are unique institutions due to their autonomous nature in the university system. The universities have access to highly qualified well-trained human resources and they form a formidable group of researchers, although not an integral part of the national agricultural research system. These institutions are mainly responsible for developing higher-level human resources for agriculture sector in both state and private organizations. Although the universities conduct research, they are not in the main stream of research unlike in the case of India and some of the other south Asian countries. All higher educational institutes are under the Ministry of Tertiary Education and Vocational Training; hence there is no direct link to the line ministries, which implement agricultural research. In fact, the universities should be considered as part of the national agricultural research system. This is considered a serious deficiency, as the valuable research finding of both undergraduate and postgraduate students remain unutilised. The universities have informal links with the line ministries and the private sector, but these are often non-viable due to lack of a formal mechanism to activate the links. It is necessary to formalize and consolidate university research to enable more productive and formal collaboration with focus on national research priorities.

Due to the open economic policies and liberalized trade the involvement of the private sector in agricultural enterprises have been increasing over the past decade. There are several BOI projects, which are being implemented by the private sector, and many are in the pipeline. There is an emerging trend for the private sector for undertaking demand driven, problem oriented research due to their rapid involvement in agricultural investment projects. Most of these projects are export oriented hence the need for problem solving research. It is expected that the private sector will play a greater role in the future in agricultural, R&D; hence it is necessary to promote private sector involvement in research. In developed countries the private sector investment in agricultural research is very high. They invest on advanced biotechnological research, which are high cost and require qualified and skilled scientists and sophisticated laboratory facilities, the settings which are available in the developed countries. Therefore biotechnology could be termed "pro-rich". In developing countries such as Sri Lanka the private sector may not have the necessary human resources and infrastructure; hence the best option at present would be to work in partnership with the state sector research institutions and the universities. It will be necessary for the national agricultural system to see private sector as complementary and foster private R&D by supporting with strategic and applied research through institutional mechanisms and legal procedures for joint ventures between the state and private sectors.