*Sri Lanka Journal of Agrarian Studies 10 (1) 2002*

# Agricultural Policy Reforms in the Paddy Sector in Sri Lanka : An Overview

(With special reference to liberal policy reforms)

by
G.M. Henegedara

**Abstract**

*The article reviews agricultural policy reforms in the paddy farming sector in Sri Lanka with special reference to liberal policy reforms followed since 1977. It includes various policies and programs implemented by successive governments since 1948 for developing infrastructure and strengthening agricultural support services such as subsidies, credit, marketing and research and development. These policies and programs were broadly aimed at developing the rural agricultural sector so as to gain self sufficiency in rice production. An attempt is made here to review the effects and impact of policy reforms on paddy production in Sri Lanka based on analyzing time series data over the past 20-30 years. Paddy statistics have revealed that the development of irrigation and agricultural infrastructure and the implementing of price and trade policies had a positive impact on increasing the total extent, yield and production. Nevertheless input costs also have increased which gradually erroded net returns. Also it indicated a decline in the cropping intensity and the self sufficiency ratio in the recent past which need to be addressed by policy makers.*

## 1.0 Introduction

Sri Lanka is a developing country with an area of 65,628 sq. km. and a population of 19 million as estimated in 1999. The agriculture sector plays a dominant role in the economy of Sri Lanka and accounts for 20.7 percent of gross domestic product (GDP), 14.3 percent of total exports and 51 percent of total employed labour force (Central Bank of Sri Lanka, 1998). The majority (72 percent) of the people live in rural areas and earn a livelihood from agriculture and related activities. The agricultural sector which has the characteristics of a dualistic economy (Snodgrass, 1966), consists of two sub sectors, the non plantation or domestic food crop sector and the plantation sector. The non plantation sector which mainly consists of paddy, other food grains, maize, soybean, vegetables and perennial crops accounts for 76 percent of the total cultivable lands while the plantation sector consisting of tea, rubber, coconut accounts for 24 percent of the total agricultural land.

The author is grateful to Dr. Saman Kelegama Director, Institute of Policy Studies and Dr. W.G. Somaratne, Research Fellow of the HARTI for their valuable comments on this article. He also thanks Ranjith, Rosa, Niranjala, Bimali and other staff members of the Statistics & Data Processing Division, staff of the Publication Unit and Mr. E.K. Perera (for editing the article).

Paddy being the staple food crop accounts for 25 percent of total cultivable lands and about 2 million farm families are engaged in farming as their main occupation. More than 70 percent of paddy farmers belong to the "small farmers category" which owns less than one hectare of land. The total paddy production was 2239 MT in 1997 and rice was the main source of energy accounting for 44 per cent of daily total calorie intake (Consumer Finance and Socio-Economic Survey, 1996/97).

Like many other developing countries Sri Lanka faces macro economic imbalances in spite of improvements in literacy, health and life expectancy (World Bank, 1996). The major economic problems of the country were associated with limited foreign exchange, budget deficits, unemployment, inflation, poverty and the consequence of a slow economic growth rate (Goonaratna and Wesumperuma, 1994). Hence, the development policies and programs of successive governments since independence in 1948 were aimed at overcoming macro economic imbalances.

A comprehensive body of literature is available on macro economic policy reforms and development in the agricultural sector since 1950. Among these are the works of Farmer, (1957), Karunatilaka (1971) Wickremaratne (1977), Goonaratna and Wesumperuma (1984), Rasaputra, Tilakaratne and Fernando (1986), Rajapathirana (1988), Bhalla (1991), Kelegama (1991), Dunham (1993), Lakshman (1994), Gunawardena and Somaratna (1994) and Lakshman and Tisdell (1999). Apart from these, the available studies on agricultural policy reforms could be classified under two categories,

(a) Descriptive analysis of agricultural policy reforms and trends (Chandrapala, 1986; Abeyratne, 1991; Dunham, 1992; Ariyaratne,1998)

(b) Analytical studies focussing on specific sectors, policies and issues ( Sirisena, 1986; Gunawardana and Somaratne, 2000)

Since these studies dealt mainly with the implications of macro policy reforms, a comprehensive economic analysis of agricultural policies in regard to paddy cultivation is yet to be undertaken. An attempt therefore has made in this paper to review trends in paddy (rice) production in Sri Lanka, paying special attention to the liberal policy reforms implemented since 1977. The study consists of four sections. Section one examines macro economic policy regimes in Sri Lanka since independence (1948); section two describes agricultural policies and programs implemented during the respective policy regimes; section three assess effects and impacts of agricultural policies on rice cultivation and the final section examines the implications of policy reforms.

## 1.0 Economic Policy Regimes

Over the past fifty years since independence (1948), three distinctive periods could be identified relating to political ideology and development priorities.

### 1.1 1948 – 1970 Period

During this period four administrations were formed by the two main political parties, the United National Party (UNP) (1948-1955), the Mahajana Eksath Peramuna (MEP) led by the Sri Lanka Freedom Party from 1956-1960 and 1960-1964, and again by the UNP (1965-1970). Development policies and programs followed during this period were mainly based on mixed economic policies. Thus, policies followed during the early fifties (1950-1955) were biased towards open economic policies while after 1956 the gov-

ernment exercised a greater control over economic policies (Athukorala, 1994, Rajapathirana, 1989).

During 1948-1956 period, the United National Party (UNP) government followed open economic policies while exercising some restrictions on imports and exchange due to limited foreign exchange reserves. In 1956 the MEP led by the Sri Lanka Freedom Party (SLFP) came to power and prepared a ten year development plan (1958-1968). The industrial sector was recognized as the key sector, priority was given to import substitution, and measures were taken to manage the economy through implementing controls such as rationing, quota systems, subsides and import and export taxes. The 1960-1964 government which was formed by the Sri Lanka Freedom Party continued state intervention policies and considered the state sector as the focal point of development. Many private companies were nationalized and state corporations was established during this period. In 1965 the UNP government came to power once again and for the next five years followed mixed economic policies favouring partial liberalization programs such as currency devaluation, dual exchange rates for essential and non essential imports and tariff reforms (Athukorala and Jayasooriya, 1994). An accelerated food production program (food drive) was implemented during the period to conserve foreign exchange as there was a sharp increase in the world market price of rice (Ariyaratne, 1998).

### 1.2 1970 – 1977 Period

This period saw a protectionist regime when some drastic intervention policies were followed (Gunawardena and Somaratna, 2000). The ruiling United Front government led by the Sri Lanka Freedom Party imposed restrictions on imports of food and agricultural inputs. A five-year development plan emphasized greater state intervention covering almost all activities (Five-Year Development Plan). Thus the government adopted a quota system, rationing and permits as the main instruments to control the domestic economy while imposing some regulations on domestic rice distribution and trade. These policies were aimed at gaining self sufficiency in food production and reducing pressure on the balance of payments which were affected as a result of the global economic crisis in the early 1970s. Land reform policies were introduced during the period by acquiring tea, rubber and coconut estates and imposing ceilings on land ownership.

### 1.3 The Post 1977 Period

The period following 1977 saw the introduction of liberal economic policies. The United National Party (UNP) was in power for eighteen years, (1977-1994), and since 1994 to date the Peoples Alliance government has been in office. The policy changes made during these two consecutive periods, fall into three policy regimes: the first wave of liberal policy reforms (1977-1988), the second wave of liberal policy reforms (1989-93) and the current policy regime: 1994 to date (Gunawardena and Somaratna, 2000).

#### 1.3.1 The First Wave of Policy Reforms (1977-1988)

In this phase, the economy was transformed from a closed structure to an open economic system in order to achieve the overall objective of liberalization. A wide range of economic reforms were introduced during the period aimed at increasing economic growth, decreasing unemployment, improving the balance of payments and stimulating savings and investments. Thus policy reforms introduced since 1977 could be grouped under five main areas (Athukorala, 1986; Kelegama, 1990; Somaratne and Gunawardena, 2000).

(a) Pricing Policies (Price Liberalization)

Regularizing market prices by lifting price controls and taxes imposed on goods and services.

(b) Trade Policy

Liberalizing internal and external trade by reducing tariffs on imports, easing re strictions such as quotas, permits etc. The tariff system was altered from time to time.

(c) Monetary Policy

Monetary policies were changed by removing exchange controls, and devaluing currency rates.

(d) Fiscal Policy

Rationalizing government expenditure by curtailing expenditure on public and wel fare activities.

(e) Institutional Reforms

Changing delivery and receiving mechanisms to ensure accountability, noninter ference and responsiveness to market forces including competition.

### 1.3.2 The Second Wave of Liberalization (1989-1993)

The second wave of liberalization reforms commenced in 1989 under the new leadership of the UNP government. These reforms were intended to overcome the macro economic imbalance due to the mismanagement of the economy and to the accelerated development programs introduced since 1977. The second wave of liberalization reforms took the form of structural adjustment programs (SAP) as recommend by the World Bank. These included low profile adjustments such as reducing maximum nominal tariff on imports and devaluation of the rupee, high profile projects such as privatization of public corporations and enterprises, export oriented industrialization and poverty alleviation programs (Dunham and Kelegama, 1994). The private sector was recognized as the engine of growth and government intervention in production activities was limited to provide economic and social infrastructure facilities. Government expenditure on public and welfare services was also reduced. The tariff system was altered from a six band structure in 1988 to a three band structure in 1992 and distortions were corrected and rigidities relaxed for agricultural and industrial commodities (Presidential Tariff Commission, Tariffs Trade, 1994).

### 1.3.3 The Current Policy Regime: 1994 to Date

Policies followed after 1994 were mainly focussed on removing hidden discrimination and distortions of the market. Private sector participation was encouraged by eliminating restrictions on institutional and technical barriers such as land ownership, credit and infrastructure (Policy Statement of the Government of Sri Lanka, 1995). Privatization of government corporations were further promoted by encouraging multi national companies to invest. The present government emphasises a balanced approach to development, growth with equity (PA manifesto, 1994).

## 2.0 Agricultural Policy Reforms

In line with macro economic policy reforms followed since 1948, domestic agricultural policies were also adjusted. Thus policies followed during the first regime (1948-1970) focussed mainly on increasing rice production through expanding the area cultivated and improving productivity. The six year development plan (1951-1957), the six year program of investment (1954-1959) and the ten year development plan (1959-1968) all of these emphasised the need to enhance the efficiency of the non plantation sector (Athukorala and Jayasooriya, 1994). Programs during the 1948-1970 period centered around five activities (Chandrapala, 1986) to;

1. Increase the extent of paddy land cultivated by the development of irrigation infrastructure and land settlement programs;
2. Increase production and productivity through research and improved produc tion technology;
3. Develop institutions for farmers such as the establishment of cultivation com mittees and rural banks etc;
4. Change land and land tenure policies and to;
5. Provide subsidies for production inputs and also credit facilities.

These policies were continued during the 1970-1977 period with greater emphasis on farm support services such as credit, marketing and crop insurance. Rural Banks, the Paddy Marketing Board and the Crop Insurance Board were established during the period. Programs for the development of irrigation, for research and extension services, land settlements and rural institutions, were also implemented.

In keeping with the liberal economic policies of 1977, agricultural policy reforms were intended to achieve four objectives (National Agriculture, Food and Nutrition Strategy, Ministry of Finance and Planning, 1984).

1. Achievements of self sufficiency in basic foods – rice, milk, sugar, fish and pulses.
2. Expansion of exports to increase the contribution of agriculture to the balance of payments situation.
3. The creation of new employment opportunities and the consequent enhance ment of incomes in the rural sector.
4. The improvement of the nutritional status of the people.

Agricultural policy reforms followed in the past fifty years in Sri Lanka irrespective of policy regimes could be categorized under seven heads as follows (Sirisena, 1986; Aberatne, 1991).

1. Development of irrigation and agricultural infrastructure
2. Guaranteed price schemes
3. Production subsidies

4. Research and development
5. Trade policy reforms
6. Institutional development programs
7. Agricultural credit programs

## 2.1 Development of Irrigation and Agricultural Infrastructure

The establishment of land settlements in remote rural areas was one of the main strategies followed to develop irrigation and agricultural infrastructure in Sri Lanka (Senaka arachchi, 1996). The history of land settlement goes back to British colonial times (1928) and these programs were initiated as the main instrument of developing remote rural areas of the dry zone in Sri Lanka (Farmer, 1957). The policy of establishing agricultural settlements was aimed at ensuring self sufficiency in the peasant agriculture sector (Senaka arachchi, 1995) and therefore more weight was given to increasing agricultural production through irrigation infrastructure development and land settlements. Land settlements were carried out with a view to achieving five main objectives.

1. Provision of land and a means of livelihood for marginalized communities
2. Dispersal of population from the highly congested wet zone areas to the sparsely populated dry zone
3. Development of areas with a potential for agricultural production by restoring already existing irrigation schemes or through new ones
4. Development of domestic agriculture by expanding the extent under paddy and other field crops
5. Reduction of regional disparities in rural areas

In order to achieve these objectives various land settlement programs were implemented in Sri Lanka. These included Village Expansion Schemes, Highland Settlements, Youth Settlements, Major Irrigation Settlements, Middle Class Schemes, Rainfed (Dry) Farming Settlements, Land Grants (special provisions) and Mahaweli Development Project (Annual Reports of the Department of Land Commissioner).

As shown in Table 1, village expansion schemes cover 49 percent of the total settlement areas and about 82 percent of the total number of families settled. Major Irrigations and Mahaweli Settlements were implemented as multi sectoral development projects to settle people and to diversify agricultural production. Major irrigation projects cover 10 percent of total settlers and 28 percent of total land extent, and Mahaweli Settlements cover 4 percent and 8 percent of settlers and total land extent respectively.

Repair work and new constructions of irrigation projects were implemented in order to improve the irrigation infrastructure. These included Galoya, Minipe and Kimbulwana oya irrigation rehabilitation projects (1979), Integrated Management of irrigation systems (INMAS-1984), Management of Irrigation System Program (MANIS-1986), National Irrigation Rehabilitation Project (NIRP -1992), North Western Province Irrigation Development Project (1994) and Minor Irrigation Rehabilitation Projects.

**Table 1 : Distribution of Land Settlements Programs in Sri Lanka upto 1991**

| Type of Scheme | No. of Families | Extent (Acres) |
|---|---|---|
| Village Expansion Schemes | 811,816 | 698,373 |
| Highland Settlements | 9,738 | 33,062 |
| Youth Settlements | 7,294 | 16,679 |
| Major Irrigation Settlements | 98,427 | 407,482 |
| Middle Class Schemes | 10,158 | 135,951 |
| Rainfed (Dry) Farming Settlements | 3,009 | 10,212 |
| Land Grant (Special Provisions) | - | 24,660 |
| Sub Total | 940,442 | 1,301,759 |
| Mahaweli Development Program | | |
| System 'H' | 23,164 | 57,900 |
| System 'C' | 12,419 | 31,050 |
| System 'G' | 2,189 | 5,472 |
| System 'B' | 9,920 | 24,800 |
| Sub Total | 42,692 | 119,222 |
| **Grand Total** | **98,134** | **1,420,984** |

Source : Annual Reports of the Department of Land Commissioner

Although these interventions had positive results in increasing the total extent of land under rice cultivation as well as achieving farmer participation in irrigation maintenance, many of the irrigation systems were operating below these potentials due to two related factors (National Agriculture, Food and Nutrition Strategy, Ministry of Finance and Planning, 1984).

1. As irrigation expanded, a failure to carry out proper maintenance led to physi cal deterioration of the irrigation structures.

2. Inefficient water control and management resulted in a wastage of water.

Accordingly, there has been a change in irrigation development policy since1980s with more comprehensive strategies (National Agriculture, Food and Nutrition Strategy, Ministry of Finance and Planning, 1984) so as to;

(a) Complete the down-stream development initiated under the accelerated Mahaweli Program and to reap its full benefits;
(b) Discourage any new major drainage or gravity irrigation schemes over the medium term;
(c) Expand the network of small-scale village tanks;
(d) Concentrate departmental efforts on completing the major irrigation projects now underway without delay and within estimated costs;

(e) Improve management on already established irrigation schemes through water management activities;
(f) Focus efforts on rehabilitating the major and medium schemes with the development of a sound plan and time schedule for future system maintenance and
(g) Strengthen investigations of ground water resources.

The present irrigation policies and strategies are mainly based on both rehabilitation and the new construction of minor irrigation, and practicing participatory water management methods. Crop diversification is used as a technique to manage the limited water supply and to maintain cropping intensity in dry areas.

## 2.2 Guaranteed Price Scheme

The Guaranteed Price Scheme (GPS) was started in the late 1940s and functioned as the main price mechanism for the purchase of paddy. The main purpose of the GPS was to increase the market prices of paddy and thereby improve the farm incomes (Sirisena, 1986). It was estimated that all paddy growers approximately (1.8 million farm families) would directly benefit from the scheme. The amount purchased by the GPS depended on the volume of production, availability of other food commodities, personal consumption needs and the price in the open market. The performance of the GPS over the past fifty years may be divided into four stages (Sirisena, 1986).

1. The initial stage (1948-1956), the GPS was able to collect a very small share of the market surplus due to market imperfections and lack of credit facilities.

2. In the second stage (1956-1971), the market share of GPS was improved since credit facilities were provided through cooperative societies in 1961. During this period the GPS was always higher than the open market prices and there fore the quantity purchased under GPS was higher (see Figure 1.1).

3. In the third stage (1972-1977), the Paddy Marketing Board (PMB) was estab lished in 1972 in order to implement GPS. The paddy marketing Act No. 14 of 1971, gave wide powers to PMB in purchasing paddy.

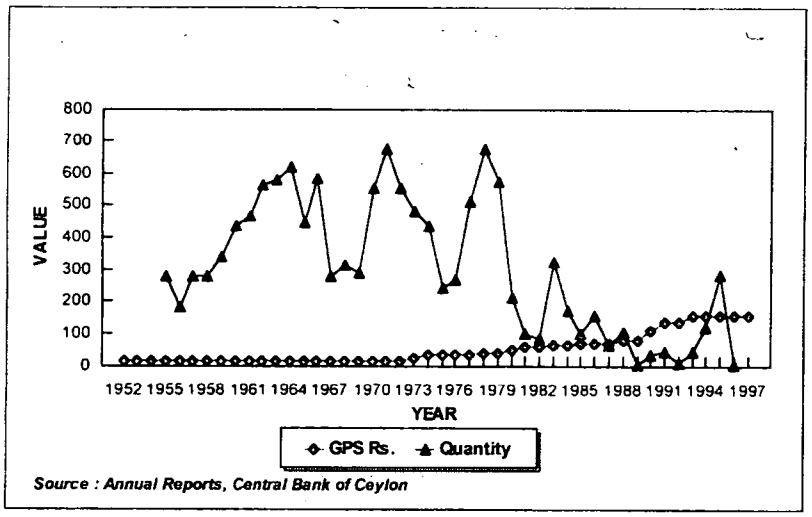
4. In the post 1977 period, the monopoly of the PMB was abolished and the GPS was implemented as a floor price. Consequently the quantity purchased un der GPS dropped from 30 percent (1977) to 5 percent (1997).

The criteria followed for determining GPS were mainly based on local rice production rather than in a consideration of other important factors like the volume of paddy purchased under GPS, cost of production of rice and the import price for purchasing the same amount of rice. Thus, as indicated in Figure 1.1 the GPS has remained unchanged at Rs. 12/= for 15 years (1952 –1966) in spite of high production cost and changes in the amount purchased in the same period. It was clear that the cost of production of paddy had increased by 30 percent and the volume risen from 37 percent to 61 percent during the respective period.

However, after 1977 the GPS has been increased almost every year with changes

in the cost of production of paddy. The involvement of private traders in purchasing paddy has increased since 1977 and consequently the GPS was increased from Rs. 40/= (1978) to Rs. 155/= (1995) a 300 percent increase over the period. But, the quantity purchased under GPS has not increased commensurate with the increase of the GPS. According to Figure 1.1 the quantity purchased decreased during 1980-1993 and increased again in 1994 and 1995 due to intervention of the new government, but it has not increased since 1998 irrespective of an increased GPS. Since September 1999, the PMB has not functioned and the purchasing of paddy is done through the Cooperative Wholesale Establishment (CWE) which not only purchases but is also involved in milling, processing and marketing.

**Figure 1.1 : Change of GPS and the Quantity Purchased by the PMB (1952-1997)**




*Source : Annual Reports, Central Bank of Ceylon*

It is noteworthy to see the variation between GPS and imported rice prices. Thus, compared[1] with prices of the same amount (1 metric ton) of imported rice, the price offered under GPS was always higher than the imported prices in 1958-1977 period. But after 1977 price of imported rice has increased showing a plateau trend for GPS (See Figure 1.2).

## 2.3 Production Subsidies

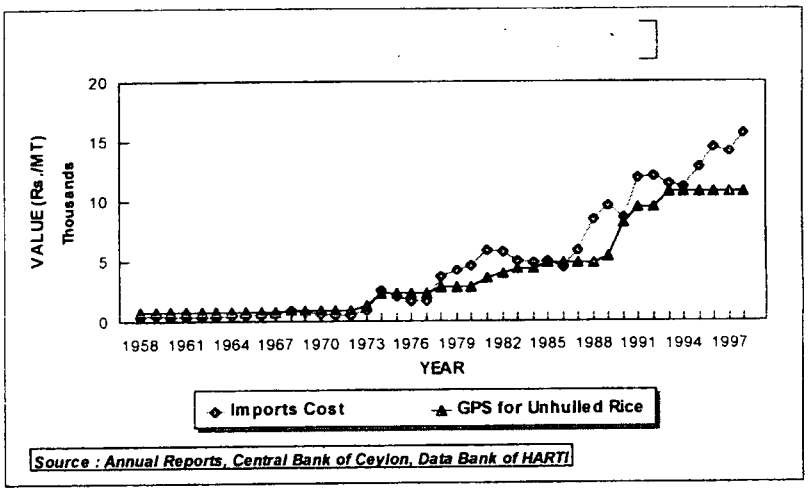
Every successive government provided production subsidies to protect and encourage small producers. The various production incentives took the form of low prices, low interest rates, loans and trade incentives (Abeyratne, 1991). There were two main inputs subsidies given to farmers i.e. the fertilizer subsidy and the irrigation subsidy.

### 2.3.1 Fertilizer Subsidy

The fertilizer subsidy was introduced in 1962 to encourage the use of inorganic fertilizers in line with the green revolution. The subsidy was given for Urea, Triple Super

1 The comparison was based on prices paid by the commissioner of food to import 1 MT of rice and the prices paid under GPS to purchase the same amount of unhulled rice.

**Figure 1.2 : Cost of Rice Imports and GPS Price**




Phosphates (TSP), imported Rock Phosphate, Muriate of Potash (MOP) and NPLO mixtures with 5:15:15 composition. Imported Ammonium Sulphate (AS) was not subsidized from 1981 in order to popularize local production.

The fertilizer subsidy had a positive effect on productivity and total production of paddy (Annual reports, Department of Agriculture). The impact was very significant in the case of high yielding varieties which were used to urea. However, the impact of reducing total production cost was marginal due to the fact that the fertilizer accounted for only12 percent of total cost though it helped to increase fertilizer application among small producers who were not able to bear the high production costs (Henegedara, 1989).

According to the annual reports of the National Fertilizer Secretariat, the annual budget for the fertilizer subsidy increased from Rs. 870 million in 1979 to Rs. 1,500 million in 1997 (Table 2). From 1979 to 1981 the actual expenditure was higher than the annual allocation indicating an excess demand for the subsidy. Except 1984, in all other years however, the actual expenditure was lower than the allocated amount. This would indicate that farmer reaction to the curtailing of the subsidy, nevertheless, farmers were highly depended on Urea. The subsidy was rearranged by the PA government since 1994 by reducing price of Urea and adjusting the prices of others.

Compared to tea, rubber and coconut, more than 60 percent of the subsidy was utilized for paddy. The average fertilizer usage for paddy has increased from Kg./Ha. 155 (1978) to Kg./Ha. 308 (1997) despite the decrease of the total extent cultivated from 876,000 Ha. (1978) to 729,815 Ha. (1997). Figure 2 shows the variation of fertilizer use according to the extent, quantity and average usage by plantation crops.

### 2.3.2 Irrigation Subsidy

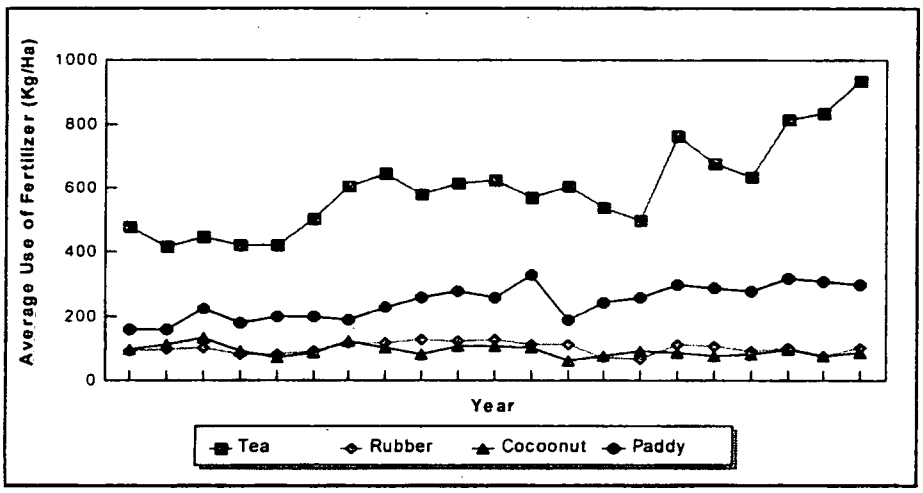
Subsidised irrigation water is the main production input provided for paddy cultivation. Irrigation is provided to farmers free of charge except for a marginal levy that has been imposed for the operation and maintenance of the irrigation systems, and the acreage tax in

**Table 2 : Fertilizer Subsidy – Annual Budgetary Provision and Actual Expenditure 1979 to 1997 (Rs./Million)**

| Year | Budget | Actual Expenditure Rs./Mn. | Actual Expenditure as % of Total Expenditure for Agri. Development |
|---|---|---|---|
| 1979 | 870 | 975 | 24.7 |
| 1980 | 870 | 870 | 7.5 |
| 1981 | 1000 | 1200 | 13.3 |
| 1982 | 1000 | 893 | 5.3 |
| 1983 | 1000 | 705 | 4.5 |
| 1984 | 1000 | 1037 | 6.9 |
| 1985 | 1000 | 748 | 4.7 |
| 1986 | 1000 | 613 | 4.7 |
| 1987 | 700 | 501 | 4.8 |
| 1988 | 600 | 600 | 5.5 |
| 1989 | 600 | 600 | 3.9 |
| 1990 | 1700 | 347 | - |
| 1991 | 1500 | - | - |
| 1992 | 1500 | - | - |
| 1993 | 1500 | - | - |
| 1994 | 1500 | 631 | 4.1 |
| 1995 | 1500 | 1345 | 9.8 |
| 1996 | 1500 | 1500 | 11.6 |
| 1997 | 1500 | 1895 | 11.2 |
| 1998 | 1500 | - | - |

Source : National Fertilizer Secretariat (1998)

**Figure 2 : Use of Fertilizer for Paddy and Plantation Crops (1978-1997)**




Source : Economic and Social Statistics of Sri Lanka
Statistics Division of Central Bank

minor irrigation schemes. There are various arguments for and against the irrigation subsidy because it is difficult to estimate irrigation costs alone (Abeyratne, 1991). However, the effective irrigation subsidy has been costed in some studies (Aluvihare and Kikuchi 1991) by taking into account the operational and maintenance costs of new construction and rehabilitation irrigation projects in major and minor irrigation systems (Table 3). Thus the effective irrigation subsidy for two major irrigation schemes of TIMP and Gal Oya projects (1989) were estimated as Rs. 2261/Ha. (Table 3) but has gone up to Rs. 13840/Ha. in the newly developed Mahaweli areas. The effective irrigation subsidy for the rehabilitation of minor irrigation was Rs. 1588/Ha. (1989). According to these estimates the provision of irrigation subsidy has had a major impact on reducing cultivation cost and on increasing the total agricultural lands from 130m.ha to 158m.ha in the period 1988-1997.

**Table 3 : Economic Costs of Irrigations**

| Item | Based on Mahaweli C Cost | Based on Rehabilitating Cost of Major Schemes | Based on Minor Schemes |
|---|---|---|---|
| | (Rs./Ha. in 1989 Prices) | | |
| Financial Cost | 282,793 | 44,469 | 29,405 |
| Economic Cost | 272,465 | 42,845 | 28,330 |
| Annualized Economic Cost | 27,480e | 4,321e | 2,121 |
| Annualized O&M Cost | 200 | 200f | 54 |
| Total Annualized Cost | 27,680 | 4,521 | 3,175 |
| Implicit Economic Cost (Season) | 13,840 | 2,261 | 1,588 |
| - Domestic Economic Cost | 9,965 | 1,628 | 1,158 |
| - Foreign Economic Cost | 3,875 | 633 | 430 |
| Present Irrigation Charge to the Farmer | 480 | 480 | 1,588 |
| Effective Irrigation Subsidy | 13,840 | 2,261 | 1,588 |

Source : Aluwihare and Kikuchi, Irrigation Investment Trends in Sri Lanka: New Construction and Beyond (1991)

## 2.4 Research and Development

Along with the effects of green revolution in 1960s, Research and Development (R&D) on improved high yielding varieties were stressed (Figure 5). The adoption of high yielding varieties increased from 71percent in (1972) to 90 percent in 1997 (Dhanapala 1977). New seed varieties have shown a greater yield response to fertilizer use, method of cultivation i.e. transplanting and broadcasting and the use of weedicide, pesticide and fungicide.

## 2.5 Agricultural Trade Policy Reforms

In order to achieve a number of objectives of the liberal policy reforms introduced

since 1977, the tariff system was changed by introducing some quantitative restrictions (QRs) on imports. Thus most QRs on imports were replaced in 1988 by introducing a six band duty system ranging from 0 percent tariff for essential consumer items to 500 per cent tariff for luxury items respectively. This system was altered in 1992 and a three band structure was introduced with rates of 10, 20 and 45 per cent in order to relax the rigidity and correct the distortions in domestic agricultural sector (Presidential Tariff Commission on Trade and Tariff). The introduction of the three band tariff structure in 1992 helped to reduce market distortions in the non plantation sector (Gunawardena & Somaratna , 1996).

The new trade agreements on agriculture with the GATT/Uruguay Round Agreement on Agriculture (GURAA) and the South Asian Preferential Trade Agreement (SAPTA) have opened new horizons and avenues for non plantation agricultural commodities. In compliance with GURAA, Sri Lanka is bound to have all tariffs on imports of agricultur products at a uniform rate of 50 per cent (Gunawardena and Somaratna, 2000). Thus approximately 700 agricultural products including cereals, sugar, maize, spices, fruits, vegetables, juices and other fruit preparations, milk and meat will benefit under the GURAA and SAPTA agreements.

The official import duty rates imposed on rice were changed from time to time with change in local production and also under internal political pressures. According to Table 4, the tariff on the import of rice was 25 per cent in 1980 and it remained so until 1989. The rate was reduced to 8 percent in 1990 for two years. It was however increased from 12 to 16 percent in 1992 and again to 35 per cent or Rs. 7/Kg. in 1994. Even though it was reduced to zero in 1995/96 Maha and 1997Yala seasons due to severe drought and the resultant low production, the tariff was increased again to 35 per cent in 1998 with another 4.5 per cent charge as the national security levy. It however dropped to 10 percent in 1999 and increased to 35 percent in January 2000 (Table 4).

Though there has been a degree of flexibility in regard to tariff rates, no rational policy has been adopted in this regard (Rupasena, 2000). However, the impact of these changes were very effective in determining domestic market prices. Until 1990 the CWE had a monopoly of rice imports. After August 1990 private traders were allowed to import and to maintain buffer stocks subject to the payment of import duties when stocks were released to the local market.

The impact of tariff rates on local producers and the consumers is negligible when compared to Nominal Protection Coefficient (NPC)[2] and the Effective Protection Coefficient (EPC)[3]. According to HARTI statistics based on 1991/92 survey data in four major rice producing areas, the NPC or the NPR was -8.2 at the rate of official exchange rate and -16.8 at the rate of shadow exchange rate (Wickramarachchi, 2000). It implies that the rice was negatively protected or local producers were taxed. According to the same estimates, EPC or the EPR was -9.8 and -21.6 respectively in newly irrigated and rehabilitated irrigated areas at the rate of official exchange rate. The rate was -23.2 and -32.0 respectively in newly and rehabilitated areas in terms of the shadow exchange rate (Wickramarachchi, 2000). This implies that protection had a negative effect on local producers.

---

2 NPC is the ratio of domestic market price of a given commodity to its border price.
Thus: $NPC = P^d / P^b$ where $P^d$ – domestic price of given commodity $P^b$ – border price of the commodity

3 The EPC is defined as the ratio between the value added in domestic market prices to the value added in world prices for a particular production process.
$EPC = V^d / V^b$ where $V^b$ – value added in border prices $V^d$ – value added in domestic prices

**Table 4 : Variation of Duty Rates for Rice Imports**

| As at | Rate of Duty % |
|---|---|
| 1986 – 1989 | 25 |
| 1990 | 08 |
| 1992 July 30 | 12 |
| 1992 Dec. 01 | 16 |
| 1993 July 26 | 20 |
| 1993 Aug. 17 | 35 |
| 1994 Dec. 13 | 20 |
| 1995 Feb. 01 | 31 |
| 1996 April 15 | 0 |
| 1997 Jan. 31 | 35 |
| 1997 Nov. 20 | 0 |
| 1998 Feb. 01 | 35 |
| 1999 Nov. 22 | 10 |
| 2000 Jan. 01 | 35 |

Source : Sri Lanka Custom Notifications (Various)

## 2.6 Institutional Development Programs

Following the agricultural policy reforms, the agricultural delivery system also improved through strengthening the institutional mechanism of the state services and the participation of beneficiary groups. Thus Agrarian Service Centres (ASCs) were established in 1971 to provide farm support services such as extension, credit and marketing through the Department of Agrarian Services, the Department of Agriculture, the Paddy Marketing Board and the Agricultural Development Authority. Under the Agricultural Productivity Act introduced in 1971, farm support services were strengthened by promoting the participation of beneficiary groups. Thus Agricultural Productivity Committees were formed in every ASC with farmer representatives from farmer organizations (FOs) at field level. Farmer organizations were geared to avail of farm services and maintain minor irrigations. However after 1988 the role of the Agrarian Service Centers was limited to training and extension, and the private sector was encouraged to provide fertilizer, chemicals and seeds. Since 1980s irrigation policy was based on the participatory development approach and an irrigation water management division (IMD) was established in 1982 in order to encourage farmer participation in irrigation and water management in major and minor irrigations. Thus Farmer Organizations (FO) were established in many irrigation schemes and the cropping intensity was expected to increase 20 percent under the improved water management practices and active farmer participation. According to annual reports of the Department of Agrarian Services in 1996, about 8,000 FOs were functioning in 1995 and many them were actively involved in input distribution and irrigation water management.

With the New Agricultural Policy Framework (NAPF) introduced in 1995, a unified and participatory approach was followed to solve farmers problems in association with officers, traders and financial institutions (Ariyaratna, 2000). According to this approach the role of FOs became very important and idea of farmer companies was tried out as pilot projects in selected major irrigation schemes. It was hoped to replicate this idea in other areas in order to commercialize farming activities.

## 2.7 Agricultural Credit Policy

Agricultural Credit Policy was primarily intended to reduce rural idebtness. It also aimed at promoting formal credit supply through the banking sector in rural areas. Accordingly three approaches were followed in the past to

1. Reduce interest rate provided by the Central Bank

The Central Bank of Sri Lanka gave commercial banks money at 7.5 percent interest for a maximum period of 270 days enabling them to lend to farmers at 16 percent per annum. This interest was very attractive when it compared with interest rates in industrial and service sectors.

2. Appoint loan agents

A loan agent system was introduced in 1986 to protect small farmers from private money lenders. This system was not very effective in solving rural credit issues because the loan agents could not compete with private money lenders.

3. Establish Rural Regional Development Banks (RRDB)

Rural Regional Development Banks (RRDB) were established by the Central Bank with a view to providing credit for paddy and subsidiary food crops. Thus the RRDB provided credit to farmers under special interest rates given by the Central Bank. When special interest rate scheme was terminated by the Central Bank in 1994, the RRDB faced difficulties in competing with other Commercial Banks because the same interest rates were given to all Commercial Banks.

According to Table 5, agricultural credit disbursement for paddy and other OFCs were increased during 1977/78 - 1994/95 period though it decreased after 1995/96. The increase of disbursements was a result of involving private banks in granting loans for agriculture. The disbursement of private banks increased from Rs. 29 million to Rs. 85 million during 1977 - 1995 period (Attanayake, 1996).

The informal credit sector is even now more active in Sri Lanka due to various linkages, transactions and obligations between farmers (Wickramarachchi, 1998). This sector was organized under semi formal institutions such as thrift and credit societies and banks. Policy reforms aimed at promoting formal credit systems were not effective in reducing rural indebtness. The rural paddy sector receives much less of the of total credit disbursements when it compared to the industrial and commercial sectors (Abeyratne, 1991; Henegedara, 2000). On the other hand the rate of repayment of loans was very low due to price fluctuations, crop failures and low returns.

## 3.0 Effects and Impact of Policy Reform

The effects and impact of agricultural policy reforms on paddy cultivation was assessed by examining the direct effects of policies on changing production inputs and support services for paddy cultivation and their overall impact on increasing yields, total production, net returns and self sufficiency.

**Table 5 : Cultivation Loans Granted by Banking Sector for Paddy and Other Crops (Rs./Millions)**

| Cultivation Year | Loans Granted for Paddy | Loans Granted for Other Crops |
|---|---|---|
| 1978/79 | 59 | 20 |
| 1979/80 | 60 | 23 |
| 1980/81 | 84 | 34 |
| 1981/82 | 112 | 28 |
| 1982/83 | 148 | 27 |
| 1983/84 | 172 | 42 |
| 1984/85 | 122 | 38 |
| 1985/86 | 203 | 92 |
| 1986/87 | 269 | 68 |
| 1987/88 | 245 | 85 |
| 1988/89 | 167 | 86 |
| 1989/90 | 372 | 181 |
| 1990/91 | 588 | 234 |
| 1991/92 | 595 | 235 |
| 1992/93 | 569 | 255 |
| 1993/94 | 624 | 293 |
| 1994/95 | 723 | 257 |
| 1995/96 | 476 | 192 |
| 1996/97 | 412 | 178 |
| 1997/98 | 308 | 135 |

Source : Central Bank of Ceylon

### 3.1 Effects

The effects of agricultural policies intended to increase the extent, irrigation infrastructure, seeds, fertilizer and chemicals use were assessed by analyzing the trend of the utilization of production inputs in the past two decades. The analysis was done through drawing simple trend lines for main indicators such as the extent of irrigated lands, application of chemical fertilizer, use of improved varieties, method of land preparation, type of weeding and use of agro chemicals (see Figure 3.8). Thus the extent of irrigated land is seen to have increased from 62 percent to 67 percent during the first phase of liberalization (1977-88) and from 67 percent to 70 percent during the second phase of liberalization (1989-93) though it decreased in the mid nineties. The Guaranteed Prices for paddy and trade policy reforms were factors that influenced an increase in the total extent of paddy cultivation (Sirisena, 1986).

Though the average usage of fertilizer increased in the past (Table 3), the total amount of chemical fertilizer used fluctuated during the 1985-1999 period indicating a sharp drop in 1989, 1991 and in 1996 (Figure 4).

As a result of production subsidies, credit policies and technology development programs, the use of new improved varieties has increased significantly during the 1979 - 1999 period (Figure 5). Figure 6 indicates the use of farm power indicating an increase of tractors and decrease of using buffaloes during the period. The extent of chemical weeding has fluctuated over the consecutive period indicating an upward trend but, the extent of hand weeding remained without any significant change (Figure 7). According to Figure 8 the use of insecticide and fungicides increased slightly during 1985-1999 period.

Figure 3

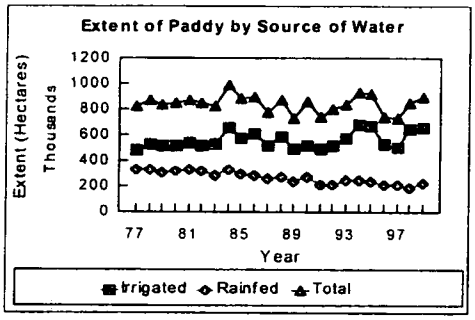



Figure 4

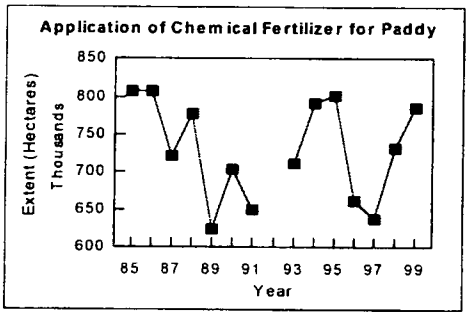



Figure 5

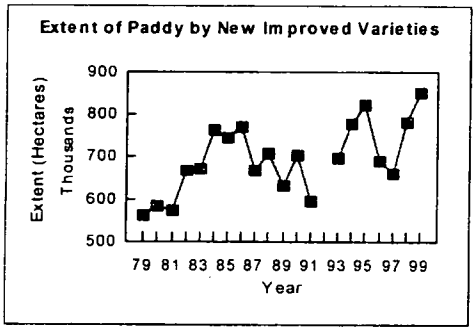



Figure 6

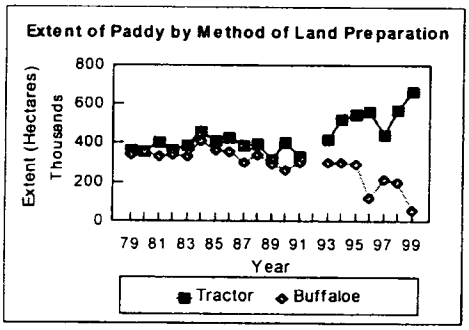



Figure 7

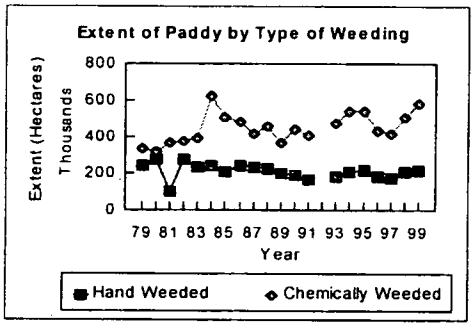
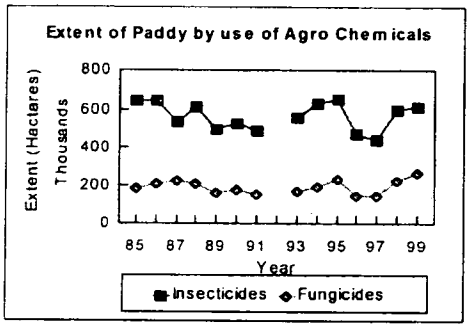



Figure 8




## 3.2 The Impact

As indicated in Figure 3-8, an increase in the extent of irrigated lands, fertilizer application, use of improved seeds, tractors, and use of weedicide and fungicide would cause an increase in the total output and returns of paddy cultivation. The trend of key indicators such as output and returns, growth rate, cropping intensity, and self sufficiency ratio were used to assess the impact on increasing the production and productivity paddy.

### 3.2.1 Output and Returns

As shown in Table 6 the average paddy production increased during the consecutive liberal policy regimes from 2235MT (1977-1988) to 2557 MT (1994-1999). The average yield also increased from 3125 Kg./he. to 3555 Kg./ha. during the same period. The gross return per acre increased from Rs. 4854 to Rs. 16043 in irrigated areas and from Rs. 3025 to Rs.9051 in rainfed areas during two consecutive periods. The net returns per acre increased by 55.8 percent and 10.4 percent respectively in irrigated and rainfed areas but showed negative results when imputed values for labor and seeds were included (Table 6). Figure 9 also indicates the trend of production and the average yield of paddy during 1978-1999 period.

**Figure 9 : Production and Average Yield of Paddy**

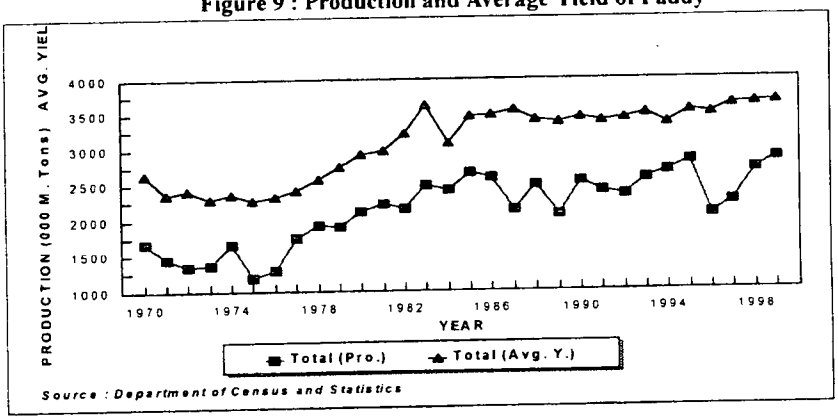



**Table 6 : The Impact of Agricultural Reforms on Increasing Paddy Production During Three Policy Regimes**

| Item | Unit | 1977-88 | 1989-93 | 1994-99 | % Change |
|---|---|---|---|---|---|
| Production | 000'MT | 2235 | 2380 | 2557 | 7.4 |
| Average Yield | Kg./Hec. | 3125 | 3449 | 3555 | 3.1 |
| Cost of Production of Paddy (Irrigated) | | 3242* | 8307* | 12360* | 48.8* |
| | Rs./Acre | 2561 | 6523 | 8726 | 33.8 |
| Cost of Production of Paddy (Rainfed) | | 2447* | 7382* | 10908* | 47.8* |
| | Rs./Acre | 1923 | 4682 | 6306 | 34.7 |
| Gross Return per Acre of Paddy (Irrigated) | | 4854 | 11218 | 16043 | 43.0 |
| Gross Return per Acre of Paddy (Rainfed) | Rs./Acre | 3025 | 7170 | 9051 | 26.2 |
| Net Return per Acre of Paddy (Irrigated) | Rs./Acre | 1615* | 2911* | 3683* | 26.5* |
| | Rs./Acre | 2295 | 4695 | 7317 | 55.8 |
| Net Return per Acre of Paddy (Rainfed) | Rs./Acre | 578* | -211* | -1857* | 780.1* |
| | | 1102 | 2488 | 2746 | 10.4 |

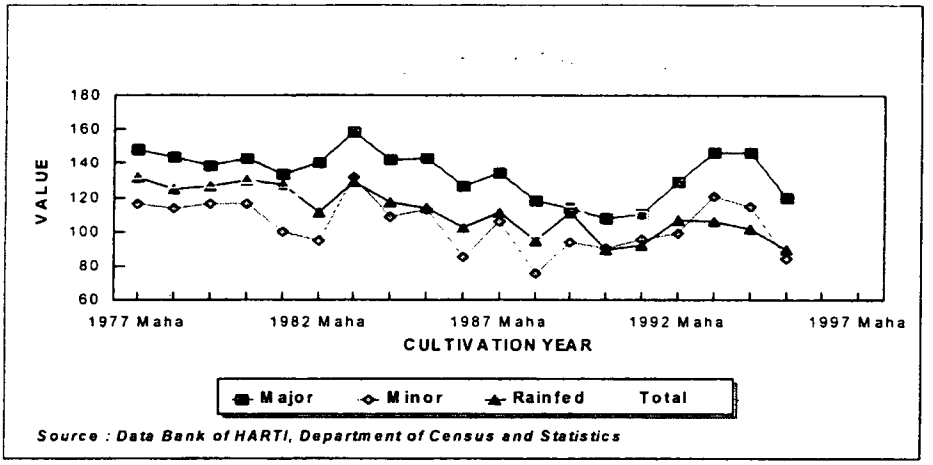
* Including imputed costs for labor and seeds etc.

Source : Department of Agriculture, Data Bank of HARTI

### 3.2.2 Intensity

The change of cropping intensity[4] over the period is indicated in Table 6 and Figure10. It seems that cropping intensity fluctuated during the 1977-98 period in spite of the improved irrigation infrastructure and management practices introduced since 1977. According to Table 7, the highest cropping intensity 141 was in 1982/83 *Maha* to the lowest 99 in 1996/97 *Maha*. This fluctuation was due mainly due to an erratic rainfall pattern and agro climatic conditions experienced in some years.

**Figure 10 : Cropping Intensity of Paddy by Mode of Irrigation and Seasons**




*Source : Data Bank of HARTI, Department of Census and Statistics*

**Table 7 : Cropping Intensity of Paddy by Mode of Irrigation and Seasons**

| Cultivation Year | *Maha /Yala* Total | | | |
|---|---|---|---|---|
| | Major | Minor | Rainfed | Total |
| 1977/78 | 148.5 | 116.6 | 131.4 | 133.5 |
| 1978/79 | 143.8 | 113.6 | 124.5 | 128.4 |
| 1979/80 | 138.5 | 116.3 | 126.3 | 128.2 |
| 1980/81 | 143.1 | 116.3 | 129.9 | 131.2 |
| 1981/82 | 133.9 | 99.9 | 127.3 | 122.9 |
| 1982/83 | 140.3 | 94.5 | 110.9 | 118.0 |
| 1983/84 | 158.7 | 131.6 | 129.0 | 141.0 |
| 1984/85 | 142.1 | 108.5 | 117.1 | 124.8 |
| 1985/86 | 142.6 | 112.5 | 114.0 | 125.1 |
| 1986/87 | 126.8 | 84.8 | 102.3 | 107.8 |
| 1987/88 | 134.3 | 105.9 | 111.1 | 119.3 |
| 1988/89 | 117.6 | 76.1 | 94.4 | 99.5 |
| 1989/90 | 113.4 | 93.8 | 110.8 | 116.8 |
| 1990/91 | 107.9 | 90.0 | 89.1 | 100.8 |
| 1991/92 | 110.3 | 95.7 | 91.7 | 109.0 |
| 1992/93 | 128.8 | 98.8 | 107.2 | 114.6 |
| 1993/94 | 146.2 | 120.4 | 105.6 | 127.0 |
| 1994/95 | 146.8 | 114.4 | 101.9 | 124.6 |
| 1995/96 | 120.1 | 84.3 | 89.4 | 101.7 |
| 1996/97 | 114.2 | 81.4 | 109.5 | 99.0 |
| 1997/98 | 140.7 | 108.4 | 86.2 | 116.0 |
| 1998/99 | 143.3 | 107.8 | 100.7 | 121.5 |

Source : Data Bank of HARTI and Department of Census and Statistics

4 Cropping Intensity = $\frac{\text{Area sown with paddy}}{\text{Area aseddumized}} \times 100$

### 3.2.3 Growth Rates

Growth rates in the agricultural sector and the paddy farming sector bears a close relationship to cropping intensity (see Table 8 and Figure10). The growth rate of the agricultural sector fluctuated over the period and indicated some negative trends in 1987, 1989 and 1996. It also indicates that growth rates in paddy farming sector fluctuated negatively with a decrease in the cropping intensity for some years.

**Table 8 : Growth Rates of Agricultural Sector and Paddy Production**

| Year | Growth Rate | |
|---|---|---|
| | Agricultural Sector | Paddy |
| 1983 | 5.3 | 15.2 |
| 1984 | 2.0 | -2.4 |
| 1985 | 9.9 | 10.0 |
| 1986 | 2.2 | -2.5 |
| 1987 | -8.1 | -18.0 |
| 1988 | 3.3 | 16.4 |
| 1989 | -1.9 | -16.7 |
| 1990 | 10.4 | 21.3 |
| 1991 | 0.8 | -5.9 |
| 1992 | 2.4 | -2.0 |
| 1993 | 5.0 | 9.6 |
| 1994 | 3.8 | 4.7 |
| 1995 | 3.3 | 4.7 |
| 1996 | -5.1 | -26.7 |
| 1997 | 3.0 | 8.6 |

Source : Data Bank of HARTI

### 3.2.4 Self Sufficiency Ratio

Figure 11 indicates variations of rice self sufficiency ratio[5] over the period and Table 9 indicates details of self sufficiency ratio including mid year population, per capita consumption, rice requirements for consumption and seed paddy and the extent sown. The ratio has increased during the1973 - 1985 period and decreased after 1986 indicating that the existing production is inadequate to fulfill the requirements of mid year population.

### 3.2.5 Cost and Profitability

The cost of production of paddy cultivation increased during the (1983 - 1998) period. The average production cost of one acre of paddy land in irrigated areas was Rs. 3,242 in 1977 – 1988 period and it had increased to Rs. 12,360 during 1994 – 1999 period (Table 6). The cost of production in rainfed areas has also increased from Rs. 2,447 to Rs. 10,908 during the same period. Labour accounts for more than 40 percent of total costs while fertilizer accounts for only 16 percent of total cost (Henegedara, 1989).

---

5 Self sufficiency ratio was estimated dividing total rice production by total rice requirements for a given period.

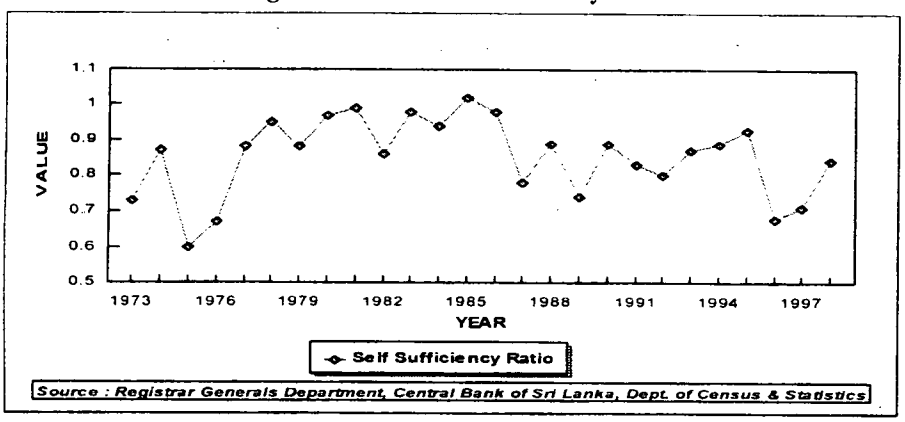
## Table 9 : Rice – Self Sufficiency Ratio

| Year | Mid Year Population ('000) | Per Capita Consumption Rice (Kg/Yr) | Rice Required for Consumption (Mt/Yr) | Extent Sown Paddy (Ac.) | Seed-Paddy Requirements (Rice-Mt) | Total Rice Require-ments(Mt) | Gross Product-ion Paddy ('000 Mt) | Net Production Rice Equival. (Mt.) | Self Suffi-ciency Ratio |
|---|---|---|---|---|---|---|---|---|---|
| 1973 | 13,091 | 86.80 | 1,136,299 | 1,792,102 | 50,861 | 1,187,160 | 1,357 | 867,394 | 0.73 |
| 1974 | 13,284 | 86.80 | 1,153,051 | 2,038,058 | 57,841 | 1,210,893 | 1,657 | 1,059,154 | 0.87 |
| 1975 | 13,496 | 86.80 | 1,171,453 | 1,719,370 | 48,797 | 1,220,250 | 1,192 | 761,936 | 0.60 |
| 1976 | 13,717 | 86.80 | 1,190,636 | 1,788,981 | 50,772 | 1,241,408 | 1,298 | 829,682 | 0.67 |
| 1977 | 13,942 | 86.80 | 1,210,166 | 2,046,192 | 58,072 | 1,268,238 | 1,752 | 1,119,878 | 0.88 |
| 1978 | 14,190 | 86.80 | 1,231,692 | 2,162,073 | 61,361 | 1,293,053 | 1,929 | 1,233,017 | 0.95 |
| 1979 | 14,472 | 90.90 | 1,315,505 | 2,072,289 | 58,813 | 1,374,318 | 1,901 | 1,215,119 | 0.88 |
| 1980 | 14,746 | 90.90 | 1,340,411 | 2,087,167 | 59,235 | 1,399,647 | 2,120 | 1,355,104 | 0.97 |
| 1981 | 15,011 | 90.90 | 1,364,500 | 2,166,484 | 61,486 | 1,425,986 | 2,216 | 1,416,467 | 0.99 |
| 1982 | 15,195 | 101.30 | 1,539,254 | 2,085,971 | 59,201 | 1,598,455 | 2,155 | 1,377,476 | 0.86 |
| 1983 | 15,416 | 101.30 | 1,561,641 | 2,036,396 | 57,794 | 1,619,435 | 2,481 | 1,585,855 | 0.98 |
| 1984 | 15,599 | 101.30 | 1,580,179 | 2,446,829 | 69,443 | 1,649,621 | 2,419 | 1,546,225 | 0.94 |
| 1985 | 15,837 | 101.30 | 1,604,288 | 2,176,233 | 61,763 | 1,666,051 | 2,655 | 1,697,076 | 1.02 |
| 1986 | 16,117 | 101.30 | 1,632,652 | 2,217,640 | 62,938 | 1,695,590 | 2,587 | 1,653,610 | 0.98 |
| 1987 | 16,361 | 103.66 | 1,695,981 | 1,930,449 | 54,787 | 1,750,769 | 2,125 | 1,358,300 | 0.78 |
| 1988 | 16,586 | 103.66 | 1,719,305 | 2,144,396 | 60,859 | 1,780,164 | 2,477 | 1,583,298 | 0.89 |
| 1989 | 16,806 | 103.66 | 1,742,110 | 1,796,340 | 50,981 | 1,793,091 | 2,064 | 1,319,309 | 0.74 |
| 1990 | 16,993 | 103.66 | 1,761,494 | 2,116,974 | 60,081 | 1,821,575 | 2,538 | 1,622,290 | 0.89 |
| 1991 | 17,247 | 103.66 | 1,787,824 | 2,017,975 | 57,271 | 1,845,095 | 2,389 | 1,527,049 | 0.83 |
| 1992 | 17,405 | 103.66 | 1,804,202 | 1,984,682 | 56,327 | 1,860,529 | 2,340 | 1,495,728 | 0.80 |
| 1993 | 17,619 | 103.66 | 1,826,386 | 2,061,586 | 58,509 | 1,884,895 | 2,569 | 1,642,105 | 0.87 |
| 1994 | 17,865 | 103.66 | 1,851,886 | 2,297,141 | 65,194 | 1,917,080 | 2,683 | 1,714,974 | 0.89 |
| 1995 | 18,112 | 103.66 | 1,877,490 | 2,261,065 | 64,170 | 1,941,660 | 2,810 | 1,796,152 | 0.93 |
| 1996 | 18,315 | 103.66 | 1,898,533 | 1,850,182 | 52,509 | 1,951,042 | 2,061 | 1,317,391 | 0.68 |
| 1997 | 18,552 | 106.14 | 1,969,109 | 1,803,389 | 51,181 | 2,020,291 | 2,239 | 1,431,169 | 0.71 |
| 1998 | 18,774 | 106.14 | 1,992,672 | 2,096,104 | 59,489 | 2,052,161 | 2,692 | 1,720,726 | 0.84 |

Self Sufficiency Ratio = Total Rice Production / Total Rice Requirements
1 MT Paddy = 47.92 Bushels of Paddy  1 MT Paddy = 0.68 MT of Rice

Source : Registrar Generals Department, Central Bank of Sri Lanka, Dept. of Census & Statistics

## Figure 11 : Rice Self Sufficiency Ratio



Labour charges increased during the period due to a labour shortage and migration out of the rural agricultural sector (Senakarachchi, 1994). The cost of farm machinery, chemicals and fertilizer also increased due to a curtailment of input subsidies as mentioned earlier.

The profitability of paddy is not as attractive when compared to other field crops such as chillies, onions and gherkin etc. The net returns for cultivating one acre of paddy land in irrigated areas has increased from Rs. 1,615 (1977 - 1988) to Rs. 3,683 (1994 - 1999) while the net returns in cultivating one acre of land in rainfed area has decreased from Rs. 578 to -Rs.1857 for the same period. Thus, compared to rainfed conditions, paddy production is profitable only in irrigated areas though the profit margin is very low in the newly irrigated areas due to high construction cost (Wickramarachchi, 1992). Thus the comparative advantage of rice production has gradually declined due to the increase in the cost of production and the yield levels remaining static (World Bank, 1991).

The effects and impact of agricultural policies have given rise to a few issues which need to be addressed by policy makers.

Though there were some positive trends in paddy production due to some favourable policy interventions 16 percent of the country's total requirement of rice had to be imported due to insufficient local production. It would appear that self sufficiency in paddy is still beyond immediate targets due to certain inherent constraints in the sector.

According to HARTI the EPC and NPC estimates were negative both under irrigated and rainfed conditions (Wickramarachchi, 2000). Nevertheless the non competitiveness of rice production is maintained with the governments spending a large amount of resources on the paddy sector.

In spite of the new policies that were implemented, paddy cultivation has yet to be developed as a commercial proposition so as to get the maximum benefits of the liberal reforms. Since some distortions in the rural money and land markets were seen as constraints, land tenure and market distortions need to be removed. Irrigation infrastructure and the rural transport system should be improved and technology transfer arranged to overcome the impediments as well as to support crop diversification.

## 4.0 Conclusion

Policy reforms relating to the paddy farming sector have had a tremendous effect in increasing total production and productivity of paddy cultivation though they tend to oscillate after 1994. However, the increased production has not been sufficient to increase the self sufficiency ratio and thus to directly affect the food security of the nation. 16 percent of the domestic rice requirement is still met through imports. The tariff reforms were not effective in rationalizing domestic rice prices though they caused a reduction in producer prices or farm gate prices. The net return per acre decreased due to an increase in the cost of inputs indicating that the increase in the price of rice did not offset the increasing cost to the farmer. Therefore some policy interventions are necessary to avoid the distortions and the difficulties arising from the policies already introduced. Some definite policies and programs need to be implemented in regard to infrastructure development, research and development, producer subsidies and technology development if the problems and difficulties presently being faced by the paddy farmers in Sri Lanka are to be satisfactorily resolved.

## References


Abeyratne, Fredrick. (1991). *Agricultural Taxation and Subsidies Related to the Irrigation Sector*, a paper presented to the Irrigation Management Policy Support Activity. (IMPSA) Colombo.

Ariyabandu, Madhavi Malalgoda. et al (1994). *Impact of Structural Adjustment Policies on Small Scale Producers in South Asia.* ITDG, Colombo.

Athukorala, P. and Kelegama, S. (1996). 'Agricultural Trade Liberalization in the Uruguay Round: Implications for Sri Lankan Agriculture', paper presented at the World Bank/FAO, South Asia, WTO Seminar, April 22-24, Kathmandu, Nepal.

Athukorala, P. (1986). 'The Impact of 1977 Policy Reforms on Domestic Industry', *Upanati: Journal of Sri Lanka Association of Economists* 1: 69-106.

Athukorala, P. and Jayasooriya, S. (1994). '*Macroeconomic Policies, Crises and Growth in Sri Lanka*, 1969-90, World Bank, Washington D.C.

Attanayake, M.M. (1997). 'The Role of Financial Institutions in Poverty Alleviation', a paper presented at the seminar on Micro Impact of Macro Economics and Adjust ment Policies (MIMAP) Sri Lanka 11th – 12th from 1997, HARTI, Colombo.

Bhalla, S. (1991). 'Sri Lanka', in A. Krueger, Schiff and A. Valdes (eds), *The Political Economy of Agricultural Pricing Policy*, Vol. 2, Asia, Baltimore: Johns Hopkins University Press (for the World Bank).

Central Bank of Sri Lanka (1997). Annual Report, Colombo.

Central Bank of Sri Lanka (1997). Sri Lanka Socio Economic Data, June 1997, Colombo.

Central Bank of Sri Lanka (1999). *Report on Consumer Finances and Socio Economic Survey*, Sri Lanka (1996/97).

Chandrapala, H.A. (1986). 'Performance in the Agricultural Sector', *Facets of Develop ment in Independent Sri Lanka*, Felicitation Volume to Commemorate the 10th successive budget of Hon. Ronnie de Mel, Ministry of Finance & Planning, Colombo, pp 219-277.

Department of Census & Statistics (1988). Statistics Abstract, Department of Census, Colombo.

Dunham, D. (1993), 'Crop Diversification and Export Growth: Dynamics of Change in the Lanka Peasant Sector', *Development and Change*, Vol. 24 pp 787-813.

Farmer, B.H. (1957). *Pioneer Peasant Colonization in Ceylon*, Oxford University Press, London.

Gooneratne, W. and Wesumperuma, D. (eds) (1984). *Plantation Agriculture in Sri Lanka: Issues in Employment and Development*, ILO, ARTEP, Bangkok.

Gunawardena, P.J. and Somaratne, W.G. (1996). 'Economic Reforms since 1997 and their Impact on Domestic Agriculture in Sri Lanka'. A paper presented to the 25th Conference of Economists, Australian National University, Canberra 23-25 September 1996.

Gunawardena, P.J. and Somaratne, W.G. (2000). Non Plantation Agriculture Economy of Sri Lanka: Trends, Issues and Prospects, *Sri Lankan Journal of Agricultural Economics*, 3, PPIS – 45.

Henegedara, G.M. (2000). Economics of Paddy Cultivation in Two Selected Districts with Special Reference to Resource Use and Profitability, HARTI, Colombo, 2000.

Karunatilake, H.N.S. (1971) *Economic Development in Ceylon*, Praeger, New York.

Karunatilake, H.N.S. (2000). *Towards a New Agriculture*, Vol. 2, Ministry of Agriculture, Colombo.

Kelegama, Saman. (1991). Open Economic Policy and its Impact on Domestic Industrialization in Sri Lanka, a paper prepared for the annual session of the Sri Lanka Association of Economists on the Theme, 'Open Economic Policy and its Impact' 14th December, 1991, Colombo.

Lakshman, W.D. (1994). 'Structural Adjustment Policies in Sri Lanka: Imbalances, Structural Disarticulation and Sustainability', paper presented to the International Conference on Economic Liberalization of South Asia, Australian National University, Canberra, 30th November - 2nd December 1994.

Lakshman, W.D. (1994). *Distribution and Poverty Implications of Market Oriented Policies in Sri Lanka* (Draft Report)

Lakshman, W.D. and Tisdell, C.A. (2000.) *Sri Lanka's Development Since Independence: Socio-economic Perception and Analysis*, Nova Science Publishers, Huntington, New York.

Ministry of Finance & Planning (1984). *National Agriculture, Food and Nutrition Strategy*, National Planning Division, Ministry of Finance & Planning, Colombo.

Ministry of Agriculture, Lands & Forestry, (1995). *National Policy Framework for Agriculture, Lands & Forestry*

People's Bank (1995). *Economic Review: Structural Adjustment, The Small Producer's Dilemma*, People's Bank, Colombo.

Rajapathirana, S. (1989). 'Foreign Trade and Economic Development:The Case of Sri Lanka', *World Development*, 16: 1143-57.

Rasaputra, W., Tilakaratne, W.M., Fernando, S.T.G. and Fernando,L.E.N. (1986). *Facets of Development in Independent Sri Lanka*: Felicitation Volume to Commemorate the 10th Successive Budget of Hon. Ronnie de Mel, Minister of Finance & Planning.

Rupasena, L.P. (2000). *Review of Paddy / Rice Marketing for the First Half of the Year 2000*, A report submitted to the Ministry of Finance & Planning.

Senakarachchi, R.B. (1995). The Problems of Second Generation Settlers in Land Settlement Schemes: The Case of Sri Lanka.Uunpublished Thesis submitted to the University of Adelaide, South Australia, Australia.

Senakarachchi, R.B, Wickramasinghe, G, Rathnayake, R.M.G.K.B. (1996). *Interim Report on the Study of Factors Responsible for Declining Trend in Paddy Production*, (Draft Report), HARTI, Colombo.

Snodgrass, D.R. (1966). *Ceylon: An Export Economy in Transition*, Richard D, Irwin, Homewood, USA.

Sirisena, N.L. (1986). An Evaluation of Agricultural Policy on the Paddy Sector, 1950-1985, *Sri Lanka Economic Journal*, 1: 66-97.

Somaratne, W.G. and Wickramasinghe, W. (1993), 'Efficiency in Rice Production in Sri Lanka', paper presented at the Symposium of Policy Issues in Agriculture, 18-19 December, 1993, Agrarian Research and Training Institute, Colombo.

Somaratne, W,G. (1998). *Policy Reforms and the Environment: General Equilibrium Analysis of Land Degradation in Sri Lanka*, Unpublished Ph.D. Thesis, School of Business, La Trobe University, Bundoora, Victoria, Australia.

Wickremeratne, L.A. (1977). *Peasant Agriculture', in K.M. De Silva (ed.) Sri Lanka; A Survey*, London: C. Hurst & Co.

Wickramarachchi, P. (1993). *Comparative Advantages of Food Crop Production in Sri Lanka*, Hector Kobbekaduwa Agrarian Research & Training Institute, Colombo. (Unpublished Report).

Wickramarachchi, P. (1998). *Institutional Farm Credit Survey*, Asian Productivity Organization, Tokyo, Japan.

World Bank (1996). *Sri Lanka Non Plantation Crop Sector: Policy Alternatives*, March, 1996, Country Department of South Asia Region.

World Bank (1994). *World Development Report 1994 – Infrastructure for Development* Washington, D.C. U.S.A.

UNICEF (1989). *Sri Lanka: The Social Impact of Economic Policies During the Last Decade*, UNICEF, Colombo.