



A Review of Paddy Production and Rice Consumption

By
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The agricultural sector contributes nearly 20% to the Gross Domestic Product (GDP). Of this, paddy production accounts for 18% to the agricultural GDP, which is the highest contribution made by a single commodity. Rice which is produced from paddy is the staple food of Sri Lanka. An average consumer spends nearly 25% of food expenditure on rice (Household Income & Expenditure Survey 1990/91, Dept. of Census & Statistics). Being a staple food, successive governments since independence have given high priority for the development of the paddy sector. Self sufficiency in rice has been a salient strategy of the agricultural policy in the country. Consequently, many argue that agricultural policy focuses mainly our paddy farming. In this paper an attempt is made to review paddy production and rice consumption situation in the country.

Paddy Production

Although paddy is grown in both seasons, Maha and Yala, the major season is Maha the crops in which contribute around 65% to the annual production. There is an increase in the extent under cultivation, especially in the dry zone due to availability of water from the North-East monsoon rains during the Maha

season. The cropping intensity, that is a ratio of cultivated extent to asweddumized area, is around 75% in Maha season. The figure for Yala is around 40%.

Another notable feature is that 60% of the production is from 5 districts together with the Mahaweli H area as shown in Table I. In the Yala season, Ampara district alone contributes 21% to the total production. Anuradhapura district and the Mahaweli H are not important as they produce 8% and 6% of the Maha production respectively. Any development programme on paddy should focus on these areas first and their maximum potential should be exploited to feed the country's growing population.

The highest paddy production so far achieved is 2.8 million mt. in 1995. This represents a three-fold increase compared to the 1960 production, and only a little higher than the quantity of 2.7 million mt. in 1985. As regards to production trend, a substantial increase of production is noted during the period 1976 - 1986 and thereafter production appears to be stagnant. The major reason for high level of production is due to increased yield, mainly in new lands brought under cultivation under the massive Mahaweli Development Project. The average yield increased to 3.5mt. in 1987 from 2.3 mt. in 1976.

The extent under paddy also went up during this period. The cropping intensity increased over 85% during 1978-1981.

Extent under Paddy Cultivation

The cultivated extent has direct impact on the volume of paddy production. Paddy is grown under all three modes of water supply: major irrigation, minor irrigation and rainfed conditions. Although major irrigation facilities have been developed, over 40% of the paddy lands in Maha and over 50% in Yala are still under minor irrigation and are rainfed and are under direct influence of seasonal rains. Therefore, it is important that minor irrigation schemes and small tanks should be rehabilitated to increase cropping intensity.

The asweddumizaed extent, that is land available for paddy cultivation, in 1996 was 736,382 ha. which was an increase of 57% over 1960. Nevertheless, it has stagnated at around 730,000 ha. since 1989. As mentioned earlier, Maha is the major cultivation season and the extent cultivated in 1996/97 Maha was 472,998 ha. which is the lowest figure recorded after 1991. This is a result of prolonged drought which prevailed in the latter part of 1996. An

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analysis of the historical trend in cultivation, shows no marked improvement in the extent under paddy during last 20 years. The highest extent recorded so far is 606,429 ha in 1983/84 Maha season and 383,769 ha. in the 1984 Yala season. As a result cropping intensity has declined gradually and has never reached 80% level for Maha after 1985 and 50% level for Yala after 1984. This shows that the area under paddy cultivation has declined in the recent past. This is evident in the Wet Zone and Dry Zone areas under rainfed and minor irrigation. This decline has been a result of some paddy fields being diverted for cultivation of other crops like big onions, dried chillies and vegetables in Yala season. The declining profitability in paddy cultivation caused this situation. A considerable increase in labour cost which often represents over 35% of the total cost, has led to a decline in paddy cultivation in the Wet Zone, particularly in the Gampaha district where net returns are negative when family inputs are costed (Cost of Production Reports, DOA).

Average Yield

Yield is often influenced by technology and reflects an efficiency in farming. Yield is defined as the output for a given unit of input such as land, labour and capital. Average yield indicates the level of land productivity. However, labour productivity and the rate of return, that is return on capital, are important factors, especially in commercial farming. With regard to labour productivity, payment based on piece work increases productivity. For instance, labour requirement for harvesting of paddy is 6 women per acre in Tissa area where payment is based on piece work and 8 men per acre in Kurunegala area where daily wages system prevails.

The average yield was 1.9 mt/ha. in 1960 which went up to 3.6 ha. in 1985. This was the result of a number of factors, mainly, use of high yielding varieties, application of chemical fertilizer, development of irrigation facilities and cultivation of paddy in newly developed lands. However, it was observed that the yield has been static around 3.5 mt. since the mid 1980s. Nevertheless, unlike other food crops, the average yield, that is output per unit of land, remains at high level even compared to that in many countries in the Asian region (Table 2). The average yield in 1997 was 3.9 mt. per hectare, which was similar to the average yield in Asia and the highest among the SAARC countries but Sri Lanka's paddy yield remains below that of China and Indonesia. It is observed that Sri Lanka achieved high level of yield at high cost for bringing new lands under paddy cultivation with massive irrigation schemes.

Cost of Production of Paddy

In the industrial sector, the manufacturer usually maintains records of the cost of operation of his business, but in the agricultural sector, this practice does not prevail mainly due to two reasons. Firstly, farmers are price takers. Secondly, they lack business mentality. Due to absence of records different figures are given by farmers. Accordingly, cost of production for 1997/98 Maha season is in the range of Rs. 8,000/= - Rs. 15,000/= per acre. This aggregate figure does not reflect the correct picture. During the field visit in May 1998 to the areas of Ambalantota, Tissa in Hambantota District, Wellawaya, Buttala and Nagadeepa project area in Monaragala District, and Mahiyanganaya and Girandurukotte in Badulla District, and attempt was made to collect information on major cost items to work out the cost of production of paddy grown under major irrigation, where the bulk of the marketed supply is produced.

Marketable surplus is as high as 80% in the areas under major irrigation.



Table 3 shows data of the cost of production of paddy for 97/98 Maha season. Total cost of production was estimated at Rs. 10,630 per acre. This includes major cash cost items. Labour costs for application of fertiliser and agrochemicals and water management, which mainly involved family labour, are not included. Also cost of meals provided for hired labourers is not added. In most areas under major irrigation, costs of tea with snacks and lunch are included. Most of the farmers lack working capital and hence borrow money from either formal or informal sources. Interest on such loans is not included. If we consider all these items of costs, total cost would be around Rs. 12,000/= per acre. Suppose the yield per acre is 80 bushels which is equivalent to 1669 kg, the cost of production per kg. is Rs. 7.19.

When analysing cost items separately, labour cost is the highest accounting for 50% of the total. Labour requirement is around 35 mandays per acre. The daily wage rate of Rs. 150/= was adopted in the computation. The highest rate of Rs. 200/= was reported at Tissa in Hambantota while the lowest rate of Rs. 100/= was reported in the Nagadeepa project area in Monaragala. Lunch is provided to the hired labourers in all areas visited except in Ambalantota. In Hambantota district, women harvest paddy and men are involved in other areas visited. The interesting point is that lower labour is required (6 persons/ac) for harvesting in Hambantota than other areas. (8 persons/ac). This is due to payments based on piece basis; Rs. 150/= per 1/6 acre.



It was found that labour charges had increased by Rs. 25/= per day in many areas compared to those in the previous season. This was due to two reasons: 1) labour shortage due to increased extent under cultivation, and 2) high paddy price which prevailed during last year.

As regards fertiliser application, most farmers apply equal amount (50 kg/ac) of each type of fertiliser: VI, Urea, and TDM. Cost of fertiliser represents 16% of the total and 12% for agro-chemicals. Family labour is widely used for these activities. Almost all the farmers apply agro-chemicals at least three times but their cost varies depending on the brand of chemicals. Farmers reported that selection of the brand depends on traders' views.

Use of animal power in paddy farming is declining rapidly because of the problem of feeding animals. Hence, many farmers use tractors for land preparation and threshing. The tractor cost is 23% of the total. In Hambantota areas payment for hire of tractors is in kind (paddy).

The rate of return in paddy farming appears to be very low at Rs 7.42 (Guaranteed Price). A higher rate of return is required in agriculture in which risk is high. In countries like Philippines, the rate of return is 45% for paddy in determining support price. When inflation which prevailed since 1994 is considered the Guaranteed Price should have been around Rs 10.00 kg.

Rice Consumption

Rice consumers in the world can be categorized into three main groups:

1. Habitual consumers who rely on rice for most of their nutrient intake,
2. Consumers who are in the process of changing their diets, shafting from the other staple cereals or root to rice, and
3. Consumers who eat rice occasionally as a special dish to add variety to their meals.

The population of Sri Lanka falls into the first group of traditional rice consumers. According to the Food Balance Sheet, the per capita availability of calories in 1996 amounted to 2179.79 of which 40% was made up of rice.

Rice is the staple food of the Sri Lankans, accounting for nearly 25% of food expenditure on it. The Central Bank of Sri Lanka periodically conducts Consumer Finance Surveys. According to these surveys, the consumption pattern varies by sectors, urban, rural and estate. Table 4 shows per capita consumption by sectors for three periods. As expected, the lowest rice consumption was reported in the urban sector where consumers look for convenient items of foods such as bread. A notable trend is that rice consumption in the urban sector has declined from 7.3 kg. in 1981/82 to 6.9 kg. in 1986/87 per month per person.

As shown in Table 4, rice consumption in the estate sector increased considerably from 6 kg in 1978/79 to 9.6 kg in 1986/87, registering the highest consumption among the three sectors. Data in Table 5 shows that there is a strong positive relationship between income and rice consumption in the estate sector. Per capita rice consumption in the income category of Rs 500I to 10,000 increased to 14 kg per month in this sector whereas it declined in the other two sectors. Table 5 further reveals that rice consumption is increasing among those in the monthly income level up to Rs 3,000. Since the

majority of the population fall below this level, rice consumption would increase further.

There are three major types of rice varieties: 1) Samba par boiled, 2) Ordinary par boiled, and 3) Raw rice (red and white). Table 6 shows data of rice consumption by varieties. Consumption of raw rice in the urban and rural sector is about 40-% and the figure for estate sector is nearly 30%. Samba is popular in the urban sector because it is mainly consumed by high income consumers.

When compared to per capita rice consumption in some countries in the region, consumption in Sri Lanka is low (Table 7). Rice consumption in Sri Lanka is higher than India. This is due to high level of consumption of wheat by Indian consumers. Per capita rice consumption in Vietnam is as high as 143 kg. per year.

Future Challenges

The world economy is moving towards free trade under the WTO Agreement. Sri Lanka has signed this agreement and it is bound by the conditions prescribed in it. According to the agreement, removal of quantitative restriction and reduction of tariff by the member countries are obligatory. Sri Lanka has already begun to comply with them and quantitative restrictions in relation to imports have been removed and three band tariff system (10%, 20% and 35%) was introduced in 1995. In this background, it is not possible to protect the domestic paddy farmers from the imports further and therefore measures should be adopted to improve the production efficiency by increasing productivity and minimization of cost through improving farming system in order to face

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global competition. It is not prudent to depend on imports due to high risk in supply as well as price. Some studies have pointed out that rice exporting countries such as Thailand and India will become rice deficit countries by the year 2020.

Another challenge facing Sri Lanka is provision of full employment to the paddy farmers. This has become important because paddy farmers' incomes have dropped significantly with the liberalized economic system. Possible areas that should be considered are increased value addition through undertaking activities such as storing, processing, transporting and provision of on and off-farm employment opportunities. Livestock farming is one area in this regard. Demand for livestock products, such as milk powder and poultry meat is growing.

With increasing urbanization and income of the country, consumers prefer quality products and convenient foods such as fast food items. This trend has already started. Rice without sand has good demand and demand for rice flour is growing. Most of the paddy millers do not have adequate facilities to produce quality rice. In future, paddy processing industry needs to be upgraded to cater to market demand.