

EXTENSION SERVICE OF THE SRI LANKAN SUGAR INDUSTRY

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ABSTRACT

Sugar is an important sub-sector of the Sri Lankan economy with a potential for further development which could contribute to foreign exchange saving, generation of employment and development of underdeveloped areas. The extension service of the sugar sector was initiated with the establishment of the Sri Lanka Sugar Corporation (SLSC) under the State Corporation Act No. 37 of 1957. Later SLSC developed its organized extension service using an approach similar to the commodity development. Under SLSC management at Hingurana and Kantale sugar projects and later at Sevenagala and Pelwatte industries catered to around 12000 sugarcane farmers. Its research needs are met by the Sugarcane Research Institute (SRI) while the extension activities and input service provision are carried out by the extension staff of sugar industries. After privatization of sugar industries in 1990s, extension staff was gradually confined to activities such as monitoring farmer performance, managing input service and purchasing cane. This narrow extension perspective within the industry weakened relationship between extension officers and the farming community. Currently farmers and the industries operate with marginal profitability. Thus, there is a threat of farmers moving away from cane cultivation due to economical, technical and social factors, making it more difficult to have different market- driven extension modalities. There is also a need to find solutions to pressing economical and technical problems affecting the industry and the sugarcane farmers. It is important to empower the farmer with entrepreneurial skills using a joint private-public sector approach.

Key words: *Extension, empower, farmer, sugar*

INTRODUCTION

Sugar industry in Sri Lanka

Sugar is a basic food commodity, next in importance to rice and wheat. Its per capita consumption was 31.6 kg (Licht, 2005). The current requirement of sugar is about 622,000 tons per annum. In 2008, the domestic production was about 38,000 tons (Central Bank, 2008), which was sufficient to meet only 6.1% of the requirement. In the year 2008, 575,000 tons of sugar were imported costing Rs. 22.33 billion. This was nearly 0.51% of the GNP at current market prices, and constituted 33% of the expenditure on basic food commodities (rice, flour, wheat and sugar) imported to the country (Central Bank, 2008). In addition, over Rs. 5 billion is spent annually on importation of spirit which can be produced from by-products of sugar manufacture

and various other products which can be produced from sugarcane. Hence import substitution of sugar and its by- products would make a significant contribution to saving of foreign exchange in Sri Lanka.

At present, nearly 15,000 farm families are directly involved in sugarcane production in vacuum-pan sugar mills, while many others produce jaggery and syrup as a cottage industry. In addition to direct employment, sugar production provides indirect employment opportunities in the supply of necessary services for sugarcane farming and sugar processing (Keerthipala, 2007).

There are about 125,000 ha of undeveloped land suited for sugarcane development in the dry and intermediate zones of Sri Lanka. Thus, expansion and the diversification of the sugarcane industry in Sri Lanka, as an agro-industrial sector, would greatly benefit the economy in many ways. It can also serve as a nucleus for rural development in the under- developed areas and help uplift the rural economy and improve the standards of living of rural people (Keerthipala, 2007).

The total area under sugarcane cultivation in the two sugar projects at Sevenagala, and Pelwatte in 2007 was 8,600 ha (Central Bank, 2007). There are also cane lands outside the area demarcated for these sugar projects, particularly in the Moneragala, Badulla and Ampara districts, cultivated by private farmers. This brings the total extent of sugarcane in the country to an estimated 18,300 ha., as both rain-fed and/or irrigated cultivations.

HISTORICAL PERSPECTIVE OF THE EXTENSION SET-UP OF THE SUGAR INDUSTRY

The history of sugarcane planting in Sri Lanka dates back more than 1000 years. But the sugar development as a government venture was started in 1956 with the opening of sugar lands in the Gal Oya valley and this was consolidated with the establishment of the Sri Lanka Sugar Corporation (SLSC) under the State Corporation Act No 37 of 1957 to undertake sugar development in the country. The government-owned mills with a crushing capacity of 2,000 TCD (tons of cane per

day) and 1,200 TCD were established by SLSC in 1960 and 1961 at Hingurana and Kantale, respectively, both in the eastern province (Table 1).

Hingurana and Kantale sugar mills showed similarity in their organizational structures and the management system. Each mill was integrated with state sugarcane plantations and a distillery, and was managed by government-appointed personnel. The cane plantations were managed by field staff comprising state plantation managers, Agricultural Superintendents, Divisional Agriculture Officers and Agricultural Assistants. This allowed SLSC to run the factories without an extension service until 1971. This situation was changed with the initiation of the small holder scheme (allottee system) at Gal Oya by SLSC in early 1970. It comprised about 50 private farmers initially, and each farmer managed his private plantation of about 4 acres. The SLSC provided materials and services including machinery, seed cane, loans, land rent, irrigation water and advice, free of charge (Perera, 1976). This system evolved into an extension service when the services of plantation management staff of SLSC were made available to these farmers.

• Meanwhile SLSC was involved in providing some services including advisory services to private farmers, in the Moneragala, Badulla and Ampara districts, who were engaged in cane farming on a small scale, particularly for syrup and jaggery manufacture at cottage level. The Cane Industry Services (CIS) were provided from 1972 to 1976 under the government's crash program for rapid expansion of the sugar industry and production of sugar substitutes and sugar cane syrup (Wijesinghe, 1976). CIS had its own extension staff, who provided extension services on every aspect of sugarcane growing in a rather organized manner until 1976. With the alienation of SLSC-managed sugar cane plantations to farmers in early 1980, the smallholder settler/allottee system was further developed at Hingurana and Kantale Sugar Projects.

Here the plantation management staff gradually expanded their service in the area of sugarcane extension. They provided advisory services to out-grower farmers, both under SLSC management and subsequent private management.

Table 1. The development of extension service of the sugar industry

Time period/Year	Development of the sugar industry	Associated changes in the area of extension
1956	Opening of sugar lands in the Gal Oya	
1957	Establishment of the Sri Lanka Sugar Corporation (SLSC)	
1960	Establishment of Hingurana Sugar Corporation	Management of cane plantations by field staff without an extension service
1961	Establishment of Kantale Sugar Corporation	
Early 1970s	Initiation of the small holder scheme (Allottee system) at Gal Oya by SLSC	Initiation of Extension service at Gal Oya
1972-1976		Operation of the Cane Industry Services (CIS) to provide extension services in some areas in Moneragala, Badulla districts
Early 1980s	Alienation of SLSC-managed sugar cane plantations to farmers	Expansion of extension at Hingurana and Kantale
1984	Establishment of Sugarcane Research Institute(SRI)	Involvement of SRI in Extension activities
1986	Establishment of sugar industries at Pelwatte and Sevenagala	Development of small holder systems with separate extension services.
1990s	Privatisation of Hingurana and Kantale sugar projects and ceasing their operation	Stagnation of the development in extension services
Early 2000s	Privatisation of Pelwatte and Sevenagala Sugar Corporations	
2006	Hingurana sugar project commenced operations again	

In 1986, the sugar industry was further expanded by establishing two more sugar industries; one at Pelwatte and the other at Sevenagala as small holder systems with separate extension services. Sevenagala and Hingurana operated both under SLSC management and private management, while Pelwatte was a private-public joint venture. Later Pelwatte functioned under private management. The extension set-up was structured similar to that of the commodity development and production approach where concentration on the commodity is emphasized for the increase of productivity and profitability of the commodity. The model assumes that research,

input supply, output marketing, and credit will make the whole system more effective. The extension staff of sugar industries operated under several sections: rainfed settler and irrigated settler divisions at Sevenagala and, settler section at Pelwatte. In the out-grower sector of Pelwatte, the extension service was mainly involved in purchasing cane from private farmers and developing a contract out-grower system. In the 1990s, the Hingurana and Kantale sugar projects ceased their operation. The Hingurana sugar project commenced operations again by developing sugarcane nurseries under the Gal Oya Plantations Ltd (GOP), in 2006 (Table 1).

In 1990s, the changes in the ownership and operational system of the sugar industries, due to the restructuring and privatization process of the sugar sector, had an impact on the extension approach as well. Some qualitative changes such as a narrowed focus on the farmer situation, and less prominence for human resource development in the extension service could be observed, without a significant structural adjustment to the extension set-up. This hindered the potential development of the extension service. This was evidenced by the study conducted in 2003 on the extension system. According to that, a gradual decrease in the time allocation by Agricultural Assistants (AAs) for matters related to farmer training and an increase in the time allocation for contract arrangement, loan recovery, and input handling and harvesting related matters could be observed. Further, high priority attached by AAs to duties other than the extension training, created a situation where farmers tended to consider AA/FA as an input and other service provider rather than an extension educator. Ultimately, this caused farmers to disregard AAs/FAs' advice without inputs as of little value. It, in turn, became one of the main contributory factors to damage the linkage between the farmer and the industry, and hampered progress and target achievement. This weakened the information dissemination and the promotion of group communication processes as well (Perera, 2003).

PRESENT STATUS OF THE EXTENSION SERVICE

Clientele

Settler farmers

The farmers who were given lands on lease by particular sugar industry, within sugar projects are called settler farmers. About 1.75ha of land were given for cane cultivation per farmer at the settler section at Pelwatte and rainfed sector at Sevenagala. Each farmer in irrigated sector of Sevenagala and Hingurana were given .75ha for cane, .25ha for paddy and homestead lands. The settler farmers are bound to produce cane with the services provided by the industry and to sell their harvest to particular industry so that the industry could deduct cost incurred for the service with an interest for the same. Now there are about 3500 settler farmers at Sevenagala in both irrigated and rain-fed sections and about 1500 settler farmers at Pelwatte (Table 2). Apart from some settlers with some farming background and keen in sugarcane cultivation, others included excess SLSC workers, people displaced due to natural catastrophes, people under rehabilitation who committed various offences, and supporters of ruling political parties (Keerthipala, 2007).

Table 2. Number of farmers and field officers at Pelwatte Sugar Industries (PSI), Sevenagala Sugar Industries (SSI) and GOP, 2009

	Pelwatte Sugar Industries			Sevanagala Sugar Company			GOP
	Out grower	Settler	FOs	Settler		Out grower	
				Rain-fed	Irrigated		
No. of farmers	7600	1500	300	1297	2280	40	-
No. of FA/AA*	36	20	02	-	-	-	12
No. of AO/ASD*	06	08	-	05	07	1	-
No. of SD*	10	05	1	01	02	-	05
Farmers per AA/FA	100-200	75-100	150	-	-	-	-
Farmers per AO	-	-	-	200-250	300-350	40	-

* AO - Agriculture Officer, ASD- Assistant Superintendent, SD - Superintendent

Source: Pelwatte Sugar Industries, Sevanagala Sugar Company, Gal Oya Plantations Ltd.

Out-grower farmers

The out-grower farmers who are cultivating cane in their own land and sell their cane to mills without getting any service from the industry (non-contract farmers), or are cultivating their own lands with a contract agreement with the industry to get services similar to settler schemes (contract farmers), were included in out-grower scheme at PSI and SSI. Their land holdings vary from 0.5ha to 25ha and most of them are engaged in other income generating activities too.

Farmer organization

The farmer organization was established in 1998/99, by PSI by alienating a part of its nucleus estate among about 800 farmers instead of expanding the settler system due to problems experienced in the settler system and the vision of the management. It was provided with only advisory services by the out-grower extension staff, while other input services have been managed by the organization itself.

Other

Some other farmers similar to non-contract out growers, scattered throughout Monaragala and Ampara Districts and non-permanent clientele for any industry with no extension services provided, grow cane as chena cultivations without following technical recommendations and sell their cane to either PSI or to local jaggery mills.

Human resource development

The extension staff including agricultural/field assistants, divisional agricultural officers/assistant superintendents (Pelwatte), and superintendents, and settler manager under the plantation manager at Pelwatte provide extension service to settler sections (Table 2). Extension staff similar to settler section including out-grower manager in the place of settler manager provide extension service to out-grower section of PSI. (Table 2). There are 15 superintendents (SDs), 14 Assistant superintendents (ASDs) and 56 field assistants (FAs) at PSI. The superintendents are

graduates and the majority of ASDs are diploma holders, or have an equivalent qualification, and have studied up to GCE (AL). FAs have studied up to GCE (O/L).

There are crop production managers and harvesting managers under a plantation manager and 3 agricultural superintendents, and 12 agric. officers at Sevenagala. The superintendents and the majority of AOs are diploma holders and the rest of the AOs have studied up to GCE (A/L).

Whereas the FAs at Pelwatte and AOs at Sevenagala were trained on sugar cultivation at the very beginning of their service by the company and are provided with an opportunity to participate in the training programs conducted by SRI and relevant industries on new sugarcane technologies, there are no scheduled human resources development programs for extension officers to develop their skills and knowledge on extension related disciplines.

Research-extension-farmer linkage

The Sugarcane Research Institute, the government statutory body established for the development and dissemination of sugarcane technologies, in 1983, channels its extension activities to farmers through the industries according to its mandate, except for some special occasions such as direct farmer training programs organized in collaboration with sugar industries. As a result the link between SRI and farmers is not so close and strong. But, a close link and strong relationship between industry and farmers exists as in the commodity development extension approach. The technology transfer to farmers and feedback from farmers to research institute has been covered by the industry extension staff. But formal, paths to transfer technology and feedback from some farmers who were not being served by any industry were not structured in the system. So, four development officers have been recruited by SRI in 2009, to provide extension service for them and to develop sugarcane cultivation in those areas.

Farming community and its socio-economical background

Most of the farmers in the settlement schemes at Sevenagala and Pelwatte, and farmers who are in the out-grower schemes belong to traditional farming villages and marginal rural communities which hold more common features as in under-developed rural areas in the Monaragala district. They are characterized by environmental hazards, physical isolation, poor access to services and absence of strong community organizations. There could be observed some common problems such as lack of clear title to land, fragmentation of land holdings, second and third generation problems in finding jobs and reallocating lands, and alcoholism and related problems. Socio-cultural marginalization by mainstream society held some of them at a distance on the basis of their socio-cultural identity, neighborhood characteristics and life style. Some of the out-grower farmers are in village expansion colonies disparagingly referred to as "colony", squatter settlement in marginal farming systems.

Under settlement schemes the farmers depended more on industries for their technical and basic needs. Some settlers show a dependency syndrome which is seen in the excessive reliance on external support for day-to-day survival. They have a welfare mentality where much is expected from the state and/or industries without considering the costs involved. As growers are both materially and mentally dependent on industries for their survival, private drive is stifled. This hampers their capacity to take advantage of available opportunities within a competitive market framework

Smallholder sugarcane farmers and the majority of the out-growers have not been in a position to improve cane production. Their living standards are affected due to uneconomic smaller plots of sugarcane holdings and non-adoption of machinery and improved cropping systems. Since the already allotted land cannot be reallocated into bigger holdings, the only possibility is amalgamation of lands by forming co-operative farms or farmers companies to cultivate sugarcane on a commercial scale (Keerthipala, 2007).

Unlike many basically subsistence-oriented farmers, sugarcane farmers are highly integrated into a market economy. Production and market (profitability) risks often threaten the farmers' wellbeing. This forces them to develop survival strategies, including agricultural diversification, off-farm activities and selective migration.

It has been observed that the role of women and the needs and aspirations of younger generation has been hardly taken into consideration in the development of sugarcane farming community by the government or any other agencies, especially in the settler schemes where farmers' social and economic standards of living are very low. These social factors also cause demoralization among farmers in sugarcane farming communities and contributed to inefficiency in the farming system.

The present extension approach

The extension activities of the sugar industry under private ownership are being continued using the commodity development approach as was practiced under the SLSC management. In the commodity development extension approach of the sugar industry, the role of extension personnel is interlinked with every function such as input supply, technical recommendation and other agri.-services. The field extension officers (AAs/FAAs) should monitor the crop in his or her assigned zone, and when problems arise, or when a particular input is needed, the extension officer should provide both the technical advice and the inputs at the same time. As a result extension officers are specialized by commodity rather than by function.

In the past, the following advantages, as identified by Axinn (1988) in the commodity development approach, kept the extension service of the sugar industry efficient for many years.

- i. Technology tends to fit the production problems, and the messages which extension officers send to growers are appropriate. Since extension activities would be coordinated with both input supplies and marketing of output, extension activities should be effective and efficient.

- ii. Because of the better coordination with research and marketing people, messages are delivered in a timely manner.
- iii. Better trained extension personnel, closer management and supervision, fewer farmers for each extension worker.
- iv. Being smaller and more focused this approach tends to be easier to monitor and evaluate, and relatively more cost effective.

After the 1990s, these main advantages disappeared gradually in the system. This took place with the continued changes in the industry management and also due to other technical, economical and institutional factors. Farmers were not satisfied with the extension service with regard to finding solutions for individual and common problems, and also extension officer to farmer ratio began to increase gradually from 1:100 up to 1:300 or more in Sevenagala and Extension Officers service was confined to make farm visits on monitoring input supply and cane purchasing under private management. After 1998, diseases and pest outbreaks worsened the situation where both farmers and companies were affected.

Some of the disadvantages inherited in the commodity development and the production approach were also experienced by the extension set-up of the sugar industry since SLSC management. They are, as identified by Axinn (1988) as the main disadvantages of the approach, lack of attention to other aspects of the total farming system, and conflicts arising when the priorities between farmers and the organization is different.

The present extension system could be seen from the view of a private extension approach also because of the private ownership of the extension service, taking profit or benefits of the service by the service provider and charging for the service from the service receiver, which are considered mainly in the private extension approach or in the process of privatization of extension. There is no direct cost to the farmer for extension service as it is provided by the sugar companies free of charge. But, the farmers have to bear the cost for extension service indirectly, because the present cane payment system (determination of cane price) was

dominated by the sugar companies and the total operational cost to the companies including the cost for the extension service is also accounted in calculating the cost of production which is one of the main factors determining cane price paid for farmers. In addition, resource allocations for extension activities are adjusted by the companies which, affects the quality of the extension services they are provided with. This situation was created due to the extension service provider and price determiner of the commodity becoming one person, or institute, and the lack of policy support to regularize these areas of the sugar industry.

In general, a more commercialized approach broadens the focus of extension personnel and makes an extension service more responsive to client needs and changing economic and social conditions. But, it was not so progressive in the sugar sector. This partially caused the trend of farmers to move away from the sugarcane cultivation, which has become one of the main problems faced by sugar companies at present. The other main disadvantage of the present extension set-up that could be seen in view of private extension is that the cost of extension should be borne by the farmer too. This cost for the service becomes a part of the cane price.

The current approach could further be viewed as a pluralistic approach (public-private) because the part of the extension service and research component of the sugar industry are catered by Sugarcane Research Institute, a semi government body, apart from the extension activities that are handled by the private companies. There is a public-private joint mechanism in the conduct of research catering to the sugar industry, while most of the technology transfer activities are being conducted by SRI in collaboration with the companies.

FUTURE CHALLENGES OF THE EXTENSION SERVICE OF THE SUGAR INDUSTRY

One of the main constraints of the development of the local sugar industry is the high cost of production and non availability of a pricing mechanism to insulate domestic prices from the fluctuation of world sugar prices. This situation has led the farmers and sugar companies to operate at marginal profits. The situation has been further aggravated by continuous increase of prices of inputs and services and it also

has adversely affected the adoption of sugarcane farming practices, social aspects and living standards of sugarcane farmers. As a result a vicious cycle of low adoption and low income among most of sugarcane farmers has developed. This has been a hindrance for the achievement of the potential of sugarcane farming under available technical know-how.

Alternative modalities

An increase of price of either cane or sugar alone cannot be considered as the sole strategy to overcome this problem under the existing competitive global economic situation. Different strategies such as development of new modalities using private extension, cooperative systems, better coordination among local agencies and different mechanism to address specific problems are successfully applied by some other countries to increase efficiency of sugarcane farming in their situations. Block management, mechanical implement pools, labour pools etc. were developed and implemented successfully in the Mauritius sugar industry to increase efficiency (MSRI, 1999). The mechanism of public/private partnership for extension delivery in South Africa, an example for macro level application, was able to increase sugarcane yields of small scale growers from 28 tons/ha to 39 tons/ha. In addition to improving the skills of the clients, this public/private partnership has the role of addressing social issues that can impact upon national agriculture production. Further they have planned to make agreement with various groups such as mill staff, the commercial growers, the Medium-Scale Indian Growers, MCC, farmers organizations, input suppliers, contractors and the Tribal Authorities, or Municipalities to join with their partnerships (Owens and Eweg, 2002). The Cooperative Extension Service in USA has a positive, well-established reputation among most youth and family-serving agency personnel due to its mission of fostering community-based collaborative efforts to enhance the quality of life for all community residents with special regard for children, youth, and families (Mincemey et al. 2004).

Therefore alternative strategies should be developed for increasing the efficiency of the local sugar industry by emphasizing broad strategic aspects of decision making and behavior of farmer in the present context of the farming community.

Looking beyond the technology transfer focus

The present extension approach of the sugar industry was not adjusted with the changes experienced due to globalization. Apart from some initiatives taken such as a micro financing program in the settler scheme of Pelwatte and establishment of a Bank for all transactions of farmers, by the owners of Sevenagala Sugar Company at Sevenagala, not much has been done to meet new challenges. The micro-financing project at PSI still does not seem to have a positive impact on sugarcane farming and the bank at Sevenagala has increased the dependency of the majority of farmers on the company. Only a very small fraction of farmers have managed to develop their capacities. Thus extension and provision of other services needs to be looked at from a broader perspective, taking into account current global developments.

The main global developments include globalization, market liberalization, privatization, pluralism, decentralization, and devolution, client participation in decision making, natural and man-made disasters, rural poverty, food insecurity, and emphasis on integrated, multi-disciplinary, holistic and sustainable development. These developments are creating new learning requirements for both subsistence and commercial farmers in developing countries (Qamar, 2005).

The changes in the world also demand that the extension services engage in developing the human capacities of farmers, which go beyond technology. They should educate men and women farmers in subjects like problem solving, decision making, management, accounting, group dynamics, leadership, participation, gender sensitiveness, rural youth development, comprehension of market forces, good governance, citizenship, initiative and self help, nutrition, program planning, monitoring and evaluation, applicable information technology, importance of education for children especially for girls and networking with other village organizations (Qamar, 2002).

The concept of extension, in the present context, as elaborated by Quamar (2005), is a function of providing need-and demand-based knowledge and skills to rural men, women and youth in a non-formal, participatory manner, with the objective of improving their quality of life. Extension is essentially education, although it falls outside formal education systems, and as such, aims at bringing about positive behavioral changes among those targeted. However, the financial and staffing pressure, maintenance of basic infrastructure facilities, combined with the farmer demand for incentives in reducing cost or increasing cane price, have meant severe difficulties for the extension service of the industries to provide an effective and viable service to an increasing number of farmers whose income is at risk.

Some actions for consideration

Farming must shift from being a 'supply-driven' to a more 'market-driven' extension system to increase farm incomes and rural employment. This shift requires policy changes conducive to using a pluralistic approach: a public-private partnership between the Sugarcane Research Institute, the relevant ministry and private sugar companies with aim of empowering farmers to become independent entrepreneurs.

Extension personnel need to develop a new philosophy, where their role is to help farmers and rural communities organize themselves and take charge (empowerment) of their growth and development. Telling adults what to do provokes a reaction, but showing them triggers the imagination, involving them gives understanding, and empowering them leads to commitment and action (Chamala, 1990).

To keep farmers with sugarcane farming it may no longer be possible to give definite solutions for their problems. But, the extension agent should rather help the farmer to decide for himself the best option. The Extension Service should help farm families with the most important decisions they have to make. These important decisions are more important to solve the fundamental questions of 'How to remain in farming? To seek an off-farm source of income? To assess the future of farm

household? To assess if the farm operations are contributing positively or negatively to quality of life? Rather than, what is the best variety? or, how to increase yield? etc. For farmers to consider the private sector as a reliable source of extension, there is a need for a more consistent and trusted relationship between the farmer and the extension officers. In the sugar industry, private ownership holds more power in the system under the present context, so their commitment would be decisive in the development of a sound relationship between farmer and extension officers. How is this power used? Is it used to further the interests of power holders or for the benefit of society as a whole?

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