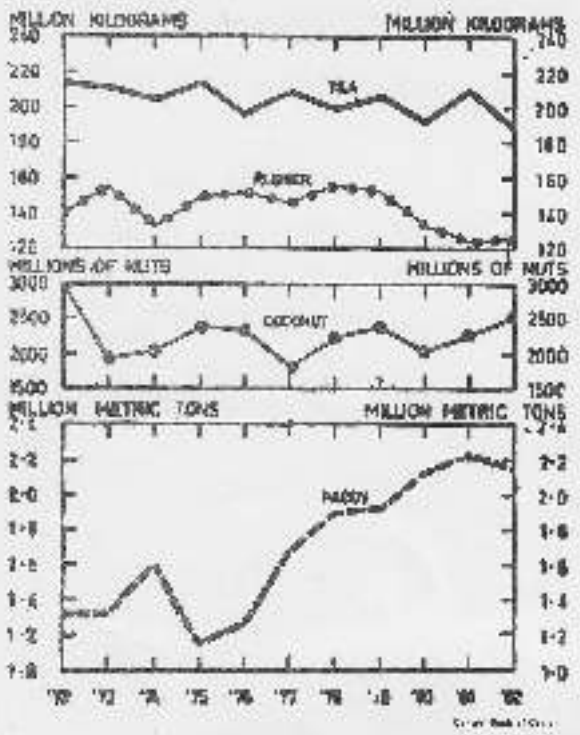
ECONOMIC REVIEW

FEB/MARCH 1983

Budget 1983

PRODUCTION OF PRINCIPAL AGRICULTURAL CROPS

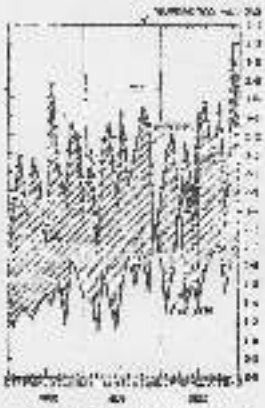


ECONOMIC INDICATORS

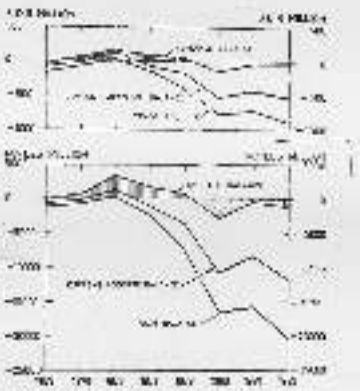
Successes have no doubt been recorded in the economic development strategy of the country in recent years but they have not come without accompanying problems. The problems are mainly of a structural nature and are closely interlinked with vital sectors of the economy, as evident from the indicators on this page.

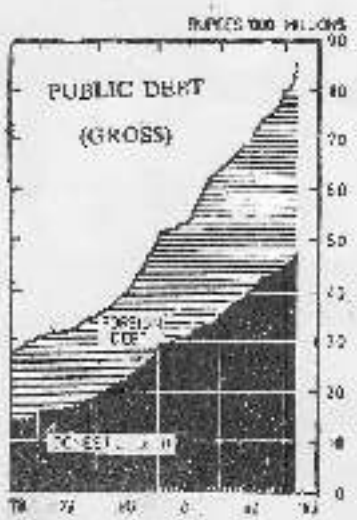
Sri Lanka's balance of payments has continued to deteriorate and the major reason for this was the declining terms of trade brought about both by a greater demand for imports (with increasing development needs), and the comparatively poor export performance, particularly by the major commodity exports. The result in reflected in a less optimistic overall economic picture (than in some earlier years) that emerged at the end of 1982 and the Central Bank reporting that production (growth of real Gross Domestic Product) had declined last year. The reason, as illustrated here, was mainly the lower growth in agriculture, particularly such major crops like paddy, tea and rubber, which recorded negative growth rates in 1982.

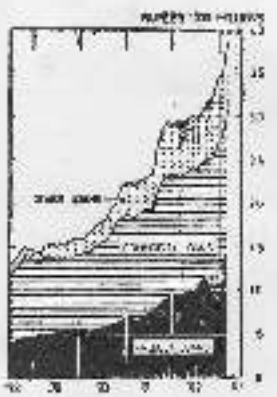
A harsh international climate, in which terms of trade were unfair for Sri Lanka, only compounded these problems. For instance, although the volume of both rubber and coconut exports showed an increase in 1982, these gains were almost fully wiped out by the drop in international prices. Meanwhile, the import bill continued to soar. Crude oil imports cost over Rs. 10 billion in 1982, reflecting an increase of over 25 per cent more than the previous year even though quantities imported did not go up proportionately. The resulting adverse terms of trade led to a widening of the country's trade gap and a further deterioration in the balance of payments situation. This also created a greater resources gap demanding even more foreign assistance, revealed in the diagrams below.



MERCHANDISE EXPORTS AND IMPORTS







COMPOSITION OF FOREIGN DEBT

There are issues that confront the national budget, especially when the pace of development has to be maintained, and if the economy is to move ahead. How to limit expenditure while raising more revenue is today a basic task but closely linked to it are these wider issues of production, balance of payments and foreign resources.

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CONTENTS

THE ECONOMIC REVIEW is intended to promote knowledge of and interest in the economy and economic development process by a many sided presentation of views & reportage, facts and debate.

THE ECONOMIC REVIEW is a community service project of the People's Bank. Its contents, however, are the result of editorial considerations only and do not necessarily reflect Bank policies or the official viewpoint. Signed feature articles also are the personal views of the authors and do not represent the institutions to which they are attached. Similar contributions as well as comments and viewpoints are welcome.

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NEXT ISSUE

* University Education–its early beginnings, development, and basic concepts; introduction and progress of university education in Sri Lanka and present issues facing university education in this country.
* Labour exports as major foreign exchange earner
* Sri Lanka's first merchant bank with foreign participation
* Flour milling and wheat flour consumption
* Palmyrah sugar production in Sri Lanka.

Feb,

DIARY OF EVENTS

1, Japan's unemployment stood at 2.4 percent of the total labour force, or an average of 1.36 million persons in 1982, the second highest after 2.5 percent recorded in 1955, Japan's Statistics Bureau announced in Tokyo.

5 Governors of the Inter American Development Bank (IADB) tentatively agreed in Paris to a $ 13 billion lending programme in the next five years but remained divided over the question of individual country contributions, according to a bank official. Governors of the 42—nation agency were meeting to finalise a 1983--88 funding programme to provide credits for development projects in Latin American countries. IADB members include the US, Canada, Western European nations and Japan as well as Latin American countries.

The International Monetary Fund (IMF) reported in Washington that the inflation rate in non-oil developing countries continued to increase, reaching 39.2 in October last year. In contrast, the rate of consumer price rise in the industrial countries slowed further in November dropping to 6.1 percent from 6.6 in October, the Fund said.

8 An Agreement was signed with the International Fund for Agricultural Development (IFAD) providing for a loan of SDR 12.95 million (Rs.293 million, approximately) for the Badulla District Rural Development Project. The proceeds of the loan is designed to increase income and improve the living standards of the rural population of the project area, with particular reference to the small holders growing irrigated field crops, vegetables, tea and minor export crops.

8 The Appropriation Bill 1983 which will be presented in Parliament on February 26, 1983, by the Minister of Finance and Planning. The Cabinet of Ministers approved the draft Appropriation Bill, which indicates the budget deficit to be almost 29 billion rupees this year. Total expenditure is estimated at Rs.48,865 million consisting of Rs.25,662 million recurrent expenditure and Rs.23,893 million capital expenditure; while total revenue is estimated at Rs.20,803 million.

The Cabinet approved a loan of 17.6 million DM for the Kirindi Oya Irrigation Settlement Project on a recommendation by the Minister of Finance and Planning Mr. Ronnie de Mel. The project is co-sponsored by ADB, International Fund for Agricultural Development (IFAD) and Federal Republic of Germany.

9 Stressing the urgent need for a world economic recovery, Finance Ministers from developing nations, meeting in Washington, called upon industrial countries to adopt stimulative economic policies. At the same time, the International Monetary Fund's Group of 24 Finance Ministers, from Latin America, Asia and African countries, urged a major expansion of IMF financial resources for loans to member-nations that face international payment difficulties. President J. R. Jayewardene inaugurated the third session of Sri Lanka's eighth Parliament.

10 The world economy will make a gradual recovery this year from worst recession since the 1930s, according to a forecast prepared by the International Monetary Fund (IMF), stated a Reuter report. In its report on the global economic outlook, the IMF said it appeared the recovery would gradually pick up speed as the year progressed. The revival of economic activity to which lower inflation and interest rates are expected to contribute is now projected to gather gradually during 1983, the report said.

11 The Central Bank yesterday moved to stabilise the exchange rate at Rs.23.06 to the US dollar by moving the rupee-dollar parity slightly over one rupee. The Governor of the Central Bank was reported as stating that no further adjustment was required to improve the competitive position of the Sri Lanka rupee in promoting exports while also extending a protective arm to import substitution industry to strengthen itself in the medium term.

16 An agreement with the Asian Development Bank (ADB) for a loan of US Dollars 12.5 million (Rs.317.5 million, approximately) towards financing a Livestock Development Project. The project is aimed at increasing the quality and productivity of cattle, buffaloes, pigs and poultry in the project area.

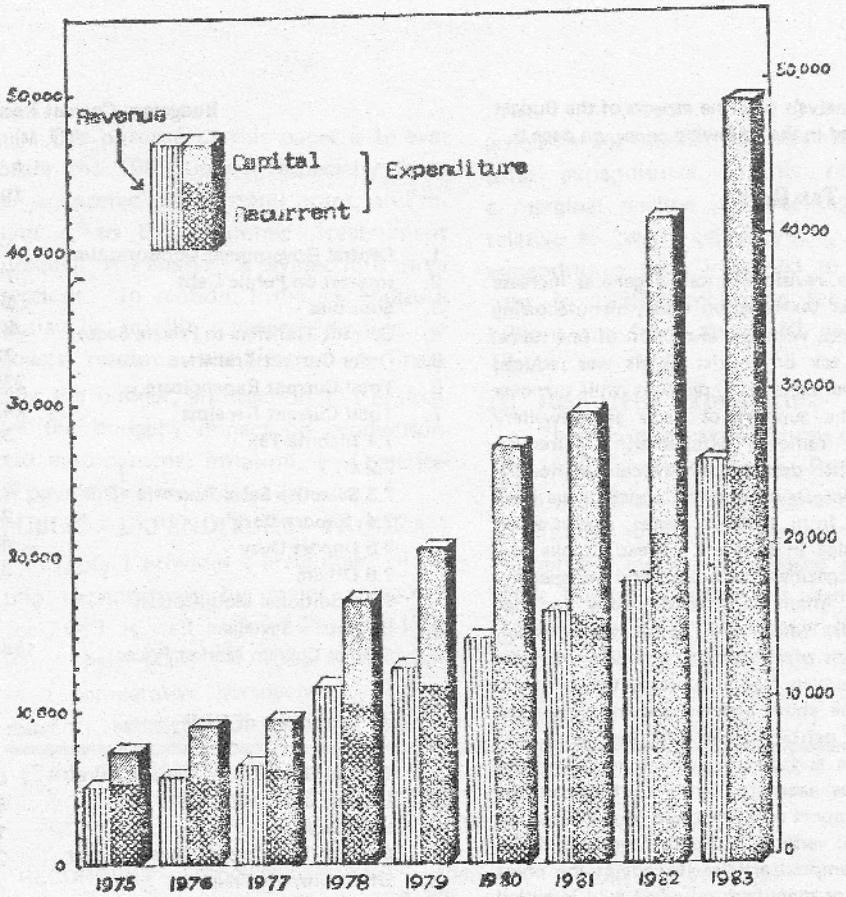
18 The Government announced a revision of turnover tax rates on trade, manufacturing and imports and also import duties in a Gazette Extraordinary published on February 18. Revision in import duties were also announced by gazette on February 26. An increase in the sales tax on leaf tobacco used in cigarettes or pipes was also announced. Among the items on which changes in price were announced are rice, sugar, wheat, arrack and fermented beverages, and newsprint (See page 4).

19 Britain proposed a 9 percent cut in the prices of its North Sea Oil and within hours the world's top oil-producing countries were following suit. The announcement that Britain intended slashing three dollars off a barrel, making its crude the greatest high-quality light crude on the official world market, had quick repercussions in the Middle East, Central America and Africa.

25 The gap between Government's revenue and expenditure this year will be an unprecedented Rs.26.8 billion, according to the Estimates of Expenditure and Revenue for 1983 presented in Parliament by the Minister of Finance. Government Expenditure in 1983 moves up to Rs.49.6 bn. from an estimated Rs.41.9 bn. the previous year; while, Revenue is estimated at Rs.20.7 bn. as against Rs.18.2 bn. in 1982.

The Japanese government will provide a grant of Yen 300.957 mn. (approximately Rs.27.79 million or US $ 1.28 million) to Sri Lanka to be used for economic development, according to an agreement signed in Colombo. This is the fifth in a series of debt relief grants extended by the Japanese government to Sri Lanka in acceptance of a resolution at the ninth special session of the Trade and Development Board of the UNCTAD on debt and development problems of developing countries.

THE BUDGET 1983



The importance of the Budget of 1983 is that it sets out the broad guidelines for the country's economic policy during the Government's second term of office, just as the Budget of November 1977 set out the guidelines for the five years that followed.

The impact of the Budget on the new economic policies introduced in 1977 has been felt in varying degrees over the past six years and growth has been recorded in nearly all sectors of the economy. The average rate of the GDP during this period has been more than double that of the previous five years, while a noticeable upward trend in employment creation has been observed. But with these successes in economic development have also emerged problems of a structural nature, which demand adjustments if there is going to be continued economic progress in the years ahead.

One significant feature of the Budget for 1983 is that it attempts to face up to the country's current resources position. It indicates the need for a reorientation in development policy in facing up to the deteriorating balance of payments and budgetary position. The Budget also emphasises the need for "austerity" in the country to overcome some of the major problems in the economy. In order to achieve this objective it emphasises the need to:

* allocate scarce resources as rationally as possible, with a carefully worked out system of priorities
* reduce Government expenditures especially those relating to capital projects; with no new capital projects to be undertaken in the next two years
* step up the domestic savings effort; with the anticipated slowing down in the flow of foreign resources
* make a substantial effort in revenue collection for the year 1983
* deal with the balance of payments problems facing the country through adjustments in the exchange rate and tariff structure
* provide additional incentives for the traditional exports sector; to ensure sufficient producer margins and thereby increase production and exports; look for new export products and markets to reduce the country's dependence on a narrow activity base
* bring about reasonable price stability in the year 1983 by bringing the Budget into balance with the reduction in the expansionary financing component of the Budget
* enhance the flow of resources to the private sector through appropriate interest and exchange rates which will enable the required shift of resources to high priority areas such as export oriented labour intensive production.

As seen in the table, while total current expenditure declines in the next few years total current receipts are expected to progressively increase. Receipts from income tax, BTT and selective sales taxes are expected to almost double between now and 1987. The objective in this policy is to enable the government to achieve a surplus in its current account by 1984 and also to bring the overall investment in GDP ratio to a level that is consistent with the country's absorptive capacity. A focal point of budgetary operations in the years ahead, according to declared policy, will be the generation of sufficient Government savings which could, on the one hand, reduce the level of expansionary domestic financing and on the other, compensate for any shortfall in foreign resource inflows.

The immediate problem, however, was to find the necessary resources to meet urgent Government expenditure, a situation which is best summed up in the following words of the Minister himself:

"We have to raise resources to match Government expenditure, and, in so doing have been compelled to call upon the people to make many sacrifices . . . . . If we do not take immediate steps to correct the adverse trends in our economy, we will be forced to take much more painful measures in the future . . . . .

We must continue our forward march . . . . we can do so only by sustained hard work, austerity and sacrifice. Above all, rigorous financial discipline must be maintained. This will be the theme of my speech".

An analysis of some aspects of the Budget is contained in the following paper, on page.5.

Turnover Tax Rates

These revisions entail a general increase of turnover tax rates on trade, manufacturing and imports, with the exception of few items. Turnover tax on tourist hotels was reduced from 20 per cent to 15 per cent while turnover tax on the support of gems and jewellery has been removed altogether. Moreover, Government departments, local authorities and District Development Councils have been exempted from Turnover taxes, except when they indulge in business. Bread, books (excluding magazines, periodicals and newspapers) crude oil, infant milk food, paddy and rice (unpolished), wheat and wheat flour except at the point of importing or milling will continue to remain free of turnover tax. In addition to the above articles, cement, cigarettes, fertilizer, petrol, diesel oil, kerosene, fuel oil, naptha and bitumen and sugar have been declared as exempted articles except at the point of import or at the point of manufacture. Further, all varieties of liquor have been declared as exempted articles (except at the point of import or manufacture) when sold in sealed bottles in licensed premises. On the other hand, tax credit granted to importers who sell imported articles whether to a customer or to registered manufacturer on account of turnover tax paid at the time of import, has been withdrawn.

Import Duties

These revisions, applicable to all imports for certain items, are as follows:

	Old Rate	New Rate
Rates below 12½%	Free	5%
	5%	7½%
	7½%	10%
	10%	12½%
	12½%	15%
Rates over 12½% but less than 100%	General increase of 10 percentage points upto a maximum of 99 per cent	

These revisions were published in the Gazette Extraordinary No.232/6 of 25th February, 1983 and No.232/10 of 18th February 1983.

Budgetary Current Receipts and Expenditures 1983 –87

(Rs. Million)

		Budget 1983	1984	1985	1986	1987
1.	Central Government Consumption	8162	9396	10805	12429	14293
2.	Interest on Public Debt	7161	7743	8821	10437	11679
3.	Subsidies	2410	2860	2916	3208	3528
4.	Current Transfers to Private Sector	2451	2628	2799	2973	3155
5.	Other Current Transfers	3361	3743	4219	4737	5325
6.	Total Current Expenditure	23515	26160	29560	33780	37970
7.	Total Current Receipts	24116	28110	33375	36980	44470
	7.1 Income Tax	3624	4190	4765	5476	6124
	7.2 BTT	7080	8796	10185	11980	13608
	7.3 Selective Sales Taxes	2760	3232	3734	4366	4945
	7.4 Export Duty	2804	2761	3074	3386	3709
	7.5 Import Duty	4096	5403	5992	6762	7544
	7.6 Others	3124	2708	2786	3338	3540
	7.7 Additional Mobilisation	0	1000	2829	3732	4910
8.	Budgetary Savings	603	1950	3825	5200	8500
9.	GDP at Current Market Prices	124300	147610	172370	198000	229640
	As Percentage of GDP					
1.	Central Government Consumption	6.6	6.4	6.3	6.3	6.3
2.	Interest on Public Debt	5.8	5.2	5.1	5.3	5.2
3.	Subsidies	1.9	1.8	1.7	1.6	1.6
4.	Current Transfers to Private Sector	2.0	1.8	1.6	1.5	1.4
5.	Other Current Transfers	2.7	2.5	2.4	2.4	2.4
6.	Total Current Expenditure	18.9	17.7	17.1	17.1	16.8
7.	Total Current Receipts	19.4	19.0	19.4	19.7	19.7
	7.1 Income Tax	2.9	2.8	2.8	2.8	2.7
	7.2 BTT	5.7	6.0	5.9	6.0	6.1
	7.3 Selective Sales Taxes	2.2	2.2	2.2	2.2	2.2
	7.4 Export Duty	2.1	1.9	1.8	1.7	1.6
	7.5 Import Duty	3.9	3.7	3.5	3.4	3.3
	7.6 Others	2.5	1.8	1.6	1.7	1.6
	7.7 Additional Mobilization	0	0.7	1.6	1.9	2.2
8.	Budgetary Savings	0.5	1.3	2.2	2.6	2.9

1 Includes expenditure on food and kerosene stamps
2 Includes pensions and interest subsidy to National Savings Bank

SOURCE: PUBLIC INVESTMENT 1983 – 1987 National Planning Division, Ministry of Finance and Planning

Sales Tax

The Government increased the sales tax on leaf tobacco used in the manufacture of cigarettes or pipe tobacco by Rs.13.00, to Rs.296.00 per kg., with effect from 18th February, 1983.

Other Price Revisions

1. Rice – The price of imported rice from Rs.6.75 to 6.15 per kg.

2. Flour – The price of flour from Rs.5.95 to Rs.6.82 per kg.

3. Bread – The price of bread from Rs.2.50 to Rs.2.80 per loaf of 450 grams.

4. Masoor Dhal – The price of masoor dhal from Rs.20.25 to Rs.17.50 per kg.

5. Cigarettes – The price of cigarettes were raised by five cents per cigarette in respect of all brands of cigarettes.

6. Liquor – The price of Coconut Arrack was raised from Rs.39.00 to Rs.40.00 and that of Special Arrack from Rs.32.00 to Rs.33.00

THE 1983 BUDGET

AN ANALYSIS

Yasapala Karunasinghe*
(Tax Consultant)

Introduction

The budget is a comprehensive record of anticipated public expenditure and revenues. The expenditures are broadly classified into: recurrent and broadly classified into: recurrent and capital,and represent aggregates of expenditures recorded by objects of various ues are also classified by source such as taxes, duties, as well as revenues from other than taxes. This is followed by a comparison of Government expenditures with revenues and, in the event of a revenue shortfall (which incidentally is more regular than a surplus), the Finance Minister announces new proposals which usually include revisions to taxes and duties, borrowings in the domestic sector, and aid commitments from the international donor community. Thus, the budget is the principal mechanism of managing public expenditures and moblizing resources to meet annual expenditure plans. It is also the main instrument of implementing the Government's fiscal policy.

This year's budget anticipates financing of Rs.49.6 billion; an increase of about Rs.11.0 billion from the last year's which now stands at Rs.38.8 billion. (This paper draws information from the 1983 Draft Estimates of Expenditure and Revenue of the Government and the Budget Speech of March 8, 1983). The 1983 total expenditure outlay consists of recurrent expenditures (Rs.26.5 billion) and capital expenditures (Rs.24.8 billion) The Minister of Finance and Planning proposes to finance the 1983 expenditure program by: (1) domestic revenue (Rs.26 billion), (2) foreign financing consisting of loans and grants (Rs.14 billion) and (3) borrowings from non-banking sources (Rs.8 billion). A Rs.1.4 billion unfinanced gap, however, still remains.

The purpose of this paper is to evaluate the 1983 budget, especially from an economic policy stand point, and relate it to the economic development process. The analysis is divided into three sections. In section 1 the expenditure outlay is briefly reviewed; section 11 covers resource mobilization in financing the budget; and section 111 evaluates the budget's impact on production and employment, inflation, the balance of payments and public debt.

PUBLIC EXPENDITURE PROGRAM

Table 1 provides a breakdown of public expenditures by major categories for 1983 as well as for 1982 and 1981 which help place the 1983 expenditure in a comparative perspective. The recurrent estimate of Rs.26.5 billion accounts for almost 52 percent of the total expenditures. This represents a marginal decline in percentage terms relative to two previous years. Capital expenditures have increased to 48 percent in 1983 (accounting for Rs.24.8 billion) up from about 46 percent in 1981

(a) Recurrent Expenditure

The recurrent expenditures estimates for 1983 is approximately Rs.6 billion more than the 1982 provisional estimates of Rs.20.5 billion. This represents a 29 percent increase compared with the total budget increase of around 27 percent in 1983. The recurrent expenditure estimate of Rs.26.5 billion is represented by four major expenditure categories: (1) salaries (22 percent);

(Table 1) PUBLIC EXPENDITURE BY MAJOR CATEGORIES (RS. MILLIONS)

	1981	PERCNT	1982	PERCNT.	1983	PERCNT.
RECURRENT	16005.00	54.44	20484.00	49.60	26523.00	51.63
SALARIES	4080.00	13.88	4422.00	10.70	5645.00	10.99
INT.DEBT	3856.00	13.12	5612.00	13.59	7504.00	14.51
Domest.	3143.00	10.69	4281.00	10.37	5619.00	10.94
Foreign	713.00	2.43	1331.00	3.22	1835.00	3.57
SUB.& GRNT	3582.00	12.18	3760.00	9.10	4244.00	8.26
Fd. Stamp	1521.00	5.17	1510.00	3.66	1510.00	2.94
Kr. Stamp	164.00	0.56	177.00	0.43	288.00	0.56
Ferilzr.	637.00	2.17	1000.00	2.42	1000.00	1.95
Inf. Milk	82.00	0.28	125.00	0.30	100.00	1.19
Intst (1)	388.00	1.32	450.00	1.09	670.00	1.30
Other	790.00	2.69	498.00	1.21	676.00	1.32
MISCLLNS.	3589.00	12.21	7690.00	18.62	9019.00	17.56
CAPITAL	13393.00	45.56	20816.00	50.40	24847.00	48.37
LOANS	1619.00	5.51	2806.00	6.79	4767.00	9.28
Domestic	1002.00	3.41	2023.00	4.90	3410.00	6.64
Foreign	617.00	2.10	783.00	1.90	1357.00	2.64
TR.COP (2)	7345.00	24.98	11375.00	27.54	11132.00	21.67
Mahaweli	3816.00	12.98	7217.00	17.47	6773.00	13.18
Housing	1020.00	3.47	703.00	1.70	571.00	1.11
Electrc.	673.00	2.29	305.00	0.74	81.00	0.16
Watr. Sol.	343.00	1.17	957.00	2.32	1379.00	2.68
LN.COP (3)	69.00	1.94	1177.00	2.85	1252.00	2.44
Electrc.	195.00	0.66	470.00	1.14	695.00	1.35
Tr. Bd. (4)	171.00	0.58	526.00	1.27	450.00	0.88
AC.AST (5)	3860.00	13.13	5458.00	13.22	5730.00	11.15
UNDER EX.	—		2500.00	6.05	1966.00	3.83
TOTAL	29398.00	100.00	41300.00	100.00	51370.00	100.00

1. Interest Subsidy to National Savings Bank
2. Transfers to Public Corporations
3. Loans to Public Corporations
4. Loan to Sri Lanka Central Transport Board
5. Acquisition & Maintenance of Real Assets

* *views expressed in this paper are solely those of the author.*

(2) Interest on public debt (29 percent); (3) subsidies, grants and contributions to public corporations to offset losses (18 percent); and (4) maintenance, repairs, transportation and allowances (all grouped under miscellaneous) (33 percent).

The increase in 1983 expenditures on salaries is about 28 percent over 1982 and this increase appears to include the Rs.100 salary increase announced for public employees receiving a monthly salary of Rs.1000 or less. The salary increases account for 20 percent of the increase in the recurrent expenditure. Interest on public debt is the most striking singl item taking the biggest slice of recurrent expenditures. In absolute, terms, interest on public debt has increased by approximately Rs.2 billion, representing a 33 percent increase over 1982. As a result, its share in the total recurrent expenditures, has gone up from 27 percent in 1982 to 29 percent in 1983. About 67 percent of this Rs.2 billion increase is accounted for by interest on domestic debt, a direct consequence of the increasing dependency on domestic sources (bank, as well as non-banking sources) to finance growing budget deficits. There has also been a corresponding increase in interest payments on foreign borrowings, as the pace on development projects has increased.

Subsidies, grants and contributions to public corporations is one category where the Minister of Finance and Planning has avoided increases. The Food Stamp Scheme, under which more than 50 percent of the population receive encashable coupons to purchase food commodities, remains unadjusted to take into account rising food prices. Despite a drop of more than 50 percent in real value of the food stamps since the implementation of the program in 1979, the Government has not increased the value of food stamps to protect recipients from rising food costs. Although the value of kerosine stamps has been increased by Rs.6.0 to Rs.15.50 per household per month, this increase will only partially offset the price increases of kerosene since the kerbsene stamp was introduced in 1979. Expenditures on the miscellaneous category have gone up by about Rs.2.7 billion to account for 33 percent of recurrent expenditures compared with 26 percent in 1982. This partly reflects increasing maintenance, repairs and transportation costs and partly increasing expenditures on services, eg., health and education.

(b) Capital Expenditure

Capital expenditures in 1983 are expected to reach a total of Rs.24.8 billion. However, when allowance is made for estimated under expenditure amounting to Rs.2 billion, the capital budget decreases to Rs.22.8 billion, representing a 25 percent increase over the 1982 provisional estimate. Of this total, loan repayments account for Rs.4.7 billion, leaving only Rs.18.1 billion for capital investments. In 1983, repayment of domestic loans increases to Rs.3.4 billion from Rs.2 billion in 1982, representing a 69 percent increase. Repayments on foreign loans increases by about 73 percent over 1982 to Rs.1357 million in 1983 (Loan repayments are included in the capital budget while interest payments are included in the recurrent budget).

Capital transfers to Public Corporations amount to Rs.11.1 billion and represent a marginal decline compared to Rs.11.3 billion in 1982. The Mahaweli Development Authority is the biggest recipient with Rs.6.8 billion, although this is 6 percent less than its share in 1982. The capital contributions to the National Housing Development Authority in 1983 will be Rs.571 million, a reduction of 19 percent compared to the capital contribution of Rs.703 million in 1982. The Water Supply and Drainage Board receives an increasing share of Rs.1379 million (compared to Rs.907 million in 1982), to carry out its on-going water supply and sewage-schemes in the country. The budget also accommodates loans to public corporations amounting to Rs.1252 million. The Ceylon Electricity Board is the largest recipient with Rs.695 million, followed by the Sri Lanka Central Transport Board (SLCTB) with Rs.450 million.

(c) Capital Spending by Sectors

Table 2 summarizes the 1982 capital budget breakdown by sectors. The Government's policy of 'no new projects', which was first introduced in 1981 as a disciplinary measure in maintaining the consistency of actual expenditures to the budgetary allocations of respective Ministries, has not been relaxed in 1983. This means that the Ministries are not permitted to undertake projects which had not been approved earlier and included in the budget estimates; and implies that the 1983 allocation will be entirely utilized for on-going development projects.

(i) Agriculture

The Government emphasis, as reflected in budgetary allocation by sectors, is still on agriculture with particular attention on developing irrigation facilities and improving existing irrigation facilities for greater efficiency and better management. This continuing emphasis reflects the long conceived strategy of providing irrigation facilities in the dry zone as a means of increasing agricultural production. The Accelerated Mahaweli Program (AMP), which is now entering the fourth year of execution is still the country's lead irrigation development project receiving the priority in investment allocation. It accounts for 34 percent of the total capital spending and about half the allocation in agriculture. The AMP is still in the construction phase and, accordingly, the budgetary allocation will be utilized to finance the construction of dams, tunnels, irrigation canals, hydro power storage facilities and to provide other physical and social infra-structure such as roads, community centres, etc. At this stage, the successful completion of the AMP is vital to the nation as if offers vast opportunities for agricultural development, direct as well as indirect employment, and power supply for rural and industrial development. Accordingly, the Government's investment priority for the Mahaweli Program must be seen in the context of its substantial contribution to overall

economic growth and its likely responsiveness to economic problems confronting the country. Moreover, the project has already taken vast amounts of resources, and a retreat from the commitment made would represent the relative waste of scarce resources.

(ii) Economic Overheads

For purposes of providing productive infra-structure, or economic overheads, the budget allocates Rs.4.1 billion accounting for about 20 percent of total capital spending. This allocation is divided among (1) transport development, including new additions to stock for railway and the Transport Board fleets (Rs.936 million), (2) development and improvement of power supply and distribution (Rs.788 million), (3) improvements to water supply (Rs.1320 million) and construction and improvements of roads, bridges and public buildings (Rs.1007 million). Such investments are vital to economic development for many reasons including: (1) construction of, an improvements to, physical infrastructures contributes to the country's capital stock, and (2) expansion of economic activities requires the use of such facilities in the process of production, distribution and marketing of goods, commodities and services. In addition, these activities are usually not undertaken by the private sector because the heavy capital requirements do not provide it direct returns since the benefits of these developments are spread across most, if not all of the population.

TABLE 2. SUMMARY OF CAPITAL EXPENDITURE BY SECTORS

		Total Capital Expenditures (Rs. Million)	Percent	Foreign Aid (Rs.Million)	Percent
1.	Agriculture	9624.30	47.78	5476.00	58.9
	Mahaweli	6763.00	33.58	4523.00	48.39
	Other Irrigation	637.90	3.17	67.20	0.72
	Land Dev.Forestry etc.	121.00	0.60	50.70	0.54
	Field & Minor Export Crops	683.30	3.39	319.90	3.42
	Plantations	746.70	3.71	442.50	4.73
	Fisheries	132.10	0.66	54.20	0.58
	Animal Husbandry	80.40	0.40	13.00	0.14
	Other	459.90	2.28	10.90	0.12
2.	Industry	62.20	0.31	59.00	0.53
3.	Economic Overheads	4052.20	20.12	2369.70	25.35
	Transport	935.80	4.65	530.70	5.68
	Power	788.70	3.92	735.00	7.86
	Water Supply	1320.60	6.56	640.90	6.86
	Other	1007.10	5.00	463.10	4.95
4.	Social Overheads	2055.20	10.20	1020.40	10.92
	Education	432.20	2.16	41.30	0.44
	Health	826.20	4.10	699.40	7.48
	Housing	794.80	3.95	279.70	2.99
5.	Other Programs	4348.30	21.6	129.40	1.38
6.	Total	20142.20*	100.00	9346.50	100.00

* Total Capital Budget is Rs.24.8 billion. The figure shown here is without capital repayment of Rs.4.7 billion.

(iii) Social Services

Providing basic social services such as sanitation, medical care, education and community services is another major responsibility of the public sector. These services have been given an allocation of Rs.1260 million, divided between education (Rs.434 million) and health (Rs,826 million). Despite the scarcity of financial resources the government is still providing a share of around 6 percent on these services. The housing development, which can also be considered as falling partly within social overheads, is another lead project of the Government and its allocation is progressively being reduced as the National Housing Development Authority has now entered commercial production of houses, enabling the authority to recoupe the cost of (low cost) housing programs from the profits on the sale of houses.

The Government's lowered priority on direct participation in industrial development is clearly borne out from the relatively small share budgeted for industry. Under the open and liberalized economic policy pursued by the present Government, the private sector is expected to assume a greater role in producing agricultural and industrial outputs, and the Government is strengthening the private sector expansion by providing services.

Financing the Budget

The draft Estimates of Revenue and Expenditure of the Government which was prepared much in advance of the budget speech, reported Rs.20.1 billion from revenue sources, based on the assumptions of prevailing tax structure at the time of the preparation of these draft estimates. The reported revenue estimate left an unprecendented budget deficit of around Rs.29.0 billion. The Minister of Finance is responsible for bridging the deficit and the options available to him are limited to (1) increasing domestic revenue (2) mobilizing foreign assistance including commercial borrowings from abroad (3) borrowings from the non-banking domestic sector, (4) borrowings from

the domestic banking sector, and (5) issuing additional treasury bills. However, the government has opted to rely on the first three choices to increase the total receipts to an estimated Rs.48.0 billion; but this still leaves an unfinanced gap of around Rs.1.4 billion.

The government has first looked into the possibility of increasing revenue, and has looked to indirect taxes as the obvious choice. Although this is rather an unsatisfactory compromise, the reasoning for additional revenues from indirect taxes appears to stem from the proportionately higher share of indirect taxes in total revenue and, accordingly a revision will result in proportionately higher revenues, relative to other revenue sources. Moreover, an upward revision of direct taxes would undoubtedly be a deterrent to investment in the private sector, especially at a time when the Government is trying to induce more private investments to support the economic expansion that the country needs badly.

Taxes on consumption and imports were the two areas where the government's attention has been particularly concentrated in bringing in additional revenues from indirect taxes. However, the revisions on these two categories were introduced in mid February '83 through a gazette notification which came to be popularly termed the 'Midnight Gazette'. In the past most former Finance Ministers penalized selective groups when gazetting for additional tax revenues. The most common groups were smokers; consumers of alcholic beverages; buyers of luxury goods and appliances; and owners of assets and properties. This year, however, the Minister has deviated from this traditional norm by looking to previously untapped sources such as basic food items including rice, flour, sugar and bread. These items have been brought under the sales tax, and this means the consumer will have to fully bear the tax on each item. In addition, the consumer has been affected both directly and indirectly by the revised import duties on consumer items and raw materials. The government has, however, spared the producers. There are no new taxes on production in 1983, but producers will be effected by higher prices on raw materials such as petroleum, and this would in turn result in higher consumer prices.

These measures are expected to bring about Rs.3,7 billion in additional revenues. There is also another new source that the government has tapped to finance the budget expenditure, i.e. the Central Bank profits. The Minister has accommodated a request from the Central Bank to transfer Rs.1500 million of its profits to the Government's revenue and to reduce the Central Bank's treasury bill obligations to the Government by a like amount. These budgetary proposals increase the Government revenue to an estimated Rs.26.0 billion as compared to Rs.20.1 billion in the draft estimates (Table 3). The anticipated increase in Government revenues simultaneously reduces the budget deficit to about Rs.23 billion from the original estimate of Rs.29 billion.

According to figures reported in the draft estimates, the Government planned to utilize about Rs.10.0 billion from foreign assistance sources in the form of

TABLE 3 REVENUE ESTIMATES

	1981		1982[1]		1983	
	Rs.Million	Percent	Rs.Million	Percent	Rs. Million	Percent
Indirect Taxes	12105.00	75.23	10748.00	59.05	18486.00	71.01
Sales (2)	2829.00	17.58	3139.00	17.52	8826.00	33.90
Excise	2027.00	12.60	1835.00	10.63	2600.00	9.99
Import Duties	3225.00	20.04	2800.00	15.28	4000.00	15.37
Export Duties	3695.00	22.90	2254.00	12.44	2600.00	9.98
Licence	95.00	0.59	336.00	1.85	180.00	0.69
Transfer of Assets	221.00	1.39	224.00	1.23	240.00	0.92
Direct Taxes	2029.00	12.61	3051.00	16.76	3600.00	13.83
Income Tax	570.00	3.54	619.00	3.40	570.00	2.19
Corporate Tax	1459.00	9.07	2432.00	13.36	3030.00	11.64
Non Tax Revenue (3)	1957.00	12.16	1969.00	10.82	3996.00	15.35
Total	16091.00	100.00	18200.00	100.00	26032.00	100.00

1. Revenue in 1982 is now estimated at Rs.16,200 million a drop of Rs.1602 million or 8% from the original estimate.

2. Additional revenue estimate of Rs.3729 Mln. included in 1983. However, this consists of sales taxes as well as import duties. A breakdown is not possible at present.

3. The Central Bank profits transfer of Rs.1500 Mln. included in 1983.

project and commodity loans, including Rs.2.2 billion in outright grants. The Minister now expects a higher utilization of foreign assistance and the anticipated expenditures have now been revised upward to Rs.14.0 billion (Table 4). This additional Rs.4.0 billion appears to come from unutilized foreign aid in 1982 and the pre–1982 years. The unutilized foreign aid that has been accumulated through the end of 1982, for example, works out to a total of more than Rs.20.0 billion in current prices, and in 1982 alone about Rs.4.0 billion appears to have been unutilized. Although the accumulated foreign aid is a possible source of budgetary support, the flexibility of mobilizing it is somewhat limited because of the conditions that must be fulfilled by the Government, especially in the case of project aid which is often tied to the rate of implementation of development projects.

is not planning any borrowings from the banking sector, which has been a regular source in the past. To what extent the Government can get by without the assistance from commercial banks is yet to be seen.

Sri Lanka's annual public expenditure program has been growing rapidly over the last few years. For example, the 1982 budget increased 32 percent over 1981 and the 1983 budget has increased 27 percent over that of 1982. To a great extent, this increase reflects the rapid growth in recurrent expenditures due to (1) inflationary tendencies in the economy resulting from higher costs of services, maintenance, etc., (2) new expenditure requirements for new development activities, and (3) progressively increasing budgetary allocations for interest payments on both foreign and domestic loans. Because of the necessity of such expenditures for providing administrative, economic, social and welfare services in the economy and maintaining the commitments on borrowings, the recurrent expenditures component of the budget is less susceptible to any cuts.

The sacrifice that the country has to make, when recurrent expenditures are growing rapidly, is often at the cost of investments on long run economic development especially under conditions of severe financial constraints. Ironically, without adequate spending on long run economic development, a nation cannot satisfactorily address itself to its pressing economic and social problems. Faced with this situation, most developing nations compromise for borrowings both from domestic and international sources for funds for investment on economic development. This action, on the other hand, often leads to adverse developments in the economy as reflected in high inflation and a weak balance of payments situation. Accordingly, public spending must be viewed from the joint perspective or evaluating both benefits and costs. This section takes a close look into this issue, with particular attention to the 1983 budget expenditure program.

TABLE 4 . FINANCING THE BUDGET DEFICIT
(Rs. Million)

	1981	1982	1983
Total Expenditure	31101	38800	49409
Revenue	16228	18200	26032 *
Budget Deficit	14873	20600	23377
Financing From.			
Project Loans & Grants	8183	9758	14016
Foreign Commercial Loans	—	836	—
Bank Borrowings (Domestic)	6296	6000	1361**
Non-bank Borrowings	432	4006	8000
Cash Balance	— 38	—	—
Total	14873	20600	23377

* Original Revenue Estimate was Rs.20803 million. The increase in revenues of Rs.5229 million is accounted for by revision in BTT on Feb. 18, 1983 (Rs.3729) and Central Bank profit transfer of Rs.1500 million.

** This reflects the unfinanced gap.

Borrowing from the domestic non-banking sector is a more regular source of financing the budget and, in 1983, about Rs.8.0 billion is expected from this source. This budgetary support to the Government mainly comes from (1) savings institutions, (2) insurance funds, and (3) provident and pension funds. Surprisingly, the Government

(a) Production and Employment

Capital spending shifts resources from present consumption to building up capital stocks in the country with a view to increasing production in the future and enabling the population to later enjoy higher consumption levels. This is the main consideration for a continuing emphasis on capital spending, as it serves the nation's economic progress. In the short run, capital spending generates more employment and creates increased demand for raw materials. When these developments are viewed from the income side, capital spending could lead to increased incomes, which in turn induces more consumption and production. In the long run, capital spending helps to increase capital formation as reflected in the development of and improvements to physical infra-structures, such as buildings, roads, dams, equipment and machinery. Increased capital formation enables a country to move into new production frontiers leading to progressive increases in production and thus increased availability of goods and services for consumption. Moreover, capital spending in the public sector motivates expansion in the private sector which in turn results in capital formation in the private sector.

Despite a considerable increase in the capital budget, there will be no new investments on new projects, a continuing measure introduced in 1981 following the rapid increase in the money supply and, thus, inflation in 1980 and 1981. However, such restrictions may adversely effect the economic progress in the country, especially when the expectations for more employment under an open economic system have been kept high. Without new development activities the growth of direct employment opportunities in the public sector, and indirect employment in the rest of the economy, will be gradually reduced, at least in the short run. The decline in the rate of income in economic growth and slackening of employment opportunities experienced from about 1981 partly emanate from lack of investments in new projects. A declining performance is likely to become more serious, especially in the area of employment, in the years to come as the government will have to face new issues such as the relocation of a labour force which will face displacement once on-going projects are completed.

The private sector's role in the economy, especially in the areas of production and employment, surpasses that of the public sector by significant margins. The private sector's dominant role in the economy is self-explanatory if the 70 percent share in the total capital stock and the 80 percent share in the total labour force are used as yardsticks. Therefore, cuts in public spending may not necessarily lead to slow economic performance provided that the private sector expansion in the economy can be ensured. It is for the purpose of increasing its role, that the private sector has been given various production incentives under the present liberalized economic setting, and the present tax structure.

Unfortunately, there appears to be a very slow response to such incentives, as producers are beginning to face high production costs which reduce the profitability of their business ventures. Moreover, the effectiveness of producer incentives is gradually eroded with higher production costs. In addition, producers are facing stiffer competition from imports despite increased import duties. There are some bright spots in the budget for producers, however. The Government is making plans to boost exports by offering new incentives to exporters, but these incentives have yet to be announced. Hopefully, these incentives will bring at least marginal improvements in production and employment in the private sector. A price increase of Rs.6.0 per bushel has also been announced in the paddy floor price to induce higher price production. But this increase is likely to be absorbed by rising input prices and marketing costs. Similarly, a large part of the increase in the subsidy for replanting of tea and rubber may also be absorbed by rising replanting costs.

Analysing the budget in the context of production and employment it is not very promising for those who are already unemployed as well as those who are now entering the labour force. According to the Labor Force and Socio-Economic Survey of 1980/81 of the Department of Census and Statistics, the unemployed labor force has been reduced to about 845,000 as a result of more than a million jobs generated in the economy since 1977. The organised sector of the economy has also been able to absorb almost the entire number of new entrants into the labour force in 1978 and 1979. However, recent reports indicate a considerable job creation shortfall in the organised sector (The Central Bank Review, 1981) This is only a part of the problem, for example, based on the preliminary results of the 1981 population census, there were about 1.5 million in the age group between 10 and 29 who were neither attending school nor employed at the time of the Census. Although their status is not very clear, the majority would probably take up jobs if an opportunity presents itself. Even among the employed, only about 60 percent are occupied in a job which includes at least 37 weeks of work, implying that under-employment is as serious as unemployment.

(b) Inflation

The sources of financing the budget are, at least on the face of it, not as expansionary as they could be; being made up of foreign aid and non-bank borrowings. Therefore, the budget, unlike in the past few years, will not exert as much inflationary pressure on the economy. However, it is extremely doubtful that this budget will also not have to depend on bank borrowings to a considerable extent. This reasoning emerges, from the strong possibility of a financing shortfall because: (1) the revenue estimate of Rs.26 billion for 1983 appears to be highly unrealistic, (2) the actual utilization of foreign aid is likely to be much less than anticipated, and (3) the unfinanced gap will be much more than estimated due to omissions and under estimation of public expenditures.

Revenue shortfalls from anticipated targets have been very common in the past. In 1982, for example, a revenue shortfall of around Rs.1.6 billion has been recorded. The revised revenue receipts show only about Rs.18.0 billion accounting for an estimated 18 percent share of the GDP. Assuming a real growth rate of around 5 percent and an inflation rate of about 20 percent the expected revenue estimate of Rs.26.0 billion in 1983 roughly works out to about 23 percent of the 1983 GDP. Given a declining trend of revenues as a share of GDP from around 27 percent in 1978 to 18 percent in 1982, the possibility of increasing revenue by Rs.8.0 billion in 1983 is unlikely.

The revision of anticipated foreign aid utilization increases from Rs.10 billion to Rs.14 billion in 1983, and this addition appears to be made up of carryovers from the past which include an unutilized Rs.4 billion in 1982 alone. One conclusion that can be drawn from the comparison of the 1982 foreign aid under-utilization of Rs.4 billion and the overall under-expenditure of Rs.2.5 billion is that the domestic financing was not adequate to make use of the foreign aid available to Sri Lanka in 1982. Given the past experience of foreign aid under-utilization, the odds

appear to be more in favour of a substantial under-utilization in 1983 as well.

The unfinanced gap of Rs.1.3 billion needs adjustments to take into account ommisions such as the subsidy revision on kerosene. This revision increased the subsidy transfer to the Petroleum Corporation to Rs.288 million from Rs.177 million accounted for in the draft estimates. However, this difference has not entered the revised computation of budget expenditure. Furthermore, both recurrent and capital expenditure estimates recorded in the draft estimates will have to be revised upward due to the recent rupee depreciation against the dollar. The author estimates the impact of rupee depreciation alone should boost public expenditures at least from 5 percent to 10 percent, thereby increasing the unfinanced gap.

The budget does not offer any indication as to how such uncertainities can be accommodqted or what courses of action the Minister will consider if such developments occur. In all probability, the unfinanced gap could reach as high as Rs.8.0 billion. The issue here is the ability of the Government to finance a deficit of this size without resorting to domestic market borrowings, thus increasing the inflationary tendencies similar to those that occurred in the 1980—1981 period.

Apart from the likely contribution to inflation from the financing side of the budget, the price revisions introduced two weeks before the budget will further add a few percentage points to the Consumer Price Index (CPI) in 1983. However, the size of its contribution will depend on the price revision's impact on consumption. If there is no change in consumption level, the price increase will be fully reflected in the CPI, depending on weights of consumer items in the index. If consumers can accommodate only a part of the price increase, on the outer hand, allowing the balance to be reflected in consumption cut backs, the effect of the price increase on the index could decline proportionately. However, the price increase of petroleum will make a more definitive contribution to inflation because of the widespread nature of its effects on prices ar l costs.

Table 5. Foreign Aid Commitment, Disbursements and Fixed Capital Formation 1977 – 1982

US $ Million

	1977	1978	1979	1980	1981	1982
1. FOREIGN AID						
(i) Commitments	254	400	569	628	816	577
(ii) Disbursements	204	251	268	326	437	415
2. FIXED CAPITAL FORMATION						
(i) Public sector (b) (c)	185	329	413	742	688	853
(ii) Total (c)	386	546	851	1261	1210	1414

(a) Includes non Aid Group Assistance.
(b) Public Sector including extra Budgetary Investment.
(c) PEEC rate (Rs. US $) for 1977 and respective nonfixed rates for other years.

(This table shows how the level of domestic capital formation, both government and total, has increased dramatically in recent years. The greater availability of foreign assistance had undoubtedly been an important factor in promoting this change).

Source: Public Investm nt 1983–1987 Ministry of Finance and Planning.

(c) Balance of Payments

The demand for imported goods should experience slower growth in 1983 as a result of higher prices and the depreciation of the Sri Lankan rupee against the dollar. On the export side, tea is reported to have made good progress with an almost doubling of average prices for all grades in current prices relative to 1982. Based on current information, the tea export trade will remain favourable throughout the year and this should help not only the balance of payments situation, but also ameliorate the long period of stagnation in tea plantation production. The devaluation will also induce a higher volume of exports of rubber and coconuts, at least until higher production costs resulting from a devalued rupee begin to erode the higher income made possible to producers following the devaluation. These anticipated developments in 1983 should narrow the current account gap in dollar terms which will certainly help make the financing of the balance of payments much easier.

(d) Public Debt

Borrowings from both domestic and foreign sources have become a regular feature in supporting annual public expenditure programs Table 2.The rationale behind borrowings is that it is an alternative source of capital which can be utilized for productive purposes to generate new sources of income. These new income sources should help to reduce the debt burden and, at the same time, the economy is benefitted with higher production, more services and new employment opportunities. However, the continued dependence on borrowings can become a serious issue and is open to the criticism that the country is heading towards a situation known as the 'debt trap'. The main criticism against the 'debt trap' is that the country requires more and more current borrowings to service the past, accumulated borrowings, as well as for economic survival.

Sri Lanka's debt situation is not very encouraging; it has been growing at an unprecedented rate since the middle of the last decade. The worsening situation is well-demonstrated when the public debt is expressed as a percentage of Gross Domestic Product (GDP). In 1975, for example, the public debt ratio remained at a moderate level of 40 percent of GDP, but due to increased dependency on borrowings afterwards, it has dramatically increased to over 70 per cent at present. Interest and loan repayments in 1983 alone accounted for more than 25 percent of the total budget. This clearly signals a potentially unhealthy financial situation and the need for the Government to generate increased revenues. To avoid more serious debt problems, the Government has two options: reduce public spending or increase Government revenue. The first option is clearly not viable given the country's commitments to more production, more employment, and higher incomes. This leaves basically the latter. However, this requires imaginative and non-traditional policy decisions to generate additional revenues without sacrificing production, employment and living standards.

Banking — Finance

Deposit Trends in the Banking Sector

A major feature of commercial banking activities in 1982 was the considerably high liquidity position of the banks. Total resources of commercial banks rose by Rs.7,438 million in 1982, compared with an increase of Rs.6,184 million in 1981. A substantial part of the resource growth in 1982, amounting to Rs.5,934 million, was contributed by the increase in deposits. This growth in deposits, coupled with a significant deceleration in demand for credit from the private sector, enhanced the liquidity base of the commercial banks. The growth was most apparent in time deposits, where because of the high interest rates being offered for such deposits by the commercial banks there was a 73 percent increase (an increase of Rs.2,526 mn) in the first half of 1982. This continuous improvement in liquidity, without a corresponding increase in availability of attractive short-term investment outlets, compelled the commercial banks to effect certain changes in their deposit mobilisation programmes in mid 1982. Interest rates were reduced on time deposits and the practice of accepting 24 months deposits were discontinued by many banks, with a view to reducing the costs of deposit mobilisation and making short term deposits more attractive.

The enhanced liquidity position ratio of liquid assets to demand deposits rose from 110 percent at the end of 1981 to 121 percent at the end of 1982 in the commercial banks. The Half Yearly Survey of Bank Deposits and Advances, (upto the first half of 1982) carried out by the Central Bank, clearly shows that there was a sharp rise in total deposits of the public and a deceleration in demand for credit. This survey also reveals important trends in the distribution of deposits among indigenous banks vis-a-vis the foreign banks.

The total number of accounts with all commercial banks as at the end of the first half of 1982 amounted to 4,190,354 which indicated an increase of 19.2 percent over the corresponding period of the previous year. In the meantime the average balance per account also increased by 19 percent, coming up to Rs.5,300/- during the same period. Thus the total value of deposits of the entire banking industry, by June 1982, amounted to Rs.22,178.8 million which shows that there was an increase of 41 percent over the total deposits of the corresponding period of the previous year. (See tables 1 and 2)

Of the 4,190,354 accounts held by the commercial banks 98 percent of the total number were with the indigenous commercial banks; that is, the People's Bank, Bank of Ceylon, Hatton National Bank and the Commercial Bank. The growth rate of the total deposits of these banks recorded a 33 percent increase; while the growth rate of the total deposits of the foreign banks (including both new and old) was much higher, recording a 49 percent growth rate. The rate of the average balance of the indigenous banks was only 12.17 percent. On the other hand, the foreign banks recorded an increase of 53 percent and the composit average balance per account of the foreign banks (both new and old) amounted to be Rs.56,750 approximately. The average balance per account of the recently established foreign banks increased from Rs.27,460 to Rs.181,260/- recording a 40 percent increase.

Table 1 Pattern of change in the deposit mix of the commercial banks during the first half of 1981 and 1982

	January 1981	June 1982	Percentage Change
Total number of accounts	3,512,183	4,190,354	19
Average balance per account (Rs.)	4,453	5,300	19
Total Deposits (Rs.mn)	15,638	22,178	41
Demand deposits (Rs.mn)	4,129	6,210	8
Time deposits (Rs.mn)	9,843	13,166	73
Savings deposits (Rs.mn)	2,667	3,074	17

The overall impact of this pattern of growth on the indigenous banks, could be observed in the negative change in the relative share of deposits held by these banks. Thus the share of deposits held by the indigenous banks, which contributed approximately 92 percent of the total deposits of the entire banking industry in the first quarter of 1981, dropped to 79 percent in the first quarter of 1982. (See table 3).

Related to this factor are the changes in the average balance of the commercial banks during the period under review. As pointed out earlier, the average balance per account of the entire banking sector showed an increase of 19 percent although the growth while the resident category of foreign banks (those established prior to 1977) showed a 45 percent increase in their average balances per account, moving upto Rs.44,850/- from Rs.27,075/- within the period of one year. (See table 2).

A somewhat superficial explanation to these development has been that there was an "orientation" of the indigenous banks towards retail banking, while foreign banks concentrate more on the wholesale banking. However, the finalisation of this "pigeon hole" has to be evaluated in the light of the highly competitive atmosphere under which the indigenous banks had to carry out their

Table 2 Changes in average balances per account of indigenous banks and foreign banks over one year (Jun. 81 - June 82)

	As at June 1981	As at June 1982	% Change
Number of accounts held by the indigenous banks	3,441,939	4,102,326	19
Average balance per account for all banks	4,453	5,300	19
Average balance per account of indigenous banks	4,190	4,250	1/
Average balance per account of new foreign banks	27,460	181,260	85
Average balance per account of old foreign banks	15,860	44,850	65

operations. Inevitably the small time accounts induce comparatively higher administrative costs, which place the indigenous banks in an unfavourable position in the competitive bidding for large scale commercial lending. Meanwhile, the comparatively higher weighted average interest rates of the indigenous banks, which arise out of the higher costs of funds gradually displace the indigenous banks from more profitable large scale commercial lending.

In addition to the more explicit changes in the total deposits, there has been another relative and more implicit pattern of growth of deposits of the banks during this period. This is the immediate outcome of the relatively sharp increase in fixed deposits vis-a-vis total savings and demand deposits. In other words the trends in the deposit mix continued in favour of the fixed deposits as against savings and demand deposits. For instance, demand deposits, which constituted more than 26 percent of the total deposits in the deposit mix of the entire banking industry in the first quarter of 1981 dropped to 23 percent in the first quarter of 1982. This change was principally attributed to the changing pattern in the composition of demand vis-a-vis fixed deposit. (See table 4) In other words the rate of increase of time deposits during this period was 49 percent while it was as low as 28 percent in the case of demand deposits. The apparent discontinuity of classified data, in terms of indigenous and foreign banks does not permit an analysis of the degree of change in different banking sectors. However, based on the available data, it appears that the change in the deposit mix is more acute in the indigenous banks. The overall effect of this trend again undermines the competitive position of the indigenous banks as it pushes up the cost of funds of the indigenous banks

Table 3
Market share of indigenous banks vis-a-vis foreign banks in the field of deposit collection

	As at June 1981	As at June 1982	% Change
Total deposits with the commercial banks (Rs.mn)	15,638	22,187	41.88
Estimated number of accounts held by the indigenous banks	2,441,939	4,102,629	19.2
Estimated aggregate deposits held by the indigenous banks (Rs.mn)	14,421	17,436	20.91
Aggregate deposits held by the foreign banks	1,217	4,751	290.39
Market share of the indigenous bank (%)	92.2%	78.59%	13.61%

Table 4
Composition and trends of the deposit mix

	Demand	Time	Savings
First half 1981	4,125 (26%)	8,843 (56%)	2,687 (17%)
First half 1982	5,318 (24%)	13,186 (59%)	3,674 (16%)

BANK ADVANCES: Slackening of demand-commercial advances dominate

While there was a substantial growth in deposits, the growth in demand for bank advances was comparatively slow by the first half of 1982. It is apparent from the purpose-wise classification of bank advances that those for Commercial purposes dominate the picture, taking up almost half (49.3%) of all advances granted during these two years. From Rs.8.8 billion granted in the six months ending December 31, 1980 Commercial advances kept increasing consistently to reach Rs.11.1 billion for the six months ending June 30, 1982. By 1982, however, there is a change in the purpose for which Commercial advances were granted. In the first six months of 1982 advances for export trading declined by 5 percent; while there is a high demand for import credit. Advances for wholesale and retail trading also declined by 9 percent, reflecting a lower level of activity in the trading sector.

The two other main purposes for which bank advances were granted are industry and agriculture.

Advances for industrial purposes (including mining and fishing, and engineering and the building trade) rose by Rs.846 million or 18 percent in the first half of 1982. During this period, increased industrial activities were evident from indicators such as fuel usage and increased export earnings in the industrial sector. The growth in the industrial sector was partly the result of the uninterrupted power supply when compared with the corresponding period of 1981. The increase in credit mainly reflected the enhanced activities in the fields of textiles, wearing apparel and leather products; chemicals, petroleum and coal.

Advances for agricultural purposes rose marginally by Rs.29 million during the first half of 1982. Advances granted from the tea sector declined by Rs.216 million. This drop was partly explained by the decrease in the use of fertilizer by this sector. Meanwhile, advances for paddy cultivation rose marginally by Rs.22 million over the period under review.

Advances granted for housing purposes rose by Rs.197 million when compared to an increase of Rs.157 million in the corresponding period of the preceding year. This increase consisted of increases in advances for purchase of existing houses (Rs.58 million) and construction of houses (Rs.139 million). Housing advances have registered a constant rise from Rs.8 billion in December 1980 to Rs.1.4 billion by June 1982.

Another significant aspect is the fall (from June 30, 1981) of advances to FTZ enterprises. Upto the middle of 1981 almost 28 percent of all advances went to FTZ enterprises, but by June 1982 these enterprises accounted for only about 4 percent of all advances. It should be noted that over this period advances of the FCBUs (Foreign Currency Banking Units) had moved up from Rs.3.4 billion in June 1981 to Rs.11 billion by December 1982.

FEATURES

POST–HARVEST LOSSES AND SMALL FARMER STORAGE PROBLEMS IN SRI LANKA

Upali Nanayakkara

Post-harvest and storage losses are on the increase in Sri Lanka, particularly in the public sector organisations handling paddy and rice, flour and sugar, and fruits and vegetables, where physical losses have been found to be high. The deleterious effects of market intervention by state agencies in the field of paddy has tended to increase post-harvest losses, reduce employment, allow adoption of inappropriate technology and a moving away from renewable sources of energy (e.g. sun drying); and it has also induced the blocking up of scarce capital resources. Dr. Upali Nanayakkara, Director Marketing, Agricultural Development Authority, Sri Lanka, in this paper, As a solution he proposes a significant shift back in public policy away from price support programmes and handling various operations of paddy production by the public sector. He suggests a shift of these resources now utilised in these various paddy production functions to support programmes for an extended scale of research on the problems of small farmers, traders and private millers; while the private sector should be utilised more for trade trading functions of buying and selling, milling, storage and distribution in the food system.

A 1980 Workshop on (Post-Harvest Losses)P.H.L.L examined the problem in terms of (a) perishable food items (b) durable food items and (c) fish losses. This paper will expand on the ideas presented at this Workshop in connection with items (a) and (b).

Perishable Food Items

These were categorised to include various kinds of (hill country and low country) vegetables, leafy crops and tubers, and fruits, all of which are derived essentially from plant sources. In practically all these areas of P.H.L.L the causal factors have been identified more as being (1) technologically related factors (bruising during handling and transport; inability to increase shelf-life due to the absence of storage, processing and preservation facilities; poor techniques in packing, stocking, handling, movement, etc.) and (2) economic factors such as unprofitability to growers, lack of a stable market (whatever this may mean), periodic gluts and shortages, price fluctuations, etc.

Causality between the variables identified have not been established, however, through any objective measurement of the P.H.L.L. referred to. More important, there appears to be little evidence to justify the adoption of any conceivable type of technology available (whether "appropriate", or otherwise) either in financial terms, or in terms of the micro-economic analyst's measure of the "opportunity costs" of resources. The Workshop Report indicates the existence of several disadvantageous natural factors which enhance P.H.L.L. of perishables. The solutions to the problem have been indicated as improved data generation for better identification of the extent of the problem and the improvement of several intermediary functions more of a technical and technological nature, the setting up of grades and standards, and the provision of grower incentives.

Size of Losses

The size of losses have been indicated in this Report as ranging from a small percentage for fruits such as woodapple and pineapple; 25 percent for bananas by weight; 30 percent for tomatoes; 5 to 35 percent for hill country vegetables; and, perhaps, more for low country vegetables. All these appear to be rough "rule of thumb" estimates rather than precise measurements.

It is known, however, that the efforts of the Department of Marketing (a government institution responsible for the development of marketing involve physical losses of about 40% of its purchase of fruits and vegetables. This measure has been quoted by the Department from as far back as the early 1970s. It is our belief that this percentage is now higher on account of the increasing congestion in the major cities as a result of heavy rural-urban migration; conscious efforts at economic growth, which have generally favoured the urban sector, have speeded up the rates of flow of labour to the urban sector causing severe demand on the available infrastructure and have tended to block up produce flows to and from the metropolitan centres.

In this paper we wish to postulate the hypothesis that the existing system of perishable produce marketing by the private sector in Sri Lanka is economically efficient in the sense that the costs of any marginal changes in structural variables and/or the behaviour of its market participants, is not likely to yeild commensurate benefits. The alternative hypothesis is that many non-marginal changes need to be made at this juncture in Sri Lanka's economic history to enable a significant reduction in the real resource costs of performing the marketing functions for highly perishable agricultural produce and that is only by such policy measures that this society may minimize P.H.L.L. in this area. Changes in the location of break-bulk functions, a conscious shift to the use of "appropriate" rather than highly capital intensive technologies in performing these functions, the improvement of our techno-economic knowledge of seasonal production patterns and forecasting capacities, and significant improvements in our food science and food technology related capacities constitute some of these relevant non-marginal changes. Another non-marginal change may be to shift away from the public sector's performance of selling and distribution functions with regard (especially) to perishables. There is much in the way of research and development that could usefully constitute the role of the public sector.

P.H.L.L. in perishables aggravate the problem of low real income levels of the Sri Lankan people. This society incurs high costs in performing the marketing functions for perishables. While relatively rapid changes are occurring in her capacity to raise the biological production function in small farm sector agriculture, the marketing problems are getting compounded by the rapid expansion of production capacity *pari passu* with increasing constriction of the channels and increasing marginal costs of pro-

easing the growing volume flows. As a consequence, P.H.L.L. are on the increase both in absolute terms as well as in proportion to production. While there may be no objective estimates of losses in quantity or value terms, experience and judgement indicate that P.H.L.L. are increasing at an increasing rate. Much can be done, we believe, by appropriate policy measures for the conscious reduction of P.H.L.L. in perishables by changing the direction of our approaches to perishable produce marketing and the implementation of some of the development measures referred to above.

Specific storage problems

A few specific storage problems in regard to this perishable produce area may be highlighted. The cultivation of red onions is spreading to most parts of the island today. However, the ability to spread out the cultivation into diverse production areas with different cultivation schedules or time periods, has still not been created. Experiments are needed to identify the potential additional costs of particular regions, starting later on in the cultivation season relative to the increased benefits from higher market prices for produce coming out during the off-seasons. The bulk of the production gets concentrated during the periods July to September and mid-January to mid-March in most parts of the Island. However, the knowhow of stacking or storing shallots is not yet extended to the new farmers entering into red onion cultivation. The storage and stacking knowhow of the traditional red onion farmers are, in this respect, adequate and perhaps "appropriate", but that of the new-comers into the industry are not.

In the case of potatoes, the major problem arises from the shortage of seed which is normally imported. Low cost storage bins are now being experimented with by the Department of Agriculture. The major goal is to develop simple outdoor wooden structures which admit diffused sunlight and thereby retard sprouting. Such simple storage structures constitute "appropriate technology"; and they could be used by small cultivators within their farmsteads. However, until this technology is developed, farmers have no means of storing potatoes for seed or to delay sales beyond the post-harvest slump in prices. Our experience is that a high proportion of the output handled by the Department of Marketing from the hill country potato crop was lost on account of the concentration of the harvesting season and the official pressure the Department of Marketing had to purchase this output at a guaranteed price. Since this is a non-traditional crop, simple storage technology has to be developed if P.H.L.L. are to be reduced. Also, the strategy of floor prices and public sector purchases of such perishables need re-thinking at least in terms of P.H.L.L. criteria.

Durable Food Items

The most important crop for Sri Lanka in the durable food area is paddy/rice, the yields of which have been growing systematically over the last few decades. In 1973 the domestic output of rice was 874,000 m.t. This increased to 1.07 mln in 1974; 1.11 mln in 1977; and 1.42 mln in 1980 (representing approximately 89% of annual requirements). It may be justified to state that the potential exists for a rising trend in output expansion as the Department of Agriculture helps push further the intensive margin of cultivation through increased investments in research and extention and input supply co-ordination with the adoption of better management practices. Also, the extensive margin of cultivation is being pushed further in Sri Lanka at the present through a major irrigation scheme — the Mahaweli Project. In the circumstances, P.H.L.L. of paddy/rice will be of much importance to this economy. Since the paddy sub-sector subscribed 29 percent of agriculture's contribution to the GNP during 1980, it is clear that a reduction in P.H.L.L. within this sub-sector is likely to yeild high returns to investment.

The 1980 Workshop on P.H.L.L. summarized the type of losses in the paddy sub-sector as:—

- Untimely harvesting, shattering, bird and rodent damage, and the effects of excessive sun and rain;
- Bundling, with additional shattering and exposure to the elements;
- Transportation and handling, with further shattering and contamination
- Threshing, where deterioration occurs in both quality and quantity;
- Drying and storage, where improper field stacking results, in quality and quantity losses;
- Milling, including inefficient parboiling practices; and
- High moisture deterioration and similar problems."

and in the rice-sector as

- Paddy and rice losses in the Paddy Marketing Board's storage facilities;
- Food losses at the Food Department; and
- Food losses at the Cooperative Wholesale Establishment (CWE) when importing, storing, and distributing."

Here too, quantitative assessments of such losses are fragmentary. Paddy losses of the Paddy Marketing Board (PMB) during storage have been recorded by this agency as follows:

TABLE 1 — PADDY LOSSES DURING STORAGE IN P.M.B. STORES
1972 1980

Year	Losses (m.t.)	% of total handles
1972	395	1.50
1973	63	0.27
1974	87	0.42
1975	131	1.13
1976	102	0.79
1977	218	0.89
1978	571	1,77
1979	390	1,50
1980	107	1.06

Source: Paddy Marketing Board.

Thefts from PMB stores have not been reckoned as storage losses for purposes of these data. The milling losses at PMB mills have been reckoned at 0.5 percent to 1.0 percent of the total weight handled by the organization. If additional processing is done to satisfy consumer needs, a further loss of 0.3 percent to 4.3 per cent of weight is reckoned.

The Food Commissioner (F.C.), the government department responsible for rice, flour and sugar imports, incurs certain physical losses in performing the logistics of import and distribution. The average physical losses have been estimated by the F.C. as amounting to approximately 1.0 percent to 1.5 percent of annual import volume. Imports during the ten year period 1970 to 1980, were as follows:

TABLE II
IMPORTS OF RICE, FLOUR AND SUGAR BY THE FOOD COMMISSIONER DURING 1970 TO 1981

Year	Volume ('000 m.t) Rice	Flour	Sugar
1970	334	375	244
1971	359	336	288
1972	266	329	317
1973	343	371	194
1974	303	448	43
1975	460	483	62
1976	425	386	47
1977	543	532	100
1978	170	612	164
1979	211	470	249
1980	190	381	199
1981	157		–

Source: Food Commissioner

One is inclined to believe that the real value of resource losses by the public sector institutions handling locally produced paddy/rice activities and imports of rice, flour, sugar and other food items, must be higher than what the data would suggest. This is likely to be so because the element of "quality" does not usually get reckoned when we take stock of the performance of "exchange" and "physical distribution" functions by public sector agencies which are generally inflexible in decision making. The absence of the powerful motive force of private profit through the efficient performance (as judged by speed of flow and the quality of such flows) of exchange functions, and low resource cost/use in physical distribution activities, usually aggravates the problems of inflexibility. Inventory costs are often high; stores may be stocked with produce which may be forgotten after a while specially if managers get to be transferred out regularly and the systems of management information communication and data retrieval are weak, a fact of acute less developedness. Insect and weevil infestation is often rampant as the reports of field and circuit officers would indicate. Even expenditure on fumigation or pest prevention may lag behind for long periods after pest attack on account of financial constraints, torturous procedures and divided sectional responsibilities. One is likely to accept the hypothesis, therefore, that relative to the private sector, public sector performance of trading activities must be fraught with high P.H.L.L. especially in the processes of storage and warehousing.

Incentive system

Another factor that may aggravate the problem of P.H.L.L. by public sector agencies handling processing and distribution functions is the incentive system under which officers and workers in these organizations operate. Rather than being guided by least-cost considerations public sector for example, the market price of an item of sale is expected to rise in the near future, the public sector selling agency may be induced to hold back disposal even though an appropriate management costing (if carried out) may indicate that the total costs of holding are greater than the additional gains from the anticipated rise in unit price. In any case, the basic problem is often the absence of appropriate costing systems; modern cost accounting techniques are seldom adopted by public agencies at least for the fact that such labour commands high transfer prices. Also, our experience is that "capital" is generally assumed to be a "free good" by these agencies rather than a very scarce, economic, resource particularly for a very 'less-developed' economic system which Sri Lanka is. In any case, the point at issue is that the larger the stock that is held, the higher the probability of product losses not only through pilfage and post damage, but also through pilferage. One is therefore, inclined to believe that the P.H.L.L. resulting from the public sector's handling of food purchasing and distribution activities are higher than what the data would seem to reveal. The recurrent reports on wanton damage caused to public infrastructural facilities as well as produce merely to cover up corrupt practices provides reinforcement to the acceptance of this hypothesis of heavy produce losses in the public sector.

Identifying causal factors in post-harvest losses

Post production losses of paddy/rice in Sri Lanka have been estimated by Wimberley in 1974 as 25 to 30 percent. (1) (1980). These losses are said to arise from the perhaps avoidable pre-harvest problem of shattering to the post-harvest problem of handling, field transportation, threshing, drying and stacking, storage, etc., both on farm and off-farm. Illangantileke had emphasized in 1979 that "improper harvesting, handling, threshing, processing, storage, and marketing operations produce losses in quality and quantity" in the case of Sri Lanka (2) (1981). Perhaps, as a result of the work of a few scientists in this area, today's climate appears quite conducive to increased research efforts at identifying the causal factors in paddy/rice P.H.L.L. more precisely, and for the quantification of such losses in relation to specific post-harvest functions. Such efforts have still not begun on a big enough scale in Sri Lanka, at least for the fact that the institutional base and the incentive system necessary for the conduct of such research has not so far been created (a point we elaborate on below).

Milling efficiency

A summary of some of the bits and pieces of research done recently in Sri Lanka on paddy/rice P.H.L. issues may begin with the suggestion that the minimization of P.H.LL must be associated with a closer dialogue between plant breeders and process technologists. A study by Jayaratne and Vellandi (3) (1978) indicates that paddy milling effeciency is affected not only by the "type" of processing adopted (raw or parboiled), but also by the "variety" of paddy as determined by genetic and other characteristics. "The rice outturn on milling of paddy depends on the variety of paddy, its condition and the processing conditions." Different varieties have different milling outturn rates. Yet, breeders, in their search for higher field yields of raw paddy tend to neglect the aspect of milling outturns. An integration of these disciplinary areas in looking at paddy/rice P.H.LL., alongside the simultaneous upliftment of the level of process technology in Sri Lanka, is called for.

A study conducted by Breckenridge (4) (1976) highlighted the relationship between parboiling and the improvement of milling recovery rates (and the quality of milled rice). When cost considerations (in parboiling) are introduced, however, the economic justification of increased milling recovery may have to be somewhat modified. The duration of "soaking" and in the "steaming" of paddy for improved milling recoveries (from parboiled paddy) were studied by her and shown to vary for different types and qualities of paddy. She too, has urged the need for reckoning these factors more objectively if we are to raise milling yields and enhance the quality of milled rice.

Palipane and Vellanki (5) (1977) studied further the importance of the length of paddy soaking time and the water temperature at which this cooking should be done for optimum milling results. They question the traditional practice of cold soaking and emphasize that P.H.LL can be minimized quantitatively as well as by qualitative improvements in the milled rice by adopting improved parboiling techniques. The Vellanki, Velupillai, Ramalingam and Wickremanayake study (6) (1977) adds further knowledge to the possibilities for cost reduction through improved parboiling techniques while maintaining existing quantity and quality considerations. De Silva's subsequent research (7) (1980) adds further evidence to the hot soaking and parboiling effects on milling outturns.

Nevertheless, in these days of steeply rising energy costs, the economic aspects of fuel become aspects of viability. It is in this context that one sees a gap in such research in that the economic aspects of such research are generally neglected. One needs to evaluate in all these cases whether the marginal costs of adopting technically superior methods are justified by the marginal savings in the physical and value products of the gain as a consequence of such innovation adoption. In any case, the viewpoint of a systems approach to P.H.LL research and preventive action which Dr. Illangantileke has emphasized in our discussions is, we believe, very necessary in a developmental context as is inter-disciplinary research that we have implied in the above statements.

Problems in storing

The problems of storing paddy and rice have also been examined at times by scientists in Sri Lanka. The traditional "on farm" storage technique of the "BISSA" was evaluated by Palipane at the RPDC (9) (1978). The study has shown promising results with this traditional method involving little produce losses, low capital, costs, a lot of complementary labour input (employment) and providing the farmer greater control over the timing of his paddy/rice sales. Palipane (RPDC) with Breckenridge (Central Agricultural Research Institute, Gannoruwa), are currently conducting a joint study measuring changes in the quality of rice grains and physical losses from insect infestation during storage in commercial warehouses.

Milling losses

Milling losses, too, have been the concern of some researchers. The traditional "hand pounding" of paddy technique was examined by Vellanki and Ramalingam (8) (1978) so as to evaluate milling losses. This study provides evidence for the need to introduce mechanical means, albeit simple "appropriate" technology, to minimize P.H.LL. in milling and for the improvement of quality. Undergraduates of the Department of Agricultural Engineering, Peradeniya University, have, under the direction of Dr. Illangantileke, recently measured the efficiency levels of different types of commercial mills in terms of the total yield and the amount of head rice obtained.

Lack of research incentives

The above are some of the efforts of researchers at analyzing problems impinging on P.H.LL. in the domestic production of paddy and rice. It is believed, however, that the extent of research into such issues is hardly sufficient; the body of knowledge built up is insufficient as a base on which sound policies could be mounted. It is to the credit of our few scientists, in this area, for developing even this amount of research knowledge given the facilities and the incentives provided. These research results are more the personally motivated and individual efforts of the various scientists hailing from several independent institutions such as the University of Peradeniya, the Central Agricultural Research Institute at Gannoruwa, and the Rice Processing Development Centre at Anuradhapura. There is no integrated effort in Sri Lanka at implementing a broad research programme focusing on a variety of issues related to the minimization of P.H.LL. in paddy and rice.

Problems of Rice Processing Development Centre

It is in this context that we propose to highlight herein the importance of the Rice Processing Development Centre (RPDC) at Anuradhapura. This Centre is a project which resulted from FAO/UNDP initiative. It was equipped

with various types of rice mills, parboiling and drying systems, threshing floors, storage facilities, a fully equipped laboratory for chemical research, classroom facilities, a library, an auditorium, hostel facilities, and staff quarters. It was established in 1976 to facilitate improvements in rice processing in Sri Lanka and implicitly,therefore,to study P.H.L.L. prevention and minimization issues with regard to this major food item so crucial to the economy. Unfortunately, we in Sri Lanka have not yet learned to appreciate this FAO/UNDP project let alone to properly administer and manage it in such a way as to facilitate the process of economic development. Soon after the preparatory work in setting up this Centre was completed, we "lost" our foreign experts even before they were able to extend to us their advanced theoretical and practical knowledge of paddy and rice milling, storing, factory layout and other technical-technological issues, and even before we were able to grasp, as a society, how to define a course of action for a broad spectrum of useful research, and/or to train and activate our young scientists and other research personnel to take over the research and managerial functions of the Centre.

This research organization, the RPDC began as a subordinate arm of the government's Paddy Marketing Board (PMB) an institution responsible for price support. Unfortunately, the Centre has continued to remain a handmaiden of this PMB, and to serve the day to day parochial needs of this action oriented government organization which is regularly under pressure to achieve different targets and fulfil non-research related objectives. As a consequence, it has not been possible to develop within this Centre, a culture of research and experimentation into the post-harvest problems faced by farmers, millers, storage and warehousing concerns, equipment and machinery manufacturers, traders, consumers, and other participants in the paddy/rice industry. "Under-development" itself displays thus a tendency to create vicious circles of poverty and ignorance which tend to keep poor countries poor, indeed, as Ragnar Nurkse pointed out to us not so long ago !

Today, it has just one or two qualified Research Officers, One Engineer, a Technical Assistant and two Lab Technicians to deal with all the professional functions of the Centre. It lies woefully underutilized and apathetic without a cause and without direction. The development direction, as the Agricultural Development Authority (ADA) of Sri Lanka has seen in this context, is to remove this Centre from the management and control of the PMB and to set it up as an independent research organization with professional leadership and responsible for the independent study and evaluation of post-harvest problems pertaining to all grains and cereals. It should be led and directed by professional personnel having close liaison with the Universities, research institutes, and world and domestic R and D oriented organizations. It needs to be strengthened to handle the socio-economic aspects of post-harvest research issues as well with emphasis on "demand" and other "market" related dimensions to provide behavioural guidelines to technical research. For, the effectiveness of technological changes that can be adopted is closely related to what market conditions and human behavioural considerations would indicate.

Proposal for Food Science and Technology Institute

Another important developmental idea which the ADA has been promoting is the setting up of a Food Science and Food Technology Institute in Sri Lanka on the lines of the Indian and Thai models. P.H.L.L.in Sri Lanka are highly related to the lack of sufficient scientific knowledge and capacities in regard to storing,processing,packing,packaging,preserving,etc. Until the scientific base in the areas of Food Science and Food Technology is built and the capacity created for a healthy appreciation and concern for "market" and "marketing" related aspects, the concept of the minimization of P.H.L.L. in Sri Lanka is likely to remain a mere academic issue.

Intensifying interest in "demand" for food

Another view point we wish to present, and an approach the A.D.A. is vouchsafing, is to intensify interest in the "demand" for food side of the equation in Sri Lanka's efforts at bringing about a reduction in P.H.L.L. The attention today is heavily biased towards what economists refer to as the "supply" or the production, or technology related, side of the issue. Our plea is that if emphasis were shifted to the "demand" side, concern will be aroused towards measures to increase "real incomes" of consumers and for the better identification of consumer needs. The improved identification of consumer demands and patterns is likely to facilitate the transmission of clear cut messages down the marketing channels about the intermediate functions that have to be performed, what products need to be produced, what needs have to be satisfied, what conversions have to be done, and so forth, in the profitable operation of food related business activities. Emphasis on the real income side calls forth attention on reducing the "real costs" of performing all the related functions from cultivation to final consumption, the one way through which buyer (real) incomes can be increased. Higher real incomes mean that significant increases in the demand for food are likely to be given high income elasticities of demand in our part of the world. P.H.L.L.reduction is likely to become profitable to all and sundry; it is a major avenue for reducing marketing costs. Especially if the concept of an "open market" economy were to be followed, as has been postulated as part of public policy in Sri Lanka, and there is a concommitant reduction in public sector controls and an elimination of trading restrictions on the private sector, business opportunities are likely to rise. If P.H.L.L. reduction becomes an area of profitable opportunities, one can predict with a high degree of confidence that whatever new knowledge is developed on cost reduction techniques it will be readily adopted and resource use economized on.

Continued on Page 35

Errors in Government - Decision Influencing - Documents, their Causes and Remedies

J. Diandas

Errors in decision influencing documents can no doubt result in poor decisions and also cause embarassment to and mislead those who rely on them. This could happen even at the highest levels of the Government decision making process as revealed here. In this paper, originally presented at the annual sessions of the Sri Lanka Association for the Advancement of Science in December 1982, John Diandas, a chartered accountant by profession and keen student of the transport and energy sectors, conjectures why this happens and considers some remedies. His main conclusion is that there ought to be more awareness of the falibility of decision-influencing reports and other documents and a greater recognition of the need for verifying them.

INTRODUCTION

Government is an amorphous conglomerate body of people, and it is sometimes difficult to identify who the real decision makers are. Proposals are originated at various levels in various places. Whether they become decisions or not depends on a multiciplicity of processes and procedures.

Some decision-influencing papers contain serious errors that have or could have caused or influenced poor decisions.

The purpose of this paper is to conjecture why this happens, and consider some remedies. In order to do this some examples of errors in decision-influencing documents are described.

METHODOLOGIES OF GOVERNMENT DECISION–MAKING

Among the motivating factors for decisions are inertia i.e. do the same as before; bright ideas; open or covert aims of interest groups; serious study of alternatives; component needs of overall plans or perspectives; patent or apparent failures in existing programs; and crises.

Among the process and procedures leading to decisions are discussion and debate; interest and media pressure; position papers of varying formality and length; and gossip, anecdote, and hearsay. Among the seats of substantial decisions are key interest groups; key administrators, minister, committee of development secretaries; cabinet; and President.

Sometimes a position paper, cabinet paper, memorandum, feasibility study, statement of alternatives, sessional paper, call it what you will, is the real basis for decision; and sometimes it merely gives support for a project or program, or policy or policy reversal already decided upon. In this case, if the paper is adverse to the real proposal, it may be shelved or contraverted by a more amenable paper.

However, written evaluations do play an apparently important role, so the question arises of who writes them, on what basis of facts and forecasts, with what degree of understanding of the implications, and so on. Some papers are very competent. Others patently less so. Even competent ones sometimes incorporate errors of fact or computation. Yet unlike historical financial or accounting statements hardly any such papers are put to the test of formal independent verification.

EXAMPLES OF CARELESS EVALUATION

A 1979 Central Bank Report on energy[1] gives a table showing very clearly that petroleum products grew to 90 per cent of total commercial energy consumption (excluding firewood) in the late 70s, and that the relative share of (hydro) electricity remained below 10 per cent.

The next paragraph of the report was a lengthy caveat approving Sankar and Fernando to the effect that 70 per cent of the heat inherent in oil or coal is lost in thermal conversion to electricity or motive power, and that when this is accounted for the relative share of (hydro) electricity goes upto 30 per cent. This is illustrated in Figure 1.

A Minister used this Central Bank report as basis for an address to an important seminar[3]. He cited the whole table and the averment that "over 90 per cent of energy consumption (excluding firewood) is met from petroleum products, and electricity forms less than 10 per cent", but did not observe, or was not guided to observe, the caveat ding Central Bank paragraph.

The Minister's speech was reported in the press, with emphasis upon "Electricity's 10%, and a condensed version of his whole speech was published in a Sunday newspaper shortly thereafter.

Obviously the Minister's mind was impressed by the small (10%) contribution by hydro electricity, and many of his listerners and readers would have been similarly impressed. The question here is not that a particular decision was about to be made or influenced by this misinformation, but that a whole series of attitudes towards the energy problem and its solution may have pervaded political and cabinet thinking until some opportunity arose to dispel the mis-impression.

Obviously if hydro-electricity produces only 10% of commercial energy, then even doubling hydro output by means of large investments would only raise hydro's share to 20% and therefore not have much impact on the big problem.

1. Report submitted to the Energy Committee by the Study Committee headed by Dr K S E Jayatilleke, Central Bank of Ceylon undated probably 1979.
2. Towards an Energy policy in Sri Lanka. T L Sankar & G B A Fernando SLDP Apr. 78.
3. Impact of High Oil Prices and the Economy. Hon. L Athulathmudali in "Energy in Sri Lanka" SLAAS PROCEEDINGS Jan 80 ed M Munasinghe 1981.
4. Effects of the Oil Crisis, excerpts from L Athulathmudali Sunday Observer 20 Jan & 9 Feb 80

On the other hand if hydro's share is 30 per cent, then doubling could increase its share to 60% and perhaps save over one third of oil imports.

One must not blame Ministers for taking economists' paragraphs at their face value without searching for later caveats. Yet the wrong impression created about hydro's small share might well have played its part in a later Cabinet "commitment" (since de-committed) to nuclear power, itself largely based on incomplete information.

Oil impact on external trade and balance of payments

The same Minister's address[3] (which was in many ways an excellent treatise), and the excerpts in the Sunday newspaper[4] cited Central Bank data to show that 1976 oil imports abstracted 24% of total value of exports, a very serious position indicating that one quarter of exports goes to sustain usage of energy in the country.

However, whereas oil imports in 1976 amounted to Rs Mn 1,219, re-exports realised Rs Mn 514, so the net energy cost was only Rs Mn 705. On this basis oil usage cost only 16% of exports. If all export earnings are included(i.e. the "invisibles" such as tourist earnings and remittances from West Asia) the percentage would be even lower.

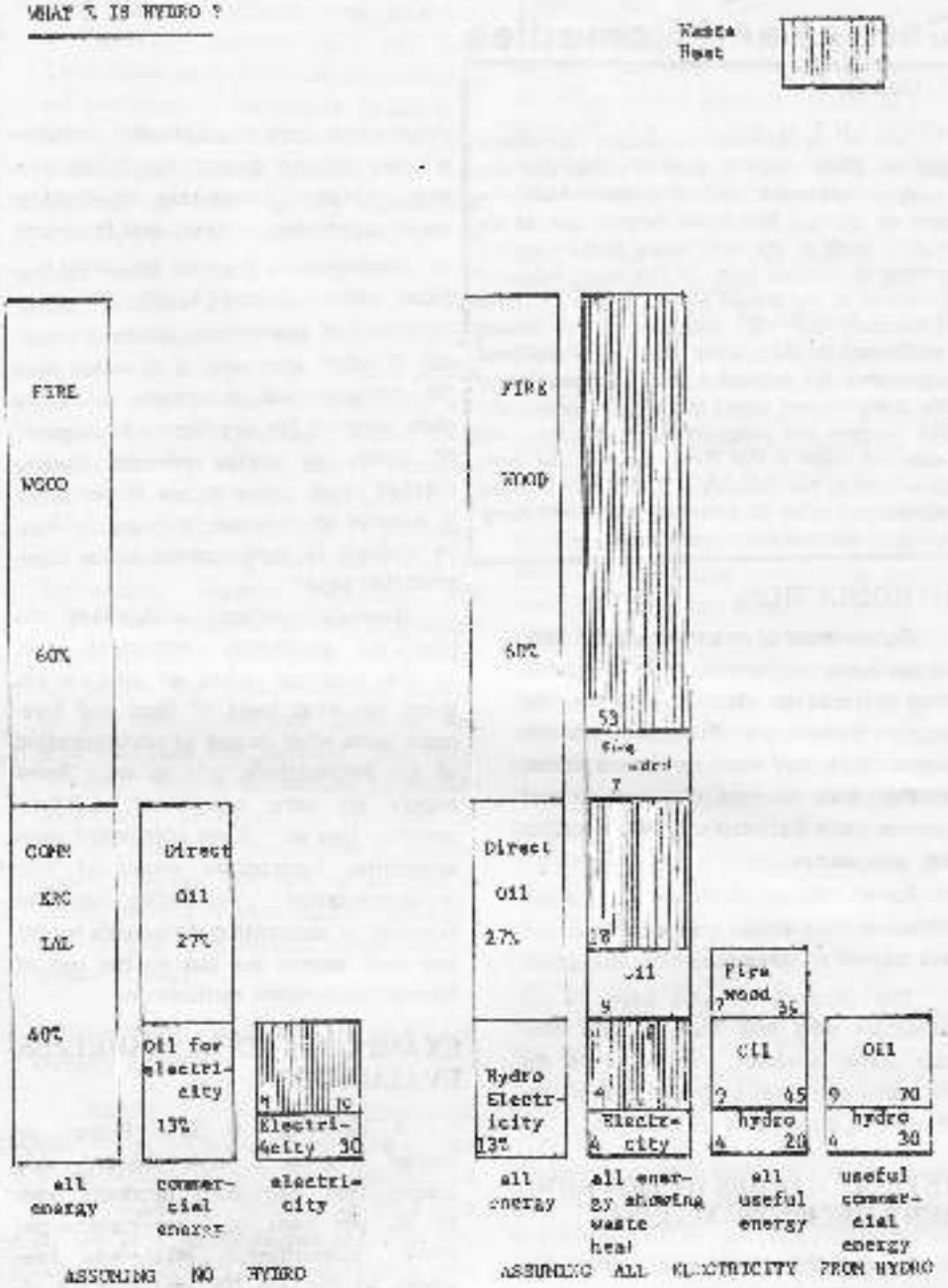
The same error of perception continues to this day. Many people believe that 1981 oil imports were 48% of exports, yet with adjustment for oil re-exports and invisible exports the percentage is about 27%.

Not that such lower figures should have been or should be a basis for complacency, yet clearly wrong perspectives could arise in the minds of many decision-makers influenced by the higher figures of 24% in 1976 and 48% in 1981.

FIG 1

LANKA ENERGY SOURCES

WHAT % IS HYDRO ?



Cost of electricity

Somewhat earlier in energy history, a DGEU (Department of Government Electricity Undertakings) annual report which received press publicity nearly 20 years ago gave the cost of electricity at 9.88 cents per kwh.

However, an analysis of the department's accounts from which the cost figure was derived was published in a professional journal[7]. This analysis made several adjustments for capital expenses, amortisation, interest etc and concluded

5. Petroleum Statistics of Sri Lanka 1970–1980. Planning and Economic Section of CPC (Ceylon Petroleum Corporation) Sep 81

8. Administration Report of DGEU (Department of Government Electrical Undertakings) for 1963/64.

that the real delivered cost for different modes of generation was 03.79 cts/kwh hydro, 04.85 cts/kwh Gal Oya purchases, and 10.63 cts/kwh thermal, with an average of 05.24 cts/kwh.

Thus not only was the overall cost shown to be a little over half the reported figure, but the disaggregation showed a cost for hydro (then and still the main source of generation) at just over one third of the cost reported.

In this case, too, specific decisions may or may not have been influenced by an inflated perception of cost, yet very probably some decisions about pricing electricity, some prospects about hydro investments, and some proposals to electrify tea factories or the railway, may have been adversely swayed by this mis-impression.

Today there are better studies and papers (though less official publications) about electricity cost. Yet there is still a danger that individual project proposals take into account postulated average costs and prices rather than the marginal costs that ought to be applied to particular cases.

Prospects for a coal power station

Another example is a consultant's report[8] discussing the logistics of generating electricity in a large (1080 MW) coal burning thermal power station.

In a set of calculations he estimates the need for coal ships of 60,000 tons capacity as growing from 3 ships yearly at stage 1 (60 MW) to 36 ships at the final stage (1080 MW).

But assuming no change in load factor, a simple multiplication by 18 (divide 1080 by 60) reveals a need for 54 ships, which is 50% more than proposed, and also changes other logistical needs such as handling a ship every 7 days instead of 10.

In this case it appears that one typing error at a draft stage of the report has led to an aggregation error in the next draft, and so on. It is easy but unwise to laugh at an engineer's error, becuase we all make such errors unless we devise cross-cheks in our tabulations, or plot per unit comparisions or get an independent person to check our working.

I recall a textile technologist on a really big project working all night in his hotel room to reconcile his figures with that of the financial consultant, and finally admitting a million mistyped as a crore, leading, as he characterised it to, well, just "an error of a nought".

In the coal study, the report was sent after its delivery to the power that be, to a reviewer in a different profession for opinion, and one hopes that corrections were sent early enough to the coal-dock designing consultants to plan the appropriate coal unloading capacities.

Electricity demand forecasts

In yet another look at electricity position papers, a World Bank/UNDP draft Report[9] forecasts electricity annual demand growth at various sub-sectoral growth rates ranging from 4% to 24% based on a 1981 estimate of 2,112 gwh generation yielding 1,795 gwh sales. The forecast for 1980 was for sales 4,342 gwh needing generation of 5,108 gwh.

In turn this forecast of demand was used, with and without conservation measures, to postulate power station investment programs.

The 1981 estimate and the forecast were no doubt taken from a CEB forecast made in August 1981. Yet the World Bank /UNDP Draft Report was issued in February 1982, by which time it was easily ascertainable that the actual sales for 1981 were only 1,492 gwh which is 17% less than the August estimate, although generation at 1,872 gwh was only 11% less, system losses having leapt up to 20% in 1981. Even if the Bank's mission had to write up their report in October and November 1981, there was ample opportunity to ascertain that the sales for 1981 would fall well short of the CEB prediction.

However that may be, at least one analyst, to the knowledge of this writer, advised the Bank's team of the error during the discussion period. Yet the Final Report[10] issued in May 1982, long after the end of 1981, contains the same figures in the same tables, used for the same discussion of the same projection of need for thermal power stations, and of the oil and coal needed to fuel them.

Now this report, carrying its World Bank impress, will not disturb the Electricity Board who know their own figures well enough, but it can influence analysts, advisers and others in other ministries, and their attitudes towards, coal, electricity, hydro-electricity etc.

If one applied to the 1981 actual sales the growth rates year by year as in the report (although these ought perhaps to be lowered or otherwise adjusted in the light of 1981 actuals) and the same estimate of 15% system losses, then the electrical energy required in 1990 would be only 4,235 gwh as against 5,108 in the report's "base case", and 4,023 against 4,853 in the "conservation case".

The energy requirements in the World Bank /UNDP Report are tabulated against hydro capacity to give deficiencies of 1,574 gwh and 1,323 gwh in the two cases, which deficiencies would be only 701 and 493 respectively based on 1981 actual sales.

The deficiencies are used in the Report to display the need for 80 MW diesel plants and 120 MW coal plants by 1990; and the fuel need would be

7. What is the True Cost of Electricity. J Diandas The Accountancy Journal Jan 66.

8. Guidelines for Planning the Ceylon Electricity Board's Power Stations beyond Randenigala in 1987. E C Fernando Feb 82.

9. Sri Lanka: Issues and Options in the Energy Sector. Ahmed et al World Bank/UNDP Feb 82

10. Sri Lanka: Issues and Options in the Energy Sector. Ahmed et al World Bank/UNDP May 82.

300,000 tonnes coal and 246,000 tonnes oil the latter reducing to 169,000 tonnes oil in the conservation case. But with the reduced computation of gwh demand there would be no oil need in either "case" (and hence no need for the new diesel plant) and coal would reduce to 286,000 tonnes and 201,000 tonnes in the two "cases".

Interestingly a locally developed report[11] issued in early March 1981 for the ADB (which the World Bank /UNDP Report mentioned as "a good overview and description of the sector") takes in an earlier February 1981 CEB forecast giving a much higher 1990 need for 5,722 gwh, but it very wisely describes this as 'tentative'. The World Bank/UNDP team should either have used the same term for the August 1981 CEB forecast, or as behoved them in February 1982, should have ascertained the actual 1981 figures.

Now the World Bank/UNDP Final Report, which is more attractively printed and bound than the ADB one, is, as said earlier, not likely to bother the CEB people(who know their own figures) unduly. They may in fact use it to demand investment funds ahead of need as a hedge against unpopular power cuts in 1990 or so. Even so is it correct for other analysts, advisers etc in other ministries or financing institutions to be swayed by figures so significantly deviant from reality or by or by poorly based forecasts.

Using hindsight not available to the World Bank team even in May 82, it is interesting to note that 1982 actual electricity generation, which was unrestricted by power cuts based on supply constraints, will be only 2,050 gwh, somewhat less than 2112 gwh adopted by the World Bank team for 1981, and this despite conjectures of growth rates of the order of 25%.

Petroleum product data

The Petroleum Corporation has recently and commendably started publishing an annual statistical abstract, the first covering the period 1970–1980. The second issue, due soon, will take the figure forward to 1981.

The first issue[8] on its first page, sets out sales, cost, profit and volume in a table of overall performance which also includes unit revenue per tonne and cost per tonne. Typically for 1980 the revenue per tonne is given at Rs Mn 4.9 and the cost Rs Mn 4.8. It should be clear to most readers of this publication that the figures should be Rs 4,900 and Rs 4,800 per tonne.

The danger here is not so much that immediate users of the table would assume that all costs a thousand times as much as it does ("a matter of 3 noughts") but that researchers using this report as a source would perpetuate the error and extend it in their own findings.

This writer has seen several worldwide publications with similar stray errors used to produce spurious findings by authors seated in such eminent centres as the Brookings Institution[12] with at least one nought out, if not three.

Likewise there is a UNDP Report[13] with many criticised conclusions the criticisms published in New Scientist[14] and elsewhere being fortified by at least one mistaken use of some earlier research report's error.

Vehicle population of Sri Lanka

Moving to the world of transport, a recent Department of Census Bulletin publication[15] asserts inter alia as follows (emphasis mine):

"The incessant demand for Motor Vehicle Statistics from diverse sources in recent years reflects, at least partly an increasing awareness of the need for improving the National Transport system to serve the requirements of a rapidly expanding economy. This Publication which up-dates the available information will in some measure satisfy this demand. The transportation of both consumer goods and the finished products of local industry has a profound effect on the life of the people. Statistics of the National Lorry Transport Fleet are therefore presented herein. Similarly, all passenger transport vehicles ..... It is hoped that this information will be of considerable use in the planning, implementation and evaluation of programmes for the development of goods and passenger transport services in the country. The period prior to 1977, was characterised by a severe paucity in the imports of transport equipment. With the liberalization of imports towards the end of 1977, there has been an unprecedented increase in the importation of motor vehicles, spare parts and accessories. The material furnished in this publication will, therefore, be useful in the evaluation of the impact of that policy on economic growth in this field."

The Bulletin lists in its first table what is described as "Total vehicle population as at 31.12.81." Thirteen categories of vehicles are given and the total is 337,382 vehicles. This figure is in fact the Registrar of Motor Vehicles' total for "motor vehicles on the registers as at 31.12.80." As at the later date 31.12.81 the Registrar's figure is 374,000.[17]

Leaving aside the matter of the year to which it attaches, the difference in description "total vehicle population" and "Total vehicles on registers" is vital because a publication of the Ministry of Finance and Planning reproduces, from RMV records, the same list totalling 337,382 to which it subjoins the following note –

11. Sri Lanka Energy Sector Study. G B A Fernando, D Chandrasekera, D M Jayasekara, and B.P Sepalage for ADB Regional Energy Survey Mar 81.

12. Automobiles and Cities: Strategies for Developing Countries. Wilfred Owen, Brookings Institution for OECD Aug 73, relying on a graph distorted by oversight in a paper by Richard Rice in MIT's Technology Review Journal.

13. Review of the Impact of Production and use of Energy on the Environment and the Role of UNDP. (Known as the Usmani Report) unpublished 1975.

14. Nuclear Technocrat Tilts at Windmills. J. Tinker in New Scientist 6 Nov 75

15. Bulletin on Motor Vehicle Statistics 1979. H Gunasinghe Department of Census and Statistics Mar 82

"the number of motor vehicles on the register is believed to be a significant overstatement of the number of vehicles which are active, as it is thought to include many vehicles which have been scrapped but not removed from the register. example SLCTB has approximately 7,500 buses in its fleet, but 15,000 still on register."

The discrepancy is measured by the fact that the number licensed in 1980 was only 221,827 vehicles.[17] The gravity of this discrepancy, which has persisted in the statistics over several years is illustrated in Fig 2 which is extracted from a recent Transport Sector Study.[18]

The only concession to this grave statistical problem in the Census Bulletin is a footnote (on the list mentioned earlier) against the 15,000 figure for CTB buses which reads as follows:

"CTB running fleet as at 31.12.80 -7,531."

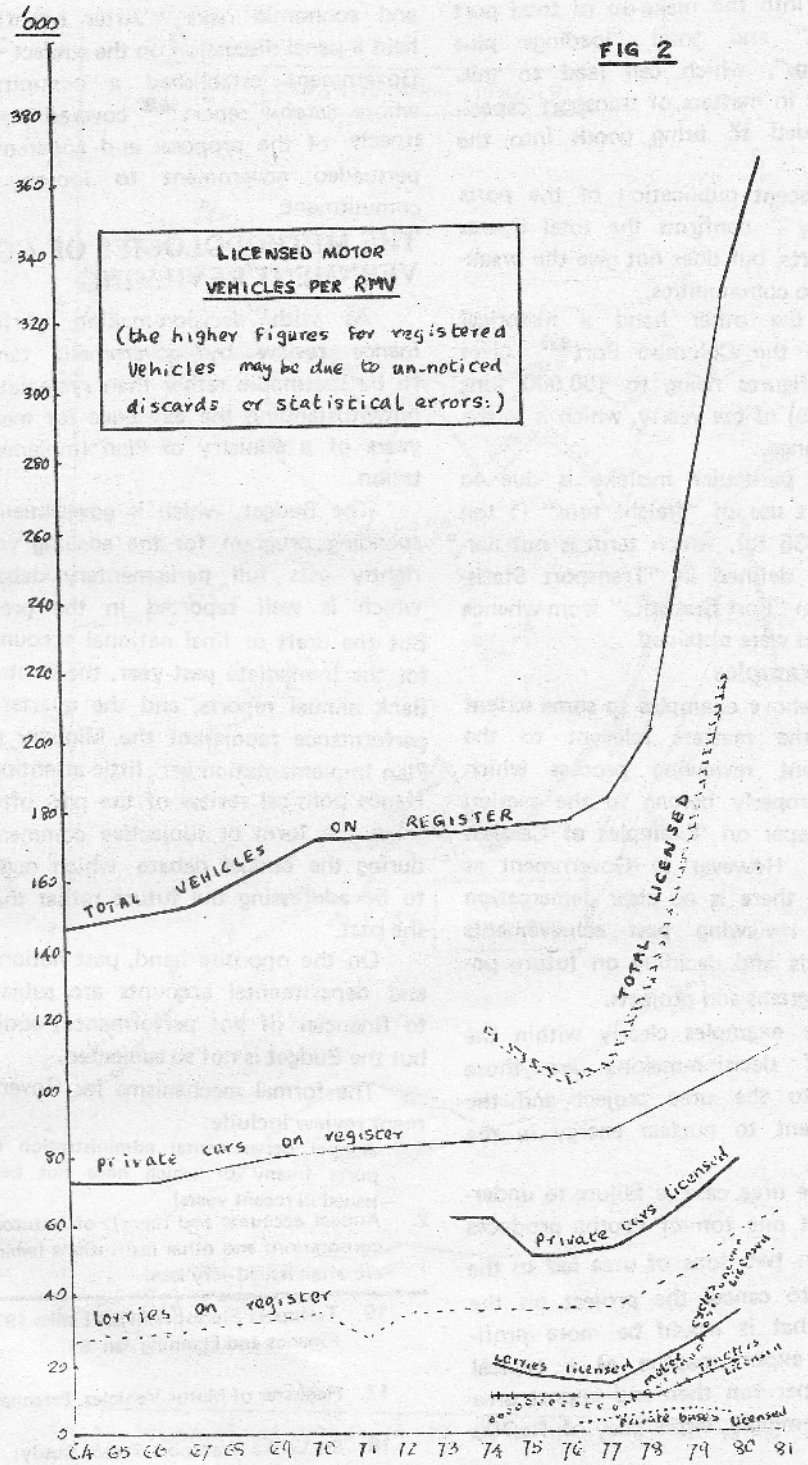
The rest of the Bulletin goes on to give very detailed analysis of "the motor vehicle population", and especially motor lorries as at 31.12.79. The total as at 31.12.79 is not given, but if one cares to add the totals analysed in tables, it comes to 167,503 lorries, light commercial vehicles and cars, which is close to the 31.12.79 RMV figures for similar vehicles "on the register", in respect of which the corresponding "licensed" figures are much lower at 109,000 odd.

The Census Bulletin tables break down lorries into age, year of registration, fuel used, fare, payload, series, ownership, horse-power etc.etc. But one has to question whether any of these analyses is "useful to the evaluation of the impact of policy on economic growth."

On the contrary, the analysis may positively mislead the users of this Bulletin.

Whether any unsuitable decisions are made in this case would largely depend on secondary analysis of the Bulletin by Ministry analysts or researchers.

FIG 2



Exports of Tea

The Ministry of Planning publication "Transport Statistics in Sri Lanka"[16] is a commendable recently launched annual issue, yet it too is not free of gross errors. In tabulating port cargo handling, it includes metric tonnes of tea loaded at figures ranging from 368,000 tonnes in 1974 to 420,000 tonnes in 1980. Anybody in this sector would know that production and export of tea ranges around 200,000 tons (200 Mn kg or 400 Mn lb) per annum, or about half the figures given in "Transport Statistics".

It is unlikely that decision-makers dealing with tea would be misled by this mistake, yet the figures go signi-

ficantly into the make-up of total port "loading" and total "loadings plus unloadings", which can lead to mis-decisions in matters of transport capacities needed to bring goods into the port.

A recent publication of the ports Authority confirms the total figures for exports, but does not give the break-down into commodities.

On the other hand a historical work on the Colombo Port[20] gives pre-war figures rising to 100,000 tons [220 M lb] of tea yearly, which is in the correct range.

This particular mistake is due to the Port's use of "freight tons" (1 ton tea = 1036 lb), which term is not narrated or defined in "Transport Statistics" or in "Port Statistics" from whence the figures were obtained.

Other examples

The above examples to some extent overlap the matters relevant to the Government reviewing process which should properly belong to the section of this paper on 'Examples of Careless Review'. However in Government as elsewhere there is no clear demarcation between reviewing past achievements and trends and deciding on future policies, programs and projects.

Other examples clearly within the arena of decision-making are those relating to the urea project, and the commitment to nuclear energy in the 1980s.

In the urea case, a failure to understand that one ton of naptha produces more than two tons of urea led to the proposal to cancel the project on the grounds that it would be more profitable to export naptha at a typical Rs.1,000 per ton then and import urea at the seemingly lesser cost of Rs.700 per ton.

In the case of nuclear energy it appears that the cabinet made a formal commitment to plan for a nuclear reactor as soon as it was satisfied on the material presented to it that the health and hazard risks involved were acceptable (whether this aspect was adequately considered is not in issue here) but that adequate material on costs and economic risks. After scientists held a panel-discussion on the subject[21] Government established a committee whose careful report[22] covered many aspects of the proposal and apparently persuaded government to loosen its commitment.

THE METHODOLOGIES OF GOVERNMENT REVIEWING

As with decision making, performance review by government tends to be spasmodic rather than systematic, notwithstanding the existence for many years of a Ministry of Plan Implementation.

The Budget, which is government's spending program for the ensuing year rightly gets, full parliamentary debate which is well reported in the press. But the draft or final national accounts for the immediate past year, the Central Bank annual reports, and the quarterly performance reports of the Ministry of Plan Implementation get little attention. Hence political review of the past often takes the form of subjective comments during the budget debate which ought to be addressing the future rather than the past.

On the opposite hand, past national and departmental accounts are subject to financial (if not performance) audit; but the Budget is not so subjected.

The formal mechanisms for Government review include:

1. Annual departmental administration reports (many of which have not been issued in recent years).
2. Annual accounts and reports of statutory corporations and other institutions (which are often issued very late).
3. Audit of annual accounts (again often late, and in many cases the reports are too lengthy and arid to earn much serious reading by decision-makers or other).
4. Auditor General's Annual Report (again a somewhat tedious document dealing often with long past matters)
5. COPE: Parliament's likely committee reviewing recent past performance of public enterprises. (i.e., Parliament's Public Accounts Committee)
7. Commissions of Inquiry and ad-hoc Committees.

There is little to compare with the British Parliament's special subject-wise Standing and Select Committees (these bodies continuously examine overall government functions with much penetration and insight, and publish their reports and proceedings) and with the US Congress' support bodies such as Congress Research Service, Congress Budget Office, Office of Technology Assessment etc. and the US Executive's overviewing organisations like Government Accounting Office, Office of Management and Budget etc.

Apart from the Government's formal reviewing methods set out in the para above, informal review processes include:

1. Exposure by interest-groups
2. Seminars run by do gooder groups
3. Politically dedicated newspapers
4. Publications of scientific and research bodies
5. Investigative journalism
6. Ordinary journalism.

Both formal and informal review processes include preparal documents or writings, which, like project or program evaluation papers, have their quota of errors. These can and sometimes do distort government's view of the success or failure of existing programs.

16. Transport Statistics in Sri Lanka 1974—1980. National Planning Division, Ministry of Finance and Planning Jan 81
17. Registrar of Motor Vehicles. Personal verification.
18. Sri Lanka Transport Sector Study: a draft report. F Dienst at Friedrich Ebert Stiftung Aug 82.
19. Ports of Sri Lanka. Sri Lanka Ports Authority May 81
20. The Port of Colombo 1860 — 1939. K. Dharmasena. Ministry of Higher Education Research Publications 1980
21. Should Sri Lanka go in for nuclear ? Panel Discussion SLAAS section E -30 Aug 80
22. Report of the Committee of Inquiry on the proposal to use atomic energy for the generation of electric power in Sri Lanka. J. A. Gunawardene et al. National Science Council Apr 82

EXAMPLES OF CARELESS REVIEW

CTB's contribution to economic progress

A committee was established last year to inquire into the operation of privately owned buses and to advise government on methods of regulation or self-regulation which would improve their contribution to passenger transport needs.[23]

It was not part of this Committee's terms of reference to inquire into the past performance of the CTB (which acronym is used in this paper to represent the Ceylon Transport Board and its successor Central and Regional Boards), nor did it summon the CTB to obtain views on its own performance.

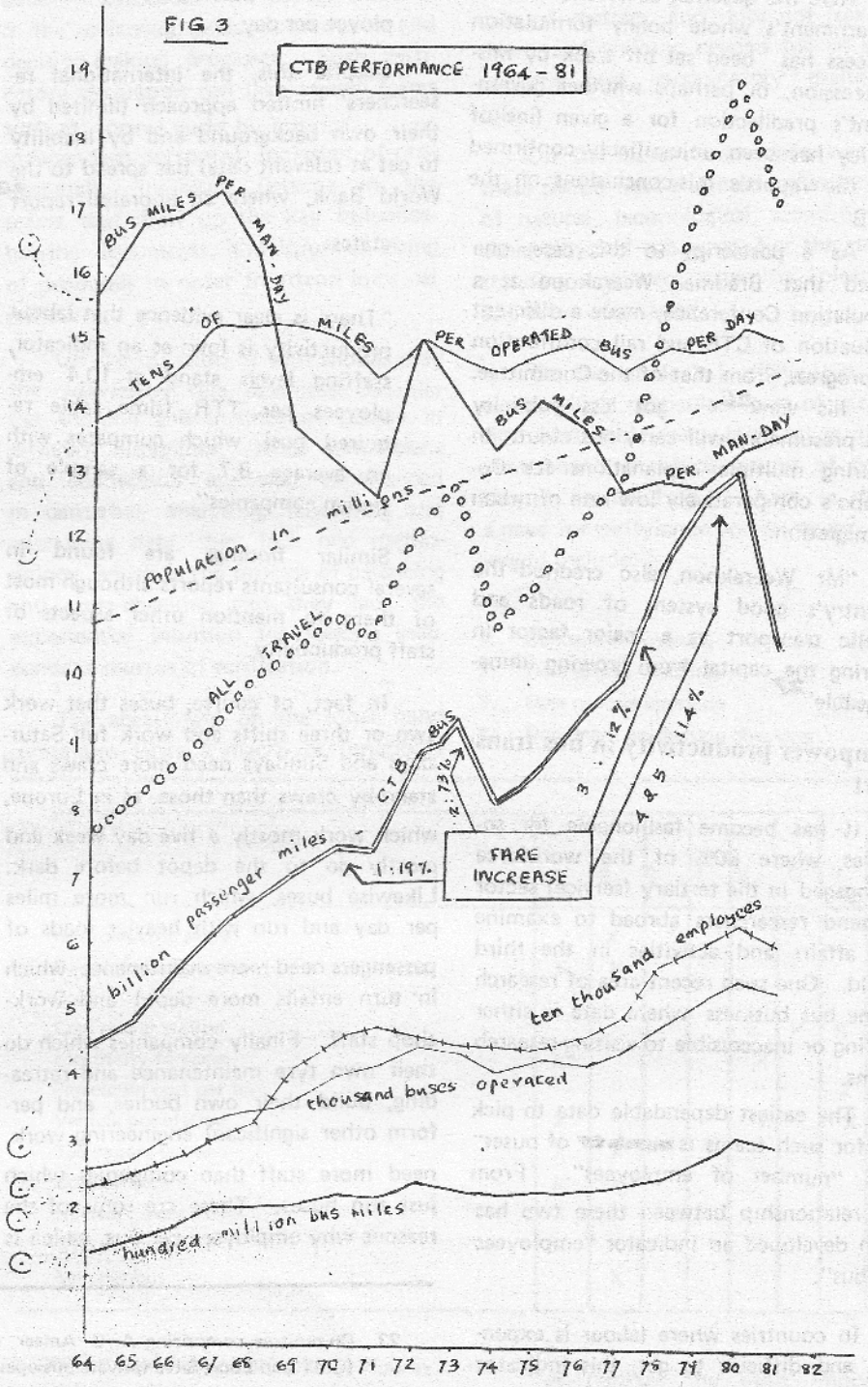
At the time of this writing, the Committee's report is not yet publicly available. But one chapter of it was disgorged in the Sunday press in June[24] according to which the report said inter alia (emphasis mine): :—

"We have so far reached the conclusion that the bus transport service, as a state monopoly, has failed to play its role in the economic progress of the country ..... That the Transport Board did not, could not and would perhaps not meet these needs is evident from ....."

The report cites a list of needs, and some numbers allegedly as evidence of the sweeping "did not, could, not, would not" finding, but the Committee apparently did not care to look at CTB performance indicators over the whole period 1964 to 1981. These are displayed in Fig 3 extracted from a recent Transport Sector Study[16]. Fig 3 shows inter alia that the principal output of the CTB increased from 4.5 billion passenger-miles in 1964 to 12.3 billion passenger-miles in 1980 i.e. it increased by a factor of 2.7. Thereafter there was a sharp 30% decline in 1981 influenced by a massive fare increase and by the surge of private buses "dreaming off" a lot of traffic.

The massive increase in performance from 1964 to 1980 shows clearly that the CTB did play a big role in the economic progress of the country, and

FIG 3



did (could and would) go a long way to meet the needs. Why the CTB did not meet the whole of the needs, and whether it could have been more efficient in doing what it did, are fit subjects for inquiry. Without objectively sought answers to those questions, the Committee's sweeping, obiter, ex-parte findings are completely misleading.

That the Committee's recommendations on how private buses should be operated and regulated appear to be well considered and expressed, perhaps even extemplary, does not mitigate the wrong done in its sweeping mis-assessment of the CTBs role. The Committee's position was mildly criticised elsewhere.[25]

Here the question at issue is whether government's whole policy formulation process has been set off track by misimpression, or perhaps whether government's predilection for a given line of policy has been unjustifiably confirmed by the report's mis-conclusions on the CTB

As a postscript to this case, one noted that Bradman Weerakoon at a Population Conference, made a different evaluation of CTB and rail contribution to progress, from that of the Committee. But his view[24] got less publicity and presumably will carry less clout. In offering multiple explanations for Colombo's comparatively low rate of urban in-migration:

"Mr Weerakoon, also credited the country's good system of roads and public transport as a major factor in sparing the capital from growing unmanageable"[25]

Manpower productivity in bus transport

It has become fashionable for societies where 80% of the workforce is engaged in the tertiary (service) sector to send researchers abroad to examine the affairs and activities in the third world. One such recent area of research is the bus business where data is either lacking or inaccessible to visiting research teams.

The easiest dependable data to pick up for such teams is number of buses" and "number of employees". From the relationship between these two has been developed an indicator "employees per bus".

In countries where labour is expensive and difficult to get, this indicator may be a reasonably useful measure, even though it puts one item of input against another and where output (measured in passenger-miles) is difficult to attract to public transport. But in a third world country the essence of transport productivity will be the following:

bus-miles or passenger-miles per bus per day.

bus-miles or passenger-miles per employee per day

Despite this, the international researchers' limited approach (limited by their own background and by inability to get at relevant data) has spread to the World Bank, where an appraisal report[26] states:

"There is clear evidence that labour productivity is low; as an indicator, staffing levels stand at 10.4 employees per TTR (time table required bus), which compares with an average 8.7 for a sample of Indian companies".

Similar findings are found in several consultants reports although most of them to mention other aspects of staff productivity

In fact, of course, buses that work two or three shifts and work full Saturdays and Sundays need more crews and stand-by crews than those, as in Europe, which work mostly a five day week and mostly go to the depot before dark. Likewise buses, which run more miles per day and run with heavier loads of passengers need more maintenance, which in turn entails more depot and workshop staff. Finally companies which do their own tyre maintenance and retreading, build their own bodies, and perform other significant engineering work, need more staff than companies which just run buses. These are some of the reasons why employees per bus, which is a measure of input per input, is of little value. Yet following World Bank influence, many serious economists, 'let alone politicians and administrators, have been summing up their assessments of CTB performance in terms of this catchy input/input measure.

In consequence I believe several grave decisions have been taken under considerable influence of this misleading mode of review.

Causes of Error

The causes of error or factors at work which lead to them are multiple. They must include the following factors, one or more of which may be co-present:

1 – inadequate collection of data

2 – inadequate understanding of the subject matter

3 – biased a-priori view point or unscientific approach

4 – willingness to report what is wanted

5 – lack of time to reconsider or discuss

6 – inaccurate calculations

7 – inadequate checking of typescript or printers proof

8 – inability of writer to check the printout of his own work

The last point requires elucidation. The tendency of an author when checking his own work is to read what is in

23. Committee comprising A C Amerr, Chairman, Ernest Perera (DIG), S H Munasinghe IGMT and Ebert Silva (private bus operator) with K. Kulathasen as Secretary.

24. Rail, Bus, no help to progress. Prema de Mel, Sunday Observer 7 June 82

25. Amerr Report: good in parts. J Olandes Daily News 12 June 82

26. Lanka Concurs: Urbanisation: excerpts from Bradman Weerakoon's address to 3rd Asian & Pacific Population Conference BMICH Sun 27 Sept 82

27. Against the trend of urban growth. Sun 30 Sept 82

28. Sri Lanka Staff Appraisal Report road passenger transport project. E Pagion et al World Bank Feb 80.

his mind rather than the written, typed or printed text; therefore he glosses over mistakes irrespective of whether they may have originated at dictation, script typing or printing stage.

A cursory analysis of the examples given below show a distribution of these types of factor as

Some Remedies

The examples given show that, in a limited spectra of activities, papers germane to reviewing the past and deciding upon the future have included errors of varying degrees of gravity which have or could have led to unsuitable policies, programs or projects.

Furthermore, budgets and project feasibility studies are not usually audited.

Hence two questions arise:

1. Is there a need for better verification, cross-evaluation, audit, call it what you will, of macro level papers which lead up to policy, program or project adoption, modification or negation ?

2. If there is such a need, should the need be performed by accountants, statisticians, economists, engineers or scientists or a mix of these people ?

On the question of need, this paper has described examples of errors in a narrow spectrum of economic functions namely transport and energy. There seems no reason to presume that other economic and social areas would be free of such errors, and therefore free of the risk of inept decisions. Hence the conclusion that there is need for secondary evaluation of papers involved in the reviewing, policy-formulation and decision-making processes. Such verificatory evaluation can take several forms such as: formal audit by internal or independent personnel; inclusion of professionally inhibited persons in the teams that draw up the key influence-bearing documents; and informal airing of proposals in order to attend informal criticisms.

On the question of who should play the overviewing role, one must consider the training and instinct of people in different disciplines. While statisticians and economists are well experienced in gathering, analysing, tabulating and explaining data, they lack one methodology, which is the process of balancing and cross-checking and, they lack the experiential intuition for seeking independent sources of verification.

The accountant on the other hand sometimes lacks a macro or functional perspective and tends to look at figures or entities as if the figures exist for their own sakes. However,the accountant has a broad knowledge of the whole spetra of commercial, industrial and agricultural matters, and does not lack the talent and training needed for an independent and participatory evaluation role.

On the other hand again none of these people have a trained understanding of natural, technological, scientific and other physical processes. For this understanding engineers, chemists, biologists and so on are needed.

On the whole it is difficult to conclude which particular form of verification is suitable for a large range of circumstances, or which groups of people should be involved. There is clearly a need for verifying at several stages. This would include:

1. Conceptual checking
2. Data source checking.
3. Data process checking
4. Document production checking

Subject	1	2	3	4	5	6	7	8
Hydroelectric share		X						
Oil related to exports	X	X						
Cost of electricity								
Coal power station					X	X	X	X
Electricity forecase	X				X			
Petroleum cost per ton							X	
Vehicle population	X	X			X		X	
Tea export quota	X	X						
Urea project	X	X						
Nuclear power	X	X						
CTB performance	X	X	X					
Man-per-bus		X						

Yet perhaps the most important conclusion is that there ought to be more awareness of the fallibility of decision-influencing reports and therefore greater recognition of the need for verifying them. Once this need is recognised, the scale, scope and personnel for the verification could be easily determined on the basis of common sense coupled with scientific approach.

29. Sri Lanka Transport Board: Report on operation and traffic. M Heraty Nov 78 p. (iii).

30. Sri Lanka Central Transport Board: Appraisal Report]Mitchell Jan 79 p 21

31. Sri Lanka Central Transport Board: Financial Forecasting and Planning. Pak Poy & Associates Jan 81 p 28--30 and p 53.

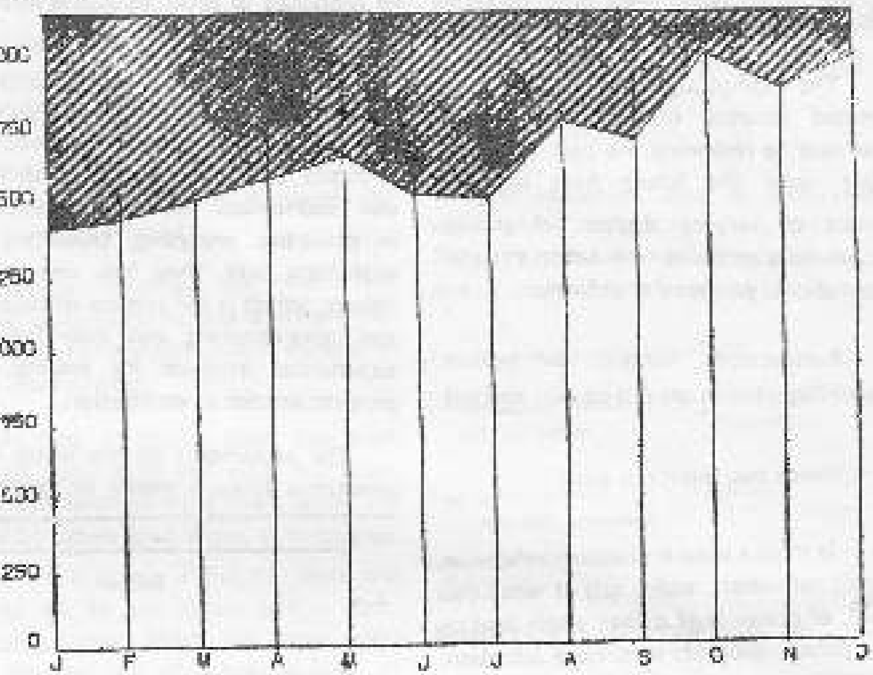
Possibilities in Inland Fisheries for Developing the Peasant Economy of the Dry Zone - Part 11

Lal de Alwis

There is an urgent need to generate more full time employment in the dry zone of Sri Lanka, to improve the rural economy and uplift the nutritional status of the peasants in these areas. The utilisation of the dry zone tanks for inland fisheries can help in relieving these problems, maintains Lal de Alwis of the People's Bank Research Department in this study of the possibilities of inland fisheries. The first part of this paper was carried in our issue of October 1982.

In the dry Zone of Sri Lanka, which covers approximately 66 per cent of the total land area of the country and holds 33 per cent of the country's population, the peasant community is characterised by acute problems of poverty and malnutrition. The lack of economic activity and poor levels of income were also revealed in a study carried out by the University of Peradeniya (see box below). In this context the necessity to develop the natural resources within the Dry Zone such as the inland water bodies, has been emphasised. (Details of the available water bodies and production potential were listed in part 1 of this paper). Changes in the levels of water in the Dry Zone tanks can effect fishing activities, though there are other factors as well as may be observed in the diagram.

Diagram 1 Monthly fish production in perennial tanks of the Dry Zone – 1981



NOTE: Fluctuations may be due to the following reasons:

i. Seasonal migration of fishermen.
ii. Fluctuation of water level.
iii. Agricultural activities of the area.
iv. Weather conditions of the Zone.

It was illustrated in Part 1, that potential production of inland fish is undoubtedly high in these water bodies and efforts should be made for expansion of potential capacity. The discussion was then turned to the need to give due consideration to people's preferences in order to create a market for inland fish in areas away from the coastal fishing centres.

- *Over 70,000 families seem to be dependent on paddy cultivation under the minor irrigation works in the Dry Zone. (pp.3)*
- *The average size of the family for the Dry Zone as a whole is about 6 persons. (pp.16)*
- *There is a relatively large labour force though its rate of participation is not as high as it has to be. This suggests the need to generate more employment opportunities in the Dry Zone areas. (pp.20)*
- *Unemployed persons comprise 7.92 per cent. (pp.21).*
- *A particularly noteworthy feature of the occupational structure of the Dry Zone is the incidence of part farming. (pp.23)*
- *On average the Dry Zone farms are less than 3.7 acres in size. (pp.25)*
- *The household annual income varies from Rs.3,600/– to Rs.7,000/–.*
- *Generally farm incomes in minor irrigation areas are less than those under major irrigation areas. Another difference is that farm incomes of households operating under minor irrigation are subject to a higher degree of fluctuation. (pp.27)*

Source: Socio-economic Survey of Minor Irrigation in the Dry Zone of Sri Lanka. University of Peradeniya, 1980 October.

Productive Capacity

The production potential of 12 inland water bodies has been computed in 1962. It shows that the fish catch is 180 lbs/acre per annum in the Parakrama Samudraya. This productivity figure had risen to 475 lbs/acre per annum in 1975 with the introduction of fast growing hybrid varieties of fish. A similar productivity increase had been recorded for other tanks in the Dry Zone during the same period.

By using hybrid varieties of fish to utilize the unutilized and underutilized fish food in the irrigation tanks the quantities of fish available for catch per acre should be further increased. Through such successful fish farming efforts it was expected to produce 80 lbs/acre per annum in the large irrigation tanks by 1980, which is a six fold increase over that of the productivity in 1965. Production was expected to be 25,000 tons per year from only the large irrigation (10)

The production figures of the large, medium, and small scale tanks and villus has been computed at 38,450 tons in 1980. According to the report of the aquaculture development and training project of the Government of

(10) A preliminary study of 21 Ceylon Lakes. Limnology and fish production potential. A. S. Mendis, Bulletin 1 Fisheries Research Station, Ceylon, 1964. pp. 11

Sri Lanka, in 1981, the fish productivity ratio of the seasonal tanks was 500--1,000 lb/acre per annum and it was possible to further increase the productivity of this sector to 3,000 lb/acre per annum with additional inputs. (11) Beside these possibilities the fish production both freshwater and brakish water in the whole inland sector was 19,947 * tons in the year 1980. This has dramatically increased to 29,000* tons in 1981. However, this was far below the computed production potential of the year 1981, although it was a 49.4 per cent increase over the production of inland fish in 1980.

The potential production of inland fish is therefore undoubtedly very high in the Dry Zone water bodies and efforts should be made for the expansion of potential capacity.

Marketability and Popularisation

Most of the inland water bodies are far from the coastal fishing areas, and therefore their produce may have good demand in the hinterland. Generally, the fish caught in coastal areas are packed with ice and transported to the interior of the country which involves a middleman in the process. This would necessarily add to costs over the distribution channel and the price of sea fish at the consumer's end. On the other hand if fish is not packed in ice it could get spoiled within a few hours and will not be marketable.

It appears that neither a high price per unit nor spoiling of sea fish is avoidable at the consumer's end. These factors should result in further discouraging accessibility of sea fish to the people living in the interior of the country; while encouraging consumers to shift to the nearest alternative product. One consecuence is that it creates competition between sea fish and fresh water fish. The preferences of people are based purely on unit price, quantity, freshness, taste and food habits. If these preferences are given due consideration in promoting inland fisheries a wider market could be created for these fish, especially in the areas away from the coastal fishing centres.

One of the apparent problems regarding the marketability of inland fish is its taste. If the same methods and style of cooking sea fish are used in cooking inland fish the fresh water fish does not have a very palatable taste. Furthermore, in the popular recepies used in Sri Lanka there is no mention yet in these for cooking inland fish; neither has the media made any attempt to introduce recepies using inland fish. These are disadvantages in the popularisation of inland fish in Sri Lanka.

Generally Sri Lankan cooking utilises a large amount of spices and ingredients to upgrade the taste and smell of food, "Embul Thiyal" with blood fish varieties is a very popular and delicious method of cooking fish in the southern part of the country and this can be cited as an example of cooking speciality. In the same way, in order to popularize the consumption of inland fish, the introduction of suitable methods of cooking such fish is essential.

Another argument against the marketability of inland fish has been based on the cultural and religious backgrounds of the people. Sri Lanka has a long-standing cultural heritage largely based on Buddhism where killing of living beings for any purpose is not looked on with favour. Though there are such prohibitions in Buddhism there are many Buddhists who by necessity are engaged in fishing largely in the coastal regions south of Bentota, and even in the Dry Zone tanks at present.

For instance, the majority of the fishermen engaged in inland fishing in Hambantota District may be identified as Buddhists; where at present inland fishing has become an active industry. The catch is consumed here by the people in various forms such as fresh fish, dried fish, smoked fish etc.

Historical evidence, for instance the Perimiyankulam inscription of the 2nd century A.D. and the Samanthapasadika of the 3rd century A.D., shows the involvement of people in inland fishing activities in ancient times. According to the Samanthapasadika, written by Ven. Buddhagosha, both inland fishing as well as fish culture in inland waters were in existence in the Anuradhapura regime and was an accepted occupation and this in turn contributed to relaxation of taboos on fishing in inland waters at that time.

Robert Knox in his reference to a medieval period (1681 A.D.) in Sri Lanka's history has also provided information on inland fishery. These evidences suggests the presence of fishing activities without any cultural and religious obstacles.

A similar example of cultural prejudices in Sri Lanka may be seen in the case of poultry around the 1950's. In the 1950's Sri Lanka imported poultry products from neighbouring countries while more intensive local poultry development started in the 1960's. Here too there were similar cultural and religious restraint against the programme. There were also attempts to create a prejudice against the taste and the nutritional value of the different varieties of eggs.

However, in 1980 despite the religious and cultural barriers the country was close to self-sefficiency in poultry products. Today no barriers exist and modern conditions have encouraged people to expand poultry farming rapidly. Many Asian countries with a similar cultural and religious heritage have already entered the era of fish farming in homesteads and at farm level.

When the above factors are considered, to expect that the problems regarding popularisation of the consumption of inland fish may be solved in a matter of a few decades will not be an unrealistic assumption.

Infrastructural facilities

A seperate Division of Inland Fisheries was set up in the Fisheries Ministry in 1979 although efforts to develop this sector commenced in 1950's. But comparatively little attention was paid to this sector by either the private or public sectors until the formation of an Inland Fisheries Division in July 1979.

Development of inland fisheries has been accorded high priority in the (1977--1983) Master Plan in view of its vast development potential. Prior to the present Master Plan the capital investment allotted to the development of inland fisheries was below 10 per cent of the total investment of the Ministry. Under the new Master Plan it has been given a higher position in the total investment structure of the Ministry. (See table III).

Having considered the potential harvests of the inland water bodies the Ministry of Fisheries started a subsidy scheme to encourage investment in this sector. Furthermore, facilities for technical assistance and other infrastructural network also began to be provided. The first subsidy scheme for the development of inland fisheries was started in 1980. A subsidy of 35 per cent of the total cost of non mechanized craft and gear used for fishing in these Dry Zone waters was granted under this scheme.

The seven fishing crafts and their gear issued under this scheme had not shown a substantial performance in 1980. The quantum of subsidy was increased to a 90 per cent of the total cost of craft and gear in 1981. The aim of this upward revision in the subsidy was to intensify inland fish production by using an increased number of fishing units in the inland waters. Under the present scheme Rs.8.44 million has been granted for 1,390

Table III Public Sector Investment in Inland Fisheries

Year	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Amount Rs.Mn	.13	.13	.82	11.29	6.49	3.25	3.82	3.70	6.86	21.14	29.90*

* Planned

Source: Ministry of Fisheries

(11) Project of the Government of Sri Lanka for the aquaculture development and training -- UNDP pp. 4

** (This includes both the fresh and brakish water production of fish.)*

crafts and gear over the period of October 1, 1981 to May 31, 1982. This dual increase, namely the quantum of subsidy and the number of fishing units getting it, gave rise to a 45 per cent increase in inland fish production in 1981 over that of the year 1980. In addition to this subsidy scheme, the Ministry of Fisheries is providing a 50 per cent subsidy for setting up of pond fish farming units in order to popularise this venture among the villagers. This scheme grants Rs.2,000/- to Rs.10,000/- for a pond covering an area of 10 perches to one acre, respectively. About Rs.1.3 million has been granted so far to the pond fish farmers under this scheme, according to the Ministry. (Table IV)

In addition to the financial subsidies granted by the Ministry of Fisheries, credit facilities were also announced for this sector, to be made available through the network of state banks. This scheme was started in 1980 and its main objective was to increase the number of crafts in operation by 800 in the inland waters, in order to increase fish production and reach the targeted figures. This credit scheme has been linked with the 35 per cent subsidy scheme granted as cost of the craft and gear from 1980.

The People's Bank and Bank of Ceylon provided a maximum amount of Rs.4,000/- per fishing unit for the purchase of craft and allied gear. These loan facilities were

Table IV — Pond Subsidy Programme

Station	No.of Applications Approved	No.of Cases Paid	Amount paid	Extent
1. Beragala	12	5	4,500.00	50 p — 3 acres
2. Polonnaruwa	116	66	113,423.00	13.6 acres
3. Galle	134	111	206,750.00	15.25 acres
4. Pitipana	112	48	126,150.00	10.5 acres
5. Pambala	31	17	70,600.00	6.2 acres
6. Ginigathhena	164	54	153,500.00	5.3 acres
7. Nuwara Eliya	62	28	66,120.75	3.7 acres
8. Inginiyagala	68	44	152,080.00	15.7 acres
9. Mankulam	12	11	87,000.00	11.5 acres
10. Anuradhapura	8	8	18,200.00	5.4 acres
11. Panapitiya	28	27	28,087.00	1.8 acres
12. Muruthawela	36	17	32,625.00	1.8 acres
13. Rambodagalla	46	6	21,700.00	4 acres
14. Udawalawa	33	28	52,300.00	4 acres
15. Dambulla	4			
Total	846	462	1,131,036.75	89.25 acres

There are 462 pond fish farming units which have been paid subsidies amounting to Rs.1,131,035/ and the area covered by those ponds is 99.25 acres to 1982. At present the number of pond units operating in the inland is not a significant feature in the country's fisheries. The University has received 466 and 1006 applications for subsidy in 1981 and 1982 respectively, and the number of applications approved in each of these years had been 414 and 846 respectively. Among the approved were 121 and 653 applicants were paid a sum of Rs.242,168/- and Rs.1,131,036 in each year making a subsidy total of Rs.1,373,203 in 1982 December. Previously the total pond spread area is 25½ acres.

Pond farming units are now becoming more popular in the uncountry, especially in Passara and Nuwara Eliya areas and this venture could be further extended to the Dry Zone areas where farm lands and irrigation water is available.

granted on easy terms to the member fishermen of the fisheries extension Societies in the relevant areas. At first, priority was given only to 20 major reservoir areas in the Dry Zone. The following were the reservoirs given priority for credit units each bank. However, the bank loans have not been availed of as expected as the Ministry of Fisheries began granting a subsidy almost 90 per cent of the total cost of craft and gear.

People's Bank

1. Giritale Tank
2. Huruluwewa
3. Kaudulla Tank
4. Kadulla Tank
5. Nachchaduwa Tank
6. Parakrama Samudraya
7. Rajangana Tank
8. Ridiyagama
9. Sorabora Wewa
10. Tabbowa Tank

Bank of Ceylon

1. Giants Tank
2. Kantholai Tank
3. Mahakanadarawa Tank
4. Mahawilachchiya Tank
5. Minneriya Tank
6. Padaviya Tank
7. Senanayake Samudraya
8. Udawalawe Tank
9. Unichchai Tank
10. Vavuniyalam Tank

Though in the 40's and 50's inland fisheries was given little attention from the 1960's its resource potential and commercial and nutritional values began to be realised. The experiences of the Asian countries such as Japan, China, Korea, Taiwan, Phillippines, Thailand, Malaysia, as well as Bangladesh and India was the driving force behind this development. During the last two decades a series of research projects were conducted on various aspects of the hydro biological conditions of the inland water bodies in Sri Lanka, where inland fisheries would be suitable. Findings of this research suggested that conditions were favourable in Sri Lanka.

The government therefore decided to provide more infrastructural facilities for the development of this sector, which also included assistance in kind and cash, through foreign aid as well as local channels, for setting up of fish breeding and research centres; for improving the standards of technical and commercial know-how; and for promoting inland fishing activity in rural areas. The result is that today there are 17 fish breeding stocking and distribution centres in operation

The progressive increase in the distribution of fingerlings helped to establish a large number of inland water bodies mostly in the Dry Zone, and some of these have been developed into commercial fishing centres at present. (Table V and VII.

Also, aquaculturists and fisheries instructors are deployed to cover almost the entire island, which includes both inland waters where fishing is now conducted and; the water bodies where inland fisheries have been planned. (See table VIII.

The increasing facilities provided to this sector may help to create a greater interest in this newly developing area.

There are other factors that encourage the peasants to carry out fishing in the Dry Zone inland waters. For instance more than 90 per cent of inland water bodies spread over the Dry Zone are very closely connected to the paddy lands in the area. Over 70,000 families seem to be dependent on paddy cultivation under the minor irrigation work in the Dry Zone, (13) and dependent families

(13) *Socio-economic Survey of Minor Irrigation in the Dry Zone of Sri Lanka University of Peradeniya, 1980 Oct.pp.3–27*

under the major irrigation reservoir are much higher than this. Therefore the main source of income or the livelihood of the majority of the people in the Dry Zone is cultivation of farm crops (mainly paddy) and allied activities in two seasons ie. "Major" and "Minor" (or Maha or Yala) according to the availability of water. Hence, the majority of inhabitants in the Dry Zone have "two peak working seasons" in a year. (Diagram 11). (14)

Two of the problems involved in this type of economy are:

(i) Cultivation of one major farm crop in the Dry Zone has become risky due to natural causes.

(ii) Depression of human activities in the farm lands between two cultivation peaks have resulted in reducing the income of the peasants.

Between those two labour intensive peak seasons the peasants have sufficient time to be mobilized to develop activities such as inland fisheries or related areas

The dependence on one major farm crop is a risk. Crop failures due to natural causes have taken place once in seven years, according to recent findings on dry zone farming. The peasants in new settlements of the Dry Zone are given only limited extents of allotments which cannot be used for extensive dry farming; which contrasts with the position of land available for farming in the typical traditional villages. In few of the Dry Zone villages land is available in abundance and this can be used for alternative income generating purposes; including cultivation of food crops etc.

However, the average size of the family for the Dry Zone as a whole is 5.8 and average farms are less than 3.7 acres in size. A particularly noteworthy feature of the occupational structure of the Dry Zone is the incidence of part time farming. Hence there is a relatively large labour force whose rate of participation is low. This situation points to the need to generate more employment opportunities in such areas. (15)

Furthermore, the importance of alternative sources of income or food have to be considered. Such alternative sources could withstand wider variations in environmental and climatic conditions and therefore come to the rescue of the settlers by supplying them food and an income in difficult times

Table V

The Fingerlings Collected, Produced and Stocked

Name of Inland fisheries station	1977			1978			1979			1980		
	Collected	Produced	Stocked	Collected	Produced	Stocked	Collected	Produced	Stocked	Collected	Produced	Stocked
Polonnaruwa	–	351,000	323,928	–	575,400	488,410	70,000	928,700	643,500	2,000	1,056,950	684,194
Ginigathena	–	26,500	20,000	–	135,554	152,917	–	160,000	133,230	42,260	348,185	354,386
Nuwara Eliya	–	–	–	–	–	31,885	27,430	–	39,540	10,212	28,110	78,020
Uda Walawe (New & Old)	–	330,000	310,123	–	638,898	942,729	8,500	1,089,500	442,740	–	279,100	268,012
Rambodagalla	–	100,000	40,000	–	250,000	206,500	–	191,500	146,130	–	190,700	226,443
Inginiyagala	–	–	–	–	149,130	97,870	–	287,500	257,540	–	663,015	327,750
Panapitiya	–	46,000	29,205	–	48,900	30,057	–	71,000	60,020	80	75,450	57,580
Padaviya	–	–	–	–	–	–	–	1,500	–	–	8,150	1,450
Pambala	–	–	–	–	–	–	–	–	–	250,350	8,000	70,860
Beragala	–	–	–	–	–	–	–	–	–	45,500	204,000	127,415
Mankulam	–	–	–	–	–	–	–	–	–	1,216,500	–	250,500
Muruthuwela	–	–	–	–	–	–	–	–	–	–	–	1,925
Head Office Distribution Centre	275,242	–	278,642	306,664	–	308,239	237,222	–	272,400	748,895	–	518,018
Total:	401,793	863,500	1,077,704	634,664	2,797,382	2,533,237	675,152	2,815,550	2,350,820	2,801,592	2,911,660	3,269,914

Source: Ministry of Fisheries

Table VI

Fresh Water Fish Production in the Dry Zone * – 1981 (Tons)

District	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Anuradhapura	357	413	489	496	523	511	549	456	468	575	557	523	5,916
Polonnaruwa	236	302	304	270	261	323	218	492	476	608	405	451	4,346
Mullathivu	107	83	91	71	71	43	53	32	38	67	98	66	820
Batticaloa & Amparai	654	568	531	660	717	532	536	658	607	652	694	682	7,491
Kurunegala	18	05	14	9	11	13	14	16	22	11	25	25	183
Hambantota	27	46	57	49	61	97	73	67	42	61	79	113	774
Ratnapura	11	24	17	22	24	09	81	54	61	34	34	125	497

Source: Ministry of Fisheries

* Production fluctuations in the months are indicated in the diagram on page 13.

Taking into consideration the above factors the advantage of inland fishery may be listed as follows:

i. Unlike crop production, the fishery industry in the Dry Zone tanks may not be affected seriously during a dry spell of weather;

ii. Pests are very common among field crops, though pests may not be found to the same extent in fisheries;

iii. Although inland fishery can withstand the effects of Cyclones or heavy rains, most of the crops cultivated in the Dry Zone are less susceptible to these hazards;

iv. Fisheries can provide work for all active members of the family and also nutritious food. (15)

Therefore inland fisheries can become an alternative product to cultivation of farm crops in the "Dry Zone, which ensures additional income as well as an insurance against the vagaries of crop failures. Furthermore, it also helps to diversify their economy and minimize the risk of dependence on one major farm product (mainly paddy).

A Source of Subsidiary Income

Income inequalities throughout the year can be noted among different sections of peasant society in the Dry Zone. The household annual income varies from Rs.3,000/- to Rs.7,000/-. Generally farm incomes in minor irrigation areas are less than those under major irrigation. Another difference is that farm incomes of households operating under minor irrigation are subject to a higher degree of fluctuation. (14). Their financial assets are generally very limited and a large part of the Dry Zone peasant society has lived in a debt cycle. In 1957, 60 per cent of agricultural families were in debt. The debt position of the rural sector has been increased by 134 per cent during the year 1975. (16) To overcome this recurring debt situation in the rural sector successive governments have taken several steps in the form of pumping in of institutional credit, although this may not be the ultimate answer to the question of indebtedness.

The other factor to be taken into consideration is the time in which the peasants need credit or the time in which they become indebted owing to their commitments. It has been noted that peasants have heavy transactions, involving large sums of money, during the first half of the cultivation season or a few months after the harvests. Generally they spend much on their agricultural commitments as well as for consumption purposes. This weakens their financial position and they are then compelled to look for sources of borrowing during the latter part of the cultivation season. (17)

It is here that the additional income from inland fisheries could come in good stead: to minimize these seasonal income variations and somewhat relieve the indebtedness of peasants during the such times.

Utilization of Time

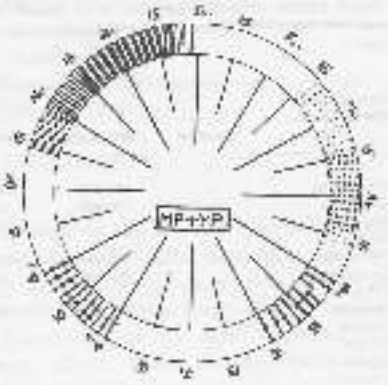
The peasants carry out their farm work mainly during the day time. Fishing takes place in the tanks during the nights. The occurrence of these two activities at two different times can also contribute towards increasing their output, since they could utilize both day and night alternatively. In the peak periods there is a shortage of agricultural labour in the Dry Zone farm lands, and to meet the demand cultivators have to hire labourers from surrounding areas. It is only during this peak farming period that peasants cannot be fully involved in fishing activities.

My observations, during many visits to the various Dry Zone agricultural areas, with a view to ascertaining the prospects of inland fisheries, were that peasants who reside close to water bodies often go fishing. Some of the peasants were also involved in fish distribution and sales, drying and allied activities. During the periods of lull in agricultural activities peasants do little farm work during the day and they use their time at night for fishing. The others who organize sales and distribution do it during the day in this period. This may be a possible answer to optimize utilization of time and resources of peasants during the lull periods, particularly those living on farm lands of the Dry Zone.

DIAGRAM 1.1

THE DRY ZONE AGRICULTURAL CALENDAR

Showing Periods of Employment & under Employment



MP Main Paddy

YP Yala Paddy

Arresting Paddy Land Fragmentation

Early settlements of the Dry Zone provided a fairly large size of land allotment to the peasants whereas the new settlements provide a smaller area. The farm size of early and new settlements ranged from 9 to 3 acres respectively. (18) However, it had to be reduced, in accordance with the increasing man-land ratio.

Although, these allotments were not expected to be divided the 'Ande' system and rotation of farmers on lands have continued to be in operation. Generally farmers pass on their lands to one son or among members of the family. This has resulted in an increased landlessness and land fragmentation in the second and third generation. (19) The fragmentation of allotments has been seen even in the early settlement schemes; where the large size (ie. 9 acres) plots were given to the farmers. (20)

In the near future, when the children of the peasants grow up there is likely to be acute competition for farm land. This situation can arise very soon in the new settlement where the smaller (ie. 3 acres) plots were given to farmers. This has further reduced the ratio of men and farm land in the peasant sector of the Dry Zone. In this context the development of secondary activities, through an area like inland fisheries may reduce the strain on land and help to increase the product per person and serve as a useful resource for peasant economic activities.

(15) Small farmer Development Manual — Vol.1, Field Action for Small Farmers, Small Fishermen and Peasants. FAO Thailand 1978; pp. 107.

(16) Survey of Credit and Rural Indebtedness among Paddy Farmers 1975 — Central Bank of Ceylon pp. 5—31.

(17) Rainfed farming in the Dry Zone of Sri Lanka. ARTI—April 1980. pp. 104—107

(18) Socio-Economic Survey of Nine Colonization Schemes in Ceylon 1967—68, Faculty of Agriculture — University of Ceylon, 1969.

CORRECTION JANUARY 1983 ISSUE

In our January 1983 issue, on Pesticides, in describing the picture on the cover, the reference to the manner of spraying was inadvertently left out in the process of printing. The caption should have read "Pesticides spraying in this manner is a distinct health hazard."

Also, the headings to Table 1 on page 4 were interchanged. They should have read as follows: Year – No. of patients – No. of deaths.

Post-Harvest Losses and Small Farmer Storage Problems.....

Continued from Page 27

It is in pursuance of this approach of increased attention on the "demand" side that we in the ADA have helped set up a Market Research Unit. This unit is expected to develop market researchers who will ultimately be able to better identify consumer needs and priorities. The better identification of consumer demands should enable transmit appropriate signals of profitable market opportunities. Economic considerations on the "real income" side of post-harvest activities would induce the search for specific avenues for reducing P.H.L.L. in food.

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(9) K. B. Palipane: *"Evaluation Of The Bissa – An Indigenous Storage Bin"* RPDC Report No.5/78, May, 1978.

Advantages of Smallness

Compared to the marine fishing units, inland fishing units are very small. Generally the capital to be raised is low (for the entrepreneuer) in inland fishing, because of the smal smallness of craft and gear required and the high rate of subsidy granted by the Government on the total investment. There is also no need to have mechanized craft and gear and no need to use fuel. This helps to keep the cost of production and market prices very low which can encourage consumers to purchase inland fish over the closest alternative which is sea fish.

Further, an inland fishing unit could comprise of only a few people; generally one or two members. Hence, it is easy to make amicable decisions and keep out problems such as disputes. The smallness can also help them to maintain their operational activities more regularly and confidently. These very reasons will enhance the entry of more small inland fishing units in places where basic conditions are favourable.

Again, compared to sea fishing the area of operation in each inland fishing unit is very small. Therefore, the provision of marketing facilities, of technical and advisory services are easy. Furthermore, smallness will be helpful in keeping them in touch with administration of credit and subsidies (various kinds of followup work and control). Hence, the advantage of smallness of an inland fishing unit can be helpful to both the administrators and the people.

Conclusion

It is clear therefore that the utilization of the Dry Zone tanks for inland fisheries may be helpful to generate more full time employment, as well as improve the rural economy, and help to uplift the nutritional status of the peasants. On the other hand these advantages listed above could provide a definite opening to the authorities to get a "quick start" on fish farming on a more intensive scale in the agricultural areas.

The development of inland fisheries, however, are directly connected to the achievement of the following goals:

(a) Popularization of inland fish farming and consumption habits, especially through the mass media and extension services;

(b) Encouraging people to enter this area by providing financial, technical and advisory services and;

(c) Promoting self participation in the development of domestic level as well as national level fisheries.

(19) Some Sociological Problems of Colonization on a Peasant Framework, S. J. Thambiah, The Ceylon Economist, Vol. IV. No.3; 1958 Dec.

(20) Socio-Economic Survey of Elahara Colonization Project; Faculty of Agriculture, University of Ceylon, 1968.

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