

FEATURES

THE PADDY CROP INSURANCE IN SRI LANKA - AN OVERVIEW

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Introduction

Agriculture plays a vital role in the overall economy of Sri Lanka contributing 25 percent of Gross Project (GDP), employing 45 percent of the economically active population and providing about 43 percent of the total export earnings (Dept. of Census and Statistics, 1987). It has continued to generate about 15 percent of government revenue and had significant impact on the development of other sectors of the economy. Thus Sri Lanka is dependent on agricultural production for sustained and higher levels of economic growth and development.

Uncertainties in Agricultural Production

But agriculture is subject to risks and uncertainties in production and income levels. Agriculture is especially susceptible to the physical uncertainties of nature, since it requires extensive direct continuous contact with the forces of nature. It is subjected to the vagaries of weather like floods, drought, storms, tornadoes, low temperature, which causes uncertainties in farm production and income. Also, due to the occurrence of pests and diseases which cause severe and extensive losses; farm production and income is subject to fluctuations.

Ahsan, S.M. (1982) states that a majority of farmers are seldom able to bear such risks, especially when very large losses occur, resulting in a serious decline in farm income and the consequent decline in the demand for non-farm products by farmers.

Crop Insurance

The Sri Lankan peasant farmer with low savings and a high level of indebtedness not only suffers adversely at times of such calamities, but is also confronted with the problem of financing his next cultivation. Therefore, it becomes essential for the state to provide some kind of relief assistance to ensure that they remain on their land.

Crop Insurance gives farmers a minimum protection against the risk of crop failure in return for the payment of a stipulated premium. At times of crop

failure the insured farmer can claim compensation as a right and not as a privilege. The indemnities/compensation paid helps in reducing the financial loss incurred during crop failure.

Crop Insurance is a collective system for reducing economic uncertainties due to crop failure. It accomplishes this through the basic technique of risk pooling. (UNCTAD, 1981)

"Moral hazard" and "adverse selection" seem to have a significant effect on the success of a crop insurance scheme. Thus commonly in reducing crop production risk, peasant farmers normally practice "adverse selection".

The most important motivation of crop insurance is to stabilise the farmers income. The premiums paid by the farmers becomes a running cost of production. Further, crop insurance increases the volume of production, as well as productivity, by increased input use and better utilization of fixed costs. (S ven Holmstrom, 1981).

It has been reported that the 'Green Revolution' has succeeded only among better-off farmers. (Frankel, 1971). This clearly indicates that the spread of high yielding varieties among peasant farmers would be low due to their inability to encounter the high risk involved in cultivating them.

Sri Lanka's Crop Insurance Scheme

Sri Lanka's Agricultural Insurance Scheme was initiated in the 1958 (Maha) season it was focussed only on the major crop, paddy on a pilot projects basis, on approximately 26,000 acres in 5 districts. By 1974; approximately 16 percent of the total area cultivated with paddy was covered by insurance in both seasons. (Sanderatne, N: 1974). Later by 1985, this was expanded to other crops like green gram, cow-pea, chillies, soya bean, and even livestock,

FIGURE 1 (a)

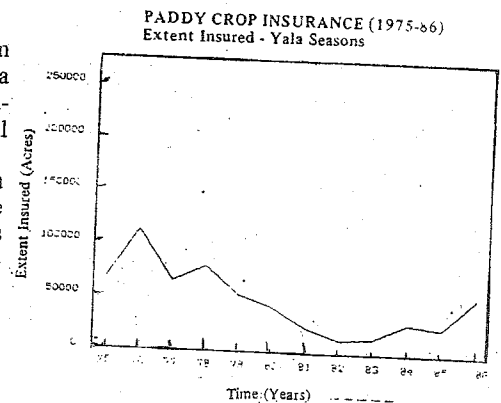
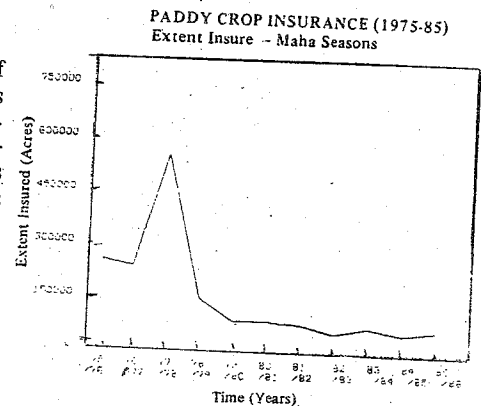


FIGURE 1(b)



ck, especially cattle and poultry.

The Crop Insurance Scheme (1958) of Sri Lanka was of the "all-risk" type. The scheme initially operated on a uniform premium rate, but later the premia was altered to a certain percent of indemnity coverage. The administrative cost is subsidised by the State.

At the initial stages of the Crop Insurance Scheme, premiums could be paid after harvesting, and they could be paid in kind or by sales of produce to Multipurpose Co-operative Societies, Cultivation Committees etc. But later these methods of premium collection were not kept in operation due to poor collection.

1. "Moral Hazard" - The tendencies of the insured farmer to take less care in preventing loss because of insurance coverage.
2. "Adverse selection" - The tendency for more risky agents to purchase insurance.
3. "all-risk" insurance - Insurance coverage for damages caused by floods, drought, shortage of water, excess of water pests, diseases, wild animals and birds.

... was the first developing in Asia to have launched an all-coverage of paddy crop, on a lim-ritational scale with F.A.O. assis-ay, K. 1981). In order to make ation-of the scheme a success, n was passed in Parliament, he Crop Insurance Act (No. 13) and the Agricultural Insurance : 27 of 1973).

gricultural Insurance Law (1973) in extending the experimental to the national level, making it ory in declared areas. This legis-aved the way for setting up of ory body; namely, the Agricul-nsurance Board, for the imple-on and management of the Agri-nsurance Scheme in Sri Lanka.

1, below gives in outline the entation of the Paddy Crop In- Scheme in Sri Lanka since 1958 , with regards to administration, overed, premium rates, indemni- l etc.

s 1 (a) and (b) show the level of crop insurance in Sri Lanka dur- 1975 Yala to 1986 Yala; indica- at, there had been a declining in the extent of paddy lands in- both Yala and Maha seasons.

quite a significant level of about cent of cultivated lands being during the 1977/78 Maha sea- drastically declined to a very low f 2 percent by Yala 1982 and

later recorded a slight increase to about 7 percent in Yala 1986, as shown in Figures 2 (a) and (b).

Various reasons have been given to explain this declining trend in farmer participation in the crop insurance scheme, viz, lack of awareness and interest among farmers, cumbersome procedures involved, inadequate and late compensa- tion (indemnities) paid, etc.

Although the financial viability of the Paddy Crop Insurance Scheme in Sri Lanka was unfavourable during the first 15 year period (1958 to 1973), with a loss of 247 percent; the situation had improved by the Yala of 1986 with a loss percent of 126. (See Table 2). This was mainly due to the impact of the legislation passed (Agricultural Insuran- ce - Law No. 27 of 1973).

Ahsan, S.M. (1979) is of the view that the loss ratios could be used in formaliz- ing the financial soundness of a crop insurance scheme. The above observa- tion indicates that the Paddy Crop In- surance Scheme in Sri Lanka is nearing financial soundness.

Paddy Crop Insurance Experience in Sri Lanka

Observation shows that the amount of indemnities' paid to farmers relative to the premiums due has declined over the years. This clearly indicates that a surpl- us of funds could have been obtained

FIGURE 2 (a)
PERCENTAGE OF PADDY LANDS INSURED (1975-86)
Yala Seasons

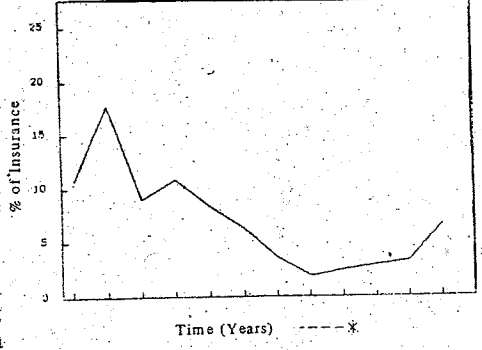


FIGURE 2 (b)
PERCENTAGE OF PADDY LANDS INSURED (1975-86)
Maha Seasons

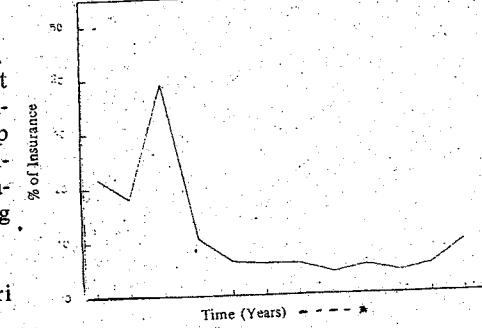


TABLE 1 PADDY CROP INSURANCE SCHEME OF SRI LANKA.

Administration	Crop Insurance Coverage areas	Premium rates	Indemnity Coverage	Minimum loss 1% for	
to 74	Dept. of Agrarian Services	Selected Districts	Rs.6/-acre flat rate	Rs.100/-to Rs.180/- per acre	30%
1975 to 1983	Agricultural Insurance Board	All Island gazetted	Rs.3/- to 30/-acre	Rs.300/-to Rs.500/- per acre	30%
	A.I.B.	-do-	Rs.36/- to 114/-acre	Rs.600/-to Rs.2200/- per acre	20%

TABLE 2 PADDY CROP INSURANCE - LOSSES INCURRED

Period	Premia collected (Rs.'000) (a)	Indemnities paid (Rs.'000) (b)	% Loss = (b)/(a) x 100
1958/59 to 1973	6,447	15,903	246.7
1975 Yala to 1986 Yala	80,217	101,293	126.3

Source: Agricultural Insurance Board; Dept. of Census & Statistics. 1986.

with a higher rate of premium collec- tions, as shown in Table 3 below.

The ratio of indemnities paid to pre- miums due during the first 15 years of experimentation was 0.94, and this figure declined to 0.14 for the period of 1975 to 1981/82. As indicated in Table 3, the amount of premiums actually col- lected was only 38 percent of the aggre- gate premia due during the 1958 - 1973 period, and it further worsened to 11.3 percent for the 1975 - 1981/82 period. During the 1978/79 Maha and 1979 Yala seasons the Agricultural Insurance Board had to pay about three times the premia, collected as indemnity pay- ments. This implies the need for heavy state subsidization of shortfalls in pre- mia collected and indemnity payments or for the setting up of a reserve fund to combat unexpected crop loss claims (In- demnities).

Premium Collections

Collection of premiums has shown a drastic decline from 38 percent to 11.3 percent (See Table 3), which indicates the need for more stringent measures to

**TABLE 3 PREMIA COLLECTION AND INDEMNITY PAYMENTS
- PADDY CROP INSURANCE**

Period	Premium due (Rs.'000)	Premium collected (Rs.'000)	Premium Collected as % of prem.due	Indemnities paid (Rs.'000)	Ratio of indemnities paid to due
1958 to 1973	16,937	6,447	38.0	15,903	0.94
1975 to 1982	377,392	42,693	11.3	51,104	0.14

Source: Agricultural Insurance Board, 1981; Dept. of Census & Statistics 1986

collect premia due in future.

The inability to collect premiums due has been one of the most serious setbacks/deficiency of the paddy crop insurance scheme being implemented in Sri Lanka. The methods of premium collection employed are as follows:

- 1) Voluntary payments through Agrarian Services Centres/Cultivation Committee etc.
- 2) Deductions from Guaranteed Price Scheme Payments.
- 3) Deduction from Bank Loans (Credit).
- 4) Deduction from indemnity payments (Sanderatne, N.; 1974).

The rate of collection was high, mainly due to increased compulsory collection from indemnity payments during the 1965 to 1973 period as seen in Table 4 below.

The collection of premiums through voluntary payments and bank loan deductions which is being practiced now, will help to reduce the amount of state subsidization on the paddy crop insurance scheme and also lower the degree of "adverse selection" practiced.

Farmer Participation

Sri Lanka's Paddy Crop Insurance Scheme has been directly linked with farmers possibilities to get Bank Loans for cultivation purposes. Many paddy farmers in Sri Lanka have declared that the necessity to take crop insurance for getting loans is the strongest motivation for their participation in the scheme. (Seven Holmstrom et al, 1981).

Figure 3 depicts the level of farmer participation in the paddy crop insurance scheme from Yala 1986, which had a peak level of 183,924 farmers participating during the 1977/78 Maha Season and later a decline to about 27,000. This indirectly indicates that the scheme

itself is not keeping up with its major objective of insuring paddy lands against crop failures among Sri Lankan farmers. The declining level of farmer participation can be attributed to three causes, chiefly;

- i) Premium rates being high or not attractive.
- ii) Indemnity payments being late or insufficient.
- iii) Practice of 'adverse selection' by farmers.

It is evident that such a low participation will increase the administrative cost per farmer. Low participation will also increase the cost of premium collections and loss assessment per farmer.

Seven Holmstrom et al, (1981); have reported that low participation and the lack of motivation to join the Crop Insurance Scheme is attributed mainly to the existence of different categories of farmers, namely,

- i) Affluent farmers with own capital, able to face crop failures, and live in low risk areas
- ii) Part-time farmers (Wet Zone mainly) having other sources of income;
- iii) Subsistence farmers with small plots, unable to pay the insurance premiums.

Although different strategies can be employed to attract the above types of farmers into the scheme, its success depends totally on the propaganda work undertaken and the concessions given.

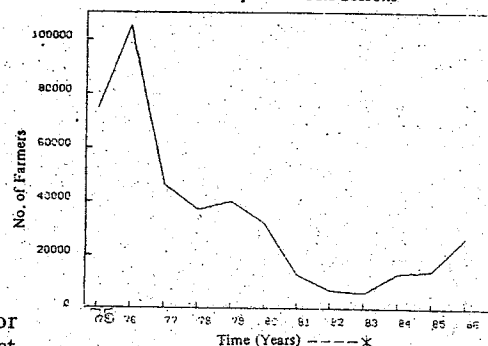
Since 1984 Yala, farmers in low risk

TABLE 4 METHODS OF PREMIUM COLLECTION - SRI LANKA (1965-73)

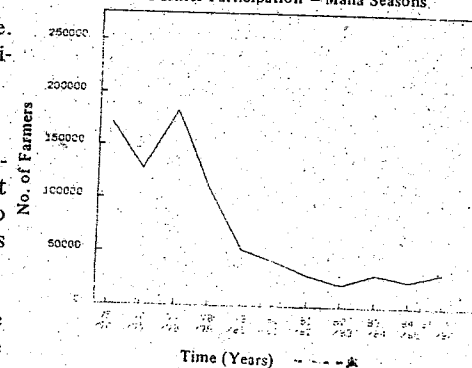
Methods of Collection	% of all premiums collected
Deduction from indemnity payments	90.4
Deduction from Guaranteed Price Scheme payments	09.1
Voluntary payments through A.S.C. or Cultivation	0.5

Source: Sanderatne, N.; 1974.

**FIGURE 3 (a)
PADDY CROP INSURANCE (1975-86)
Farmer Participation - Yala Seasons**



**FIGURE 3 (b)
PADDY CROP INSURANCE (1975-86)
Farmer Participation - Maha Seasons**



areas (where the level of crop losses are low) who have insured their paddy lands for five consecutive cultivation seasons, and have not claimed any indemnity payments, were given a concession of free insurance for the 6th cultivation season. This was mainly aimed at sustaining farmer participation in the insurance scheme, but its impact has not been significant, as seen from the data in Table 5.

Various reasons have been identified and reported for a low farmer participation in the paddy crop insurance scheme which can be summarized as follows:

- 1) High premium rates.

- 2) Late or delayed indemnity payments.
- 3) Indemnities paid not sufficient.
- 4) Inadequate communication and cumbersome application procedures involved.
- 5) Loss assessment not being reasonable or fair (under estimation or crop loss).

Special attention has to be given to the subsistence farmers cultivating small pieces of land (less than 2 acres) who constitute about 67 percent of paddy cultivators in Sri Lanka. (Dept. of Census and Statistics, 1986).

Reporting Crop Failures

If any damage occurs to insured paddy crop the farmer should report such damage within 7 days of its occurrence to the Agrarian Service Centre (A.S.C.). An entry should be made in the loss Notification Register at the A.S.C. Since 1984 the farmer personally need not come to the A.S.C. to report crop losses, if he resides far away; but to send a letter describing nature of damage, date of occurrence etc. within 7 days of the incident using the prescribed standard forms.

Loss Assessment

A loss assessment on the damage reported on the paddy field is made 2 weeks before harvesting the crop by the Loss Assessment Team consisting of the Cultivation Officer, Agricultural Extension Officer, and the Loss Assessment Officer (A.I.B.).

The assessment of damage is made as an eye estimation. Indemnities are determined on the basis of the percentage loss. If an indemnity claim is being rejected, it shall be informed in writing to the insured farmer. In such a case the insured farmer, if he wishes can appeal to the A.I.B. within 30 days for rescrutiny.

Indemnification of Insured Farmers

These data indicate that there has been a rise in the percentage of farmers indemnified for both Yala and Maha seasons. The percentage of farmers being indemnified seasonally has been quite high, averaging nearly 47 percent. More disconcerting is the observation that the amount of indemnities paid has been around double the premiums collected for the Maha 85/86 and Yala 86 seasons which implies the need for heavy state

subsidy. (See Table 5).

Prompt inspection of crop losses and payments of indemnities without delay are basically essential for an efficient agricultural insurance programme. The ready availability of personnel to inspect and assess crop failures, is essential to build confidence among farmers, in the insurance scheme.

The underestimation of crop losses too, could cause dissatisfaction among farmers, especially in Sri Lanka, where the eye estimation method of loss assessment is employed, which could result in lower farmer participation in consecutive cultivation seasons.

TABLE 5 PADDY CROP INSURANCE (YALA 1984 TO YALA 1986)

Season	No. of farmers insured	Premia collected	Indemnity paid (Rs.)	No. of farmers indemnified	% of farmers indemnified
Yala 1984	14,186	2,618,825	4,565,389	6,032	42.5
Maha 84/85	25,345	6,321,268	7,206,504	8,947	35.3
Yala 1985	14,508	2,802,918	4,693,224	6,857	47.3
Maha 85/86	35,361	7,673,423	16,146,136	17,441	50.74
Yala 1986	26,849	6,630,135	13,194,910	15,069	56.12

Source: Director, (Actuarial & Research) A.I.B. Colombo, 1987

Hence, there is a need for well trained personnel in the estimation of crop losses and prompt payment of indemnities.

In the wake of the Farmer Pension Scheme, coming into operation since 1987, which is administered by the Agricultural Insurance Board along with crop insurance, the question arises whether the A.I.B.'s propaganda work on the Pension Scheme will have an effect on the level of farmer participation in the crop insurance programme, or whether the A.I.B. can cope with both the tasks.

Hence some care has to be taken in popularising the Farmer Pension Scheme. Crop Insurance should be viewed as an integral part of a comprehensive, coordinated and mutually reinforcing set of activities aimed at development of the country's agricultural sector. (UNCTAD, 1981).

CONCLUSION

In present agriculture, where risks and uncertainties in production are high, agricultural insurance could contribute significantly to increased productively,

by helping farmers undertake risky investments in agriculture.

It could help farmers bear risks due to natural calamities; reduce serious declines in farm incomes, act as a collateral for credit and also help to maintain the demand for non-farm products by farmers.

Although Sri Lanka's Agricultural Insurance Scheme initially saw an increase in farmer participation, with about 40 percent of paddy lands being insured in the 1977/78 Maha season, it showed a drastic decline later, reaching about 10 percent by 1986/87 Maha; and seems to have stabilized at this level. The amount

of indemnities paid seems to be insufficient, in comparison to cost of production and hence could be one of the causes for the drastic decline in farmer participation. Reviewing this aspect is urgent, specially at times of increasing cost of production, and to have a realistic method of assessing crop losses so that farmers will have more confidence in the scheme.

"Adverse Selection", although being practiced by most subsistence farmers, can even be done by other farmers. Rather than compelling farmers to insure their lands through Bank Loan deductions, popularizing the benefit of crop insurance could raise farmer participation, which might reduce "Adverse Selection".

The Financial Soundness of the insurance scheme has shown improvements with time and could show a surplus, if better and efficient methods of premium collection were employed.

The rise in the percentage of insured farmers indemnified reached about 56 by the 1986 Yala, indicating the need for a Research Fund, since the premia collections are still insufficient to meet the indemnification requirements. But

BUDGET 1989 — An Overview — Part II

Bernard Soysa

In all Ronnie de Mel's budgets right up to the Estimates for 1988, as said earlier, there were huge tax concessions given to the affluent sections. There were some tax impositions on the others. The middle class, in particular the lower middle class and the working class. The rate of inflation rose. The cost of living rose. And there was no compensation given to the employed sector, the workers, in respect of that rise in the cost of living. On the other hand there was a repressive state machinery maintained.

In this Budget there are no great concessions to the affluent. But it must be noted; none of Mr de Mel's concessions to the affluent is removed; there is no change in the big concessions. There is one measure — the surcharge which is the imposition of a tax. There is also the new taxation on the purchase of motor cars, which shows an increase. In fact these measures hit the middle class very severely while they do not impose a severe strain on the rich. The price of a bottle of whisky has gone up. At the same time the poor man who wants to drink his arrack has also to pay much more. Beer and cigarettes have gone up in price. In fact the price increases on

yet, there is no doubt that the only means of helping farmers at times of crop losses, is through a crop insurance programme, and the state has an obligation in implementing such a scheme in view of the importance of farmers in the community, and also to keep farmers on their land. The amount of compensation paid (indemnity) for crop loss, seems to be having an impact on farmer participa-

articles like Milk Foods had gone up even before the Budget proposals were known.

Earlier Budget deficits were sought to be justified on the footing that these budget deficits together with the tax reliefs given to the affluent were all aimed at development; at increasing development, using the private sector in a large way. That perspective has not been given up. It has received a slight distortion in this Budget. As was said before the attitude to the IMF's package remains unaltered. But this deficit budgetting is not being justified on the ground that it will be immediately translated into development. On the other hand it is sought to be defended on the ground that it will go to help alleviate poverty. (This is only implied but not stated directly). Production is to be stimulated by "Peoplisation".

Now, deficit budgetting in a massive way for the purpose of alleviating poverty is like trying to pull yourself up by your bootstraps. You are defeating your own purpose. The larger the deficit the greater the inflationary impact; and the greater the inflationary impact the more you are robbing the people to

tion. Reviewing this trend yearly, in comparison to the cost of production might increase participation. Also, the quick payment of indemnities to farmers is essential for them to continue cultivation. Crop Insurance can also help to reduce the need for government managed ad hoc disaster relief programmes, at the time of emergency.

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This is the continuation of the first part of the "Budget 1989 - Overview" carried in our March 1989 issue.

Bernard Soysa is a former Chairman of the Public Accounts Committee and the Secretary of the LSSP, and for several years made authoritative contributions to the budget debate in Parliament and has also addressed professional bodies in fiscal policy and public sector finance.

In Part I Mr. Soysa commented that in the 1989 Budget too he had a suspicion that "revenue expectations have been slightly enhanced and the expenditure estimates slightly understated". He also said that "though this budget was expected to have a different structure from the previous budgets of Mr. Ronnie de Mel, there is a continuation of the same things and what Ronnie de Mel did was being preserved; this is within the same economic philosophy, and was complimentary to those that went before." He added that the theory that tax reliefs could encourage capitalist development was one that has been found to be inadequate over many years. He also noted that the policies of the last government were contrasted with the "socialist policies" of the government before 1977, but this was totally incorrect. "There were no socialist policies of previous governments not even in the days of the coalitions", he said.

whom you are intending to give this relief of that very benefit. You are robbing them of the value of that relief. The burden upon the middle class, the working class and the rural poor is going to be enormous. In fact it is on the middle sectors that the surcharge too will rest heavily. At the same time they will find the cost of living soaring beyond tolerable limits.

As for the working class who do not get anything like what the Index justifies as payment of a cost of living allowance, the poor workers will have to suffer. Loss of man hours of labour and a discontented labour force from the point of view of the employer. These are the things you may expect if inflation is allowed to mount as it is likely to do.

It is true that the Government expects a commensurate development to commence. That is on the basis that a part of this money allotted to the Janasaviya recipient will be kept back for future investment. That is the perspective for which the term "Peoplisation" is used. It would appear that in the minds of those who sponsor this name it has applications beyond this investment program. However the concept of solving the country's problem of development

encouraging large capitalist accumulation on the one hand, and multiplying all producers on the other (self employment in various ways) is an old idea. In practice it has usually meant that large scale capitalist accumulation is encouraged and then as the rich get richer and the poor get poorer they seek to balance the picture by these means. At various times most governments have tried to allay the resentment of the poorer sections of society by presenting themselves as essentially a small producer raj: that they accept the principle of small proprietorship.

This policy was consciously formulated first in relation to the land. This idea was given out long ago by Sir Hugh Clifford when he was the Colonial Secretary handling the subject of Finance, before the first State Council came into existence. He repeated it in a document to the Finance Committee of the time. The idea was later taken over for implementation by the Rt. Hon D.S. Ranayake. The whole idea behind privatisation projects (which though not condemned out of hand are ventures that have not generated adequate returns) is this idea of development through the small producer. Taking it to the second investment in land the idea is contained in the self-employment projects that have been tried out from time to time. It is in the Rasaputra Report. It is in fact the basis of Janasaviya. Its performance is not encouraging.

There are several matters that have to be taken into in promoting a project of this kind: (1) effective monitoring of investment, the expenditure; (2) if it is a proposal to produce goods whether the means and the machinery and the labour employed are effective; (3) whether production can be sustained at a certain level; (4) whether the monies saved are enough for the investments that are proposed.

It is correct that Janasaviya is being abandoned from day to day. It is now said that the producers could get together. However the basis is the individual unit. If you are going to help these units, you have to monitor them effectively and deal with all relevant problems will be a very big task. However there is a bigger problem. Do these units that are being abandoned fit into a plan? The word "plan" is a bad word in Mr. Ronnie de Mel's mouth. Now it is coming back. How do these ventures fit into a plan of production? What are the areas of production to be abandoned and what is the system of distribution? There is no evidence to show

that these aspects have been looked into.

The main aspect of the matter is this: the marketing of these goods and services is an enormous task. Most countries have not been able to get away from leaving the market to adjust itself automatically. Supply and demand rule projects. What is proposed to be done here I do not know. Even the socialist sector of the world has not been able to achieve success in effective marketing. The small producer for the most part has not found proper marketing facilities here in Sri Lanka. If supply and demand are to rule absolutely a number of these enterprises are sure to crash with consequent losses to the investors.

Then there is the other side of the coin, Janasaviya which also is being amended often. With the intention of promoting production, they say, the purchasing power of the beneficiaries will be increased only on the basis of guiding the purchaser. In other words they have said that they are introducing not a system of rationing but a system of enabling the purchase of a basket of goods with the card and the coupons. It is said that the goods will be selected principally with a view to stimulating production through the market. That may be so. It is an optimistic view and I hope it will be realised.

There is another matter which the Government appears to have forgotten. Perhaps they have considered it but do not know what can be done about it. There is a problem. It has always been a melancholy experience in the past that when you give poor people who are in want something that is subsidised, either a service or goods, whether they get it free or at a reduced price and when even the price is lower than the market price they will try to turn the difference into cash. This is often at some loss to themselves but they go for the cash. Rice ration books used to be hired out. Rations in rice and flour were sold. You cannot blame people who try to convert the subsidy into cash; they are often so poor that they have few other means of obtaining any money. I do not know how these things are to be checked.

Then there are some proposals in this Budget that appear to be naive. The expectation that you can impose a duty on the export of textiles to the United States and that the U.S. Government which has a tax on the import will re-

move that tax at their end because they wish to allow us to collect it here is remarkable. It amounts to expecting a gift of money from the U.S. Government. Now on what basis do you entertain this expectation? It is difficult to guess.

Another measure in this Budget is what is proposed to be done with the Black Economy. Black money is to be bleached to make it white. The invitation is held out: Put your black money into the National Savings Bank. You will have to pay a tax of 20 percent and subject it to an investment project. Now you pay 3 percent tax on Cash Deposit Certificates relating to black money. So how can this new proposal be more attractive? Why should a person who pays a tax of 3 percent put his black money into the National Savings Bank and pay 20 percent in tax? The Hon. Minister expects more than half a billion to be brought into the Bank. The present CDCs do not make black money white but they do confer a degree of respectability with freedom of movement. So it is a question of how far can the Minister's expectations be realised?

Regarding the Budget deficit - what is the new minister going to do? Here is what he says (somewhat paraphrased). Mr. Speaker, the proposals I have announced will yield a net increase in revenue of Rs.7,020 million and also a repayment to the Treasury of Rs. 2,000 million under Advance Accounts. As a result, the overall Budget deficit of Rs. 53,015 million which I indicated earlier will get reduced to Rs.43,995 million. And then he goes on to say how he will cover this deficit: Rs.18,000 million Foreign Aid; Outright Grants (Foreign Aid) Rs.5,600 million; Domestic (non-inflationary) Borrowings Rs.17,000 million - Total Rs.40,600 million. He concludes: "This will leave an unfinanced gap of Rs.3,395 million. I propose to finance the gap by borrowing from the Banking System. This is just a little over 1 percent of the projected GDP for 1989 and should not therefore cause any significant threat to financial stability."

There are echoes here of Mr. Ronnie de Mel. Now this is what Mr. Ronnie de Mel said in his Budget speech on the 1987-1988 Estimates. He had a deficit of Rs.35,176 million. He proposed to finance this deficit by borrowing from non-inflationary sources. He mentions Foreign Outright grants Rs.5,000 million, Foreign Project and Commodity Loans Rs.17,600 million, Domestic

OPTIMIZING PADDY AND RICE PRODUCTION THROUGH MINIMISING POST-HARVEST LOSSES

S.D. Karunaratne

Editor, Sri Lanka Standard Institution

Rising demand for rice, pressured by high population growth, has led many South Asian Countries including Sri Lanka to focus national policies and programmes on increased production and self-sufficiency. The drive towards self-sufficiency has resulted in the improvement of paddy production technologies contributing to higher yields, specially in Sri Lanka. Improved varieties, fertilizers, plant protection and water management practices have accounted for the yield increases. Along with the high yields is an increase in the

Borrowing from Non-Bank sources Rs. 11,000 million. Total Rs.33,600 million. And then he concludes: "This will leave a net cash deficit of Rs.2,576 million and I propose to finance this gap by borrowing from the Banking System. This is just over 1 percent of the projected GDP for 1988 and is consistent with the Medium Term Policy Framework for 1988/1990." We have not yet been told what happened. We know however that he ended with a very, very much larger deficit.

The matter I want to conclude with is this. After allaying fears about the possible inflationary impact of his deficit financing the Hon. D.B. Wijetunge casually announces in the very next paragraph "I will be seeking the approval of the House to increase the limit on borrowing under the Local Treasury Bills' Ordinance by Rs.10,000 million."

There is an unused portion of what was allowed under a resolution of the previous year amounting to Rs.8,000 million. That eight together with the new ten make eighteen billion under Treasury Bills. If your unfinanced gap is only Rs.3,395 million why do you want his Rs.18,000 million under Treasury bills? It is reasonable to believe that you want this because you fear that your estimates of income and expenditure are wrong.

But this kind of Treasury Bill financing is going to increase the rate of inflation to really intolerable heights. That is where the people will feel the impact. That is the result of these financial policies.

magnitude of losses throughout the post-harvest handling operations. The recent statistics indicate that Sri Lanka produces approximately 1.70 million metric tons of rice per year and that approximately 0.0265 million metric tons of rice are imported. Meanwhile, post-harvest losses of rice have been estimated to be in the region of 0.255 million metric tons per year. Thus the high losses resulting from traditional post-harvest operations nullify the full realization of the increased yields and reduce farmers' financial returns diminishing their ability to become a viable part of a developing country's economy. Enhancing quality of the paddy or rice produced also provides the added benefit of reducing losses.

The SLSI by introducing a code of practice for storage of Paddy and Rice SLS 686 : 1985 has enunciated scientifically designed practices and methods with a view to alerting, educating and motivating farmers as well as others involved in the endeavour to minimize losses, while optimizing quality improvement.

The metabolic activities of the paddy grain such as respiration and germination (sprouting) have been identified as the main agents of deterioration of the quality of grains. When grain respire faster not only would the stored grain be burnt quickly but also the heat generated in the process creates conditions leading to mould formation and insect infestation.

On the other hand germination (sprouting) of the seed taking place due to the presence of oxygen and optimum conditions of moisture and temperature makes such grains unfit for human consumption. The code of practice indicates that storage of cool dry grain is important in grain preservation from the points of view of maintaining seed viability and prevention of germination.

Maturity and Moisture content

The direct and indirect causes and effects of damage to grains by vertebrates, invertebrates and micro-organisms have been discussed in depth and the code has recommended suitable remedial measures that should be adopted to obviate damage or deterioration caused by such agents.

Untimeliness in harvesting has been identified as a major source of loss from the point of view of grain storage since

early harvesting of grain before maturity may result in a high percentage of immature grains which tend to deteriorate rapidly during storage. On the other hand late harvesting may result in a low field yield due to shattering and also causes the grain to crack resulting in poor storability and milling quality.

Hence the moisture content of the grain has been identified as the best index for determining the optimum time of harvest of paddy. The optimum moisture content for harvest is about 20 percent (wet basis). Damage caused to the grain during threshing makes the grain more susceptible to agents of deterioration such as grain respiration, insects and moulds.

Well cleaned grain keeps in storage much better than uncleaned grain. Hence, grain should be drained of all impurities and extraneous matter before storage.

The optimum grain moisture content for safe storage of paddy and rice is determined to be between 13 and 14 percent. The grain hardness increases as the moisture content of the grain is decreased.

The two basic methods of storage, namely, bag and bulk together with the characteristics peculiar to each such method have been discussed in detail in this code.

Special systems of storage that may have to be adopted to meet certain contingencies such as bumper yields have been discussed and problems encountered during transportation and handling have been carefully analysed and suitable solutions have been suggested.

The code outlines hygienic, mechanical physical, chemical and biological methods for prevention and control of post-harvest losses caused by invertebrate and vertebrate animals and use of suitable insecticides and fumigant gases etc have been prescribed depending on the nature and the magnitude of the losses caused.

On the whole this code of practice which could be adopted at household, farm and commercial levels represents an informative and valuable compendium on prevention of post-harvest losses in paddy and rice.