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STAFF STUDIES

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CENTRAL BANK OF CEYLON

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AN ALTERNATIVE STRATEGY FOR PRODUCTION PLANNING IN SRI LANKA

N. L. SIRISENA

The purpose of this paper is to analyse the structural relation'-ship of the economy of Sri Lanka and to identify the priority area for expanding the productive capacity of the economy. In Part I there is a discussion of the research methodology, and in Part II, the empirical results are presented.

PART I

RESEARCH METHODOLOGY

Input-output techniques have proved valuable elsewhere for the purpose of analysing the productive structure of an economy. On the one hand the input-output method can be used as a way of presenting information about the economic structure, and on the other hand it can also be used to model an economy. One can accept the input-output method as a way of presenting information without necessarily accepting it as an economic model. In this study, we accept the input-output technique both as an accounting system and as a way of presenting a model of an economy. In doing so, we will be using the technique in two ways. Firstly, as a way of presenting summarised information on the structure of the Sri Lanka economy, and secondly, as a technique for analysing its productive structure.

1·1 Social Accounts

The term social accounts may be used to denote an organized arrangement of a summary of all transactions in an economic system. There are two methods of presenting the data on structure and components of an economy. One is the conventional accounting framework of the measurement of national income, product and expenditure. The other is the input-output accounting system that incorporates commodity flows between different sectors of the economy and their interrelationship and interdependence.

The national accounts and the input–output table, in principle, present the same information with varying degrees of aggregation. The formal relationship between the national accounts and the input–output table in a system of social accounts can be expressed as follows (UN, 1968):

$$T = \begin{bmatrix} A & D \\ \cdots\cdots & \cdots\cdots \\ F & O \end{bmatrix}$$

Where A is a n x n square submatrix that presents the commodity flows between production sectors of the economy;

D is a rectangular submatrix presenting exogenous demand vectors, consumption, investment, exports and imports;

F is a rectangular submatrix presenting the demand for primary inputs–inputs produced outside the system;

O is a submatrix presenting the distribution of major expenditure groups; and

T is the transaction matrix of the economy.

The relationship between national accounts and the available input–output table[1] for Sri Lanka can be expressed in the form:

(1) $Y = C + I + E - M$

(2) $X = \hat{A}X + C + I + E - M$

(3) $X = \hat{A}X + D$

Where Y is gross domestic product,

C is consumption, I is investment, E is exports, M is imports,

X is gross output of the economy, and $\hat{A}X$ is a square matrix presenting the commodity flows between production sectors.

$\hat{A}X$ is the intermediate demand of the production system, and $D = C + I + E - M$.

1. Equation (1) expresses the way national accounts are prepared in the country, whilst equation (2) refers to the national accounts presented in the form of input-output table.

Equation (1) expresses the way the gross domestic product is computed. In equation (2) the national accounting computation is extended to include the intermediate input demand of the production system. The right hand side of equation (3) is comparable with the A and D submatrices of the social accounting system.

Both these accounting systems present data within an integrated framework and although they should produce identical results, in practice, there are great difficulties in reconciling the national accounts with the data presented in the input-output table. There are technical difficulties which have to be faced if the two systems are to be combined (Stone, 1954).

The national accounts and the input-output tables should be based on an unified system of concepts so that their actual relationship to one another in specific applications can be seen. The national accounts of Sri Lanka are computed according to the expenditure approach. The GDP is estimated by subtracting the direct and indirect mports from the final demand categories: consumption, investment and exports. The data content of national accounts tables prepared in the country suggests that a large number of appropriate basic statistics are still to be developed.

1.2 Input-output Model

So far we have treated the input-output table as a useful mean of organising and presenting information on the economic structure and its interdependence and interrelationship. However, if the input-output table is to be considered as an economic model one has to accept some assumptions. The fundamental assumption of the input-output model is that the transaction matrix, or more specifically, the $\hat{A}$ matrix in the equation system should be treated as a simplified

model of the production process. Once we accept this basic assumption, we can write the productive structure[1] of the economy as follows: (Chenery, 1967).

(4)
$$\begin{bmatrix} x_1 \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ x_n \end{bmatrix} = \begin{bmatrix} a_{11}\ a_{12} \cdots a_{1n} \\ a_{21}\ a_{22} \cdots a_{2n} \\ \cdot\ \cdot \quad \cdot \\ \cdot\ \cdot \quad \cdot \\ \cdot\ \cdot \quad \cdot \\ a_{n1}\ a_{n2} \quad a_{nn} \end{bmatrix} \begin{bmatrix} x_1 \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ x_n \end{bmatrix} \text{ ; or}$$

(5) $X = AX$

This means that the production function of a particular sector/industry can be written as:

(6) $x_i = \sum_{j=1}^{n} a_{ij}x_j$ for all $i = 1, 2, \cdots n.$

So that $X = AX$ represents a consolidated production function of the whole economy. If we were to state the basic assumption of this production function more specifically it means that the gross output of the production structure is a linear function of the gross output itself. In other words since the production sectors are interdependent, a proportion of the gross output is produced and consumed within the system. The A matrix is known as the technological coefficient matrix, and the elements of this matrix are ratios calculated from the input-output table. By manipulating this basic input-output model we can obtain further useful information.

(7) $(I - A)X = D$

(8) $X = (I - A)^{-1}D$

Now gross output is given by an inverse matrix multiplier and the vector of exogenous demand or final demand. The elements in the i^{th} row of the inverse matrix represent the direct and indirect

1. When we talk of 'productive structure' we do not include the final demand vector (D) since that is exogenously determined.

requirement for the product of the i^{th} industry consequent to a unit of final demand by each industry. In other words we can write the gross output, direct and indirect requirements to meet a particulat demand 'd' as follows:

$$(9) \quad x_i = \sum_{j=1}^{n} r_{ij} d_1 \text{ , for all } i = 1, 2, \cdots n$$

Similarly we can obtain the gross output requirements for any particular demand vector D*. This demonstrates the usefulness of the input–output model for making consistent projections for various demand vectors. If the technological situation of the production system could be adequately represented by the A matrix, the predictions are consistant and reliable. This basic model is suitable for economies with a small foreign trade sector. For the purpose of analysing an open economy like Sri Lanka some adjustments have to be made.

To make our model more realistic we introduce imports (M) as a variable of the model. Let imports be a function of (X) gross output.

(10) $M = mX$ and m is a diagonal matrix[1].

Now we can write our model as follows:

(11) $X = (A - m) X + D$

(12) $(I - A - m) X = D$

(13) $X = (I - A - m)^{-1} D$

In this adjusted model all imports are expressed as substitutes in the balance equations. Equation (12) presents the production structure under this adjusted condition, whilst equation (13) presents the multiplier of the production system. Since both these models, (I – A) as well as (I – A –m), represent two extreme positions, they are not very helpful for obtaining reliable projections. However, these extreme positions can be useful for analysis of the production structure.

Now we introduce a further adjustment to the import function of the economy. Some imports can be classified as 'complementary imports' whilst the others can be classified as 'competitive imports'. Complementary imports are required for the production sectors as primary inputs. Therefore they can be treated in the same way as

1. M is written as a vector in an input – output table. However, in an input–output model, one has to write it as a diagonal matrix since otherwise, matrix operations with A matrix is undefined.

other primary inputs such as labour. Competitive imports can be substitued by domestic production, so they are eliminated from the production system. The equations of the model can be written as follows.

(14) $M = m^{*}X + \bar{M}$

$\bar{M}$ = A vector of complementary imports.

m^{*} = A diagonalized matrix of competitive imports.

(15) $X = (A - m^{*})X + D$

(16) $(I - A - m^{*})X = D$

(17) $X = (I - A - m^{*})^{-1}D$

Next, we introduce primary inputs/resources to our input–output model. The objective of this extension is to analyse the primary resource utilisation pattern of the production system. For this we estimate the primary resource intensity of the production sectors using the primary factor coefficients. The direct demand for primary factors can be written as follows:

(18) $F_o = FX$, or

(19) $$F_o = \begin{Bmatrix} l_1 & l_2 & \cdots\cdots & l_n \\ \bar{m}_1 & \bar{m}_2 & \cdots\cdots & \bar{m}_n \\ i_1 & i_2 & \cdots\cdots & i_n \end{Bmatrix} \begin{Bmatrix} X_1 \\ \cdot \\ \cdot \\ X_n \end{Bmatrix}$$

Where 1 = labour coefficient; $\bar{m}$ = complementary import coefficient and i = investment coefficient.

Incorporating this primary resource demand submatrix to our model, we obtain:

(20) $$X = \begin{Bmatrix} A \\ F \end{Bmatrix} X$$, or

(21) $X = \bar{A}X$, where $\bar{A}$ is an augmented rectangular matrix.

The factor intensities were calculated in the following way. Let,

(22) $(I - A)^{-1} = R_1$

(23) $FR_1 = F_1$

F_1 is a rectangular matrix giving factor intensities under the present productive structure. Similarly, the factor intensities under the import substitution production structure can be obtained as follows:

(24) $(I - A - m^*)^{-1} = R_2$

(25) $FR_2 = F_2$

Using the factor intensities one can estimate the marginal effect of the import substitution programme as follows:

(26) $(FR_2D) - (FR_1D) = \Delta F$

This provides estimates of the marginal demand (ΔF) for primary factors due to the import substitution programme. Similarly the marginal gross output (ΔX) effect can be estimated as follows:

(27) $(R_2D) - (R_1D) = \Delta X$

1. 3 Applications of the Model

The input–output model developed earlier in the previous pages belongs to the open Leontief group[1]. The initial production model contained a consolidated linear production function [X = AX] and did not take specific account of imports; but this was later adjusted to include imports as part of the function [X = (A – m*) X]. These two systems present two consolidated linear production functions.

1. 3. 1 Import Substitution Model

The production function [X = AX] represents the present productive structure of the Sri Lanka economy. Under this productive structure the economy is facing a serious balance of payments crisis. The adjusted production function [X = (A – m*) X] represents a hypothetical situation. Some imports have been identified for import substitution and they are treated as competitive imports (m*). Under this productive structure, although some imports are coming to the economy, they are complementary inputs.

The difference between these two productive structures can be considered as the marginal effect of the import substitution programme. There are at least three important questions one can ask about an

1. The distinction between the 'open model' and 'closed model' depends on the way final demand is treated. In the 'open model' final demand vector (D) is exogeneously determined, whilst in the 'closed model' it is treated as endogeneous to the model (Leontief, 1954).

import substitution programme. First, how much more should be produced in the economy to meet the additional demand created for the domestic production system by the import substitution decision? Second, how much of primary resources, including complementary imports, would be needed for the fulfilment of the import substitution programme? Third, what will be the time required for the full implementation of the programme?

These questions relate to the details of the import substitution programme. However, the fundamental question is to what extent an import substitution programme of the kind we have discussed can provide a coherent development strategy for an economy. This of course can be answered only after a detailed examination of the basic characteristics of such a programme. One of the ways of answering this question is to analyse the productive structure before and after an import substitution programme.

1.3.2 Structural Analysis

The production sectors of an economy are interdependent. In fact the degree of interdependence is an index of the complexity and maturity of an economy. In other words the degree of interdependence between sectors is higher in mature economies since industries in those economies use one another's products to a greater extent. The opposite is true in the case of less developed economies.

(a) Triangularisation

One can intuitively see the interdependence between sectors from the input-output table itself. In the case of complete interdependence all sectors are interrelated to one another as producers and users. However, in the case of random sectoral interdependence, input-output matrices which seem to be at random may turn out, if rearranged systematically, to display information useful for analysing the production sectors. This is the objective of attempting to triangularize an input-output matrix (Simpson, et al, 1965).

The triangularisation is usually done on the technical matrix (A) after discarding the very small entries. The triangularisation of technical matrices of developed economies reveals that heavy industries are located at the base rows of the trangularised matrix. Since these industries provide the basic inputs for the rest of the production

sectors, the increases in the production of these industries to a large extent determine the ability to increase the productive capacity of the economy.

(b) Grouping of Sectors

The triangularisation method is useful in examining the distributional properties of the productive structure. However, we are concerned about both distributional properties and the magnitude of the interrelatedness. One of the ways of examining the magnitude of the interrelatedness is grouping of sectors according to the pattern of the distribution of produce between sectors (Chenery and Watanabe, 1958).

$$U_i = \frac{\text{total interindustry input supply from sector (i)}}{\text{total output in sector (i)}}$$

$$U_j = \frac{\text{total interindustry input demand of sector (j)}}{\text{total output in sector (j)}}$$

Where, (i)s refer to across the row relationships while, (j)s refer to column relationships. A large U_i means the industry is important as a supplier of inputs to the rest of industries/sectors, whilst a large U_j means the industry is important as a consumer of other sector goods (or in other words a supplier of final goods).

Chenery and Watanabe, calculated U_i and U_j directly from the input–output table. However, one of the disadvantages of this method is that it does not take into account the indirect effect on the distribution pattern of products. Furthermore, these ratios may give a wrong impression about certain sectors especially with regard to input supplying sectors. For example, some imports of intermediate goods which have domestic counterparts are treated in the input–output table as if they were produced locally and distributed from the domestic industries to various users. We found this problem in the case of the input–output table we are using in this study (see page 25 Table 2·7; sectors 5 and 7 are classified as input suppliers, while in fact they are input consumers). The inverse matrix is a better indicator of the interdependence of the production system. Not only the inverse matrix indicates both direct and indirect relations among the productive sectors, but also it helps to minimise some accounting distortions. For example, in the case of sector 5 and 7, we found the correct grouping with the inverse matrix.

1. 3. 3 Basic Interdependence Matrix.

The triangularisation method as well as the grouping of sectors directly from the input–output table, provides some information about the structure of production. The information is complementary, since one method helps in the understanding of the distribution pattern while the other yields some estimates of the magnitude of the distribution pattern. We have constructed a matrix called a basic interdependence matrix that can provide most of the information one can get from the other two methods.

There are specific advantages in forming a basic interdependence matrix. Firstly, one can analyse the complexity of the production structure by examining this matrix. Secondly, one can also draw conclusions that can assist in the formulation of development strategies. In other words, the basic interdependence matrix can provide information for identifying priority areas for investment. Conceptually this is identical to the application of the key sector criterion for selection of investment. The key sector criterion of investment says that by investing in some key sectors of an economy, an investment programme can provide the necessary stimulus for production expanison.

The basic interdependence matrix provides information on the direct interdependence as well as on the direct and indirect interdependence. It also helps in the direct comparison of production structures. In this study, we shall be using this method to compare the production structures before and after the import substitution programme.

The basic interdependence matrix was formed from the technical matrix (A) and $(I - A)^{-1}$ matrix in the case of the present production structure comparison, while $(1 - A)^{-1}$ and $(I - A - m^*)^{-1}$ were used in the comparison of production structures before and after the import substitution programme. The diagonal elements and the coefficients less than 1 after standardisation have been eliminated. The w_{ij} elements are the standardised elements of the corresponding matrices. The row interrelatedness (w_i) and the column interrelatedness (w_j) can be considered as indices of supply of factors of production

(excluding the primary factors) and demand for factors of production (produced within the system). In symbols, these indices can be defined as follows:

$$w_i = \frac{\sum_{j=1}^{n=8} w_j}{\sum_{j=1}^{n=8}\sum_{i=1}^{n=8} w_{ij}} \times 100$$

$$w_j = \frac{\sum_{i=1}^{n=8} w_i}{\sum_{j=1}^{n=8}\sum_{i=1}^{n=8} w_{ij}} \times 100$$

The numerical values of these indices are comparable to corresponding sectors. They can be interpreted in the same way as U_i and U_j in the Chenery and Watanabe method. (A large w_i compared to the same sector's small w_j would indicate that a particular industry is a supplier of inputs to the rest of the production sectors rather than a user of other sector inputs. The opposite is true in the case where w_j is bigger than w_i).

In the analysis of the basic interdependence matrix one may concentrate on two aspects, namely the level of the interrelatedness and its distribution pattern. The level of interrelatedness measured by w_i and w_j shows to what extent a particular production sector is related to the rest of the production sectors. This has particular significance in production planning. If a particular sector's interrelatedness was low, then the multiplier effect of expanding that sector would be less. (It will be recalled that the inverse matrix can be interpreted as a multiplier).

One way of defining the dualistic character of less developed economies is to look for the level of interrelatedness of the modern sector with the rest of the production sectors. In terms of structural interdependence, the dual economy hypothesis entails that the modern sector has slight connections with the rest of the production sectors

(small w_i and w_j). Therefore, the expansion of the modern sector would not create a cumulative process of development in other sectors unless new efforts were made to increase the degree of interrelatedness.

The distribution pattern of the interrelatedness provides a basis for grouping sectors into two categories, namely, input supplier and input consumer. (This grouping can be based directly on the input-output table, technical coefficient matrix, inverse matrix or basic interdependence matrix). The expansion of both kinds of industries is essential for economic development. However, the extent of expansion of the input producing sector is more important in production planning. This is especially the case when the import-capacity of the economy is constrained by a foreign exchange shortage. The ability to organise the supply of inputs is crucial for production planning.

There are two guide lines one can draw from the structural analysis for production planning in less developed countries. First is the importance of input supplying sectors for increasing the productive capacity of the economy. Second is the necessity of increasing the level of interrelatedness between production sectors.

1. 4 Limitations of the Model.

The input-output technique can provide information essential for understanding the structural characteristics of an economy. The triangularisation, grouping of sectors, and basic interdependence matrix, all provide critical information for production planning, information essential in making a choice between alternative development strategies However, for further development of these strategies the input-output technique is inadequate.

There is a wide range of questions to which input-output analysis cannot supply the answers and which are nevertheless critical for the success of development planning. For example, in the less developed countries what is needed are reorganisation and starting of new productive activities and deciding a suitable technology for them. This could not be adequately done by the input-output technique. One of the main deficiencies of input-output model is that its parameters are derived almost entirely from the statistical behaviour

of past years (Chenery and Clark, 1967). Therefore, for the purpose of elaborating a planning strategy, one needs a technique that can handle (a) selection among alternative industries and technologies and (b) the efficiency aspect of the pattern of resource use. One possible candidate for this purpose is activity analysis.

PART II
EMPIRICAL ANALYSIS

2. 1 Classification Problems

In theoretical input–output models, there is no problem with regard to the sector classification since by assumption the economy can be divided into a number of homogeneous sectors or industries based on either the product or the input use. However, sector classification is one of the major problems of passing from the theoretical model to its statistical analogue. There are thousands of different products and many thousands of production processes. Even in a small economy such as Sri Lanka, 200 odd industries have been identified. (The problem is to classify this information to a manageable number of sectors.)

Efficient classification and aggregation is the only way of minimising the divergence between pure theory and empirical applications of input-output analysis (Barna, 1954). However, there does not appear to be any unique definition of products and industries to be followed in the classification. Nonetheless, attempts should be made to minimise the loss of information in the aggregation process. Many input-output tables are aggregated in terms of products and their values and this helps to overcome the heterogeneity of products. It is also useful to consider the internal structure of the industry in terms of the production stages (i. e. processing stages), demand for inputs and connections with the international trade. These considerations help to minimise the distortion of information due to aggregation.

The input–output table used in this study is the one prepared by the Ministry of Planning and Economic Affairs, which is a revised version of a previous table prepared in September, 1969. The scheme of industrial classification followed is basically the International Standard Industrial Classification (ISIC) (UN, 1968).

However, there are difficulties in the use of this input-output table for the production analysis we proposed in the previous section. On one hand, there are classification weaknesses and on the other the information given is inadequate and sometimes too aggregative.

The sector classification followed with regard to some economic activities has introduced some distortions in the input-output table. Attempts have been made to identify economic activities such as milling, bread making, other bakery products, carbonated beverages, other processed food etc. as separate sectors. One can understand the desirability of disaggregating economic activities as finely as possible. However, in this case disaggregation has resulted in some distortion of information. For example, paddy-including straw for paper and milling-has been classified into two sectors. Imported rice (only milled rice is imported) has been aggregated with the milling sector. The value of the consumption given for paddy (in the consumtpion column) is only Rs. 2·5 million. This is because rice consumtpion is aggregated with the milling sector.

This classification has not only distorted some useful information but it has created some other distortions in the inverse matrix. The milling sector is dominated by transfers from the paddy sector. If the full inverse matrix was used for obtaining projections or factor intensities one will get over-estimated figures. (The factor intensities we calculated initially were grossly distorted for some sectors and adjustments had to be made to overcome this problem.) In any case, this classification does not seem consistent with the classification followed in the case of tea and rubber. It would have been more meaningful to classify rice milling with the paddy producing sector in the same way that has been done in the case of tea and rubber sectors. Similarly, the rest of the milling sector (which is very small) could have been usefully aggregated with other relevant sectors.

The import column in the input-output table is unsatisfactory in that it does not make any distinction between competitive imports and complementary imports. However, this distinction is crucial for production planning. Competitive imports can be supplied either by domestic sectors or from abroad, so it is these goods that would be domestically produced under the import substitution programme. On

the other hand complementary imports are primary inputs to the productive system, but produced outside the economy which it is assumed–for reasons such as resource or technological constraints–cannot be produced by the economy[1]. However, in practice the classification of imports into competitive and complementary is not always based on a careful analysis of production possibilities. Narapalasingham (1970) has classified imports into two categories, competitive and completmentary based on the government's self-sufficiency policy. Although we do not think that this is an adequate basis for an import substitution programme or for classifying imports, yet we have made use of this division in this study. (Narapalasingham used an earlier version of the input–output table that we are using.)

The investment column is too aggregative and the information given is inadequate. There are no investment figures given for important sectors such as paddy production and other domestic agriculture. In fact, investment figures are given only for 8 sectors.[2] The concentration of investments in a limited number of sectors is a feature of the country's investment pattern. However, there is also a statistical problem since government investments in the paddy producing sector on irrigation alone amounted to Rs. 134·1 million in 1968 (Government accounts 1968/69). It seems that part of the investments on irrigation works in the paddy producing sector has been aggregated in the construction sector.

2. 2 Eight Sector Input-output Table

In Table 2·1, the social accounts of Sri Lanka are presented in the format we discussed at the beginning of this paper. We formed an eight sector input-output table by aggregating the 40 sector input–output table. The objectives of forming this table had been twofold. First, to present a summary picture of the structural relationship in the economy. Second, to obtain an input–output model to analyse the productive structure.

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1. Which are the complementary imports and which are the competitive imports should be decided on as part of production planning, see section 2·6.
2. About 90% of investments are in two sectors; namely, machinery and equipment (19%) and construction, repairs and maintenance (70%). (See the section 2·3 (c) on investments.).

In grouping sectors, we have given consideration to the following:

(a) Internal structure of the sectors.

(b) Demand for inputs.

(c) Connections with international trade.

Further, we have attempted to form decision making units from the national production planning point of view. (The sector grouping can be seen in Appendix I).

The statistical basis of this study can be summarised as follows:

(1) Forty sector input-output table with adjustments in imports for competitive and complementary imports.

(2) Thirty nine sector input-output table with adjustment in (1) and milling sector adjustment.

(3) Eight sector input-output table formed from (1).

(4) Eight sector input-output table formed from (2).

We obtained empirical solutions using all four statistical variants. In the ensuing pages, we will be analysing the general picture that emerged from our computations and conclusions will be drown to form a production planning strategy for Sri Lanka.

We had to be selective in presenting statistical tables. Those presented in the text were prepared from the variant (4) of the statistical basis.

2. 3 Social Accounts of Sri Lanka

The consolidated social accounts matrix in Table 2·1 is partitioned into four sub-matrices. The square sub-matrix A (9 × 9) presents the flow of product values among 8 major productive sectors and their row and column aggregates. In sub-matrix D (8 × 5), vectors are, C = government and private consumption, I = gross investment, E = exports, M* = competitive import and X = gross output. The sub-matrix F, presents value added by each sector, labour employment (L) and complementary imports (M). In the sub- matrix O (4 × 5) distribution of aggregates are presented.

Table 2·1

Aggregated Input – Output Table for Sri Lanka for 1968 at 1965 Prices

Purchasing Sectors \ Producing Sectors	1	2	3	4	5	6	7	8	9 $\sum_{j=1}^{n=8} M$	10	11 I	12 E	13 M*	14 X	
1. Plantation ..			214·3						214·3	349·4	65·2	1338·2		1958·7	1
2. Other Agriculture ..	7·4	879·0	185·4	17·5	·2	5·8		8·1	1103·4	2398·9		47·9	- 443·1	2964·7	2
3. Industries based on Plantations and Other Agriculture ..	17·7	23·8	257·1	21 0	6·7	37 7		41·2	405·2	1455·4		251·1	- 159·8	1741·0	3
4. Industries based on imported raw material ..	94·0	47·0	51·8	403·2	56 5	211·1	0·9	22·9	887·4	839·7		17·9	- 349·1	1155·4	4
5. Machinery & Equipment	23·9	15·8	29·8	27·2	50·3	66·2	8·7	54 3	276·2	142·1	265·7	0·9	- 54·9	308·8	5
6. Construction ..								71·8	71·8	58·7	973·4			1103·9	6
7. Electricity, Petrol. & Coal Products ..	12·0	1·2	10·8	42·7	5·1	2 5	5·3	58·8	138·4	81·3		2 8	- 2·6	114·3	7
8. Trade, Transport and Services ..	70·1	167·2	97·1	50·4	49·7	156·7	7·6	131·1	730·4	2192·8	72·3	305 8		3179·4	8
9. $\sum_{i=1}^{n=8} M$ ..	225·1	1134·0	846 3	562·0	168 5	480·0	22·5	388·7	3827·1	7518·3	1376·6	1964·6	-1009·5	12526·2	9
10. Value Added ..	1726·0	1188·5	734·0	678 9	12·2	596·0	88·4	2665·4	8288·4	934·5					
11. Labour Employment ..	862·5	1067·5	176·5	178·7	37·4	161·0	10·1	1187 5	3681·2						11
12. Complementary imports ..	86·3	35·8	78·4	60·1	120·7	41 7	6·6	114·2	543·8	184·0	306 4				$\overline{M}$

Note: Some imports are neither competitive nor complementary to the productive sector. They are given in complementary imports here to under consumption and investments. Therefore the gross output (x) is not always equal to the source of columns 9 – 13. The labour figures are given in thousands while all other s value are given in million rupees.

D and O sub-matrices

The information provided in D and O submatrices is comparable with the national income statistics as we have mentioned earlier (section 1·1). As we can present more up-to-date information by using national income statistics they will be used wherever relevant.

(a) Foreign Trade

A quick glance at the two sub-matrices would indicate the very dominant place foreign trade has in the economy. In 1959, the values of exports and imports expressed as percentages of gross domestic product, were 30% and 33% respectively. However, by 1971, these percentages have dropped to 17% and 20%.

The imbalance in the foreign trade sector is under-estimated in the input-output table. According to the input-output table, the difference of imports over exports is some Rs. 30 million. However, according to the Central Bank of Ceylon (CB, AR, 1969), the value of imports exceeded the value of exports by Rs. 369·8 million, The following table on resource availability and use presents some comparable information.

Table 2·2

Resources and their Utilisation at Current Market Prices

(Rs. million)

	1961		1972	
Resources				
Gross Domestic Product ..	6874·6	(78)	12463·2	(84)
Imports	1972·0	(22)	2364·5	(16)
Total	8846·6	(100)	14827·7	(100)
Utilisation				
Consumption	5837·9	(66)	10421·4	(70)
Gross Domestic Capital Formation ..	1101·5	(12)	2186·2	(15)
Export	1907·2	(22)	2220·1	(15)
	8846·6	(100)	14827·7	(100)

Source: Central Bank of Ceylon, Annual Reports.

Note: Figures in brackets denote percentages.

In Table 2·2 the value of imports had exceeded the value of exports by Rs. 64·8 million in 1961, whilst the comparable figure increased to Rs. 144·4 million in 1971. The table does not show the full extent of the deficit in the external sector since transfer payments (including capital repayments) are not included in the above figures. Foreign debts in 1970 were Rs. 1551 million, and when capital repayments are taken into account, the external resource gap exceeded Rs. 1000 million (CB, AR) per year.

(b) Consumption Pattern

About 70% of the available resources were spent on consumption in 1971. The distribution pattern of consumption can be seen from the consumption vector of the input-output table. The predominance of agricultural commodities, especially food commodities can be seen from Table 2·1. A substantial percentage (16%) of food commodities are imported. Over 41% of manufactured goods are imported. The competitive imports vector in the input-output table indicates the possibilities of import substitution of Rs. 1009·5 million.

The capacity of import substitution in the domestic agricultural sector ("Other Agriculture" in the table) was Rs. 443·1 million whilst the import substitution capacity in the imported raw material consuming industries was estimated at Rs. 349·1 million. However, it should be recalled that these figures relate to the year 1968 and to the then existing production possibilities. It is very likely that the import substitution possibilities were under-estimated in the above estimates, since they relate only to the then existing production activities.

(c) Investments

As we have already noted that the investment vector of the original input-output table is too aggregative. In the input-output table we have presented in Table 2·1, investments are concentrated in three sectors, namely construction (70%), machinery and equipment (19%) and trade, transport and services (5%). However, it should be mentioned that even if the statistical problem could be solved ,one would still find that the investments are concentrated in a few sectors. The following table presents the Gross Fixed Capital Formation by type of capital goods.

Table 2·3

Gross Fixed Capital Formation by Type of Capital Goods in 1968.

(Rs. Million)

	Current Market Prices	Constant (1958) Market Prices
Land	142·5	113·1
Buildings	770·9	652·4
Other Construction	303·3	255·7
Transport Equipmeut . ..	97·8	51·2
Machinery & Other Equipment ..	387·3	213·7
	1701·8	1286·1

Source: Department of Census & Statistics, National Accounts of Ceylon, 1969.

The main categories of capital formation included under 'land' are the various land development projects undertaken by the government, and planting and replanting of major crops which are generally undertaken by the private sector with government assistance (Perera, 1972). The investment figures given in the input–output table relate to planting and replanting done in the plantation sector. The land development work undertaken by the government is probably included in the construction sector, since land development works in the country are mainly irrigation schemes which are basically construction works. Because of this aggregation precedure, the investment made in the other agricultural sector, more specifically in the paddy producing sector, cannot be identified from any of the input–output tables.

The information given in the input–output table as well as in Table 2·2 leads one to the conclusion that the pattern of capital formation is not properly planned. Indeed, it has been suggested that the high capital–output ratio of 5 : 1 could be due to the unsatisfactory distribution of capital expenditure (Maguid and Jayawardena, 1970). The economy has been growing at the rate of about 3% per year since 1959, although the country was investing on an average, a little over 15% of GDP. This raises the key question of efficiency in the investment allocations.

(a) Labour Employment

As can be seen in Table 2·1, the eight production sectors employed 3·681 million people in 1968. The total labour force in that year had been estimated at 4·097 million (Srivatsava, 1970). The total unemployed labour force in that year was 416,000. However, when account is taken of under-employment in both the domestic agricultural sector and in the plantation sector, the effective employment level may be less than what is given in Table 2·1.

The distribution of employment among the production sectors can be seen from Table 2·1. In addition agricultural sector employment which accounts for about 55% of the total employed labour force, can be further classified as follows:

Table 2·4

Distribution of Agricultural Workforce

(per cent)

Tea & Rubber Sectors	45·0
Coconut Sector	2·3
Paddy and Other Agriculture	47·0
Fishing and Forestry etc.	5·7
	100·0

Source: Srivatsava, Jones & Selvaratnam (1970)

The overall expansion rate of employment opportunities has been about 1·5 to 2·0% per annum. However, the labour force had been increasing at a rate of 3·0% per annum. The unemployed labour force which had been earlier estimated at 10% of the total labour force was reckoned to be 13% in 1970 (ILO, Ceylon, 1971).

The projected labour force estimate for 1976 is 5·11 million. Therefore, the production system has to meet not only the challenge of foreign trade difficulties but also the problem of absorbing the present unemployed as well as the future entrants to the labour force.

(b) Value Added

The value added by each of the sectors can be seen from the input-output table. However, it is useful to examine the value added by an average worker in comparable sectors.

Table 2·5

Average Value Added per Worker 1968

(in Rupees)

1. Plantation Sector	2001·20
2. Other Agricultural Sector	1675·50
3. Industries based on sector 1 & 2	4158·60
4. Industries based on imported raw material ..	3799·10
Average value added for all 8 sectors ..	2251·60

Source: Table 2·1

The average value added per woker is lowest in sector 2, which is the domestic agricultural sector. The number of people dependent on agriculture has increased during 1946–1971 Under such circumstances, average product per worker can be increased by intensifying cultivation in such a way as to result in output per unit of land rising still faster. Value added per worker depends not only on physical output but also on the pricing of output. An analysis of national accounts shows that the upward movement of agricultural producer prices has given the domestic agricultural sector a favourable position compared to the manufacturing sectors (CB, AR). The result is an over estimation of the value added figure for the domestic agricultural sector. From Table 2·5 it is clear that substantial efforts have to be made to increase productivity especially by the reorganisation of the domestic agricultural sector.

(c) Complementary Inputs

The supply position regarding complementary imports determines the ability of the production sectors to produce. In this way, the production sectors are bound to the foreign exchange earning capacity of the economy. Plantation agriculture, other agriculture, industries based on plantations and other agriculture and industries based on imported raw materials are all crucially dependent on imported intermediate goods, such as fertilisers, chemical products and raw materials. The magnitude of this dependence can be seen from the input–output table. In achieving production planning, the ability to overcome difficulties of obtaining supplies of these crucial inputs becomes critically important.

2. 4 Analysis of the Production Structure

In this section we present a structural analysis of the economy of Sri Lanka. The empirical information was obtained by following the methods discussed in Part I of this paper. However, since the structure of the economy is so simple that the triangularisation was found unnecessary for identifying the distribution pattern of the productive sectors. Furthermore, most of the information that can be obtained from triangularisation and grouping of sectors can also be obtained from the basic interdependence matrix. Therefore, the analysis of this section is largely based on this matrix. In table 2·6, the basic interdependence matrix is presented while in Table 2·7, the grouping of sectors is presented.

(a) Level of Interrelatedness [1]

In terms of structural interdependence a dual economy is one which the modern sector's interrelatedness is at a very low level. In the Sri Lanka economy, the plantation sector's interrelatedness with the rest of the production sectors is only 5–7% whilst it contributed 19% of the Gross Domestic Product. In other words, the plantation sector is in virtual isolation from the rest of the production sectors. The plantation sector's connection with sector 3 is primarily through the coconut plantations. The latter provides raw material for the desiccated coconut and copra producing industry. The plantation sector's main purchases are chemicals and services of the light engineering and transport industries.

The domestic agricultural sector as it is organised at present does not have a high level of interdependence. Its interrelatedness as a supplier of inputs is only 10% whilst as an input buyer, it purchases 6% from the rest of the sectors. The contribution of the domestic agricultural sector to the Gross Domestic Product is above 19%. In a traditional economy, the domestic agricultural sector is usually relatively independent; it consumes a large proportion of its own produce, and its purchases from the rest of the production sectors are limited.

1. The level of interrelatedness is measured in the matrix by w_i and w_j estimates. The w_i estimates refer to the particular sector's interrelatedness as a supplier of inputs to rest of the production sectors. Similarly, w_j estimates refer to the interrelatedness as a buyer of inputs from other sectors.

The agro-processing sector's (3) contribution to the GDP is in the range of 8%. Its interrelatedness, as an input supplier, is only 6% whilst its level of significance as a buyer of other sector produce is in the range of 19-20%. The relatively small contribution of this sector to the GDP deserves attention. It indicates the limited relationship between the two agricultural sectors on the one hand and the agro-processing sector on the other.

Table 2·6

Basic Independence Matrix of the Production Structure.

Purchasing Sectors / Producing Sectors	1	2	3	4	5	6	7	8	w_i	
1· Plantations			15 (12)			1			5 (7)	1
2· Other Agriculture	1		18 (11)	4 (2)	2	2 (1)		1	10 (8)	2
3· Industries based on Plantations and Other Agriculture	1 (1)	2 (1)		4 (2)	4 (2)	5 (3)		2 (1)	6 (6)	3
4· Industries based on Imported Raw Material	8 (5)	4 (2)	8 (3)		35 (18)	33 (19)	4 (1)	3 (1)	33 (28)	4
5· Machinery Equipment and Light Engineering	2 (1)	1 (1)	3 (2)	5 (2)		9 (6)	10 (8)	3 (2)	11 (13)	5
6· Costruction								2 (2)	1 (1)	6
7· Electricity, Petroleum and Coal Product	1 (1)		1 (1)	6 (4)	4 (2)	2		2 (2)	5 (6)	7
8· Trade, Transport and Services	5 (4)	9 (6)	10 (6)	9 (4)	23 (16)	18 (14)	9 (7)		29 (32)	8
9· Column Interrelatedness	6 (7)	5 (6)	19 (20)	10 (8)	23 (22)	24 (24)	8 (9)	4 (5)	100 (100)	w_j

Note: Figures given in brackets are based on the technical coeffic ent matrix (a) while others are based on the inverse of (I – A) Matrix. (For the methodology, see the section 1·3·3 on basic interdependence matrix).

Table 2·7

Grouping of Sectors

	Input Consuming Sectors		Input Producing Sectors		Input Consuming Sectors		Input Producing Sectors	
	1 High Uj	2 Low Ui	3 Low Uj	4 High Ui	5 High Uj	6 Low Ui	7 Low Uj	8 High Ui
1· Plantations	0·1149	0·1094			1·1836	1·1680		
2· Other Agaiculture	0·3825	0·3722					1·5927	1·7042
3· Industries based on Plantations & Other Agriculture	0 4861	0·2327			1·7325	1·3647		
4· Industries based on Imported Raw material			0·4864	0·7600			1·8430	2·5022
5· Machinery, Equipment & Light Engineering			0·5457	0·8949	1·8967	1·5454		
6· Construction	0·4348	0·0650			1·7047	1·0424		
7· Electricity, Petroleum Gas & Coal Products .. .			0·1969	1·1706	1·2978	1·2284		
8· Trade, Transport and Services ..			0·1223	0·2353			1·1737	1·8793

Note: First four columns present grouping of sectors according to the Chenery and Watanabe method. Column 5–8 present an alternative grouping of sectors based on the inverse of (I – A) matrix. (For methodology, see the section 1. 3.2 on Grouping of Sectors.)

The imported raw material based industrial sector's contribution to the GDP is also 7%. This sector (4) is the major input supplier of the economy. It supplies 28–33% of all inputs and buys 8–10% of other sector produce. The major recipients of this sector's outputs are light engineering and construction industries. The dominant industries in sector 4 are chemical and chemical products, paper and paper products and textiles. It is important to remember that some of the industries in sector 4 should really be in sector 3, in that their raw material can be produced in the country.

The machinery and equipment sector (5) buys 22–23% from the rest of the sectors and supplies 11–13% to the rest of the sectors. The machinery and equipment sector's contribution to the GDP is negligible (see table 2·1). It is essential to remind oneself of the dominance of light engineering industry in sector 5. If light engineering industry was excluded, the interrelatedness of sector 5 would take the form of sector 6 (see Table 2·6).

The construction sector (6) is basically an input buyer. Its purchases from the rest of the production sectors are some 24%, whilst, its supplies to the rest of the sectors are just 1%. The contribution of the construction sector to the GDP is only 6%.

Sector 7, the electricity, petroleum and coal products buys 8–9% of other sector produce and supplies 5–6% of inputs used in the economy. The percentage of the GDP contribution is only 1%.

The distribution pattern of sector 5 and 7 deserve special attention. Usually these sectors are basic sectors or input supplying sectors. However, in this particular case although these industries are there in the economy they are not organised for the purpose they are meant for. A reorganisation of these industries is one of the major requirements.

Sector 7 has the form of an input consuming sector because of the dominance of petroleum and coal product industry which is entirely dependent on imports. The electricity industry is an input supplying industry.

The service sector takes an important position as was to be expected. The service sector's contribution to the GDP is some 29% while its significance as a supplier of services is in the range of 29–32%; its demand for other sector produce in only 4–5%.

In the previous pages we have seen the nature of the interrelatedness of the production sectors in the economy. Before we go on to analyse the implications of these characteristics of the productive capacity of the economy, we propose to examine the production strategy presently followed by Sri Lanka a production strategy largely based on an import substitution policy.

2·5 Import Substitution Programme

We have already seen that the foreign exchange earnings of the country have not been adequate to meet the demand for foreign exchange. Government policies to overcome the difficulties of the balance of payments has led to a situation where foreign exchange savings through import substitution is the major objective in production planning. The extent of the import substitution programme can be seen from Table 2·8. Column 1 gives the value of competitive imports. Column 2 gives the value of complementary imports before import substitution.

Table 2·8

Classification of Imports

(Rs. million)

	(M*)	(M)
1. Plantations	—	86·3
2. Domestic Agriculture	443·1	35·8
3. Industries based on (1) and (2)	159·8	78·4
4. Industries based on imported raw material ..	349·1	60·1
5. Machinery and Equipment	54·9	120·7
6. Construction	—	41·7
7. Electricity, Petroleum and Coal product ..	2·6	6·6
8. Trade, transport and services	—	114·2
	1009·5	543·8

Source : Table 2·1

Note : This classification of imports is not exhaustive. Some imports are neither competitive nor complementary for the existing production sectors. See notes to Table 2·1.

The commodities identified as competitive are largely consumer goods such as rice, sugar, textiles etc. The complementary goods are fertilizers, agro-chemicals, raw materials and intermediate goods for the manufacturing sector.

The objective of this analysis is the assessment of the import substitution programme as a production planning strategy. One way of meeting this objective is to find a way of answering the questions: What would be the effect of an import subsitution programme on (a) output levels; (b) resource employment levels; and (c) the basic interdependence of the production structure?

We can formulate these questions in the following manner to suit the research technique we are using.

(1) If this import substitution programme was imposed on the economy and we wanted to maintain the level of final demand at its 1968 level what would have been the sectoral output levels?

(2) What would have been the resource employment level under (1)?

(3) How significant are the changes in the production structure required to achieve (1)?

The estimates one obtains from the import substitution model can be compared with similar estimates obtained for the existing situation.

An import substitution programme represents a production decision taken by a government that a particular range of commodities should be locally produced instead of being imported. This means, under an import substitution programme that the domestic sectors have to produce more output and sometimes entirely new goods, since an additional demand has to be met. Under the import substitution programme we are cansidering Rs. 1009·5 million worth of imports will not be available to the economy. Since the economy has to produce an additional amount of commodities, the demand for both the intermediate inputs (things produced within the production sectors) as well as for the primary inputs would increase.

The effect of the import substitution programme on the input demand can be estimated by following the procedure proposed in page 6. Table 2·9 presents the factor coefficients and factor intensities of the production system. The factor coefficients indicate the direct primary resource requirements for the production of any unit of output. These coefficients are equivalent to the coefficients in the technological matrix of the input-output model. The factor intensities

indicate the direct and indirect amount of primary resources needed for the production of a unit of output. These are equivalent to the coefficients in the technological matrix of the input-output model. As it was to be expected, the factor intensities are bigger than the factor coefficients; and factor intensities under the present productive structure are smaller than the factor intensities under import substitution. Using these factor intensities, one can estimate the demand for primary factors of production and such estimates are presented in table 2·10.

Table 2·9

Factor Utilization Pattern of the Productive Structure.

Production Sectors Factor Utilization	1	2	3	4	5	6	7	8		
Labour	·44	·36	·10	·15	·12	·15	09	·37	1	Direct Factor
Imports	·04	·01	·05	·05	·39	·04	·06	·04	2	Utilisation = F
Investments	·03				·86	·88		·02	3	
Labour	·48	·56	·30	·31	·30	·29	·15	·41	1	
Imports	·06	·03	·08	·11	·51	·10	·11	·05	2	Direct and Indirect factor Utilisation = F_1
Investments	·05	·01	·04	·05	1·05	·97	·09	·07	3	
Labour	·50	·72	·38	·60	·47	·37	·17	·42	1	
Imports	·07	·04	·10	·22	·68	·13	·12	·06	2	Direct and Indirect factor Utilisation under Import Substitution = F_2
Investments	·06	·02	·05	·12	1·36	·99	·12	·08	3	

Note:- First 3 rows give factor coefficients (F)
Second 3 rows give factor intensities of, $F(1-A)^{-1}$
Last 3 rows give factor intensities of, $F(1-A-m^*)^{-1}$
(See page 6 for methodology).

Table 2·10

Marginal Analysis of the Import Substitution Programme

Producing Sectors		1	2	3	4	5	6	7	8	
$(I-A\ m^*)^{-1} D - (I-A)^{-1} D =$	ΔX	43·15 (1)	1181·70 (26)	350·01 (8)	2243·27 (49)	343·43 (8)	5·86 (ng)	110·60 (2)	260·65 (6)	4538·69 (100)
$l(I-A-m^*)^{-1} D - l(I-A)^{-1} D =$	ΔL	143·36 (13)	397·36 (37)	133·28 (12)	249·22 (23)	68·46 (6)	72·66 (7)	1·71 (ng)	22·36 (2)	1088·46 (100)
$m(I-A-m^*)^{-1} D - m(I-A)^{-1} D =$	ΔM	13·85 (ng)	32·90 (11)	37·72 (13)	95·71 (33)	69·37 (24)	34·09 (12)	1·49 (ng)	13·62 (5)	298·75 (100)
$i(-A-m^*)^{-1} D - i(-A)^{-1} D =$	ΔI	13·49 (4)	24·47 (8)	29·86 (10)	58·83 (19)	125·29 (41)	34·37 (11)	2·38 (1)	19·54 (6)	308·23 (100)

Note: This table gives estimates of the marginal effect of the import substitution programme on gross output (X), labour employment (L), complementary import demand (M) and investments (I). (See p. 6 for methodology). Figures given in brackets denote the percentages. The labour figures are given in thousands and the rest in million rupees.

The estimates of major parameters given in Table 2·10 present the marginal effect of the import substitution programme. The first row represents the gross output effect of the programme. To meet the final demand of Rs. 1009·5 million the production system has to produce Rs. 4538·69 million worth of gross output. Some 29% of this gross output will be produced by the imported raw material based industries whilst 26% will be produced by the domestic agricultural sector (2).

Rows 2, 3 and 4 of Table 2·10 provide estimates of the demand for labour, complementary imports, and investments under the programme. The level of labour employment would increase by over one million people. The domestic agricultural sector would employ 37% of the additional labour, whilst the imported raw material based manufacturing sector would employ 23%. The demand for complementary imports would increase by Rs. 298·75 million. Some 33% of this new demand would go to sector 4 whilst 24% would go to sector 5, the machinery and equipment sector. The total investment level would have to be increased by some Rs. 308·23 million. Some 41% of this new investment would go to sector 5, whilst 19% would be needed by sector 4.

2. 5. 1 An Assessment of the Import Substitution Programme

A continuing balance of payments problem has posed serious difficulties for Sri Lanka. However, import substitution must be looked at in the correct perspective and this perspective should be understood in terms of the objectives of economic development. These include a faster rate of economic growth, a more even distribution of income, a reduction in unemployment and an external equilibrium as legitimate goals of development. To what extent has the import substitution programme furthered these aims? In the following assessment we draw attention to two aspects of the import substitution strategy; namely, marginal effect and structural effect.

(a) Marginal Effect

In any production system, the gross output is larger than the final supply of goods. Under the present production structure the economy had to produce Rs. 12,526·2 million worth of gross output to produce Rs. 9,222·9 million worth of final goods. As we have seen in Table 2·10 under this import substitution programme the economy has to produce an additional gross output of Rs. 4,538·69

million to supply substitutes for Rs. 1,009·5 million worth of imports. In terms of resource costs the programme seems to be very inefficient. This can be further seen in the labour employment effect. Although a little over a million people would be employed under the programme their value added contribution would be Rs. 1009·5 million. In other words, the marginal productivity of labour would be about Rs. 1,000. This can be compared with the average productivity of labour measured by value added figure, which is Rs. 2251·6 under the existing production system. The average productivity under the import substitution programme would fall to about Rs. 1,935·0 (see Table 2·5).

The expenditure on complementary imports would increase by Rs. 298·75 million. However, since Rs. 1,009·5 million worth of imports would be replaced; the pressure on the balance of payments would be reduced by Rs. 710·75 million. However, the economy had been diverted away from a less resource consuming position to a more resource consuming position for the same amount of final goods.

(b) Structural Effect

The structural effect of the import substitution programme can be assessed using the basic interdependence matrix method. We formed a new basic interdependence matrix to compare the level and distribution of interrelatedness before and after the import substitution programme. A comparison of productive structures before and after the import substitution programme is presented in Table 2·11 using the inverse matrices of (I–A) and (I–A–m*). Table 2·12 presents the new basic interdependence matrix.

The imported raw material based manufacturing sector (4) has increased its significance as an input supplier (w_i) as well as an input user (w_j). Its significance as an input supplier has increased from 33% to 42% , whilst its position as an input user has increased from 10% to 13%. The purchases from sector 4 (distribution of values across the row 4) by the other sectors has increased. The largest increases are in sector 5 and sector 6. Sector 4 has increased its purchases from other sectors (along column 4) especially from the machinery and equipment sector (5), the electricity, petroleum and coal product sector (7) the domestic agricultural sector (2) and trade, transport and service sector (8). The position of the machinery,

equipment and light engineering sector has not changed. It is still a net buyer of inputs rather than a net supplier of inputs (w_j is greater than w_i).

The overall assessment of the structural effect of the import substitution programme does not alter the conclusion one can draw from the marginal effect analysis. Compared to the resource costs of the programme it has not produced substantial benefits.

2·6 An Alternative Strategy of Production Planning

The production planner's concern is to ensure the most productive use of resources. However, the decision as to how to allocate resources to their most productive use is a difficult one. It involves clearly identifying objectives which are always subject to constraints. The shortage of foreign exchange is a serious constraint. The production planner must make efforts to overcome this difficulty. However, his basic aim in resource planning is the efficient allocation of resources, and this is essential for rapid economic growth. Therefore, an optimisation process should be an integral part of the process of production planning. The conclusion drawn both from the theoretical and the empirical analysis is identical. It is essential to formulate a strategy of production that can remedy the basic weaknesses of the productive structure. Obviously, it should reduce or remove the pressing problems of foreign exchange shortage and a high level of unemployment. The strategy lies in the identification and development of certain priority areas that can augment the whole of the productive system.

(a) Input Supplying Sector

The development of an input supplying sector is essential for two reasons. Firstly, to overcome the difficulties in obtaining adequate supplies of inputs from abroad. Secondly, to increase the supply of inputs to the productive sectors. (This refers to an intensification programme). As we have seen [section 2·4 (b)], the machinery, equipment and light engineering sector is dominated by the light engineering industry, and no appreciable amount of machinery or equipment is supplied from this sector. However, the more important problem in developing an input supplying sector is the question of appropriate production technology.

Table 2·11

Comparision of Two Production Structures – Before and After (in brackets) the Import Substitution Programme

Purchasing Sectors / Producing Sectors	1	2	3	4	5	6	7	8	
Plantations	1·0017 (1·0022)	0·0020 (0·0030)	0·1453 (0·1634)	0·0045 (0·0097	0·0052 (0·0087)	0·0065 (0·0088)	0·0006 (0·0010)	0·0023 (0·0027)	1
Other Agriculture	0·0094 (0·0148)	1·4251 (1·8129)	0·1816 (0·2618)	0·0394 (0·0969)	0·0159 (0·0401)	0·0232 (0·0410)	0·0021 (0·0049)	0·0074 (0·0109)	2
Industries based on Plantations & Other Agriculture	0·0137 (0·0175)	0·0161 (0·0244)	1·1806 (1·3274)	0·0364 (0·0786)	0·0422 (0·0710)	0·0525 (0·0678)	0·0049 (0·0800	0·0184 (0·0216)	3
Industries based on Imported Raw Material	6·0811 (0·1567)	0·0409 (0·1011)	0·0802 (0·1790)	1·5561 (2·9543)	0·3484 (0·8421)	0·3254 (0·6304)	0·0426 (0·0979)	0·0276 (0·0566)	4
Machinery, Equipment & Light Engineering	0·0192 (0·0278)	0·0129 (0·0231)	0·0331 (0·0519)	0·0525 (0·1277)	1·2140 (1·5657)	0·0880 (0·1255)	0·0992 (0·1316)	0·0265 (0·0351)	5
Constructson	0·0011 (0·0012)	0·0020 (0·0027	0·0022 (0·0027)	0·0020 (0·0040)	0·0051 (0·0071)	1·0042 (1·0047)	0·0021 (0·0023)	0·0238 (0·0239	6
Electricity, Petroleum & Coal Product	0·0109 (0·0145)	0·0043 (0·0077)	0·0142 (0·0204)	0·0632 (0·1237)	0·0392 (0·0680)	0·0205 (0.0343)	1·0538 (1·0826)	0·0222 (0·0241)	7
Trade, Transport & Services	0·0466 (0·0523	0·0895 (0·1176)	0·0953 (0·1174)	0·0889 (0·1757)	0·2267 (0·3138)	0·1844 (0·2076)	0·0924 (0·1028)	1·0555 (1·0589)	8

Note:- Figures given in brackets are the coefficients of the inverse matrix (I – A – m*) while others are coefficients of the inverse matrix (I – A).

Table 2·12

Basic Interdependence Matrix of the Production Structure Before and After (in brackets) the Import Substitution Programme

Purchasing Sectors / Producing Sectors	1	2	3	4	5	6	7	8	W_i	
1. Plantation			15 (16)	(1)		1 (1)			5 (4)	1
2. Other Agriculture	1 (1)		18 (26)	4 (10)	2 (4)	2 (4)		1 (1)	10 (9)	2
3. Industries Based on Plantation & Other Agriculture	1 (2)	2 (2)		4 (8)	4 (7)	5 (7)	(1)	2 (2)	6	3
4. Industries Based on imported raw material	8 (16)	4 (10)	8 (18)		35 (84)	33 (63)	4 (10)	3 (6)	33 (42)	4
5. Machinery & Equipment	2 (3)	1 (2)	3 (5)	5 (13)		9 (12)	10 (13)	3 (3)	11 (10)	5
6. Construction								2 (2)	1 (0)	6
7. Electricity, Petroleum & Coal Products	1 (1)		1 (2)	6 (12)	4 (7)	2 (3)		(2)	5 (6)	7
8. Trade, Transport and Service	5 (5)	9 (12)	10 (12)	9 (17)	23 (31)	18 (21)	9 (10)		29 (22)	8
Column Interrelatedness	6 (6)	5 (5)	19 (16)	10 (13)	23 (27)	24 (23)	9 (7)	5 (3)	100 (100)	W_j

Note: Figures given in brackets are based on the inverse of (I-A-m*) matrix while others are based on the inverse of (I-A) matrix. (For the methodology see p. 6).

There are two aspects to the question of 'appropriate' technology. One aspect involves the transfer of technology from developed countries while the other relates to the development of endogenous technological process[1] (UNCTAD, 1971). One way of reconciling these two aspects is to organise the input supplying sector along the following lines:

(i) *Industries based on directly transferred technology:*

Some of the feasibility studies (FAO, Ceylon 1966) and the experience of some other countries (Taiwan) indicate some input industries such as fertilizer manufacturing, agro-chemical production can be economically undertaken.

(ii) *Adaptive technology based industries:*

There are possibilities in some areas of technology that can be adapted to suit the local requirements and resource endowment. The machninery and equipment needed by the agricultural sector and the small industrial sector may be produced by these industries. Agricultural machinery such as two wheel tractors, water pumps and motors and hand tools can be produced on a large scale to meet the full demand of the economy.

(iii) *Indigenous technology based input supplying industries:*

These industries should be started to improve the present indigenous tools and equipment such as the traditional plough, seeding equipment and vehicles as the first step in their development process. By increasing the level of technological knowledge available to these industries, the development process of indigenous technological innovation can be inaugurated.

(b) Broadening the Basis of the Agricultural Sectors

The plantation sector in Sri Lanka has been dominating the country's economy for over a hundred years. In the structural analysis section (2·4) we saw that it is still in virtual isolation from the rest of the production sectors. The failure of the plantation sector cannot be explained by the unfavourable price trend this sector is facing at present. Even if there was no unfavourable price trend, the plantation sector would not provide the stimulus needed for the

1. Here we are referring to endogenous technological process against exogenous technological process. Both the transfer of technology and the development of indigenous technology may contribute towards this.

development of the rest of the production sectors. This position is adequately demonstrated in the basic interdependence matrices (see Table 2·6 and 2·12).

The plantation sector's significance as a foreign exchange earner will continue for a long time. It is essential to increase the productivity of this sector by increasing the variable input application and replanting with high yielding varieties. On the other hand, the number of processing stages can also be increased. This development would increase the plantation sector's interrelatedness to some extent.

The government policy during the last two decades has been to promote the domestic agricultural sector. However, this policy has been pursued in a narrow sphere, namely in the production of food commodities, mainly rice. The conclusion one can draw with regard to the interrelatedness of the domestic agricultural sector is not different from that of the plantation sector (see Table 2·6 and Table 2·12).

The basis of the domestic agricultural sector has to be broadened to include other types of agricultural activities such as horticulture, animal husbandry and forestry. In other words the agricultural sector should produce food for consumers and raw materials for the manufacturing sector. The expansion of the domestic agricultural sector along these lines would increase its interrelatedness with the input supplying sector on the one hand and with the agro-based manufacturing sector on the other.

The two manufacturing sectors, local raw material based industries (3) and imported raw material based industries (4), play only a small role in the economy (see Table 2·1). Although these sectors are classified as local raw material based and imported raw material based, some of the industries in the second category can be transferred to first category. The raw materials such as cotton yarn, pulp and animal products can be adequately supplied locally once the domestic agricultural sector has been reorganised.

The priority areas we have outlined are interdependent and would provide an integrated strategy of production planning. The development of these sectors would reduce the pressure on the balance of payments while increasing the level of employment. It would also increase the level of interrelatedness between sectors.

2·7 Conclusions

One can drew two conclusions from the analysis so far developed: one with regard to the strategy of economic development and the other with regard to the method of further analysis of the selected strategies.

Sri Lanka's economy is confronted with various challenges; a balance of payments crisis on the one hand and increasing unemployment on the other. The alternative strategy of production planning requires a different pattern of resource allocation. The investment pattern and the policy decisions that influence the resource allocation should take a different orientation. New investments are required for the development of the input supplying sector. The increased input supply would help to increase the productivity of the agricultural sector. The manufacturing sector would require new investments. All this means, the present investment pattern (see Tables 2·1 and 2·3) should undergo radical changes.

The input-output techniqure is the most commonly used planning technique. We have seen its usefulness in analysing the production structure of Sri Lanka and the general picture that emerged is clear. Furthermore, it provides very useful information necessary for the formulation of development plan strategies. We have also seen that the input-output model provides a method of analysing policy programmes such as import substitution. While we did not take specific account of the time lag involved in policy programmes, this is not, however, a serious limitation of the model in that our purpose was primarily analytical.

There are some statistical limitations to the application of the input-output technique. However, this is not particular to input-output model alone. Nonetheless, even if these problems of application were overcome there are some other limitations in the use of the technique. Questions such as (a) optimality of the resource allocation pattern (b) efficiency of the production process should be given specific consideration in production planning. The input-output technique is incapable of handling this type of planning problem. While activity analysis is theoretically capable of handling the type of production strategy problem we have outlined, an economy wide activity analysis model is practically impossible to develop even for a small economy. The best that can be hoped for is a combination

of these two techniques (input–output and activity analysis) to provide an operational planning technique. The input–output analysis can be used for analysing the problem and identifying the priority areas. The activity analysis models can be set up for detailed analysis of these selected areas.

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Appendix I

GROUPING OF SECTORS

Sector 1.

1. Tea including processing.
2. Rubber including processing.
3. Coconut including toddy.

Sector 2.

4. Paddy including straw.
5. Livestock.
6. Fishing.
7. Logging and firewood.
8. Other agriculture.
10. Milling.

Sector 3.

11. Dairy products.
12. Bread.
13. Other bakery products.
14. Carbonated beverages.
15. Desiccated coconut.
16. Other processed food and animal feed.
17. Distilling, rectifying and blending.
18. Tobacco manufacture.
20. Wood products.
22. Leather and leather products.
23. Rubber and rubber products.
25. Oils and fats.
26. Coconut fibre yarn.

Sector 4.

21. Paper and paper products.
9. Mining and quarrying.
28. Structural clay products.
29. Ceramics, glass and glass products.
30. Cement and cement products.
31. Basic metal and rolling mill products.
24. Chemical and chemical products.

Sector 5.

34. Machinery and equipments.
32. Light engineering.

Sector 6.

35. Construction including repairs.

Sector 7.

36. Electricity.
19. Petroleum and coal products.

Sector 8.

37. Road passenger transport.
38. Rail transport.
39. Trade and other transport.
40. Services.

RECENT TRENDS IN THE TEA INDUSTRY WITH SPECIAL REFERENCE TO SRI LANKA

CARLO FERNANDO

Introduction

The main characteristics of the world tea economy are the concentration of production, exports and consumption in the hands of a few countries. In 1969 – 71 two countries, India and Sri Lanka produced about 48 per cent of world tea supplies and accounted for about 63 per cent of world tea exports. But a comparison of these statistics with that for 1959 – 61 and 1964 – 66 shows a gradual decline in these shares and a continuous increase in the share of tea production and exports of the African and South American tea producers. Consumption on the other hand is concentrated in the United Kingdom and India. The United Kingdom accounted for about 19 per cent of world consumption in 1969 – 71 while India consumed 20 per cent.

Changes are taking place on the supply as well as the demand side. Increasing output in the comparatively new tea growing areas of East Africa were adding to world tea exports. In contrast to this expansion, consumption in the United Kingdom, the major world tea importing country, has become stagnant and shows a declining trend. This situation tends to depress world consumption. Offsetting this development to some extent has been the increase in consumption in a number of tea producing and importing countries, particularly India, the United States and the Middle East. In general the rate of expansion in world market supplies in recent years has been greater than the rate of increase in world demand, and this has resulted in a fall in the average auction price for all teas at London auctions.

The main objectives of this study are (a) to describe and evaluate the structure and development of tea production, consumption, trade and prices for the period 1959–71, (b) to evaluate the impact of international tea consultations on demand, supply and prices and (c) to

analyse the performance of the Sri Lanka tea industry in the above context. The basic data in this study are indicated inthree year averages of 1959 - 61, 1964 - 66 and 1969 - 71.

Production

In 1969 - 71 world tea production amounted to 1,317,900 metric tons. About 90 per cent of this was produced on plantations and the remainder on small - holdings. In the same period 78 per cent of world tea output was produced in India, Sri Lanka, Japan and four East African countries. There have been some significant trends in the share of output in the past which are also likely to continue into the future. The combined share of India and Sri Lanka of world production declined from 54 per cent in 1959 - 61 to 47 per cent in 1969 - 71 while African countries[1] increased their share of world tea output from 4·4 per cent to 7·6 per cent in the same period.

World tea production (including centrally planned economies increased at an average of 3·5 per cent yearly from 1959-61 to 1964-66 and at 2·8 per cent from 1964-1966 to 1969-71 (Table 1). Although the rate of growth in production decreased in the late 1960s, output expansion is expected to accelerate again as new plantings and replantings come into production. The rate of growth in tea production, however, has not been the same in all tea growing regions. It has been greatest for African and Argentinian teas. Tea production in Kenya increased by about 14 per cent yearly from 1959-61 to 1969-71 while the production in Uganda increased by a record 19 per cent during the same period. Output in other African countries such as Tanzania, Malawi and Mozambique have also increased by varying rates as shown in table 1. This compares with a very low yearly production growth rate for Indian and Sri Lanka teas. Tea output in India increased by a mere 2·3 per cent from 1959-61 to 1969-71. On the other hand tea production in Sri Lanka increased by 2·6 per cent from 1959-61 to 1964-66 while it declined by 0·6 per cent annually from 1964 - 66 to 1969 - 71.

1. Kenya, Uganda, Malawi, Tanzania, and Mozambique.

Table 1

Production of Tea

Metric Tons

Country	1959 – 61	1964 – 66	1969 – 71	Annual Percentage Change	
				1959 – 61 to 1964 – 66	1964 – 66 to 1969 – 71
India ..	333,809	371,614	415,142	2·3	2·3
Sri Lanka ..	197,020	223,020	216,540	2·6	-0·6
Kenya ..	13,019	21,827	37,809	13·5	14·6
Uganda ..	4,737	9,065	17,937	18·3	19·6
Tanzania ..	3,960	5,765	9,242	9·1	12·0
Malawi ..	12,227	13,568	18,089	2·2	6·7
Mozambique ..	9,260	11,673	16,515	5·2	8·3
Indonesia ..	44,688	42,936	45,163	-0·8	1·0
Taiwan ..	17,312	20,182	26,940	3·3	6·7
Japan ..	79,471	81,278	91,239	0·4	2·4
Argentina ..	6,334	15,903	25,970	30·2	12·7
U. S. S. R. ..	385,500	51,366	65,100	6·7	5·3
World Total ..	984,700	1155,223	1317,900	3·5	2·8

Sources: 1. International Tea Committee Annual Bulletin of Statistics,
2. F. A. O. Commodity Review and Outlook.

In addition to the effect of area expansion on tea output, production should also expand with higher yields. Presently, there are considerable differences in yields among producing countries. Because of climatic and geographic factors, yields will never be the same in all tea producing areas. However, the large discrepancies among growing regions and the rising trend within regions is evidence that improved yields can be expected wtth better production methods. Apart from increased use of fertilizer and improved cultivation practices, the most important development for increased output is probably the planting of high yielding clones through vegetative propagation (VP) instead of seedlings. Through this method, it is possible to double yields. It also seems possible to reduce production costs by planting with VP tea bushes. A large part of the East African tea planting made since the 1960s has been with high yielding varieties, and at this point these types occupy a considerable share of the total tea area. In India and Sri Lanka, on the other hand most of the tea consists of older varieties which have a smaller yield potential. However, recent plantings in both countries were made with the high yielding material.

Consumption

The concentration of consumption and the differences in consumption expansion in developed and developing countries are the major characteristics of world tea consumption. In 1959 – 61 the United Kingdom and India accounted for 26·5 per cent and 18·9 per cent of the total world consumption. Respectively in 1969–71 these shares have changed to 19 per cent and 20 per cent. Respectively from 1959–61 to 1965–67 total world tea consumption increased by 3·0 per cent yearly.

Total consumption is mainly influenced by per capita consumption and population growth. There are considerable differences in per capita consumption as table 2 indicates.

Table 2

Tea Consumption Per-head

Kilograms

Country	1964 – 66	1967 – 69	1969 – 71
United Kingdom ..	4·14	4·04	3·87
Ireland ..	3·71	4·00	3·88
Australia ..	2·53	2 35	2·15
New Zealand ..	2·89	2·82	2·61
Iraq ..	2·38	2·15	n·a·
Sri Lanka ..	1·38	1·50	1·51
Japan ..	0·84	0·91	1·00
Canada ..	1·00	0·99	0·94
U. S. A. ..	0·31	0·33	0·33
India ..	0·34	0·36	0·40
Kenya ..	0 39	0 41	0·46
Morocco ..	0·78	1 05	0·96
Jordan ..	1·03	1·25	1·25
U S. S. R. ..	0·31	0·29	0·36

Source: International Tea Committee Bulletin.

In Commonwealth countries or in those countries which are influenced by British consumption habits, per capita consumption is above 1·0 kilogramme per capita. The United Kingdom which has the highest per capita consumption showed a decline in its trend from 4·14 kilos in 1964–66 to 3·87 kilos in 1969–71. There have been decreases in per capita tea consumption in Australia, New Zealand and Canada while per capita consumption in Ireland, Sri Lanka, Japan,

India and Kenya increased. Per capita tea consumption in United States increased from 1964-66 to 1967-69 and remained unchanged thereafter.

Historical trends are expected to influence future consumption strongly. Consumption developments in the United Kingdom and India are of great importance, since both countries account for such a large share of total consumption. Total tea consumption in the United Kingdom in 1964-66 which was 224,890 metric tons declined by about 10,000 metric tons to 215,210 metric tons in 1969-71. This development contributed to the decline in average world market prices and will continue to do so if it continues. The downward price trend, however, would have been even more serious had not the decline in U. K. consumption been compensated for by increases in Indian consumption. Total tea consumption in India which stood at 165,360 metric tons in 1964-66 showed an increase of nearly 47,000 metric tons to 212,770 metric tons in 1969-71. Total apparent tea consumption in the major tea consuming countries is shown in the table 3 below.

Table 3

Total Apparent Tea Consumption

(Annual Average in metric tons)

Country	1964-66	1969-71	Annual percentage change
United Kingdom ..	224,890	215,210	-0·8
India ..	165,360	212,770	5·7
Japan ..	82,070	103,420	5·2
U. S. S. R. ..	70,820	87,130	4·5
United States ..	59,690	68,270	2·8
Australia ..	28,660	26,840	-1·3
Egypt (UAR) ..	27,880	n·a·	—
Pakistan ..	26,680	n·a·	—
E. E. C. ..	23,070	23,710	0·5
Iran ..	21,590	n·a·	—
Iraq ..	19,440	n·a·	—
Canada ..	19,660	20,050	0·4
South Africa ..	16,930	18,600	1·9
Sri Lanka ..	15,510	18,850	4·3
Turkey ..	13,500	22,140	12·8
Ireland ..	10,670	11,410	1·4
Morocco ..	10,460	14,840	8·3
Sudan ..	10,980	14,610	6·6

Source: International Tea Committee Bulletin

Apart from India there have been marked increases in total tea consumption in Japan, U. S. S. R., Turkey, Morocco, Sudan and Sri Lanka. United States and Canada which are two major importers of tea did not show a large increase in consumption. Tea consumption in Australia indicated a decline during the period under consideration.

In 1969–71 the developed countries consumed about 51 per cent of total world consumption, but this percentage was about 10 per cent lower than a decade ago. Price and income elasticity of demand in these countries are low or insignificant and price movements affect consumption little[1]. The declining share of the developed countries in world consumption was partly compensated by increased consumption in the developing countries where consumption increased at about 4·7 per cent yearly during the 1960s compared with 1·3 per cent yearly in the developed countries. Part of the supplies went into stocks. During the 1970s world consumption is expected to increase by about 2·5 per cent yearly. Since production is likely to increase faster, a surplus situation is developing, unless consumption is increased (through promotion, for example) or supply is scaled down. There has been some action to curtail supplies through international agreement since 1969. Progress in this respect would be discussed at a later stage.

Exports and Imports

The major characteristic of the international tea market over the past decade has been the steady increase in tea export volume of about 1·5 per cent yearly and at the same time a stagnation in the total export value as a result of the downward trend in prices. In 1969–71 world gross tea exports amounted to an average of 623,700 metric tons per year. Sri Lanka and India are by far the world's largest tea exporters, although their combined market share has been declining. In 1959–61 their share of the international market was 73 per cent compared with 7 per cent for East Africa. However by 1969–71 India's and Sri Lanka's share had declined to 63 per cent, while East African tea exports increased to 15 per cent of world tea exports. The reason for the decline of the two leading countries' world market share was the decrease in Indian exports, which reduced that country's share of

1. Committee on Commodity Problems: Ad Hoc Working Party on International Arrangements for Stabilization of Tea Prices. March 1969.

the world market from about 38 per cent in 1959–61 to 30 per cent in 1969–71 and a decline in Sri Lanka's exports from about 35 per cent in 1959–61 to 33 per cent in 1969–71. A country breakdown of the world tea exports and their respective percentage changes for 1959–61, 1964–66 and 1969–71 are given in the table 4 below.

Table 4

Tea Exports by Major Exporters

Metric tons

Country	1959 – 61	1964 – 66	1969 – 71	Annual Percentage Change	
				1959 – 61 to 1964 – 66	1964 – 66 to 1969 – 71
India ..	204,355	196,364	186,807	– 0·8	– 0·9
Sri Lanka ..	187,643	210,279	203,489	2·4	– 0·6
Indonesia ..	33,957	32,622	34,341	– 0·8	1·5
Kenya ..	10,981	19,347	34,403	15·2	15·6
Uganda ..	3,987	7,363	15,415	17·0	21·8
Malawi ..	11,627	13,552	17,718	3·3	6·1
Tanzania ..	3,199	5,191	7,721	12·4	9·7
Mozambique ..	8,653	10,916	16,531	5·2	10·3
Taiwan ..	13,613	18,330	21,489	7·0	3·4
Argentina ..	3,036	11,346	18,729	54·7	13·0
World Total	538,866	580,430	623,700	1·5	1·5

Source: International Tea Committee Bulletin.

As shown in this table the export growth rates are greatest for Kenya, Uganda, Tanzania, Argentina and Mozambique. On the other hand tea export growth rates for India and Sri Lanka showed a continuous decline. This trend indicates gradual replacement of traditional exporters by African countries.

In 1969-71 the developed countries accounted for about 70 per cent of world tea imports (including imports into the centrally planned economies) compared with about 76 per cent in 1959-61. The decline in the developed countries' share was compensated for by an increase in the share of developing countries and centrally planned countries.

The United Kingdom is the dominant importer in the world market. Total net imports by the United Kingdom in 1969-71 amounted to 208,999 metric tons per year or about 33 per cent of total world

imports. This implies a considerable decline from the United Kingdom's import share in 1959-61 which was around 42 per cent of total world imports. The United States, the second largest importer, accounted for only about 11 per cent of total world net imports in 1969-71. Tea imports statistics are given in the table 5 below. As data indicates Japan is the major expanding market with regard to tea imports.

Table 5

Tea Imports* by major importing countries

Metric tons

Country	1959–61	1964–66	1969–71	Percentage change	
				1959–61 to 1964–66	1964–66 to 1969–71
United Kingdom	226,323	224,663	208,996	- 0·1	- 1·4
U. S. A. ..	50,095	59,676	68,267	3·8	2·9
Australia ..	27,746	28,658	26,858	0·6	- 1·2
U. S. S. R. ..	20,266	24,533	24,700	4·2	0·1
Canada ..	19,923	19,662	20,049	- 0·3	0·4
Iraq ..	17,302	19,437	20,788	2·4	1·4
Egypt (U. A. R.)	20,384	27,875	27,372	7·3	- 0·4
South Africa ..	13,776	16,926	18,597	4·5	1·9
Libya ..	3,265	4,785	9,762	9·3	20·8
Morocco ..	11,987	10,439	14,842	- 2·6	8·4
Ireland ..	10,407	10,667	11,413	0·5	1·4
Japan ..	1,659	4,168	13,760	30·2	46·0

* Net Imports

Source: International Tea Committee Bulletin.

Tea Imports by the United Kingdom according to source of imports indicate a continuous shift away from traditional exporters such as India and Sri Lanka towards African countries. Combined share of imports to the U.K. from India and Sri Lanka which was 80 per cent of the total tea imports to U. K. in 1959–61 declined to 59 per cent in 1969–71 while imports to African countries inc reased from 11 per cent to 26 per cent. Tea imports to the United Kingdom from major importers are shown in table 6 below.

Table 6

Tea Imports by the United Kingdom

Metric tons

Country	1959–61	1964–66	1969–71	Percentage change	
				1959–61 to 1964–66	1964–66 to 1969–71
India ..	124,522	110,590	76,878	– 2·2	– 6·1
Sri Lanka ..	68,136	75,604	58,968	2·2	– 4·4
Kenya ..	5,688	14,116	26,273	29·6	17·2
Uganda ..	1,517	2,215	8,239	9·2	54·4
Tanzania ..	2,447	3,854	6,386	11·5	13·1
Malawi ..	9,929	7,516	8,745	– 4·9	3·3
Indonesia ..	4,818	3,166	5,635	– 6·8	15·6
Mozambique ..	6,017	6,410	11,052	1·3	14·5
Netherlands ..	4,562	5,105	8,203	2·4	12·1
Total* ..	241,777	243,045	230,392	0.1	– 1·4

* Including re-exports

Source: International Tea Committee Bulletin.

Marketing and Prices

The international market price for tea is determined at three major auction centres: London, Calcutta and Colombo. Other auction centres are Cochin, Amritsar, Chittagong and Coonoor in India, Nairobi in East Africa and Antwerp in Belgium During 1950's and before, the London auctions dominated the price-setting process. In recent years Calcutta and Colombo have gained in importance, but the London market is still the major determinant of international tea prices where teas from all producing countries are sold. The London average auction prices are a convenient and up-to-date indicator of world market prices. However, they refer only to the types sold in London which are usually the better qualities of individual countries' exports. In practice the London price still remains the leading price indicator in the world tea market, not only because Britain is by far the largest tea importing country, but also because London has the largest stocks and is an important trading centre for this commodity. Changes in the London auction price exert considerable influence on prices at auctions held in other countries, while independent changes in the latter do not have much influence on London prices.

As shown in table 7 below Indian and Sri Lanka tea prices declined steadily from 1959-61 to 1969-71 while African teas gained some ground briefly during this period.

Table 7

Annual Average Prices of Tea sold at theLondon Auctions

Pence per k.g.

Countries	1959-61	1964-66	1969-71	1971	1972
North India ..	53·0	48·7	43·4	42·1	42·9
South India ..	42·4	40·3	37·3	39·9	37·9
Sri Lanka ..	53·9	47·7	45·6	45·3	45·5
Kenya ..	45·4	46·1	46·7	47·3	43 6
Uganda ..	41·8	41·6	42·4	43·6	41·0
Tanzania ..	44·1	44·4	44·6	45·4	41·7
Malawi ..	35·3	34·0	35·0	39·5	37·4
Mozambique ..	34·4	30·8	32·0	36·8	33·9
All Africa ..	38·0	38·7	40·9	43·1	40·3
All Countries(Av)	49·8	46·0	43·2	43·3	42·2

Source: International Tea Committee Bulletin.

Prices of North Indian teas declined by about 1·9 per cent per year from 53.0 pence per kilogram in 1959-61 to 43·4 pence per kilogram in 1969-71, while South Indian teas indicated a price decline of 1·2 per cent per annum during this period. Price of Sri Lanka teas showed a decline of 1·5 per cent from 53·9 pence per kilogram in 1959/61 to 45.6 pence per kilogram in 1969/71. On the other hand the price of Kenyan teas increased from 45·4 pence per kilogram to 46·7 pence per kilogram and the prices of All African teas increased from 38·0 pence per kilogram to 40·9 pence per kilogram during the same period.

Quality improvement was the major reason for this remarkable performance of African teas. In fact the Kenyan teas which used to fetch considerably lower prices than the teas of North Indian and Sri Lanka prior to mid 1960s recorded the highest prices in London auctions since 1969. This fact in the light of overall decline in tea prices during this period is remarkable. Since prices of tea from India

and Sri Lanka heavily influence the weighted average price of all teas at the London auction, the average price of all teas followed their price movements.

The steady decline in the average London auction price and steady supply pressures against a relatively static demand created a buyers' market for the tea packers. Under these circumstances there was no great need for the packers to increase their prices to the final consumers to cover increases in other costs. Since tea accounts for about 50 per cent of the price of a retail pack of tea, the decline in tea prices represented a considerable saving in raw material costs to packers. Even a stable retail price of tea at a time when prices for most other beverages increased, however, did not encourage an acceleration in demand growth in the major developed consuming countries. This substantiates the fact that the demand for tea is relatively unresponsive to price changes at the retail level.

The declining trend in London auction prices is sometimes blamed on the concentration of buying power in the United Kingdom. In 1965 four companies controlled 85 per cent of the United Kingdom retail market in terms of total sales of tea. One of them accounted for about 35 per cent of the market. It is estimated that by weight, at least 75 per cent of the United Kingdom purchases are made by these four companies. Under these circumstances, it is possible that collusion among buyers could act to force prices down. However, the post-war decline in prices can be explained to some extent by the low price elasticity of retail demand and the continued supply pressure on the London market.

Although the London auctions dominated the price-setting process there has been a considerable deviation away from this trend as it appears that prices behaved in a different manner in other auction centres in the recent past. In fact the prices in Calcutta showed a gradual increase from 1959–61 to 1969–71 while average tea prices in Nairobi indicated a decline during this period. All tea prices in Colombo showed a decline indicating a similar pattern to Sri Lanka

tea prices in London during the period under consideration. Average tea prices at local auctions in tea producing countries are given in the table 8 below.

Table 8

Annual Average Prices of Tea in Calcutta, Colombo and Nairobi

	1959–61	1964–66	1969–71	1971	1972
Calcutta (Rs. per kg.)					
Leaf	5·02	5·38	7·14	7·52	7·28
Dust	4·91	5·03	6·19	6·59	6·34
Colombo (Rs. per kg.)					
All Tea	4·33	3·85	3·81	4·14	4·39
Nairobi (Shillings per kg.)					
Kenya	7·57	7·05	6·32	6·69	5·95
Uganda	7·09	6·89	5·64	6·20	5·57
Tanzania	7·11	6·33	5·45	6·06	5·05

Source: International Tea Committee Bulletin.

Although Colombo market price for all teas declined from Rs. 4·33 per kilogram in 1959–61 to Rs. 3.81 per kilogram in 1969–71, prices increasd to Rs. 4.14 and Rs. 4.39 per kilogram for the individual years 1971 and 1972.

Tea is not a storable commodity on a large scale and any excess in the level of stocks forces prices down. London stocks are a determining factor for the international market. If the unsold stock level in London is in excess of working requirements, the degree of competition among buyers slackens and prices fall, while a shortage of stocks at that centre stimulates competition and a rise in prices. The average stock position in London over these years has fluctuated periodically with varying crop levels and interruptions in delivery but the overall trend until 1969 was upward. This is particularly true for the years after 1962, a period also distinguished by a steeply declining average London tea auction price.

Table 9
Tea Stocks in the United Kingdom

Metric tons

Year	January	April	August	December
1959	90,011	73,702	55,439	65,930
1960	77,469	74,610	52,180	68,856
1961	74,446	73,491	61,149	67,373
1962	72,617	67,087	59,889	70,774
1963	72,480	80,852	65,037	76,433
1964	87,375	74,744	60,256	69,722
1965	80,449	78,110	70,719	83,144
1966	91,406	81,602	73,559	74,386
1967	79,706	80,650	67,410	77,338
1968	86,717	86,311	79,114	103,296
1969	105,393	100,145	91,080	76,764
1970	67,696	75,088	64,936	90,394
1971	87,899	88,574	70,931	79,758
1972	75,880	78,838	54,015	71,437
1973	71,102	65,246	n·a·	n·a·

Source: International Tea Committee Bulletin.

This accumulation of stocks indicates an excess stock level, as it cannot be explained by the need for larger working stocks due to a greater demand for domestic consumption and re-exports. Since tea cannot be stored beyond one year the accumulation of stocks probably resulted in some deterioration in quality which also contributed to the price decline. Stocks in London showed some improvement during this period.

A price decline induces either an increase in consumption or a curtailing of production. Since demand for tea in importing developed countries is price inelastic the declining price level until 1969 was not accompanied by any appreciable acceleration in consumption growth beyond past growth rates.[1] The price action was directed, therefore, against supply, and there is evidence that this was at least partly effective.

Market Regulation and Promotion

There are two major avenues by which a more favourable balance of supply and demand might be induced: improved international propaganda to promote demand for tea and export reduction either

1. R. J. Ball and T. Burds

through some form of international agreement on control of tea exports from the producing countries or by letting the price continue to decline until production becomes unprofitable and the growth in supplies is adjusted to the growth in demand by eliminating marginal producers. When the latter stage will be reached, it is difficult to say since the cost structure for marginal producers is not known. But the data in table 10 indicate that even for the well-managed estates in India and Sri Lanka production threatens to become marginal at the price levels that prevailed in 1968, if duties and taxes are maintained at 1968 levels.

Table 10

Costs and Profit Margins of Estate Production of Tea (1968)

U.S. cents per pound

	North India	South India	Sri Lanka	Kenya	Uganda
Cost					
At factory ..	28·50	24·00	28·80	24·60	26·40
Transportation & Charges ..	8·00	8·00	8·10	7·00	8·00
Total Cost ..	36·50	32·00	36·90	31·60	34·40
1968 London Auction price .	48·07	42·26	49·30	48·71	42·99
Margin excluding duties & taxes ..	11·57	10·26	12·40	17·11	8·59
Duties & taxes					
Cess ..	0·24	0·24	1·73	0·28	0·28
Excise duty ..	2·88	1·99	—	—	—
Export duty ..	2·68	1·84	6 72	—	—
Sales tax ..	—	1·61	2·12	—	—
Other taxes ..	0·96	—	—	—	—
Total duties & taxes ..	6·76	5·68	10·57	0·28	0·28
Margin after cost duties & taxes ..	4·81	4·58	1·83	16·83	8·31

Source: IBRD, International Development Association. "The World Tea Economy."

Table 10 clearly indicates that taxes and duties seriously affect the profitability of the Indian and Sri Lanka tea industries in spite of the relatively high prices received for North Indian and Sri Lanka teas at the London auctions. These duties and taxes account for nearly 60 per cent of the profit margin in the case of India and about 80 per cent for Sri Lanka. Part of these taxes are returned, however, as planting and replanting subsidies. The data also illustrate the strong position of African estates with respect to production costs after taxes

Since tea prices were in a declining trend in the 1960s, a series of meetings were held in 1969 under the auspices of the FAO, to discuss the establishment of a new long-term international tea agreement, based on limitations of export growth to match the annual increment in import demand. India and Sri Lanka expressed themselves very much in favour of such an agreement. African producers, however, were reluctant to commit themselves before their tea development plans "are completed." Nevertheless, agreement was reached to limit 1970 exports so that they would not exceed the long-term growth in import demand. In 1970 the producer members of the Consultative Committee on Tea agreed on quotas for 1970/71 and 1971/72. Thereafter, the agreement lapsed temporarily. In September 1972 the sub-group of exporters agreed on quotas amounting to 619,000 metric tons for April 1972/March 1973; 645,000 metric tons for April 1973/March 1974, and 670,000 metric tons for the succeeding year ending March 1975. This represents quota increases of the order of 4 per cent a year. Actual exports for the period January 1971-March 1972 indicate that it was possible to keep global exports somewhat below the export quota for this period although individual exports by some countries exceeded their quotas. Exports of black tea and quotas for this period are given in Table 11 below.

Table 11

Exports of Black Tea and Quotas January 1971-March 1972.

Thousand tons

Country	Exports	Quota	Exports as a percentage of Quota
Sri Lanka + India ..	503·6	506·0	99·5
Indonesia ..	48·6	48·0	101·2
Kenya ..	41·4	47·3	87·5
Uganda ..	19·8	20·6	96·1
Malawi ..	27·8	27·5	101·1
Mozambique ..	24·3	25·0	97·2
Argentina ..	28·0	24·6	113·8
Zaire ..	10·2	11·3	90·3
Turkey ..	26·0	11·0	236·4
Tanzania ..	10·8	10·0	108·0
Mauritius ..	4·6	4·2	109·5
China, Republic of ..	8.0*	3·0	—
Rwanda ..	2·2	2·5	88·0
Cameroon ..	0·7*	0·7	—
Vietnam, Republic of ..	0·2*	0·2	—
Burundi ..	0·4	0·5	80·0
Total ..	756·6	742·4	

* Estimate

Source: IBRD, document December 1972.

It is premature to evaluate the effectiveness of these short-term quota arrangements in preventing long-term price declines. The quotas may not be restrictive enough, however, because in 1972-75 exports could be raised by about 4 per cent annually under the agreement, whereas world import demand is likely to rise by only 2 to 2·5 per cent. Also there is no mechanism for enforcing and policing the quotas. The difficulties in reconciling the attitudes of the various producing countries concerning a long-term agreement lie in the fact that the East African tea producing nations do not favour an agreement to curb further expansion, while India and Sri Lanka are keen on establishing regulatory measures to support tea prices. However, latest developments in the tea market indicate a continuous price increase since 1972 onwards as shown below.

Table 12

All Tea Prices at the London Auctions

(Pence per kg.)

Year	*Price*	*Year*	*Price*
1960	50·7	1969	40·5
1961	48·6	1970	45·7
1962	49·0	1971	43·3
1963	46·5	1972	42·2
1964	47·2	1973	43·3
1965	46·0	1974 Jan.	50·2
1966	44·8	Feb.	55·3
1967	45·7	Mar.	66·4
1968	43·5	April.	61·9
		May.	59·7

Sources: 1. International Tea Committee Bulletin.
2. London Brokers Association, Tea Market Reports.

It would appear that there is a reversal in the declining trend since 1969. This may be partly due to international action and partly to the international commodity boom experienced since 1972.

More recently attention has been drawn towards an agreement among participating countries on a minimum price or range of prices for tea. It is argued that if agreement is reached on a minimum price or a range of prices for tea, the extent of the expansion in international

demand through the proposed increased promotional measures could be determined, which will pave the way for meaningful co-operation among exporting countries in the matter of export controls. But careful reflection reveals a great number of problems and difficulties in achieving the object of a minimum price specially for a perishable commodity like tea which has so many quality variations. Also there is the problem of prices being determined, for substantial quantities, at auctions after export.

Some studies indicate that effective promotion can prevent or even reverse the decline in per capita tea consumption. This conclusion, however, has become a subject of controversy in a recent inquiry in the United Kingdom[1] where generic advertising was found to be of insignificant importance, while brand advertising appeared to have some, though modest, effect. However, the importance of tea promotion is substantiated by the results of a recent campaign in the United Kingdom. In 1966 the United Kingdom Tea Council started a campaign with an advertising fund of £. 600,000 per year. A study[2] evaluating the campaign indicates that this promotional effort slowed down the decline in per capita tea consumption in Britain. The report also found that an increase in advertising expenditure to £.1·0 million yearly would stabilize per capita consumption at the 1968 level (4.0kg) and an increase in expenditure to £. 1·4 million would raise per capita consumption to about 5·3 kilograms. However, the conclusion arrived at in a recent market study of the United Kingdom undertaken by Professor R. J. Ball and some associated Economists, is that while demand can be stimulated by expenditure on advertisement and other forms of promotion, the impact would be transient while the costs would be heavy. This study established that tea drinking was disproportionately accounted for by the older generations of the population, while the younger generations were much less addicted to it. On this basis it was revealed that with the lapse of time, the proportion of the population addicted to drinking more than a moderate amount of tea would become less. Hence, the United Kingdom market is described as a shrinking one.

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1. Tropical Products Quarterly – March 1972.

2. Ogilvy & Mather Ltd. – An Econometric Analysis of Demand for Tea in the United Kingdom (1969). Specially the study by Professor R. J. Ball.

On the other hand, there is an expanding market for tea in the newly developing countries of Asia – Japan, South Korea, Hongkong and Singapore, and in thc countries that have grown rich from oil in the Middle East – Iran, Kuwait, Abu Dhabi, Iraq and other states of the Persian Gulf. Tea drinking is increasingly becoming both popular and fashionable in these countries. Hence, promotion is likely to be far more successful in these countries[1]. At recent meetings of tea producers and importers, it was suggested that exporting countries should countribute about one per cent of their export income to tea promotion. However, no decision to implement this proposal has been made so far.

Sri Lanka's Tea Industry

The Sri Lanka's tea economy is almost entirely dependent on exports since domestic consumption accounts for only about eight per cent of domestic production. In the long term Sri Lanka is likely to maintain its position as the primary exporter of tea in the world. On the other hand tea is still the major export earner for Sri Lanka which accounted for 48·2 per cent of the total export earnings in 1973. However this percentage prior to 1967 was as high as 60 per cent for many years. As a result of falling tea prices, foreign exchange earnings have remained virtually static over the last decade despite a rise in the volume of exports.

Table 13 gives data on production, export volume, export value, F.O.B. price and the Colombo Auction price of Sri Lanka tea for the past fifteen years.

Tea growing areas are broadly grouped under three names according to the elevation of the factories where the tea is processed: high grown, ranging from 4,000 feet upwards; medium grown, covering estates between 2000 feet and 4000 feet; and low grown from a level up to 2000 feet.

1. An understanding of the psychological reactions to advertising will be an important prerequisite to tea sales promotion in any country.

Table 13

Production, Exports and Prices of Sri Lanka Tea

Year	Production (Mn. lbs.)	Exports Volume (Mn. lbs.)	Exports Value (Mn. Rs.)	F O.B. Price (Rs. per lb.)	Average Colombo Auction Net Price (All Teas) (Rs. per lb.)
1959 ..	413	384	1,046	2·72	1·85
1960 ..	435	410	1,096	2·67	1·88
1961 ..	455	426	1,115	2·62	1·83
1962 ..	467	452	1,149	2·54	1·75
1963 ..	485	456	1,140	2·50	1·68
1964 ..	482	456	1,142	2·51	1·68
1965 ..	503	495	1,210	2·45	1·75
1966 ..	490	441	1,027	2·33	1·57
1967 .	487	478	1,061	2·22	1·50
1968 ..	496	460	1,162	2·52	1·75
1969 ..	484	445	1,062	2·39	1·53
1970 ..	468	460	1,120	2·44	1·63
1971 ..	480	443	1,144	2·56	1·81
1972 ..	471	419	1,162	2·77	1·89
1973 ..	466	454	1,261	2·77	1·89
1959–61 ..	434	407	1,086	2·67	1·85
1969–71 ..	477	449	1,109	2·46	1·66
Annual Change %	1·0	1·0	0·2	–0·8	–1·1

Source: Central Bank Annual Reports.

Approximately 36 per cent of the tea is produced in the high-grow zone, 39 per cent in the meduim-grow zone, and 25 per cent in the low-grown areas. The quality of Sri Lanka tea, as measured by price, is related to a significent extent to the altitude at which it is grown. For the five years 1969-73, the average gross price per pound of tea at the Colombo auction was:

High-grown	.. Rs. 1·95
Medium-grown	.. Rs. 1·65
Low-grown	.. Rs. 1·64

The margin does fluctuate considerably, and on several occasions low-grown teas have sold for higher average prices than medium-growns. Since the tea grown at high elevations is associated with quality, they fetch higher prices at the auctions. On the other hand, low-grown teas are not asssociated with flavour as understood in the tea trade.

The special characteristic of low growns is strength. Nevertheless, low grown teas are much in demand in the Middle East and North Africa. Mid grown teas generally have no special characteristics and have no special markets. Relatively higher prices fetched by low growns in recent years is due to increasing demand for this tea in the Middle East and North African countries.

Tea production in Sri Lanka expanded from 1959–61 to 1969–71 by approximately 1·0 per cent per year (see table 13) or much less than the expansion of world production (about 3·1 per cent). The area under tea expanded very little during this period compared with the expansion in East Africa and India. The momentum in the expansion of production can only be maintained in the long run if replanting is accelerated. Over the next one or two decades it will be necessary to change over from the present type of tea bush (seedling tea) to clonal tea (vegetatively propagated) whose yields are several times higher. The Tea Replanting Subsidy Scheme was introduced in order to induce estates to embark on regular and systematic replanting programmes with high yielding strains of V.P. tea. The scheme is financed by a cess on exports. On the other hand several steps have been taken in order to increase yields and quality of tea. For instance there is the Tea Fertilizer Subsidy Scheme which is in force to encourage increased use of fertilizer. In order to ease and encourage, private investment in tea manufacture, the Tea Factory Development Subsidy Scheme was introduced in 1966. With all these developments it is not possible to forecast a faster rate of expansion in production during 1970s than in 1960s.

Tea exports from Sri Lanka increased steadily from 1959–61 to 1969–71 by about 1·0 per cent annually. However, the export value of tea did not show any permanent upward trend. In fact the value of export earnings from tea increased only by 0·2 per cent during this period. The increase in export volume was particularly noticeable in exports to Pakistan, and to Middle Eastern countries such as Iraq, Iran and the U A.R. with whom Sri Lanka has bilateral trade agreements. On the other hand tea exports to the United Kingdom (which is the largest buyer) had fallen steadily since 1959–61. A country classification of tea exports is given in table 14. As shown in this table, tea exports to the U. K. which has been the largest buyer, has declined from 36·3 per cent of the total tea exports from Sri Lanka in 1959–61 to 15·9 per cent in 1973. This decline is alarming when we consider

that the United Kingdom is the main buyer of quality teas. Export shares to other traditional buyers such as U. S. A., Canada, Australia and New Zealand also have fallen during this period. In absolute quantities, the decline in exports to Australia and Canada are quite significant.

However, the adverse effect on Sri Lanka's tea economy by a declining trend in exports to traditional markes was arrested by a diversification of markets in favour of Middle East and Pakistan.

Table 14

Exports of Tea from Sri Lanka showing Destination and Percentage

Country	Absolute Quantity (Metric tons)				Percent of Total			
	1959 – 61	1969 – 71	1972	1973*	1959 – 61	1969 – 71	1972	1973
United Kingdon	68,136	58,968	33,605	32,794	36·3	29·0	17·7	15·9
U. S. A.	18,348	19,594	16,944	17,690	9·8	9·6	8·9	8·6
Pakistan	67	5,065	22,621	30,316	...	2·5	11·9	14·7
Iraq	15,345	15,537	14,365	20,158	8·2	7·6	7·6	9·8
Australia	18,965	14,385	11,638	11,078	10·1	7·1	6·1	5·4
South Africa	11,985	11,650	10,147	10,688	6·4	5·7	5·3	5·2
Egypt (U. A. R.)	2,236	8,296	10,346	9,327	1·2	4·1	5·4	4·5
Libya	2,616	7,825	12,347	8,834	1·4	3·9	6·5	4·3
Canada	8,106	6,554	6,484	5,594	4·3	3·2	3·4	2·7
New Zealand	6,576	6,471	4,743	5,685	3·5	3·2	2·5	2·8
U. S. S. R.	162	2,168	nil	1,001	0·1	1·1	—	0·5
West Germany	1,084	2,577	2,781	3,218	0·6	1·3	1·5	1·6
Aden	1,307	3,149	2,860	945	0·7	1·6	1·5	0·5
Kuwait	907	4,168	4,256	4,534	0·5	2·1	2·2	2·2
Iran	3,783	4,047	3,939	4,309	2·0	2·0	2·1	2·1
Japan	1,396	2,765	2,475	2,506	0·7	1·4	1·3	1·2
Lebanon	330	3,445	1,616	2,202	0·2	1·7	0·9	1·1
Syria	1,548	3,217	4,732	5,973	0·8	1·6	2·5	2·9
Netherlands	3,516	3,338	4,321	5,169	1·9	1·6	2·3	2·5
Other	21,230	19,820	19,845	23,722	11·3	9·7	10·4	11·5
TOTAL	187,643	203,489	190,088	205,743	100·0	100·0	100·0	100·0

Sources: 1. International Tea Committee Bulletin
2. *Customs, Sri Lanka.

The percentage of Sri Lanka's tea exports to the United Arab Republic increased from 1·2 per cent in 1959-61 to 4·5 per cent in 1973 while this percentage for Libya increased from 1·4 per cent to 4·3 per cent during this period. Tea exports to other countries in the

Middle East such as Aden, Kuwait, Iran, Lebanon and Syria also improved considerably. It should be noted that with more income from their basic export which is oil the possibility of expanding tea exports to these markets seem to be promising. Consumers in these countries prefer not the quality but the "strength;" so they absorb almost entire production of Sri Lanka's low grown teas. Since per capita consumption of tea in the Middle East is much below 1·0 kilogram; with some promotional programmes it would be possible to expand tea sales in this region. Another significant new importer of Sri Lanka tea is Pakistan. With the creation of Bangladesh, Pakistan lost its main source of tea and hence turned to Sri Lanka to meet her domestic requirements. As a result Pakistan which purchased only a negligible percentage of Sri Lanka's tea exports in 1959-61 became the second largest importing country in 1972 with her share rising to 11·9 per cent. In 1973 Pakistan's imports came somewhat close to that of the United Kingdom, with the percentage share rising to 14·7 per cent. On the other hand Sri Lanka lost Chile which was one of her important buyers of tea in the early sixties. Chile ceased to import tea from Sri Lanka and turned to Argentina a neighbouring supplier for her domestic requirements. Purchase of tea by U. S. S R. and Poland, another two new customers have been quite irregular. U. S. S. R. which is also a major producer of tea entered the market only when it was faced with shortages in domestic production.

Diversification in the markets for Sri Lanka tea is accompanied with a shift in the quantities offered for sale at the Colombo and London auctions. As shown in table 15 below the quantities offered for sale at the Colombo auctions increased from 80 per cent of total sales in 1960 to 90 per cent in 1973.

Table 15

Tea Offered for Sale at Colombo & London Auctions

Year	Quantity offered at Colombo Auctions	Quantity shipped to London	Total*	Percent offered at Colombo Auctions	Percent shipped to London
1960 ..	331	81	412	80·3	19·7
1961 ..	352	87	439	80·2	19·8
1962 ..	353	107	460	76·7	23·3
1963 ..	365	109	474	77·0	23·0
1964 ..	342	115	457	74·8	25 2
1965 ..	368	125	493	74·6	25·4
1966 ..	359	108	467	76 9	23·1
1967 .	369	110	479	77·0	23·0
1968 ..	369	111	480	76·9	23·1
1969 .	387	88	475	81·5	18·5
1970 ..	373	91	464	80·4	19·6
1971 ..	393	73	466	84·3	15·7
1972 ..	391	54	445	87·9	12·1
1973 ..	410	46	456	89·9	10 1

* Private sales not included.

Source: Central Bank Annual Reports.

Teas exported to the London auction consist mainly of high and medium growns. Demand factors limit the exports of low-grown teas to the London auction and the quantities of this type exported to the United Kingdom have not increased.

In examinig prices of all three categories of tea taken together, a decline in prices was observed since 1960. (Table 16.). Since very little low growns are shipped to London, average sale price at London may be taken to be the average for only high and mid grown teas. All tea prices both at London and Colombo auctions fell up to 1969 and then remaind firm till the end of 1973. However this indicates a fall in tea prices relative to other raw materials because the years 1972 and 1973 were a boom period for these products. There appears to be some impact upon tea prices during the first part of 1974. Another noteworthy feature is the increase in the price of low growns over that of medium growns after 1972. It is difficult to assess the role played by international tea consultations in 1969 and the implementation of a quota system since then in arresting the declining trend in tea prices. However there appears to be some stability in tea prices after 1969 specially for high grown teas which were exported mainly to the traditional markets such as the United Kingdom.

Table 16

Tea Prices at Colombo and London

	Average Colombo Auction Net Price (Rupees per pound)				London Auction Average Price (for all Ceylon) (New pence per kg.)
	High Grown	Medium Grown	Low Grown	All Teas	
1959 .	2 13	1·69	1·67	1·85	55·8
1960 ..	2 03	1·75	1·83	1·88	55·0
1961 ..	1 99	1·72	1·74	1·83	50·9
1962 ..	2·02	1 61	1·56	1·75	51·3
1963 .	1·90	1·54	1·53	1·68	48·0
1964 ..	1 93	1·58	1·49	1·68	49·4
1965 ..	1·93	1·66	1·64	1·75	47·0
1966 ..	1·84	1·46	1 37	1·57	46·7
1967 .	1·82	1 47	1·20	1·50	48 0
1968 ..	1·93	1·67	1·63	1·75	45·2
1969 ..	1 80	1·40	1·38	1·53	44·5
1970 ..	1·92	1·58	1·38	1·63	46·9
1971 ..	1·94	1·72	1·76	1·81	45·3
1972 ..	1·99	1·80	1·89	1·89	45·5
1973 ..	2·09	1·76	1·80	1·89	45·4
1974 Jan. ..	2 35	1·98	1·95	2 09	57·7
Feb. ..	2·49	2·10	2 07	2·24	57·4
Mar. ..	3 08	2·40	2·29	2·62	68·9
Apr. ..	2 78	2·38	2·46	2·55	61·9
May. ..	2·52	2 34	2·57	2·42	60·0
June	2·68	2·57	2·81	2 68	65·5

Sources: 1. Colombo Tea Brokers Association.
2. London Tea Brokers Association.
3. Central Bank Annual Reports.

Summary and Conclusions

During the course of this study some basic trends in the world tea economy and the tea industry in Sri Lanka were identified. Tea production, consumption and trade have been expanding during the period 1959–61 to 1969–71. The main problem has been that export supply has tended to increase faster than import demand; particularly in developed countries which accounted for the major part of world tea import trade during this period. The outcome of this situation has been a decline in the average price for tea in all auction centres. At the end of 1969, the supply situation changed because exports from India,and to a lesser extent, Sri Lanka were considerably reduced. Since 1959 the lowest stock figure in London for the month January was in 1970.

The price decline that took place through 1969 did little to encourage tea consumption in the developed counties since the demand there is price-inelastic. However apparently it encouraged producing and non producing developing contries (whose per-capita consumption is low) to increase tea consumption. There has been a gradual decline in tea consumption in the United Kingdom which has the highest per capita tea consumption in the world. It is probably unrealistic to expect a return to previous higher levels in United Kingdom per capita consumption, since competition from other beve-rages is strong and the English already drink about twice as many cups of tea as the Americans drink coffee.[1] In U. S. A. which is the second largest importer of tea there seems to be a significant increase in total tea consumption and preference for tea in this country can be due to promotion. Rapid increase in the domestic consumption of tea is created by India, which is the second largest consumer of this commodity has reduced the quantities available for export thereby helping to arrestthe declining trend in tea prices.

India and Sri Lanka accounted for about 63 per cent of world tea exports in 1969-71. This represented a decline from the 73 per cent in 1959-61. East African producers at the same time increased their share of the world market to 15 per cent. Capture of the United Kingdom market by African producers has been a significant feature in the trade. Tea exports from other producers such as Taiwan and Argentina also have increased. Cutbacks in export supplies by India and Sri Lanka were consequent to the quota system adopted after the international tea agreement in 1969. However East African countries and Argentina are carrying out their production and export expansion programmes. Replacement of Sri Lanka tea by African teas is high-lighted by quality and price improvements by Kenyan teas.

The tea export economy of Sri Lanka has to face the challenge posed by late developments in the international tea situation. On the one hand it has to carry out a vigorous campaign in order to maintain its present position in the traditional export markets such as U. K., U. S. A., Australia and Canada. This is vital because Sri Lanka is a major "quality tea" producer and these markets offer a wide range of goods needed for our economic development purposes.

1 This fact may be contested in the light of late developments in U. K. and U. S drinking habits due to the Energy Crisis etc. where there is the possibility of a shift from "Cool Drinks" to "Hot Drinks".

(taking into account the convertible currency factor also.) On the other hand Sri Lanka has the choice of expanding her new markets in the Middle East and Arab countries where incomes are rising rapidly due to oil price increases. As the relatively higher prices fetched by low-grown s in recent times reflect the increased demand generated through bilateral trading arrangements which are not necessarily advantageous to Sri Lanka it is better to make alternate arrangements for trade with these countries. This is important at a time when all tea prices are showing some improvement (specially during the first quarter of 1974) at London and other auction centres. Also it will be useful if we can estimate the possible decline in the demand for "Ceylon Tea" due to an intended brand name change to "Sri Lanka Tea". This would, I suppose be very detrimental to the Sri Lanka tea industry.

INTERNATIONAL LIQUIDITY: ITS IMPLICATIONS FOR DEVELOPING NATIONS

P. AMARASINGHE

This paper* analyses the problem of international liquidity facing the developing nations, the growth and the distribution of international reserves and the need for reserves from the standpoint of developing nations. The paper also examines the case for the establishment of a link between special drawing rights and development aid.

In brief, international liquidity, refers to the sum total of all reserve assets within the reach of nations for settling their foreign obligations. International liquidity comprises gold, Special Drawing Rights, foreign exchange holdings and the reserve positions in the International Monetary Fund (I.M.F.). The total of such reserves at the end of November 1973 was estimated to be 150 billion Special Drawing Rights (S.D.R.) (1 SDR = 0.888671 grams of gold). Of the world total, 23.9 per cent of the reserves is in gold, 66·1 per cent in foreign exchange holdings, 5·9 per cent in Special Drawing Rights in the IMF and 4·1 per cent in IMF reserves.[1]

One of the problems the world monetary system faces today is that the increase in gold supplies has been insufficient to meet the demand generated by the increase in world trade and payments. The fear of a shortage of liquidity in the developed countries has threatened to create an environment unfavourable to the rapid growth of developing countries.[2] If the fear of liquidity did not exist, the developed countries could have accelerated their own rate of growth without being unduly concerned about the balance of payments. As a result, one of the main objectives of international monetary reform should be to reduce the pressure on the balance of payments felt by the developed countries. This in turn would rebound to the benefit of developing countries through increased resource availability.

* I am indebted for the very valuable advice given to me by Dr. H. N. S. Karunatilake, in the preparation of this paper.

1. International Financial Statistics. February 1974. International Monetary Fund.
2. United Nations Conference on Trade and Development; "International Monetary Issues and the Developing Countries" (New York) Document No:TD/B/32 p.2

Concern over the existing arrangements are mainly due to three factors. Firstly, the world supplies of liquid reserves have increased at a slower rate than what is required for the expanding world trade. Secondly, the responsibility for adjustment is not equitably distributed between countries in a debtor position and those in a creditor position. Thirdly, the recourse to the method of exchange rate adjustments has political and social implications of a kind not generally acceptable.

Developing nations are concerned with the problem of international liquidity for the following reasons:–

(1) The growing need for short-term external financing to tide over periodic fluctuations in annual exchange earnings.

(2) The constraint it poses to economic growth as a result of the inadequacy of foreign resources.

(3) The present monetary arrangements appear to impede the growth of international trade to the detriment of developing countries.

Due to instability in export trade and or increase in import prices developing nations are forced to build up their reserves even though most of these countries are experiencing acute balance of payments difficulties. However, it would appear that the build up of reserves was more a result of import price fluctuations than export instability.

Table 1

International Reserves (In Billions U. S. Dollars)

	1966	% contribution	1970	% contri. bution	1971	% contribution	1972	% contribution	1973 (Nov)	% contribution
1. World	72·6	100	92·6	100	130·6	100	158·7	100	180·8	100
2 Industrial countries	54·3	74·8	65·8	71·0	94·1	72·0	105·7	66·6	115·2	63·7
3. Other developed areas (a)	6·2	8·5	8·5	9·2	13·1	10·0	20·9	13·2	24·9	13·8
4. Less developed areas (b)	12·1	16·7	18·3	19·8	23·4	18·0	32·1	20·2	40·7	22·5

Source: International Financial Statistics–1974 Feb.

Notes: (a) Other Developed Areas include: Finland, Greece, Iceland, Ireland, Portugal, Spain, Turkey, Yugoslavia, Australia, New Zealand, South Africa,

(b) Less Developed Areas include: Latin America, Middle East, other Asia, other Africa.

The reserve position of less developed countries increased from U. S. Dollars 12·1 billion in 1966 to U. S. Dollars 40·7 billion in 1973. Further the reserves of less developed countries, which have risen steadily since 1966 have increased by 236 per cent from 1966 to 1973 as compared to an increase of 149 per cent in the world reserves. Over a period from the end of 1960 to the end of 1969, increases in reserves were spread over a wide range of less developed countries, shared by all geographic areas. One can argue that although some developing countries have tried to achieve a balance between reserves and development, many have sacrificed development for the building up of reserves.

Table 2

Composition of Reserves at the end of March 1973

(In billions of SDRs)

Less developed areas	Gold	SDRs	Reserve Positions in the fund	Foreign Exchange
Western Hemisphere[1] ..	1·1	0·6	0·4	7·2
Middle East[2] ..	1·0	0·1	0·2	6·0
Asia[3] ..	0·7	0·5	0·2	5·3
Africa[4] ..	0·4	0·3	0·2	4·4
Total (less developed areas) ..	3·2	1·5	0·9	22·9
Total (World) ..	35·8	8·7	6·2	95·7
% of LDC's reserves to world reserves	8·9	17·2	14·5	23·9

Source: I. M. F. Annual Report 1973.

(Totals may not add because of rounding off and because IMF has included unpublished data for component areas in some totals).

1. Argentina, Bolivia, Brazil, Central America, Chile, Colombia, The Dominican Republic, Ecuador, Guyana, Haiti, Jamaica, Mexico, Panama, Paraguay, Peru, Trinidad and Tobago, Uruguay, Venezuela and Barbados.
2. Cyprus, Egypt, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Saudi Arabia, the Syrian Arab Republic, and the People's Democratic Republic of Yemen.
3. Afghanistan, Burma, The Republic of China, India, Indonesia, Korea, Malaysia, Nepal, Pakistan, Philippines, Singapore, Sri Lanka, Thailand, Vietnam, The Khmer Republic and Laos.
4. Excluding Egypt and South Africa.

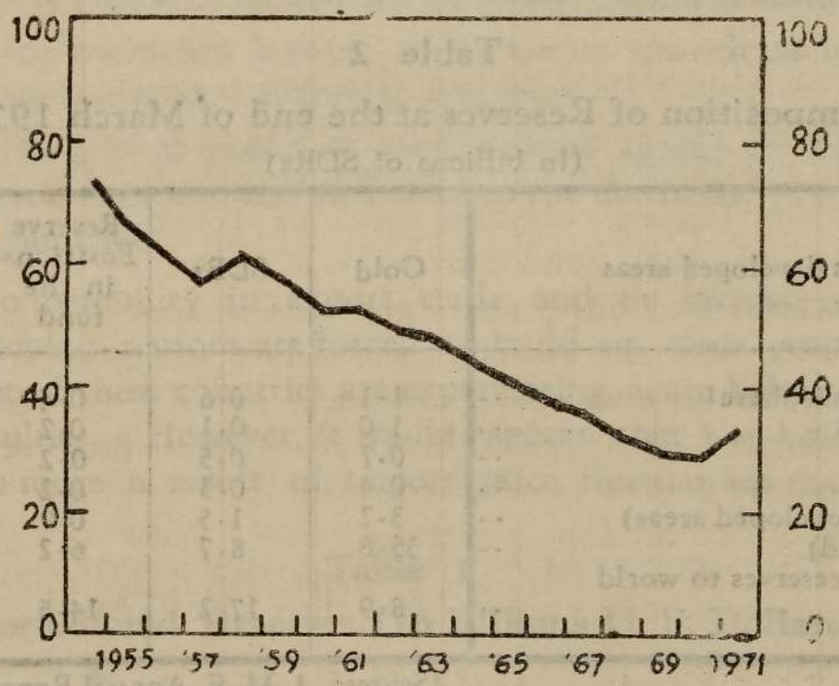
The table 2 shows that the less developed countries as a whole accounted for 8·9 per cent of world holdings of gold, 17·2 per cent of Special Drawing Rights, 14.5 per cent of reserve position of the fund, and 23·9 per cent of world holdings of foreign exchange.

The need for official reserves over time can be illustrated by the variation in ratios of reserves to various economic aggregates that are customarily thought to provide an indication of changes in the need for reserves. The ratio most commonly used for this purpose is that of reserves to imports. The chart below shows the ratio of reserves to imports for 60 countries combined.

CHART I.

RATIO OF AGGREGATE RESERVES TO AGGREGATE IMPORTS OF 60 COUNTRIES 1954-71*

(In per cent)



*Reserves are annual averages of monthly data.

Source: I.M.F. Annual Report 1973.

Although the ratio declined continuously to 1970, it showed an increase in 1971. This is attributed to reserve increases accruing to Japan and Germany. As far as developing nations are concerned the ratio of reserves to imports continued to decline. In 1959, the ratio of reserves to imports stood at 43·7 per cent, in 1968 it was 35·6 per cent.[1] This continued to decline, and further deteriorated in 1971.

Most countries in Asia and Africa kept high reserves prior to 1950, and have drawn from these reserves in the sixties for the development effort. Industrial countries have maintained a ratio of

1. I. M. F. Annual Report 1969, p. 22.

more than 30 per cent. In 1972 industrial countries maintained a ratio of 41 per cent of reserves to imports. In the case of Sri Lanka she maintained a ratio of 15·3 per cent in 1967 and it was 17·5 per cent in 1972.

The problem that developing nations face in this situation is that the proportion of the reserves is not exactly the same for developing countries as for developed countries because of the easier access of the latter to ad hoc supplements.[1] In this context, the significance of the Special Drawing Rights scheme is that the developing countries could get a larger proportionate reserve increase out of a given creation of SDR.

Although the developing countries are sacrificing their development to accumulate reserves, they still suffer from the insufficiency of short term reserves. It can be argued that the short term liquidity problem of developing countries surpasses those of the developed countries. Further, the developing nations' foreign exchange earnings, generally depend on a few primary products. Secondly, in the absence of special international agreements, the ability of these countries to obtain credit on reasonable terms is much less than that of the more affluent countries. The price fluctuations, worsening of terms of trade, import restrictions in advanced countries have aggravated the reserve positions of developing nations. Particularly, the short-term liquidity problems are pronounced due to significant fluctuations in annual agricultural output and wide margins of export prices of primary products with low supply elasticity.

Demand for International Liquidity

There are many reasons for the present demand for international liquidity. Firstly, an increase in world production and trade would require a greater volume of international means of payment. If one accepts this position, the availability of international liquidity has not been adequate in recent years to meet the tasks proposed by the United Nations Development Decade. Over the ten years 1954–64, the value of international trade rose at an average rate of 5·8 per cent per annum and the value of international transactions by even more. But

1 A. Kafka: International Liquidity; Its Present Relevance to the LDCs. Proceedings and Papers of American Economic Review, May 1968 p.597.

the average annual rate of growth of international liquidity (which is composed of gold, foreign exchange and gold tranche positions at IMF) amounted to only 2·8 per cent per annum.[1] In the past decade there was a persistent and substantial growth in the demand for international liquidity without a corresponding increase in the means of international liquidity. During the period 1964–74, world imports increased by 8·5 per cent per year, and reserves by 5·3 per cent.

As a result of underlying changes in the demand for traditional export products of countries, disequilibrium could occur in the international trading structure, which could lead to changes in the demand for increased international liquidity. Changes in demand in this context could arise due to changes in tastes or changes in comparative advantage. The growth in income in advanced countries does not necessarily lead to a corresponding increase in demand for many primary products, as taxation usually absorbs a higher margin of the increased incomes in developed countries. Further, any increase in income accruing to residents in developed countries are spent on consumer items produced by themselves. Even if the prices of primary products are to fall, this would not lead to any increase in the demand for these commodities in advanced countries because it is observed that elasticity of demand for these products is low. Food and Agricultural Organisation (F. A. O.) has shown that while in importing countries as a whole the consumption of tea rose at the rate of 2·0 per cent per year during the period 1950–52 to 1960–62, in the high income countries, the increase was about 1 per cent per year and was largely due to the growth of population since there was virtually no response to changes in price and little tendency for consumption to rise with increase in money and real income.[2] The relative share of natural rubber in total world rubber consumption has declined progressively from 62 per cent in 1952, to 50 per cent in 1962.[3] The I.M.F. has summarised these difficulties of developing countries and their consequences for the problem of adequate international liquidity, with a comment that such structural problems in international trade as are now

1. International Monetary Fund. Annual Report 1964. pp.29-30

2. F.A.O. The Trends and Prospects, Monthly Bulletin of Agricultural Economics and Statistics. Vol.14

3. United Nations Conference on Trade and Development (U.N.C.T.A.D.) Commodity Trade, Part III, 1964, p. 352

faced by these countries have made it extremely difficult for them to simultaneously achieve the goals of rapid growth and internal and external stability.[1]

The imposition and non-removal of artificial restrictions like high tariff rates tend to restrict the volume of potential exports of developing countries. This in turn reduces the ability of the developing countries to acquire a sufficient amount of international liquidity, mostly in terms of foreign exchange reserves. As Johnson has pointed out, most developed countries have progressively increased such tariff rates in terms of the degree of manufacturing content of exported products of developing nations. If tariff preferences could be granted to the manufactured products of developing nations, it would result in a better form of transfer of assistance rather than granting direct aid.[2]

Formation of economic unions results both in trade diversion and trade creation effects. As far as the developing nations are concerned the trade diversion effects are harmful. Most developing countries are non-partner countries in these economic unions. The levels of tariffs, excise duties and the degree of quantitative controls imposed by economic unions on these non-partner countries are severe. The common external tariff of the European Economic Community has presented numerous problems to exports of many developing countries including Sri Lanka. The proposals designed to reform the international monetary system in order to increase the availability of world liquidity should consider the significance of harmful trade diversion effects on the balance of payments of developing contries.

Accelerated programmes of development have resulted in increases in consumption and investment in developing countries. This has resulted in the rate of growth of imports exceeding the current rate of growth of exports.

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1. I.M.F. Annual Report, 1965. p.11

2. H. J. Johnson: Economic Policies Towards Less Developed Countries; The Brookings Institution p.214

Table 3

Primary Producing Countries
Trade Balance 1967–70

(In million U.S. $)

	1967	1968	1969	1970
Far East Asia	–1134	–1423	–1645	– 1636
South East Asia	–1952	–2055	–2209	– 2664
South Asia	–1659	–1181	– 841	– 722
Total Asia	–4745	–4659	–4695	– 5022
Total Primary Producing Countries	–8494	–8536	–8034	–10584

Source: IMF Annual Report 1971 page 78

This table shows the magnitude of the problem of the trade gap that the developing nations face. Although the deficit trade balances of South Asian countries have improved, the deficit trade balances of all primary producing countries have deteriorated from $ 8,494 million in 1967 to $ 10,584 million in 1970. The need for rapid economic development on the part of developing countries through the acceleration of imports has resulted in chronic balance of payments deficits which cannot be solved by traditional fiscal and monetary measures. If adequate international aid is not forthcoming the current account deficits resulting from accelerated development would have to be solved through measures aimed at a reform of the present monetary system.

The Debt Servicing Problem

Another problem which is closely linked to liquidity is the debt servicing problem. The I.M.F. points out that the annual debt servicing requirements (payments of interest plus amortization of principal) on the public debt of 37 selected developing countries increased by about 250 per cent between 1956 and 1964. The Pearson Report shows that if the resource gap is to be met with loans on relatively hard terms, (International Bank for Reconstruction and Development terms) debt service would reach 101 per cent of export earnings in 30 years, if exports grow at 5 per cent per annum. However, if exports grow at 8

per cent per annum the debt service ratio after 30 years would be 43 per cent. On Development Assistance Committee (D.A.C.) terms the debt service ratio would rise to 39 per cent in 30 years and 17 per cent if exports grow faster.[1]

The growth of the debt servicing ratio (debt service payments/ export earnings) is an important variable in the discussion of international liquidity. If a country has a shortfall in liquidity through export fluctuations it could borrow from IMF under the compensatory financing scheme. With the fall in export earnings, as the developing nation's access to international liquidity is restricted mainly to limited funds from the above scheme, and as the commitments to increasing import requirements and debt servicing ratios exceed that of export earnings, there is a very strong case for establishing a link between the creation of international liquidity and foreign aid.

International Liquidity and Development Effort

In estimating the total quantity of international liquidity particularly from the view point of developing countries, one could classify liquidity into (a) primary, (b) subsidiary, and (c) ad hoc.[2] The major supply of international liquidity is concentrated in the hands of industrial countries while the major demand for international liquidity arises from the developing countries which fall under Article XIV of IMF articles of agreement. In estimating the international liquidity for developing countries we would exclude ad hoc liquidity.

Primary liquidity consists of gold and those foreign currencies which are universally accepted in settlement of international transactions. Subsidiary resources of liquidity are provided by IMF to its members for the purposes of meeting current balance of payments difficulties. Member countries could obtain liquidity through the gold tranche and credit tranche. By adding up the unused drawing

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1.

Explanation of terms	*Interest*	*Matnurity*	*Grace Period*
I.B.R.D.	7%	25 years	5 years
D.A.C.	3%	25 ,,	5 years

Partners in Development. Report of the Commission on International Development. Praeger Publishers 1969 New York. p.161

2. Rajendra Kumar: The Problem of International Liquidity for Developing Countries – Especially India. The Developing Economies Sep. 65, p.343

rights of IMF countries, we could estimate the aggregate quantum of subsidiary international liquidity in the world. The IMF could provide international liquidity on credit to primary exporting countries over and above the normal financing limit, if their payments difficulties are a result of a temporary shortfall in export earnings. The extent of the financial assistance is limited to 25 per cent of the member's quota. Ad hoc liquidity refers to the supply of liquidity through currency arrangements arrived at bilaterally or regionally. This does not apply to developing countries, as these arrangements are only used by advanced western European countries, U. S. and Canada. Kumar contends that to view the problem of international liquidity from a proper perspective, it is essential to elucidate the concept of international liquidity in the context of economic development.[1] The conventional practice of indicating the state of international liquidity by an aggregate figure for the entire world is of little help in grasping the problem. What is relevant is to relate the liquidity to balance of payments differences. One could test the adequacy of international liquidity for a country over time by relating the reserve position to the extent and the direction of fluctuations in its balance of payments. His study shows that the present problem of international liquidity facing the developing countries is a qualitative one, resulting from differences in the balance of payments situation in the developed and the underdeveloped countries. Therefore, we could agree with the conclusion that the provision of additional resources of international liquidity for developing countries would only mean a short term remedy. The real solution to the problem would be to remove the payments imbalance between the developed and the underdeveloped nations. If we accept this conclusion, foreign aid would be of little help to solve the liquidity problem. But external aid should contribute in some measure to relieve balance of payments pressure in countries where a long term deficit is the counterpart of a universally accepted development policy.[2]

Depending on the balance of payments deficits, the international liquidity problem of the developing countries could be viewed in terms of short run and long run. In the short run the size of the deficit would be a function largely of the intended rate of economic growth.

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1. Ibid, pp. 346

2. S. Weiller: Existing International Payment and Exchange System in Relation to Problem of Growth. In Harrod and Hague ed. International Trade in Developing World. p. 353.

The increased provision of international finance through aid, helps either in pushing the rate of economic growth without balance of payments difficulties or in reducing the balance of payments deficits resulting from the existing investment programmes. In the short run, it is a case of limiting the deficit to the extent of available resources of international liquidity, both primary and subsidiary.

The deficit in the long run would depend, apart from the progress of economic development, on the terms of aid obtained from abroad. If the amortization obligations and the debt servicing burden are heavy, balance of payments deficits would continue to exist and the demand for international liquidity also would persist. In the long run, it is only if the country's foreign exchange receipts become large enough to offset its payments, that the problem of international liquidity would tend to disappear.

The persistence of the shortage of international reserves for a long period, would have adverse cyclical repercussions on the developing countries. The lack of international finance would compel the country to limit its growth rate. The slow rate of growth would prolong the balance of payments problems. Hence the problem of international liquidity would persist. Developing nations, therefore, are faced with a two-sided problem. On one hand, they face a chronic shortage of international liquidity due to the requirements arising from the goal of development. On the other hand, they have little access to the resources of such liquidity.

The study of Kumar[1] on the reserve positions of the countries for the period 1954-63 showed that developed countries (article VIII countries) have continued to hold nearly three-fourths of the primary reserves owned by the reporting countries. They also had access to four-fifths of the subsidiary reserves available on credit from IMF. Out of the country reserves held in the form of gold the developed countries had 88 per cent. Out of the IMF liability at the end of 1963 to provide subsidiary resources of international liquidity, only 23 per cent belonged to the developing nations, showing thereby that their IMF drawing rights had been used up on a comparatively large scale.

1. Kumar, op. cit; p. 349.

These findings show that the distribution of the world supply of international liquidity has continued to remain in favour of developed countries, leaving the problem of international liquidity to the developing countries.

Reform of the International Monetary System

Because of these problems the developing nations are as interested in the reform of international monetary system as that of developed countries. Johnson argues[1] that the developing nations have a particular interest in the establishment of a system that will expand international liquidity at a rate high enough to impart an inflationary bias to world economic development. This is because, some moderate upward trend of prices in a developed country induced by demand pressure, facilitates the reallocation of resources and the mobility of labour. The promotion of planned economic development in less developed countries tends to generate inflationary price movements which tend to cancel out their price increases in the developed countries to which they export.

There are several ways to increase the availability of international liquid resources for developing countries. As UNCTAD experts[2] point out they include the following:–

1. Addition to reserves through the creation of new reserve assets.
2. Expanding credit facilities in addition to those of the Fund (I. M. F.).
3. Easing and rationalising the conditions governing drawings within the IMF credit tranches
4. Raising fund quotas of developing countries either by themselves or as a part of a general increase.
5. Liberalising the IMF compensatory financing facility.

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1. Johnson op. cit; p. 217.
2. UNCTAD, 'Monetary Issues op. cit; p. 11.

It is not the purpose of this paper to discuss each item mentioned above and the numerous plans forwarded to solve the problem.[1] However, highlights of two important plans would be mentioned. Stamp plan proposed that less developed countries could be given certificates representing the purchasing power that could be used for development expenditures in the developed countries. The Commodity Reserve Currency unit (C.R.U.) proposal of Hart, Kaldor and Tinbergen came out with a scheme under which the IMF would be converted into a world central bank whose liabilities would be backed by gold and by warehouse receipts for a bundle of primary commodities whose aggregate value would be stabilised in terms of gold by the Fund's open market operations. Under this scheme, existing holdings of reserve currencies would be liquidated by sales of stockpiled commodities and all the countries would become free to alter the rate of exchange between the currencies.

UNCTAD experts on international monetary issues, oriented their thinking towards finding general solutions to the problem of international monetary reform with specific consideration of the problems of developing countries and their solution. They concluded that reform of the international monetary system should be concurrent with a plan for the adoption of trade and aid policies that would contribute to the solution of the problem of structural disequilibrium of developing countries. Hence it was both feasible and desirable for developing countries to participate both in the creation and distribution of any new reserve asset.

The UNCTAD group of experts was in broad agreement with a C.R.U type of reserve asset which would offer a way out of the problem of an inadequate international reserve and the problem of conversion of key currencies to gold. But they recommended universality in both creation and distribution of the new reserve asset.

The 'Link' Proposal

The most important recommendation of the UNCTAD experts was the proposal to link the counterpart currency subscriptions of the group of ten countries to a scheme of aid for developing countries, channelled through the World Bank In terms of the proposal, the

1. For a description of alternative plans see: Fritz Machlup: 'Plans for the Reform of the International Monetary System', Princeton, 1962.

IMF would lend part of the usable counterpart currencies deposited by member countries (primarily developed countries), against the issues of reserve units to the World Bank and its affiliates for investment in developing countries receiving IBRD bonds in exchange.

The above scheme to link development finance with international liquidity would not alter the total of fund units created in the light of the world distribution of these units between developed and developing countries taken as a whole. But it means that each developed country would have to compete for the additional orders for development goods engendered by World Bank investments, in order to retain the full addition to its reserves represented by the initial distribution of Fund Units.

The main items of the proposal are as follows:–

(a) In the first instance, the additional liquidity created by the Fund will be shared by all members in the form of Fund Units in accordance with an agreed formula (for example, on the basis of Fund quotas).

(b) That part of the currencies acquired by the Fund which is invested in IBRD bonds will represent an eventual transfer of real resources from the developed countries taken as a whole to the developing countries. To the extent of the investment in IBRD bonds, therefore, the developed countries in essence accept an obligation to transfer real resources in consideration of the additional liquidity acquired by them.

(c) The developing countries will share in the transfer of real resources in proportion to their share in bank loans. The share of each of the developed countries in the transfer of real resources will depend on its willingness and ability to obtain export orders as a result of bank loans.

Developing countries will gain in two ways. They will have their share in the original creation of liquidity, and they will obtain real resources for development to the extent that the Fund invests in IBRD bonds. The developed countries as a group gain in terms of additional liquidity in proportion to their share in the original creation of Fund Units.

There are a number of objections that could be raised against this scheme. One is that if the creation of liquidity is linked with the provision of development finance there might be pressures for the creation of too much liquidity.

In the above proposal, the timing and distribution of the initial liquidity creation does not depend on disbursement by the World Bank. Therefore, fears are expressed about the creation of liquidity being dependent on the uncertainty of the rate of disbursements. Also there is the fear of inflation in the developed countries as a result of the disbursements by the World Bank.

Opposition to the link has also arisen principally from the view that reserve creation should not become a mechanism for effecting permanent tranfers of real resources from one set of countries to another and that it should therefore be kept materially separate from development assistance.[1]

This scheme proposes to solve the short term liquidity problem by ensuring an adequate supply of 'neutral' international money on the one hand, and to solve the long term liquidity problem of the developing countries by providing for a real resource transfer from the developed to the developing countries on the other.

The current discussions on international monetary reforms as it affects developing nations centre on the establishment of a link between the creation of Special Drawing Rights and the financing of development aid. This proposal which was discussed at the meeting of the Committee of Twenty held in Washington in June 1974, focussed on this need of a 'link' to meet the developing countries' demands for an adequate supply of international liquidity.

Both a direct and indirect link could be established if the new facility of SDR is linked to development aid. The direct link could result if a portion of SDR allocation to the industrialised countries could be transferred directly to the International Development Association (I.D.A.). The developing nations could borrow from IDA. Indirect link could be established if the industrialised countries pay to the IDA any amount proportionate to the allocation of SDR. The

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current system of Special Drawing Rights has been operated mainly in favour of industrialised countries. Up to the end of November 1973, industrial countries were allocated 66·3 per cent of the total allocation of SDRs, while only 25·2 per cent was allocated to the less developed countries.

Table 4

SDRs Allocations as at 31st December, 1973

(Mn. SDR)

Industrial Countries	6,177·7	66·3%
Other Developed Areas	789·1	8·5%
Less Developed Areas of which	2,348·0	25·2%
Latin America	879·1	9·4%
Middle East	239·4	2·6%
Other Asia	765·0	8·2%
Other Africa	464·5	5·0%
Total (World)	9,314·8	100%

Source: International Financial Statistics - February' 74

This is because the current facility of SDR is closely linked to the IMF quotas. Further, there is a requirement to settle the balances in short periods.

One of the major arguments that is levelled against the link between Special Drawing Rights and additional development aid is that, it creates inflationary tendencies. Even if the 'link' is established, the IMF could still act in a responsible way as it has acted in the past. Further, the necessity to create more SDR is not based on the world reserve requirements but on the criterion of increasing development aid. Further, the distribution on voting rights of the IMF is biased towards industrialised countries. The European Economic Community and U.S.A. alone hold 48·7 per cent of votes. Any decision to

increase SDR requires 85 per cent of the total votes. This itself will act as an obstacle to increase SDR to that extent of creating inflationary hazards.

The significance of the 'link' is that it could provide assistance to developing countries whose development programmes are affected by shortfalls in export proceeds. The existing facilities provided by the IMF are inadequate to deal with these problems. Any development assistance that could be provided through the establishment of a link between a new facility of SDR and development finance could be closely integrated to a country's development programmes.

SPATIAL ORGANIZATION OF AGRICULTURE IN THE TRADITIONAL RURAL SETTLEMENTS IN THE MAHAWELI DEVELOPMENT AREA: PROBLEMS AND PROSPECTS

M. U. A. TENNAKOON

This study has two main objectives. First, the study of the spatial organization of agriculture in the traditional rural settlements (purana villages) in the Mahaweli Development Area. Second, to examine whether the land value, yield per unit area and cropping intensity decline with the diminishing supply of irrigation water and agricultural labour, with increasing distance from the tank and the settlement respectively.

I

Proposed Methodology of Study

The analysis in part I has been made after a very careful examination of land use in a large number of traditional rural settlements in the Mahaweli Development Area. Due to the limited availability of data several assumptions have been made to study the spatial organization of agriculture in these settlements.

The assumptions are that

(a) there are five land use zones in a village which vary from village to village in size;

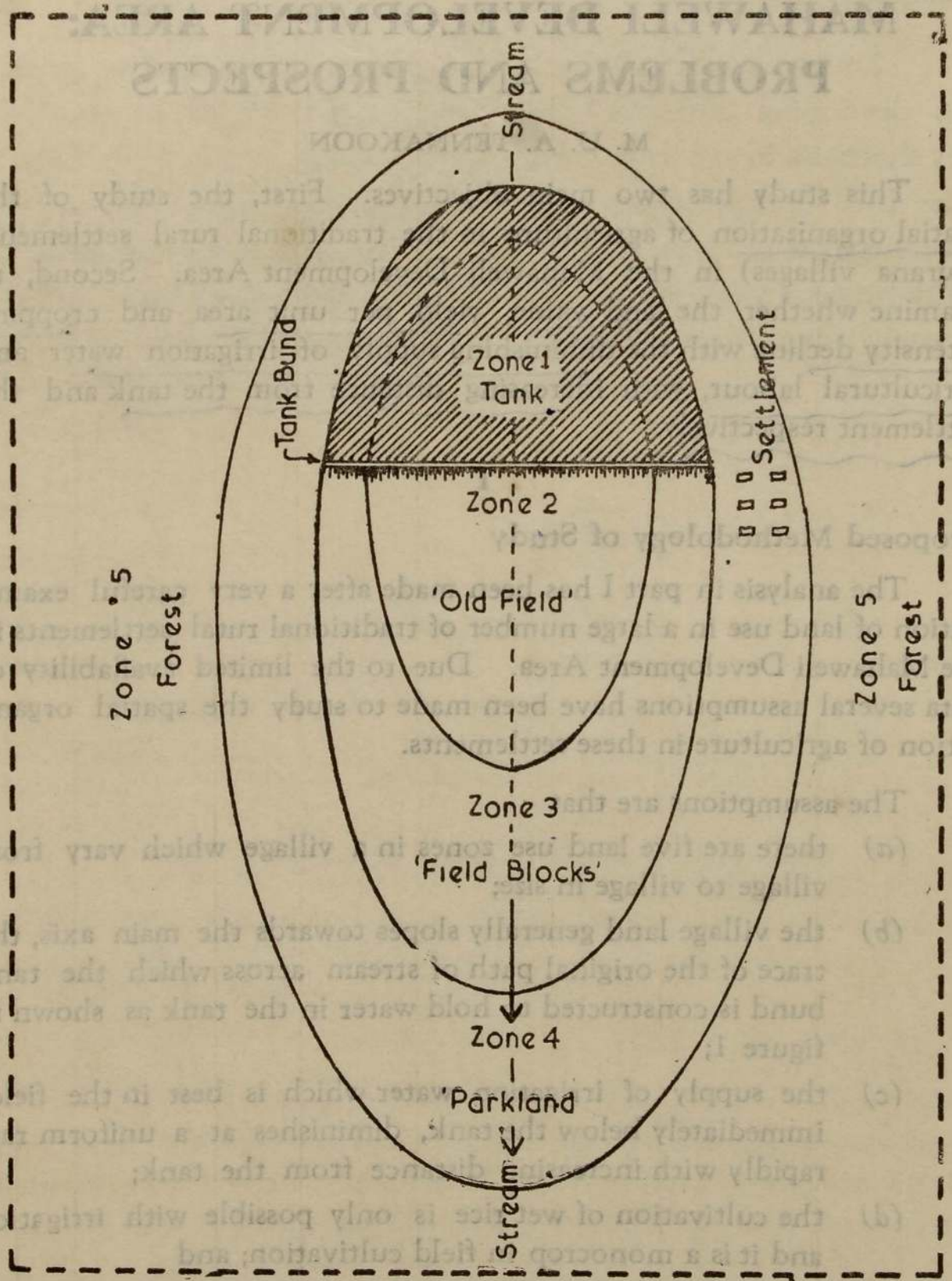
(b) the village land generally slopes towards the main axis, the trace of the original path of stream across which the tank bund is constructed to hold water in the tank as shown in figure 1;

(c) the supply of irrigation water which is best in the fields immediately below the tank, diminishes at a uniform rate rapidly with increasing distance from the tank;

(d) the cultivation of wet rice is only possible with irrigation and it is a monocrop in field cultivation; and

(e) farming is conducted absolutely rationally, which means, that farmers cultivate their fields to maximize their profits and that they possess sufficient knowledge to work towards that end.

FIGURE 2



DIAGRAMATIC REPRESENTATION OF SPATIAL ORGANIZATION OF AGRICULTURE IN A PURĀNA VILLAGE

Postulated Zonal Distribution of Land Use

The spatial organization of land use in the postulated zones varies from one another.

Zone 1

Zone 1 consists of the irrigation tank. The tank constructed by building an earth dam thrown across a seasonal stream is located in the upper portion of the diagram. The tank is considered the heart of the village economy, because the spatial organization of agriculture in a Dry Zone village directly depends upon the tank. Particularly, the size of the village settlement and the extent of land irrigated below the tank directly depend upon the amount of water that the tank holds.

Zone 2

Zone 2 is the 'Old Field' (Purānawela) which occupies the land immediately below the tank. The supply of irrigation water from the tank and labour from the village settlement are most available to it by virtue of its location very near the tank and the settlement. Therefore, it is expected that farmers would cultivate the 'Old Field' more intensively than the fields further away from the tank. Here, double cropping is possible and as it has the best of locational advantages, it is expected that the demand for irrigated rice fields in this area is very high and that the land values are also high.

Zone 3

After the opening up of the 'Old Field', farmers have developed individually owned irrigated fields of large size immediately in the peripheral zone of the 'Old Field'. This process, over a period of time, has created a fairly extensive stretch of rice fields in zone 3. In the course of time the individual fields of this zone have been sub-divided. However, due to their comparatively recent origin sub-division in zone 3 is much less than that in the 'Old Field' in zone 2. As the supply of irrigation water is less satisfactory in this zone mostly owing to its distance from the tank, double cropping is highly uncertain particularly in years of low rainfall. We call this the zone of 'Field Blocks' to differentiate it from the 'Old Field' without confusion.

Zone 4

This zone is situated beyond zone 3. Irrigation with tank water is almost impossible. As the supply of tank water for irrigation diminishes rapidly with increasing distance from the tank, that part of the zone which is far below the tank cannot obtain adequate water for irrigation. A greater part of zone 4 is along the sides of the diagram (figure 1) and is higher than the sluice level of the tank. Therefore, water cannot be conducted by gravity to a greater part of zone 4. As this zone is generally covered with short grasses, isolated trees and bushes, it is called 'Parkland' in this study. In this zone, in an area at or very near the lower edge of the tank bund, is the village settlement.

Zone 5

Zone 5 covers the largest extent of land. It is almost entirely covered by forest except for the clearings for chena cultivation. Like zone 4, it is a continuous girdle. The forest zone of one village generally continues to the forest zone of the neighbouring villages. Its outer boundary can take any shape unlike the boundaries of the other zones.

The resulting land use pattern represents a series of graduated ovals on a common axis (stream) within an arbitrarily fixed outer boundary of any shape (figure 1).

Validity of Postulated Zonal Distribution

It is necessary to see whether the postulated five zones of the spatial organization of agriculture exist in the traditional rural settlements in the Mahaweli Development Area. For this purpose, a sample of thirty villages (1 per cent) out of a total of 3,011 settled villages in Anuradhapura district has been randomly selected.

These thirty villages have been surveyed and mapped during the thirty-seven years from 1929 to 1966 (table 1). First, the Blocking-Out Plans (B.O.PP) have been completed and then the Final Village Plans (F. V. PP) have been finalised. Along with the B. O. PP and F. V. PP there are the Land Settlement Reports (L. S. RR) which contain, among other things, detailed information on boundaries, physical features, rice fields, highlands, garden extents, crops grown, yield per unit area, extent of waste lands and forest lands declared crown property.

The information available in the F. V. PP, B. O. PP, L. S. RR and other documents in the Village Files of the thirty villages has been carefully studied to see whether any improvement or major modification of the postulated five zones of the model is necessary. Table 1 shows the procedure adopted in this verification. If there is full agreement between the location of boundaries of the five postulated zones of the model and those evident in the records mentioned above, the agreement is considered as **perfect agreement** which is equal to 1. Where the agreement is less than 100 per cent but distinctly more than 50 per cent, it is considered as **less perfect agreement** which is equal to $\frac{1}{2}$. Any agreement less than 50 per cent is considered as **disagreement** which is equal to 0. On the above basis, there is 100 per cent agreement in zone 1 (Tank), 96·7 in zone 2 ('Old Field'), 96·7 in zone 3 ('Field Blocks'), 83·3 per cent in zone 4 ('Parkland') and 70·0 per cent in Zone 5 (Forest). The total agreement of all zones is as high as 89·7 per cent, disagreement being only 10·3 per cent.

Though the above test shows that there is 89·7 per cent agreement, the F. V. PP, B. O. PP and L. S. RR are fairly old sources. Therefore, to refine and update the results obtained by examining the above sources, aerial photographs taken in 1971 and 1972 have been consulted (table 2). This shows that there is no overall change in zones 1, 2 and 3. However, the percentage agreements of 83.3 and 70.0 in the zones 4 and 5 between the proposed framework and the F. V. PP, B. O. PP, L. S. RR, etc. have been reduced to 80·0 and 63·3 per cent respectively. The percentage reduction of agreement in zones 4 and 5 is largely due to the increasing efforts of the farmers to expand semi-irrigated rice cultivation in zone 4 and chena cultivation in zone 5. However, the grand total percentage agreement of 89·7 per cent obtained in table 1 is only slightly reduced to 87·34 in table 2, when the results are further refined with the use of aerial photographs. This agreement reduction after refinement is very negligible. Therefore, it can be concluded that this framework can be confidently used without a major modification, to study the spatial organization of agriculture in the traditional rural settlements in the Mahaweli Development Area where water, irrigable land and agricultural labour are highly limited.

Table 1

Agreement Between the Postulated Zones of the Proposed Frame of Study and the Actual Zones Depicted in the F. V. PP.

Name of Village	Surveyed In	F. V. P. No.	Postulated Zones Agreed or Disagreed with the Zones of F. V. PP.*				
			Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
1. Aminichchiya	1935	1213	1	1	1	½	½
2. Andiyagala	1935	1073	1	1	½	½	½
3. Dematawewa	1939	362	1	1	1	1	½
4. Horapola	1934	1106	1	1	1	1	1
5. Kainapathaha	1934	1131	1	1	1	1	1
6. Kahatagaswewa	1935	1191	1	1	1	1	½
7. Kaluarachchiyagama	1931	1035	1	1	1	1	½
8. Kawilagala	1931	1009	1	1	1	1	½
9. Katukeliyawa	1933	1260	1	1	1	½	½
10. Kitulhitiyawa	1931	1151	1	1	1	1	1
11. Kallankuttigama	1934	1186	1	1	1	1	1
12. Konwewa	1966	1329	1	1	1	1	1
13. Konakumbukwewa	1937	596	1	1	1	1	1
14. Kudamessalewa	1947	1292	1	1	1	1	1
15. Manakete	1934	1047	1	1	1	0	0
16. Maradankadawala	1937	1195	1	1	1	1	½
17. Nelugollekada	1953	1345	1	1	1	½	½
18. Nayakapuwewa	1945	1309	1	1	1	1	1
19. Pahala Ambatale	1929	1205	1	½	1	1	½
20. Paluketuwewa	1946	1291	1	1	1	1	1
21. Pattilapuwewa	1953	1331	1	1	1	½	½
22. Perimiyankulama	1937	1279	1	1	1	1	½
23. Relapanewa	1959	1393	1	½	½	1	½
24. Sandankuttigama	1935	1257	1	1	1	1	1
25. Siyambalewa	1938	1269	1	1	1	1	1
26. Ukkulankulama	1937	167	1	1	1	1	1
27. Ulankulama	1935	1196	1	1	1	1	1
28. Wadigawewa	1953	1357	1	1	1	1	½
29. Wambotuwewa	1934	1045	1	1	1	½	½
30. Watarakwewa	1946	1295	1	1	1	½	½
Total Agreements			30	29	29	25½	21
Total Agreement Percentage			100·0	96·7	96·7	83·3	70 0

Grand Total Percentage Agreement $[(30+29+29+25\frac{1}{2}+21) \div 150] \times 100 = 89 \cdot 7$

* Notes: Though the above agreements have been mainly determined by comparing the five zones of the proposed frame of study with the respective F.V.PP., care was also taken to consult B.O.PP., descriptions of the Land Settlement Reports and other descriptive information found scattered in the Village Files maintained in the Land Office, Secretariat, Anuradhapura.

1 = Where the postulated zone is in full agreement with the actual zone in the village which is demonstrated in the respective F. V. P.

½ = Where the postulated zone agrees with the actual zone in the village by less than 100 per cent, but more than 50 per cent.

0 = Where the agreement is less than 50 per cent.

TABLE 2 Agreement Between the Postulated Zones of the Proposed Frame of Study and the Actual Zones Depicted in the Aerial Photographs

Name of Village	Surveyed In	F. V. P. No.	Postulated Zones Agreed or Disagreed with Actual Zones in the Village*				
			Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
1. Aminichchiya ..	1935	1213	1	1	1	½	½
2. Andiyagala ..	1935	1073	1	1	½	½	½
3. Dematawewa ..	1939	362	1	1	1	1	½
4. Horapola ..	1934	1106	1	1	1	½	½
5. Kainapathaha ..	1934	1131	1	1	1	1	1
6. Kahatagaswewa ..	1935	1191	1	1	1	1	½
7. Kaluarachchiyagama ..	1931	1035	1	1	1	1	½
8. Karawilagala ..	1931	1009	1	1	1	1	½
9. Katukeliyawa ..	1933	1260	1	1	1	½	½
10. Kitulhitiyawa ..	1931	1151	1	1	1	1	1
11. Kallankuttigama ..	1934	1186	1	1	1	1	1
12. Konwewa .	1966	1329	1	1	1	1	1
13. Konakumbukwewa ..	1937	596	1	1	1	1	½
14. Kudamessalewa ..	1947	1292	1	1	1	½	½
15. Manakete .	1934	1047	1	1	1	0	0
16. Maradankadawala ..	1937	1195	1	1	1	½	½
17. Nelugollekada ..	1953	1345	1	1	1	½	½
18. Nayakapuwewa ..	1945	1309	1	1	1	1	1
19. Pahala Ambatale ..	1929	1205	1	½	1	1	½
20. Paluketuwewa ..	1946	1291	1	1	1	1	1
21. Pattilapuwewa ..	1953	1331	1	1	1	½	½
22. Perimiyankulama ..	1937	1279	1	1	1	1	½
23. Relapanewa ..	1959	1393	1	½	½	1	½
24. Sandankuttigama ..	1935	1257	1	1	1	1	1
25. Siyambalewa ..	1938	1269	1	1	1	1	1
26. Ukkulankulama ..	1937	167	1	1	1	1	½
27. Ulankulama ..	1935	1196	1	1	1	1	1
28. Wadigawewa ..	1953	1357	1	1	1	1	½
29. Wambotuwewa ..	1934	1045	1	1	1	½	½
30. Watarakwewa ..	1946	1295	1	1	1	½	½
Total Agreement ..			30	29	29	24	19
Total Agreement Percentage ..			100	96·7	96·7	80	63·3
Grand Total Percentage Agreement			[(100 + 96·7 + 96·7 + 80 + 63·3) ÷ 150] X 100 = 87·34				

● *Notes:*

The above agreements have been calculated by comparing the postulated zones of the proposed frame of study with those of actual zones of the thirty villages shown in the aerial photographs mostly taken in 1971 and 1972 by the Survey Department of Sri Lanka. Though the entire district has not been covered by the 1971 and 1972 aerial photographic survey all the thirty villages selected have been aerially photographed in 1971 and 1972.

1 = Where the postulated zone of the proposed frame of study is in full agreement with the actual zone of the village depicted in aerial photograph.

½ = Where the postulated zone of the proposed frame of study agrees with the actual zone of the village by less than 100 but more than 50 per cent.

0 = Where the postulated zone of the proposed frame of study is in agreement with the actual zone of the village by less than 50 per cent.

II

Hitherto, the main concern has been the study of the spatial organization of agriculture in rural settlements. This part of the study is devoted to examine whether the land value, yield per unit area and cropping intensity diminish with increasing distance from the tank, using the frame of study suggested in part I. The villages randomly selected for this detailed study are, Galkiriyagama, Galewewa, Katupatwewa, Kapiriggama and Thodamaduwa in the Mahaweli Development Area.

Land Value

It is customary to effect land sales among relations in the same village or in nearby villages. As land sales are effected among kinsmen, competitive bidding on lands is slight, if not totally absent, even though there is a demand for cultivable lands. Organized land sales agencies such as auction houses, real estate and property agencies, advertising agencies and even professional individual brokers have not penetrated into these interior villages to undertake the buying and selling lands. Therefore, there is a general lack of inflation of real land values by way of adding commissions, service charges, advertising fees, profits and the like. Hence, the value registered in the Land Registrar's Office (in Anuradhapura) can be taken as satisfactory.

Table 3

Per Acre Land Value Variation of Different Zones from 1967 to 1972 (In Rupees)

Name of Village	'Old Field' Zone 2			'Field Blocks' Zone 3			'Parkland' Zone 4			Forest Zone 5	
	Upper Unit	Middle Unit	Lower Unit	Upper Belt	Middle Belt	Lower Belt	Inner Belt	Middle Belt	Outer Belt	Inner Belt	Outer Belt
Galkiriyagama	1334	1042	1500	1800	1600	—	348	200	100	90	—
Galewewa	1540	1260	1400	2000	—	1580	764	—	150	200	—
Katupatwewa	931	1000	1300	1400	1330	1500	500	—	—	—	—
Kapiriggama	1474	—	1047	1500	1500	2000	493	240	—	350	335
Thodamaduwa	439	—	474	658	700	—	600	—	400	—	150

Notes:

The above values have been calculated from the Land Registers maintained in the office of the Land Registerar, Anuradhapura. Where there were more than one sale in a unit or a belt of a zone registered during the 6 year period, the average of all sales that have taken place in that unit was considered as the sale value of lands of the particular unit or belt of the zone Where there were no land sales during this period in a particular unit or belt, no attempt was made to impute a value.

Land values have varied annually. Therefore, to avoid wide price fluctuation over time, land sales during a short period of six years from 1967 to 1972 have been considered in this study.

When the land value variations of different zones of the five villages are represented in the form of a graph it shows several interesting features of the land value variation (figure 2). They are as follows :–

(a) In all five villages the 'Old Fields' situated immediately below the tanks show lower land values than those in the distant 'Field Blocks'.

(b) In four of the five villages, high land values recorded in 'Field Blocks' drop very sharply in the non-irrigable 'Parkland' and Forest zones. Even in the fifth village, Thodamaduwa, there is a distinct drop in land value in 'Parkland' and Forest zones.

(c) Land values in 'Field Blocks' are higher in the large villages (Kapiriggama and Katupatwewa) than in small villages[1].

(d) Thodamaduwa being relatively a newly developed village records low land values in all zones as the population pressure on cultivable lands is less than those in the old villages.

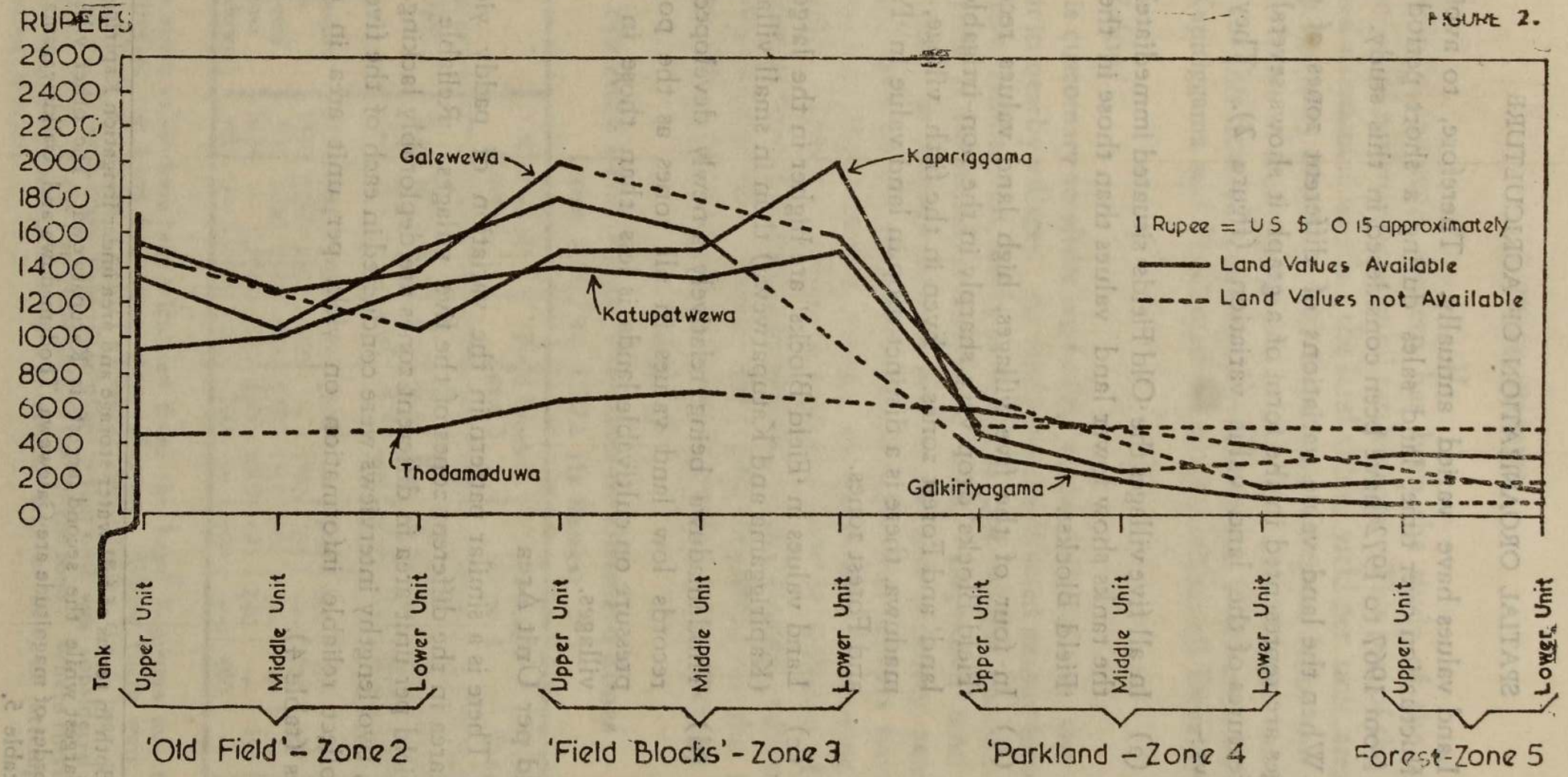
Yield per Unit Area

There is a similar pattern in the variation of paddy yields per unit area in the different zones of the five villages. Reliable statistics on yield per unit area in different zones are deplorably lacking. Therefore, two lengthy interviews were conducted in each of the five villages to collect reliable information on yield per unit area in different zones (table 4).

1. Both in terms of full water storage and area under irrigation Kapiriggama is the largest while the second largest is Katupatwewa. The other villages in the order of magnitude are Galewewa, Thodamaduwa and Galkiriyagama. Also see table 5.

PER ACRE LAND VALUE VARIATION FROM 'OLD FIELD' TO FOREST THROUGH 'FIELD BLOCKS' AND 'PARKLAND'

FIGURE 2.



Note: For easy exposition horizontal distances between the units or zones are assumed equal.

Table 4

Per Acre Yield of Paddy in Different Zones

(In Bushels)

Name of Village	'Old Field' Zone 2			'Field Blocks' Zone 3			'Parkland' Zone 4			Forest Zone 5		
	At First Interview	At Second Interview	Average	At First Interview	At Second Interview	Average	At First Interview	At Second Interview	Average	At First Interview	At Second Interview	Average
Galkiriyagama	18	25	21·5	40	40	40·0	10	15	12·5	15	20	17·5
Galewewa	25	20	22·5	50	55	52·0	12	10	11·0	20	20	20·0
Katupatwewa	20	20	20·0	45	55	50·0	12	15	13·5	25	25	25·0
Kapiriggama	25	30	27·5	50	60	55·0	18	20	19·0	20	30	25·0
Thodamaduwa	35	40	37·5	40	45	47·5	30	25	27·5	30	35	32·5

Notes:

These estimates were made by farmers themselves who took part in the two open interviews held in each village in 1972/73. The second interview was conducted approximately four months after the first interview and not all the informants of the first round of interviews were interviewed in the second round. Instead, some new informants were interviewed. This was mainly to determine the validity of information gathered during the first round of interviews.

The per acre yields that the informants furnished in the two rounds of interviews were averaged so as to avoid extremes of estimates. Yields of the 'Parkland' zone were based on farmers' experience of occasional highland rice (Manavari) cultivation. Similarly, the yields indicated for the Forest zones are based on farmers' occasional cultivation of rice in chenas.

When the final results obtained by averaging the results of the two interviews and presented in the form of a graph, a marked correlation appears between the per acre yield variation curves and land value variation curves of the respective zones of the five villages (compare figures 2 and 3). The major similarities are as follows:-

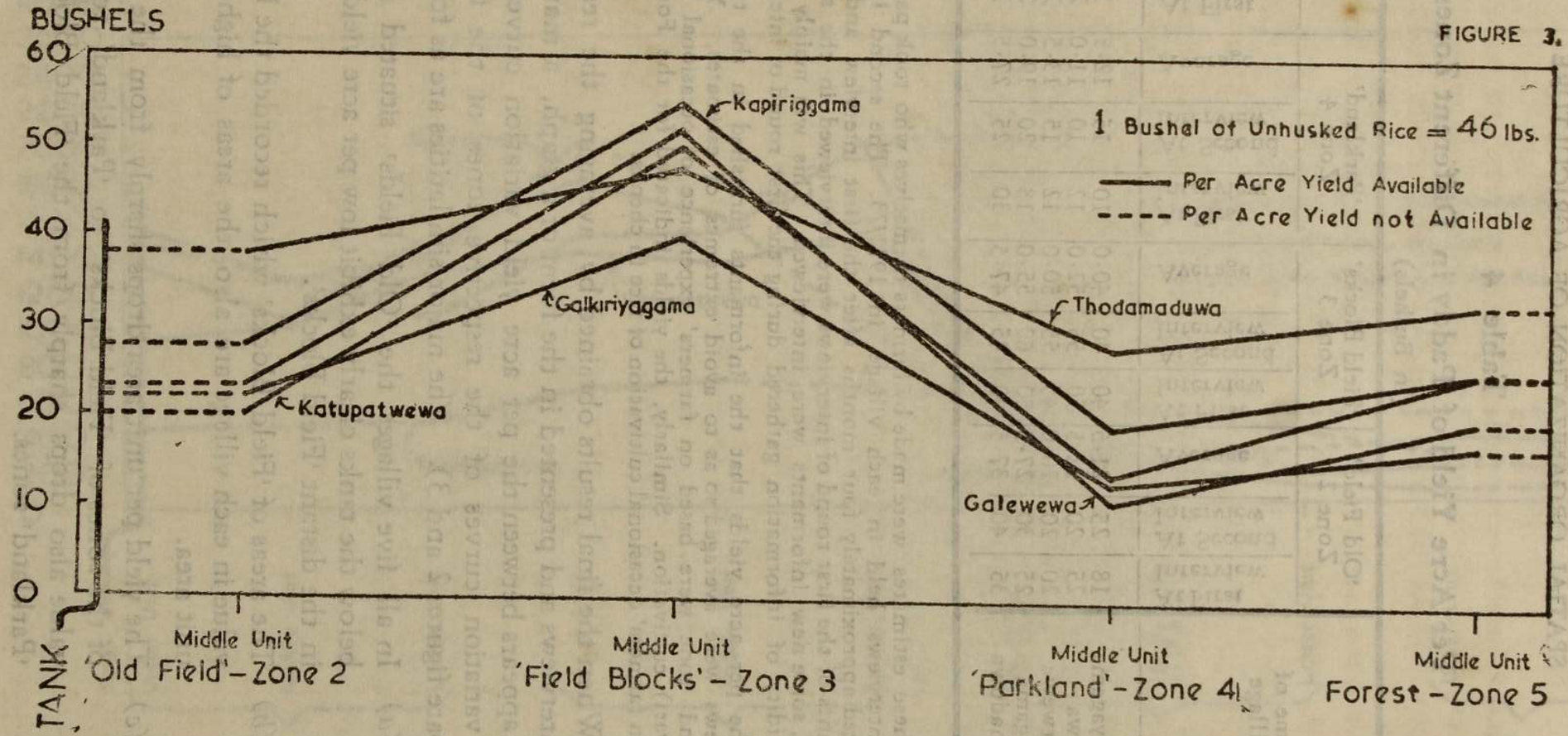
(a) In all five villages the 'Old Fields' situated immediately below the tanks clearly exhibit low per acre yield than those in the distant 'Field Blocks'.

(b) The areas of 'Field Blocks' which recorded the highest land value in each village are also the areas of highest yield per unit area.

(c) The yield per unit area drops sharply from the outer belts of the zones of 'Field Blocks' to 'Parkland' zones. Land value also drops sharply from the 'Field Blocks' to the 'Parkland' zones.

AVERAGE YIELD PER ACRE VARIATION FROM 'OLD FIELD' TO FOREST THROUGH 'FIELD BLOCKS' AND 'PARKLAND'

FIGURE 3.



Note: For easy exposition horizontal distances between the middle units of zones are assmed equal

(d) The disparities of land value between the zones of 'Field Blocks' and the other zones are more prominent in the old villages than in the newly settled Thodamaduwa village.

Cropping Intensity

The 'Old Fields' are larger than the 'Field Blocks' in small and medium size villages, whereas the reverse is true of the large villages such as Kapiriggama (table 5). When all the irrigated rice fields of the five villages are considered together, 53·0 per cent of the total area lies within the 'Old Fields' situated near the tanks and only 47·0 per cent lies in the distant 'Field Blocks'.

Table 5

Total Extent of Irrigated Paddy in the 'Old Field' and 'Field Blocks'

(In Acres)

Name of Village	Total Extent in Acres	'Old Field' – Zone 2		'Field Blocks' – Zone 3	
		Total Extent in Acres	Total Percentage Extent	Total Extent in Acres	Total Percentage Extent
Galkiriyagama ..	55	50	90·0	5	9·1
Galewewa ..	72	54	75·0	18	25·0
Katupatwewa ..	103	57	55·3	46	44·7
Kapiriggama ..	432	189	43·8	243	56·2
Thodamaduwa ..	61	33	54·1	28	45·9
Grand Total ..	723	383	53·0	340	47·0

Sources: Paddy Lands Registers of the five villages, Galkiriyagama, Galewewa, Katupatwewa, Kapiriggama and Thodamaduwa maintained in the District Office of the Agrarian Services Department, Anuradhapura, Sri Lanka.

Field investigation carried out in these five villages in 1972/73 do not show that 'Old Fields' are cultivated in time or with maximum care though the tanks had adequate water in time. In the Maha season of 1972/73, like in many other 'Old Fields' in the Mahaweli Development Area, the 'Old Fields' of Katupatwewa, Kapiriggama and Thodamaduwa have been left uncultivated. In Galkiriyagama and Galewewa, the 'Old Fields' were cultivated very late in Maha 1972/73. The work performance of many of the individual holdings in them was in a poor state.

It is necessary to examine why the 'Old Fields' of the traditional rural settlements in the Mahaweli Development Area are not cultivated or not properly cultivated. The 'Old Field' in zone 2 is surrounded by 'Field Blocks' in zone 3 (figure 1). Therefore, its area is fixed and no physical expansion is possible. However, the number of land owners in the 'Old Field' has increased steadily as the sub-division of holdings continues with increasing population in the villages where equal distribution of lands among children is strictly followed.

Table 6

Increase of Population

Name of Village	1953	1963		1972	
		Total Population	Percentage Increase Over 1953	Total Population	Percentage Increase Over 1953
Galkiriyagama ..	156	225	44·2	265	69·9
Galewewa ..	242	325	34·3	392	62·0
Katupatwewa ..	231	287	24·2	285	23·4*
Kapiriggama ..	180	233	29·4	318	74·7
Thodamaduwa ..	84	105	25·0	152	81·0

* *Notes:*

Low percentage increase of 1972 population over the 1953 population in Katupatwewa is largely due to the out migration of a number of families to newly developed neighbouring villages, Katukeliyawa and Pahala Maragahawewa as well as to the Rajangana Colony.

Sources: Village Lists, 1953 and 1963 (Unpublished), Department of Census and Statistics, Colombo, Sri Lanka.

Householders Lists, MSS, Divisional Revenue Offices of Kalagama Palatha, Nuwaragam Palatha, Kende Korale and Hurulu Palatha. Anuradhapura District, Sri Lanka.

Table 6 shows that except in Katupatwewa the high percentage increase of population of 1972 over the 1953 population varies from 62·0 to 81·0 per cent. In addition to the large resident population owning the village fields, there are the non-resident landowners who left these villages after marriage.

Continuous sub-division of land equally among children has created an excessive fragmentation of individual holdings in the 'Old Fields'. Fragmentation in the 'Old Fields' is very high in all the villages except in Thodamaduwa which is a newly developed village. In the Galkiriyagama 'Old Field' the average size of a holding is 0·19 acres while in Kapiriggama it is 0·39 acres (table 7).

Table 7

Fragmentation of Land

Name of Village	'Old Field' – Zone 2			Field Blocks' – Zone 3		
	Total Acreage	Number of Holdings	Average Size of Holdings in Acres	Total Acreage	Number of Holdings	Average Size of Holdings in Acres
Galkiriyagama	50	269	0·19	5	1	5·00
Galewewa	54	97	0·56	18	25	0·72
Katupatwewa	57	71	0·80	46	62	0·74
Kapiriggama	189	484	0·39	243	173	1·40
Thodamaduwa	33	33	1·00	28	39	0·72

Notes:

This table is calculated from the 1972 Paddy Lands Registers of the five villages, maintained in the District Office of the Agrarian Services Department, Anuradhapura, Sri Lanka.

A greater part of the holdings in the 'Old Field' in each village is made up of holdings less than half an acre in extent (table 8).

Table 8

Percentage Distribution of Holdings of less or more than Half an Acre in the 'Old Field' and 'Field Blocks'

Name of Village	'Old Field' – Zone 2		'Field Blocks' – Zone 3	
	Percentage of Holdings that are less than ½ acre	Percentage of Holdings that are more than ½ acre	Percentage of Holdings that are less than ½ acre	Percentage of Holdings that are more than ½ acre
Galkiriyagama ..	86·5	13·5	0·0	100·0
Galewewa ..	70·1	29·9	0·0	100·0
Katupatwewa ..	56·3	43·7	0·0	100·0
Kapiriggama ..	95·0	5·0	23·0	77·0
Thodamaduwa ..	0·0	100·0	0·0	100·0

Notes:

The above figures are calculated from the 1972 Paddy Lands Registers of the five villages, maintained in the District Office of the Agrarian Services Department, Anuradhapura, Sri Lanka.

It is only in the newly developed village Thodamaduwa that there is no holding less than ½ acre. The older the village the larger the percentage of holdings of less than ½ acre in the 'Old Field' as seen in Kapiriggama (95%), Galkiriyagama (86·5%) and Galewewa (70%). In the Kapiriggama 'Old Field' out of 484 holdings eight are less than one-eighth of an acre and thirty-two are less than one-sixteenth of an acre. In Galkiriyagama out of 269 individual holdings seventeen are less than one-fortieth of an acre each.

Some holdings have become so small that no further sub-division is possible. This has resulted in the rotation of the right of cultivation (tattumāru) of such tiny plots among a number of co-owners. There are six such pieces in the 'Old Field' in Galkiriyagama, each jointly owned by more than three and less than six persons. Thus, an individual who owns a piece of land with four others, for instance, will get his turn of cultivation only in the fifth year, if everything goes well and the 'Old Field' cultivated every year. A similar situation exists in Kapiriggama (table 9).

Table 9

Rotation of the Right of Cultivation in the Kapiriggama 'Old Field'

Extent of Holdings Jointly Held (In Acres)	Number of Co-owners				
	Two Owners	Three Owners	Four Owners	Five Owners	Six Owners
¼	16	1	1	1	1
½	25	4	2	2	–

Notes:

These figures have been calculated from the 1972 Paddy Lands Register of Kapiriggama, maintained in the Divisional Office of the Agrarian Services Department, Rambewa, Kende Korale, Anuradhapura, Sri Lanka.

However small the holdings of an individual or even if he co-owns some tiny holdings with others, he is unwilling to part with his shares. This is because there is a social value attached to the land in the 'Old Field'. To have an individual's right place in the village society he must possess lands in the 'Old Field'. The greater the total

extent of land one has inherited in the 'Old Field' the higher the social status of that individual in the village. Possession of land in the 'Old Field' is the passport that enables a person to be properly accepted in the village society.

Apart from the social value attached there is the locational advantage of the 'Old Field' which itself forces the villagers not to part with their fields in it. It is situated immediately below the tank and near the settlement, having easy access to water and labour. Also, in a year of low rainfall, if the tank water is inadequate to irrigate all village fields, farmers are forced by circumstances to agree to practise a 'Bethma' cultivation for which the 'Old Field' immediately below the tank is the ideally suited.[1] Therefore, it serves the purpose of a safety valve of survival in a year of inadequate rain.

Tables 7 and 8 show that individual holdings in 'Field Blocks' zone are relatively larger than those in the 'Old Field' zone. The reasons are that

(a) the 'Field Blocks' have been recently established by individuals and still the excessive fragmentation has not really set in;

(b) the 'Field blocks' zone can expand its area from its outer periphery towards the 'Parkland' zone with the improvement of tank storage and it means the fragmentation of existing holdings in it is somewhat slowed down; and

(c) all the children of a farmer are not keen to demand equal shares from a particular holding in the 'Field Blocks' zone.

Continuous fragmentation and desire of the owners to possess whatever land they own in the resident and outside villages leads to very wide dispersion of individual holdings. As seen in table 10, some of them are far away from the owners' places of living.

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1 'Bethma' is an arrangement where by the shareholders in the 'Old Field' agree to cultivate a portion of the 'Old Field' depending on the amount of water available in the tank in a cultivation season. The portion selected is a compact one. Usually the upper units (ihala bage) of the 'Old Field' which is immediately below the tank is selected to minimize on-the-way losses of water in irrigation ditches through seepage, evaporation and unnecessary flooding of empty areas. Each such 'Bethma' arrangement is binding only for one crop; when it has been removed, matters revert to their original position.

Table 10

Distribution of Individual Holdings of Four Farmers in Kapiriggama

Nos.	Name of tank under which the Holdings are Located	Distance from Home in Miles	'Old Field' – Zone 2	'Field Blocks' Zone 3	Total No. of Individual Holdings	Total Extent in Acres
25	Kapiriggama	–	½,½,½,½,½,½,½:½,½,½,¼ ¼,¼,¼,¼,⅛,⅛,1/16, 1/16,1/16	1,½,¼, ¼,¼,⅛,⅛	29	9¾
	Penikewa	1	½,½,½,		3	1½
	Ehatuwagama*	2½	¼		1	¼
	Kayanwewa	¾		6½	1	6½
44	Kapiriggama	–	½,½,½,½,½,½,½,¼,¼,	½,¼,⅛	13	5⅛
	Gonumeriyawa*	4	½	2	2	2½
158	Kapiriggama	–	½,½,½,½,½,½,½,½,¼,¼, ⅛,⅛	5,4,¾,½ ¼,¼,¼,¼,⅛	22	16⅝
	Parasangahawewa	1½		6	1	6
	Penikewa	1	⅛		1	⅛
	Kadurugasdamana	12	½,¼,¼ ¼	1½,3½	6	6½
162	Kapiriggama	–	½,½,½,½,½,½,½,½,¼,¼,¼, ⅛,⅛,	⅛,⅛,2¾, ¼,¼	19	9
	Penikewa	1	¼,⅛		2	⅜
	Rotapokuna*	9	¼ ¼	½	3	1

Notes:

Calculated from the Paddy Lands Registers of the Villages – Kapiriggama, Ehatuwagama, Gonumeriyawa, Kadurugasdamana and Rotapokuna, District Office, Agrarian Services Department, Anuradhapura, Sri Lanka.

*Village tanks outside Kapiriggama, Nos. = Paddy Lands Register's serial numbers assigned to the four farmers randomly selected.

Penikewa, Kayanwewa and Parasangahawewa are feeder tanks (Olagam) of Kapiriggama village.

In addition to the wide dispersion of paddy holdings there is also the rapid expansion of dispersed chena cultivation in the Forest zone (table 11).

Table 11

Acreage Under Chena Cultivation in 1972/73

Name of Village	Total No. of Families	No. of Families Cultivating Chenas	Maximum Extent in Acres	Minimum Extent in Acres	Total Extent in Acres	Average Extent of Acres per Family
Galkiriyagama	48	39	2	0·5	46	1·2
Galewewa	68	67	5	0·5	117	1·8
Katupatwewa	36	36	3	1·5	98	2·7
Kapiriggama	70	50	3	0·5	65	1·3
Thodamaduwa	30	27	4	1·0	54	2·0

Notes:

This table has been prepared by using (a) information obtained from the Chena Lists maintained by the Grama Sevakas of the five villages and (b) field work carried out in these villages in 1972/73.

When the farmers are faced with the above circumstances namely, fragmentation, dispersion and distant location of many of their irrigated paddy holdings as well as high concentration on chena cultivation, they tend to concentrate first on the cultivation of farm holdings capable of giving a higher return to investment such as chenas and large irrigated paddy holdings in the 'Field Blocks' which can be easily operated.

In recent years chena cultivation has rapidly expanded due to

(a) the imposition of a ban on imports of several subsidiary food crops that can be grown locally and the resulting emergence of many of these crops as the cash crops of the Dry Zone farmer;

(b) the rapid increase of population in rural settlements while their irrigated paddy fields expanded extremely slowly;

(c) the chena cultivation practices which are relatively less arduous than irrigated paddy farming; and

(d) the higher net return from the chena cultivation than from the irrigated rice cultivation which has resulted mainly from price increase of many of the subsidiary crops that are grown in chenas.

Sowing of chenas have to be completed well in time with the arrival of seasonal rain to avoid crop failure. This means, in any agricultural season the Dry Zone farmer's first consideration is the sowing of his chena. He moves on to the irrigated paddy fields only after the sowing of the chena. In the move to cultivate irrigated paddy he makes every endeavour first to cultivate his large holdings in 'Field Blocks'. This is the operational pattern almost in all the villages in the Maha season. Rural institutions in charge of agriculture stress the need to cultivate the 'Old Field' situated so near the tank and settlement. This move is often defeated as farmers are more interested in the cultivation of 'Field Blocks'. They are desirous of maximising profits and find it more advantageous to cultivate the 'Field Blocks', which in many cases are more fertile and are assured of a continuous supply of water. Their relatively large size of holdings also permit them to apply inputs more effectively.

Farmers who own chenas and large holdings in the 'Field Blocks' in varying sizes cannot arrive in the 'Old Field' to cultivate it early or one at the same time. Some may arrive late while others arrive early. Commencement of work in the 'Old Field' at varying times creates many difficulties in the working of this field zone. When the field operations are staggered there is the problem of equitable distribution of water. In the 189-acre 'Old Field' of Kapiriggama where there were 484 individual holdings in 1973, there were 917 openings from the two main irrigation ditches and their distributory ditches releasing water to the individual holdings. The owners of holdings farther away from the tank, therefore, have to be extremely vigilant and patient to irrigate their holdings. There is also the problem of drainage of many holdings when the sowing is staggered.

Another major problem is the timely erection of a common perimeter fence. Farmers who have sown their fields are keen to erect their share of the fence on the common perimeter of the 'Old Field' in time so that the crop sown is well protected. Though it is customary to erect the common perimeter fence all at once, those who delay their sowing in the 'Old Field' remain indifferent to this call, till they complete sowing their own holdings. The longer the delay to complete the erection of the perimeter fence, the greater the damage caused by the stray village cattle that constantly tresspass on unenclosed fields. Also, the larger the number of owners, the greater the problem of maintaining an effective night crop watching.

Farmers are mainly concerned with their large holdings in 'Field Blocks'. As such the smaller the holdings in the 'Old Field' the lesser the interest to apply the right quality and quantity of inputs at the right time and to cultivate them intensively. The case is still worse where the tiny holdings in the 'Old Field' are jointly held by several farmers and rotate the right of cultivation annually or seasonally.

Conclusions

The foregoing analysis shows that more than half the irrigated fields (53 per cent) in the traditional rural settlements of the Mahaweli Development Area is in the 'Old Fields'. They are often irregularly cultivated. The individual holdings of farmers in 'Field Blocks' are large. The owners of such large holdings in the 'Field Blocks' are least interested in the cultivation of their tiny holdings in the 'Old Field'. Lack of enthusiasm of a majority of small holders in the 'Old Field' prevents the timely cultivation of the plots of a few farmers who are genuinely interested in the 'Old Field'. It is surprising that in some years many of the 'Old Fields' in the Mahaweli Development Area are left uncultivated, even though the tanks are full in time. Under-utilization of land is the real cause of low yield per unit area and low land value in the 'Old Field'.

The above situation is quite contrary to our original hypothesis that land value, yield per unit area and cropping intensity are highest near the tank and the settlement, and that they decline in keeping with the diminishing supply of water and labour with increasing distance from the tank and settlement respectively. The existing situation is that land value, yield per unit area and cropping intensity in the 'Old Field' near the tank and settlement are moderately low. They are remarkably high in the zone of 'Field Blocks' and remain very low in the 'Parkland' and Forest zones (figures 2 and 3).

Out of the total irrigated extent of 246,000 acres in the Mahaweli Development Area, 101,000 acres are in the traditional rural settlements. It is clearly undesirable to allow more than half the irrigated acreage in the traditional rural settlements in the Mahaweli Development Area to remain improperly cultivated and bear low yields when the nation's food production is on a 'war footing'. This, therefore, needs the urgent attention of all those who are concerned with the present food drive in the Mahaweli Development Area. It is necessary

to bring excessive fragmentation of paddy fields in the 'Old Fields' to a halt because it is highly detrimental to the drive to increase paddy production. Putting an end to the excessive fragmentation of 'Old Fields' is equally important as the redistribution of large farms and estates among the needy peasants and youths under the prevailing land reforms in the country. Otherwise all ambitious plans to expand paddy cultivation in the traditional rural settlements in the Mahaweli Development Area will no doubt run the risk of missing their targets. How much land each should be given and how best these lands could be cultivated are equally important in the nation's struggle to achieve self-sufficiency in food.

One solution to the problem is land consolidation within the 'Old Field'. When the highly fragmented holdings in the 'Old Field' are consolidated it is necessary to prohibit sub-division of holdings thereafter. It should be legally enforced that no consolidated farm holding in the 'Old Field' is divided among the children of the farm owner and it has to be transferred en bloc to a single heir named by the present owner. It is rather doubtful whether any other action will solve the problem satisfactorily.

Even after consolidation there will be uneconomic small holdings in the 'Old Fields'. They may be allowed possession on a trial basis with the proviso that if cultivated improperly or late they will be declared as state owned. If these stipulations are not adhered to, lands of such owners have to be taken over by the State and sold to the peasants who would like to annex them to their bigger plots. Of course, a maximum ceiling has to be placed for this expansion to prevent land falling into the hands of the few affluent persons in the village. As compensation for the taken away lands, the affected farmers have to be given lands elsewhere. This may not be difficult as 654,000 acres of new lands will be brought under irrigation on completion of the Mahaweli river diversion scheme.

SOME ASPECTS OF SRI LANKA'S LEATHER INDUSTRY[1]

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DAYAPALA WIJEWARDANE

A. Introduction

1. The leather and leather products industry in Sri Lanka assumes significance for two main reasons; firstly, it is an industry in which a government corporation is competing with a number of private producers and the Corporation wields great power over the entire industry; secondly, in view of the escalation in prices of artificial leather consequent upon the increase in oil prices and because of rapidly rising wage rates in developed countries there is a considerable export potential in leather and leather products. In 1973 the value of output in this industry amounted to Rs. 60·1[2] million while the export earnings were Rs. 8·3 million. The number employed is estimated at 5,000 persons. In this study the main emphasis has been placed on export earnings from leather and leather products.

B. General Conditions of Supply and Demand

2. Natural leather produced in this country is derived from the carcasses of the cattle, buffaloes, sheep and goats. The hides of these animals comprise a very small fraction of the value of their carcasses; the figures for 1973 in respect of Sri Lanka being 1·8, 1·79 and 5·8 per cent respectively. Thus, the supply of leather from the hides of these animals is essentially an unimportant by-product of meat production so that it could be regarded as being exogenously determined. In other words, the prices of the finished products of the leather industry or of the intermediate products or of the raw hides themselves do not determine the total supply of leather that is forthcoming. This position obtains in other parts of the world as well.[3]

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1. An invaluable contribution was made by Mr. P. W. Somapala in organising the collection of most of the data used in this study.

2. Central Bank of Ceylon Annual Report for 1973. p. 58.

3. United Nations Conference on Trade & Development, Leather & Leather Products. (United Nations, New York, 1971). p. 26.

3. It must also be noted that all the hides of the animals slaughtered are not available to be utilised for the manufacture of leather. This arises due to (a) wastage, which occurs when there is a delay in collecting the hides before putrefaction, (b) poor butchering and slaughtering techniques, and (c) the lack of adequate collecting facilities, as is the case where few animals are slaughtered daily in distant centres, rendering the collection of hides and skins uneconomical. Excessive branding and poor husbandry, which often result in scratches to the hides and damage from parasites, also render some hides and skins unusable for the manufacture of leather.

4. A major constraint to the expansion of leather industry has been the paucity of supply of leather, which is a result of the slow rate of increase of the animals slaughtered, particularly since 1966. In fact, since 1970/71 the availability of hides and skins to the leather industry on the basis of the number of animals slaughtered has declined (table 1).

Table 1

Estimated Number of Animals Slaughtered & the Slaughter Rate

	Cattle		Buffaloes		Goats & Sheep	
	Number slaughtered	As % of total population	Number slaughtered	As % of total population	Number slaughtered	As % of total population
1960 .	179,276	11·6	466	neg.	123,9351	27·2
1963 ..	183,077	11·5	15,332	1·7	109,4731	20·3
1966 ..	220,242	12·5	16,822	2·0	139,6211	23·6
1969 ..	237,413	15·0	3,336	neg.	125,903	23·2
1970 ..	234,730	14·7	3,343	neg.	130,503	25·2
1971 ..	252,263	16·9	4,298	neg.	126,024	24·7
1972 ..	242,324	14·9	1,994	neg.	113,773	20·1
19732 ..	242,324	14·6	1,994	neg.	113,773	20·5

Source: Dept. of Census & Statistics

1. Includes animals imported from India.
2. Animals slaughtered assumed to be the same as in 1972.

The estimated slaughter rate of 14·6 per cent of the cattle population, 4·5 and 20·5 per cent of the buffaloe and goat population in 1973 is much higher than the slaughter rate of 8·3 per cent in respect

of cattle and 20·3 per cent in respect of goats[1] in the developed countries where better husbandry is practised. This is particularly significant in the context of the fact that at least 12 per cent of the cattle are estimated as being used for draught purposes. Besides, the estimated slaughter statistics appear to be unrealistic particularly in regard to buffaloes and goats as the number of hides and skins purchased by the tanners, for whom data are available, exceeds the number of animals reported slaughtered. The high effective slaughter rate has been accompanied by the very poor rate of increase in the numbers of livestock over a considerable period of time (table 2), with the recent years showing the worst performance. In fact, the goat and buffaloe population appears to have decreased since 1970/71 and the cattle population in 1973 is less than in 1966.

Table 2

The Estimated Livestock Population in Sri Lanka

Year	Cattle	Buffaloes	Goats & Sheep
1960 ..	1,552,298	811,995	543,374
1963 ..	1,588,807	851,885	570,943
1966 ..	1,760,976	853,088	620,965
1969 ..	1,584,462	765,437	570,847
1970 ..	1,595,306	735,708	583,059
1971 ..	1,496,200	843,679	551,554
1972 ..	1,621,595	751,112	595,144
1973 ..	1,664,536	708,181	583,797

Source: Dept. of Census & Statistics

5. A rapidly increasing population, a gradual rise in per capita incomes, a ban on the import of finished goods made from natural and artificial leather and shoe uppers made out of leather, have, among other factors, caused an increase in the domestic consumption of leather produced in this country. The increased domestic consumption has syphoned off most of the expansion registered by the leather processing industry. Thus the quantity of leather exported has increased at a fairly modest rate despite the substantial incentives

1. "Leather Expo Ceylon 1972" (Ceylon Leather Products Corporation) p. 40.

that have increasingly become available to exporters (viz. FEECs on f. o. b. value of exports since 1968 and Convertible Rupee Accounts since 1973). This trend is revealed by table 3 which gives details of exports of leather for the period 1960-1973.

Table 3

Exports of Leather

Year	Raw Hides		Chrome & Vegetable Tanned Hides & Skins	
	Qty. Cwt.	Value Rs. '000	Qty. Cwt.	Value Rs. '000
1960 ..	..	..	12,690	3,137
1961 ..	..	..	12,033	3,219
1962 ..	..	..	13,529	3,123
1963 ..	..	..	10,675	2,475
1964 ..	..	..	8,706	1,842
1965 ..	..	..	8,703	1,961
1966 ..	..	..	10,957	2,819
1967 ..	..	..	10,167	2,412
1968 ..	..	..	13,424	2,938
1969 ..	6,467	397	11,852	3,194
1970 ..	6,477	356	13,336	3,599
1971 ..	6,553	360	14,941	4,078
1972 ..	7,541	462	12,298	4,001
1973 ..	8,422	505	15,380	7,158

Source: Customs, Sri Lanka

6. The demand for raw hides comes entirely from the leather manufacturing industry, the products of which are in turn consumed by the footwear (about two-thirds of the entire world leather production)[1] heavy industrial belting, ladies' handbags, travel goods, clothing, gloves (manufactured from sheep, goat and kid leather) and other manufacturing industries both in Sri Lanka and abroad. Sri Lanka produces both vegetable or bark tanned leather which is used mainly for soles of shoes and chrome tanned leather used for finished shoe uppers, ladies' handbags, clothing etc. Chrome tanned leather is a more expensive product. About half of the leather produced in this country is consumed domestically while the balance is exported in various forms, but chiefly in the form of vegetable tanned leather.

1. UNCTD Leather and Leather Products. op. cit p. 6.

Figures for 1973 relating to domestic consumption and export of leather are found in table 4. Sri Lanka is, however, a negligible supplier of leather to the world market.

C. Structure of the Industry

7. Leather is manufactured by 12 tanneries which very in importance. In respect of vegetable tanned leather, two private tanneries controlled 37 per cent of total production in 1973 while the Leather Products Corporation had a little less than 11 per cent of the production. Only two establishments, one of which is the Corporation, have the facilities to produce chrome tanned leather. Unlike vegetable tanned leather, which requires very little sophistication, if any, in the manufacturing technique, the production of chrome tanned leather requires a relatively large capital outlay on machinery. With the exception of the Leather Production Corporation, no tanner produces final goods out of leather.

Table 4

Production Consumption and Export of Leather - 1973

(Figures in lbs.)

Item	Production	Export	2 as % of 1	Import of Leather & Leather Products	Apparent domestic consumption
	(1)	(2)	(3)	(4)	(5)
1. Raw Hides	Not applicable	471,630	–	neg.	Not applicable
2. Bark Tanned Leather	2,529,180	1,129,716	45	neg.	1,399,464
3. Chrome Tanned Leather	784,500	244,068	31	neg.	540,432
4. Wet Blue Chrome Goat Skins*	76,300	77,585	100	nil.	nil

Source: A Central Bank Survey.

* On the basis that one skin is 2½ lbs.

8. In procuring the basic raw materials, viz. the raw hides and skins, there is competition between the 11 privately owned tanneries, while the Leather Products Corporation purchases its requirements at

"negotiated" prices from tanneries (see paragraph 10). The tanneries employ middlemen to purchase hides and skins from the butchers. The market structure for the industry differs for chrome tanned and vegetable tanned leather. In regard to the former, the Leather Products Corporation is in the position of both a monopolist and a monopsonist. It is the sole distributer to the domestic market and exporter of almost all of the finished chrome tanned leather[1] other than wet blue chrome goat skins, the entire output of which is exported by the tanner who produces it. On account of its virtual monopoly power the Corporation is able to purchase unfinished chrome tanned leather from the only producer of this product at "mutually determined prices" though, of course, the bargaining power of this producer is very feeble. The Leather Products Corporation, acting purely as a middleman, also purchases finished chrome leather from this producer and re-sells it to local manufacturers of shoes with a handsome profit accruing to it. For example, currently Grade 3 chrome leather is bought at 3·59 per sq.ft. and sold to the trade between Rs. 6·40 and Rs. 8·87 per sq. ft. while the figures in respect of Grade 4 chrome cattle leather are Rs. 3·42 and Rs. 6·07 to Rs. 8·38 respectively. Vegetable tanned leather is either sold locally or exported subject to the constraint mentioned in paragraph 10. There is a fair degree of competition among tanners in effecting their sales of vegetable tanned leather to both the local and foreign markets.

9. The Leather Products Corporation (incorporated in 1959) can trace its ancestory to the commencement of a shoe producing factory under the Department of Industries in 1942. The Corporation has expanded and diversified its activities and has become a producer of several items of finished leather products. It operates a large tannery which produces both vegetable tanned and chrome tanned leather. The Corporation occupies a special position in regard to the entire industry, both on account of the powers it exercises and its relative size.

10. Any tanner who wishes to export vegetable tanned hides has to sell one Grade A hide to the Corporation for every two hides that he is permitted to export. The raw hides are selected from the

1. Unfinished chrome leather has not been exported in the period in 71/73 although there have been some exports effected in 1974.

tanneries by the Corporation officials and what is more significant, the prices that are paid by the Corporation to the tanners for the raw hides are in general less than what they actually cost the tanners. For example, in 1973 the average cost of a Grade A raw cow hide to a tanner was about 72 cents per pound and the Corporation's purchase price was 60 cents per pound. There was thus a "subsidy" that the Corporation has been able to wrest for itself from the tanners.

11. The Corporation is the authority that recommends the issue of licences in respect of the export of raw salted hides and vegetable tanned hides. The power to recommend the issue of licences for the export of raw hides and vegetable tanned leather has apparently been used by the Corporation to obtain raw hides from the tanners at a 'subsidised' or favourable price to itself.

12. In regard to the costs of production of bark tanned leather it is clear that while there is some difference among the various privately owned tanneries, the costs of the Leather Products Corporation appear to be abnormally high in relation to the private sector. In 1972 the cost of production of bark tenned leather by the Corporation was Rs. 3·17 per lb. in contrast to a large private tanner whose costs were only Rs. 1·64 per lb. (see table 5). The main cause for this is that productivity, measured as value of output produced by an average tannery worker was lower in the Corporation relative to the private tanneries although a large part of the Corporation's output comprises a more expensive form of leather (viz. finished chrome leather). The average value of output of leather per factory worker in the Corporation was Rs. 19,781 in 1973 while the figure in relation to the private sector was Rs. 32,869. Also, in regard to footwear the value of output per factory worker in 1973 was Rs. 7,500 in the Leather Products Corporation while the figure for a leading shoe producer was Rs, 27,700.

Table 5

Cost of Production of Bark Leather

(Rs. per lb)

Tanner	1970	1971	1972
Leather Products Corporation ..	1·76	2·54	3·17
A large private tanner ..	1·32	1·30	1·64

Source: A Central Bank Survey.

13. One factor why the Corporation was able to produce leather profitably is that it is able to obtain its raw hides and skins at a "subsidy" from its competitors. For example, in the year 1972 the estimated "subsidy" received in respect of cow hides alone was about Rs. 200,000. Another factor for its profitability from tanning and sales of leather is that it exercises monopoly powers in respect of sales of chrome leather to the domestic market. A high middleman's profit is obtained by selling the finished chrome leather manufactured by the privately owned tannery. Besides, the Leather Products Corporation is able to sell chrome leather to local manufacturers/exporters of shoes at prices well above what it realises from exports.

14. The leather manufacturing industry is characterised by a large unutilised capacity in respect of bark tanning which is revealed by table 6 below. A large unutilised capacity exists because the supply of hides and skins in Sri Lanka is at the best static and the capital employed is negligible in any case. In regard to chrome tanned leather, the production of which requires machinery, existing capacity appears to be more or less fully utilised.

Table 6

Capacity Utilisation in Leather Industry–1973

(Selected Tanners)

Tanner	Bark Tanning			Chrome Tanning		
	Capacity lbs.	Output lbs.	% Utilisation	Capacity sq. ft.	Output sq. ft.	% Utilisation
1. Ceylon Leather Products Corpn.	400,000	266,400	67	1,250,000	1,312,600	100
2. Private Tanner A	873,100	441,000	50	–	–	–
3. Private Tanner B	70,000	16,743	24	–	–	–
4. Private Tanner C	600,000	280,970	43	–	–	–
5. Private Tanner D	168,000	41,420	26	960,000	649,012	67
6. Private Tanner E	720,000	278,948	39	–	–	–

Source: A Central Bank Survey.

D. Exports

15. Leather is exported in various forms as shown in table 7. Exports of leather in the form of raw hides constituted 24·5 per cent, in terms of volume, of total exports in 1973. It is in the country's interest to maximise its foreign exchange earnings by concentrating on the most profitable activities in terms of net foreign exchange gained. In table 7 are given the 1973 f. o. b. prices of leather in the various forms it has been exported. In addition, there is also information on foreign exchange costs incurred in production so that the net foreign exchange gained to the country is readily seen.

16. Column 1 of table 7 gives the f. o. b. prices obtained in respect of raw buffalo hides, vegetable (bark) tanned cattle leather, chrome tanned cattle leather and adult leather sandals (in which form most of the leather footwear is exported) for 1973. The price for the raw hides has been obtained on the basis of Customs data while the price of vegetable tanned leather is the annual average price of the exporter who obtained the highest price compared with those of other exporters in respect of whom statistics were available. The chrome leather price is that obtained by the Leather Products Corporation while the prices of leather sandals are those obtained (a) by the Leather Products Corporation and (b) by a leading exporter. Column II gives the direct foreign exchange expenditure (c. i. f. costs) incurred per unit of output exported and the figures have been arrived at on the basis of information supplied by a (limited) number of manufacturers; as manufacture/production is identical in each of the processes there cannot be much variation between manufacturers in this regard. Column III gives the foreign exchange that would have been obtained had the leather been exported in a different form. A greater degree of processing results in a larger net foreign exchange gain to the country can be seen by examining (a), (b) and (c) of this column. For example, a pound of raw hide fetched 54 cents in 1973 while if it was exported in the form of vegetable tanned leather it would have fetched Rs. 1·22 and if it had been exported as chrome tanned leather Rs. 1·68 would have been obtained.

17. The net gain to the country by exporting leather in a more processed form is in fact reduced on account of at least two constraints. Firstly, the production processes in importing countries have the benefit of effective protective tariff rates that increase relative to the degree by which processing is increased. This phenomenon is most noteworthy in respect of labour intensive industries such as the leather manufacturing industry and, more particularly, the related footwear industry (see table 8). For example, the effective protective rates for footwear, finished leather and unfinished leather and raw hides and skins are 19·3; 12·3 and 0 percent respectively in the E. E. C

Table 7

Foreign Exchange Earnings in Relation to Processing of Leather

(figures give f. o. b. prices in Rs.)

Commodity		Export Price	Direct foreign exchange expended in production	Net foreign exchange obtained	Net foreign exchange obtained if exported in the form of –		
					Raw Hides (a)	Vegetable Tanned Leather (b)	Chrome Tanned Leather (c)
1. Raw hides (per lb.)	1972	·49	–	·49	·49	1·23	1·15
	1973	·54	–	·54	·54	1·22	1·68
2. Vegetable tanned) cattle leather) per lb.	1972	2·78	·32	2·46	·98	2·46	2·30
	1973	2·90	·46	2·44	1·08	2·44	3·36
3. Chrome tanned) leather per sq. ft.)	1972	1·56	·41	1·15	·49	1·23	1·15
	1973	2·09	·41	1·68	·54	1·22	1·68
4. Leather sandals) per pair	1972 (a)	10·98	·95	10·03	·74	2·00	1·89
	(b)	–	1·45	–	·54	1·38	1·27
	1973 (a)	10·22	·95	9·27	·80	1·98	2·46
	(b)	8·74	1·45	7·29	·59	1·37	1·85

Source: A Central Bank Survey.

Table 8

Estimated Average Nominal Tariffs & Effective Protective Rates Post Kennedy Round

(figures in percentages)

Commodity	U. S. A.		E. E. C.		Sweden		Japan	
	Nominal	Effective	Nominal	Effective	Nominal	Effective	Nominal	Effective
Hides & skins	Nil	–	Nil	–	Nil	–	Nil	–
Processed leather	4·7	12·3	4·8	12·3	1·7	4·3	11·6	34·7
Footwear	14·9	26·3	11·9	19·3	11·9	22·8	22·9	36·5
Other leather products	7·7	11·4	7·3	10·4	10·4	22·1	11·8	15·0

Source: UNCTAD Leather & Leather Products p. 62.

18. It has also been stated that the quality of processed leather in developing countries is much inferior to that obtaining in developed economies. For example, the prices obtained by Italian exports of leather are about 500 times the prices obtained for the same produce by some developing countries[1]. Footwear manufactured out of leather by developing countries and Japan are found to fetch very poor export prices relative to those manufactured in developed market economies. Reasons given include the lack of adequate market intelligence, inability to change the form of footwear manufactured quickly to accord with changes in fashion and inability, on account of production constraints, to produce footwear that will sell in the competitive international market. Sri Lanka has only one large manufacturer/exporter of footwear of which is an associate of a big international firm involved in the production and marketing of footwear throughout the Western world, so that the lack of adequate market intelligence does not adversely affect the exporting activity of this firm. However, the position is different in regard to other manufacturers of footwear– whether exporters or potential exporters. The second and third factors enumerated above are seen to operate to the detriment of this country. The operation of the constraints that result in only low f. o. b. prices being obtainable for Sri Lanka exports of closed

1. UNCTAD Leather & Leather products op. cit. p. 5

leather footwear have induced exporters of leather footwear (both the Leather Products Corporation and the private sector) to concentrate on adults sandals and, to a lesser extent, on children's shoes which are admittedly cheaper forms of footwear. These items are seldom affected by rapid changes in fashion and rubber soles are 'acceptable' to the consumer. In the developed market economies, about 75 per cent of closed shoes with leather uppers (the more valuable form of footwear which comprise about 80 per cent of total world consumption) are those with vinyl, and, to a lesser extent, rubber composition soles.[1] Closed shoes made entirely out of leather are demanded by a narrow group of highly fashion conscious consumers whose tastes are catered to by specialised manufacturers usually located in the developed economies. When the Leather Products Corporation attempted such a line of exports, they were effected at a loss. Vinyl is neither manufactured nor imported to the country so that closed leather shoes in the form they are manufactured can often only be exported at prices below costs of production. In fact, the export of closed leather (adult) shoes, apart from the Corporation's U. S. S. R. order which was exported at a loss, has been negligible.

19. In respect of Sri Lanka's exports, there is a loss to the country in exporting raw salted (buffaloe) hides instead of in a more processed form (by vegetable tanning) for which the country has ample production capacity. The raw hides are exported to India where they are processed further and either re-exported or used in manufacture of footwear and other leather products. No valid reason exists for the export of leather in the form of raw hides to continue. If a ban were imposed Sri Lanka would be one of very many developing countries who have placed such export restrictions. It was noted earlier that the export of finished products is more profitable than the export of leather. But the volume of exports that the private sector would be able to achieve is constrained by the fact that the Leather Products Corporation is sometimes unable to meet the requirements of chrome leather of shoe producers, including those who export. One reason could be that the Corporation prefers to export this leather than to sell it to the domestic market at higher prices purely because it has become 'fashionable' for producing units in the public sector to export. Recognition for 'achievements' take no account of the loss to the country on account of the export of leather being

1. Ibid. p. 5.

affected at the expense of the export of finished leather goods (footwear). In 1972 the Leather Products Corparation produced a total of 1,208,731 square feet of chrome leather of which nine per cent was exported while in 1973 as much as 46 per cent of the total production of 1,312,245 square feet was exported. The celebrated breakthrough in leather exports in 1973 has been at the expense of the export orders that a leading shoe exporter has had to forego due to the non-availability of leather. More significantly, the Leather Products Corporation sells chrome leather to shoe manufacturers at prices which are much higher than the prices realised by the Corporation when it exports such leather (viz. f. o. b. price and FEECs thereon) and at prices which are in any case higher than the international price for the products. In effect, the Corporation's monopolistic pricing policy for the internal market is 'tax' on the export of leather in the form of finished goods (chiefly footwear) and has often the effect of making Sri Lanka's exports of footwear unprofitable to footwear manufacturers. There are two other factors that act as constraints to the expansion in the volume of exports of leather footwear. The first is the lack of facilities to manufacture vinyl based shoes which effectively prevents Sri Lanka from venturing into the World Market for closed leather shoes where earnings are greatest. The other (mentioned earlier in the context of f. o. b. prices obtainable) is that apart from the local associate of the international firm, Sri Lanka's shoe manufacturers/exporters are very often handicapped by the lack of suitable direct contacts with the footwear distribution trade abroad.

20. The Leather Products Corporation has branched out into the manufacture of other products such as hand bags where there is a significant foreign exchange gain in terms of value added to the intermediate product (chrome leather). The possibility of marketing a large output exists and the efforts in this line should be bound to increase, with commensurate private and social gain.

21. It is necessary to examine the prices obtained by exporters of leather in respect of raw hides, tanned vegetable hides and chrome tanned leather and this is done in table 9. Comparative data are available only for raw buffalo skins and vegetable tanned leather. One fact that has got to be borne in mind in judging the relative performance of the exporters is that the Leather Products Corporation selects for itself most of the best quality hides and is in a position to export a better quality product. Yet, what is surprising is that the export

prices obtained by the Corporation appear to be lower than those obtained by the private sector. Thus in 1972 the Corporation's export price per pound of raw hide was only 38 cents while the average export price for all exporters, according to Customs data, was 49 cents per pound. Again, in 1972 the Corporation's export price for bark cattle leather was Rs. 2·29 per pound compared with Rs. 2·78 per pound obtained by a private tanner.

Table 9

Comparative Export Prices

(figures give f. o. b. prices in Rs.)

	Bark Tanned Cattle Leather Per lb.		Chrome Finished Tanned Cattle Leather Per sq. ft.		Raw Buffalo hides Per lb.		Bark Tanned Goat Leather Per lb.	
	1972	1973	1972	1973	1972	1973	1972	1973
1. Leather Products Corp.	2·29	2·24	1·56	2·09	·38	·55	–	–
2. Private Tanner A	2·78*	2·90	–	–	–	·73**	–	–
3. Private Tanner B	2·31	–	–	–	·56	–	8·85	–
4. Average price of Sri Lanka exports (Customs data)	–	–	–	–	·49	·54	–	–
5. Average Indian f. o. b. export price‡	3·44‖	3·87	6·00	6·72	–	–	12·42	–

Source: A Central Bank Survey and Indian Customs.

* 1st April 1972 to 31st March 1973
** On the basis that there are 40 lbs. in a hide.
‡ April 1971 to March 1972 and April 1972 to March 1973.

22. In table 9 there is also a comparison between the prices obtained by Indian and Sri Lanka exporters of leather. Allowance has to be made for the fact that the quality of leather obtained from Indian cattle hides is quite often impaired because the hides are mostly taken from animals who fall dead and are not slaughtered. Thus, putrefaction may have already begun to take place before the hides are removed. However, the effect of this factor may be more or less offset by Sri Lanka's cattle being on the whole branded on a larger scale than Indian cattle. The prices obtained by Ceylonese exporters of leather have been lower than those of the Indian exporters while the Corporation's performance has been worse than that of the private sector. In respect of finished chrome leather, which is the chief item of export for the Corporation, the Corporation's export prices obtained are well below those obtained by Indian exporters.

E. Conclusions and Recommendations

23. The leather industry has a considerable potential as a foreign exchange earner and source of employment. But any expansion in Sri Lanka's leather industry is constrained by the declining supply of raw hides and skins on account of the smaller numbers of animals slaughtered. This is a consequence of a small livestock population and no further increase is possible in the slaughter rate without decimating the livestock population. Thus there is a case for an increase in the livestock population. Such an increase is most imperative and urgent in view of the shortage in the supply of milk and meat and the scarcity of foreign exchange to import these products. Furthermore, stricter enforcement of the Branding, Sale and Transfer of Cattle Act (No. 22 of 1955) is necessary to prevent the impairment of the quality of hides by excessive branding.

24. It has been observed that the export prices for leather are far from being optimal. Prices obtained for exports by the Corporation itself have been most unsatisfactory. There is only a nominal control exercised by the Ministry of Industries & Scientific Affairs in regard to exports of leather and leather products. The only check exercised by the Ministry is to ensure that the f. o. b. earnings for a given export are higher than the c. i. f. costs of any imported inputs. The question of whether the f. o. b. prices realised are reasonable (in the light of international market intelligence) or whether there is a net foreign exchange gain to the country by a given export of a finished product over the foreign exchange that would have been obtained had the leather been exported in a less finished form are ignored.

25. The power the Corporation has obtained by the control over the exports of the industry has enabled it to wrest for itself a 'subsidy' on its purchases of raw hides from the tanners. The prices charged by the Corporation on its sales of chrome leather (chiefly to manufacturers of leather footwear) are very much higher than the prices, including FEECs benefit, it obtains when it exports the same leather. The consequence is that those manufacturers who are in a

position to effect export of footwear are often constrained from doing so as the effect of the Corporation's pricing policy is that there is a 'tax' placed on the export of leather products.

26. It appears that most of these problems stem from the present role of the Leather Products Corporation which exerts a large degree of power and influence over the entire industry. There is thus a case for the control and supervision of the leather industry to be entrusted to an independent and competent body. This body should also ensure that while the Leather Products Corporation is supplied with hides and skins at reasonable prices, these prices should be related to the cost incurred by tanners. The export of leather in the less processed form of vegetable tanned leather should be discouraged, and facilities to manufacture the more valuable chrome tanned leather beexpanded. Even in the case of chrome tanned leather, exports should be allowed only after ensuring adequate supplies for exporters of leather manufactures. International market intelligence should be availed of so that more effective and meaningful control is exercised over exports and the optimal prices are obtained. Special heed should be paid to ensure that at least exporters of footwear are supplied with leather at internationally competitive prices so that the country could obtain for itself a greater benefit by exporting leather in the form of finished goods than in less processed forms.

27. It has been found that productivity in the Leather Products Corporation in regard to production of leather and footwear is very much below that of the private sector. This has resulted in the very high cost structure of the Corporation. The fact that it is the sole supplier of finished chrome tanned leather to the domestic market has enabled it to recoup most of its high costs by levying an inordinately high price from the manufacturers of footwear to the detriment of the national interest. This pricing policy is only a very short-sighted 'solution' to the problem of high costs. A more realistic remedy would be the complete reorganisation of the Corporation to make it more efficient. The unsatisfactory export prices obtained by the Corporation may at least in part be due to poor market intelligence and the lack of proper contacts, which is essential for marketing abroad on a large scale and this is also a matter to be remedied. Despite efforts being made over a number of years, the exports of leather footwear and other leather goods have not registered any worthwhile

expansion in contrast to the performance of the local associates of a large international firm. The virtual impossibility of expanding these exports without a very close working relationship with large foreign organisations engaged in the marketing of footwear abroad cannot be overstated and the possibility of the Corporation working in collaboration with such an organisation should be examined thoroughly. Finally, while it is true that in recent times the Corporation has made strenuous efforts to diversify its products, it has not attempted to sutbsitute other raw materials such as canvas and plastics for leather even on a small scale as done by private manufacturers. A realistic policy on the leather content of the goods manufactured by the Corporation is clearly required in an era of rapidly changing fashions.

THE PRICE INCREASES IN FERTILIZER AND PADDY - A NOTE ON SOME ISSUES[1]

S. N. SAMUEL

This note examines some implications of the considerable increase in fertilizer prices to paddy farmers in July 1974, and the simultaneous increase in the "guaranteed" price for paddy. The "green revolution" strategy assumed the availability of adequate quantities of inorganic fertilizer at low prices. Inorganic fertilizer continues to be vital for increasing paddy yields. Although organic fertilizers like manure, husks and compost are generally technically substitutable for inorganic (mainly chemical) fertilizer, they are not economically substitutable.[2] Since available paddy technology makes paddy subsector development dependent to a large extent on the adequate and timely availability of inorganic fertilizer for maintaining and increasing yields, a price change of the present magnitude must have significant and pervasive effects on output, employment and income distribution, and thereby on the very process of agricultural economic development.

A limitation is imposed on the study by the lack of reliable data on costs of paddy production, particularly on the amount farmers using fertilizer spend on fertilizer. Rough estimates were obtained from information in published sources, extrapolations, and the subjective impressions of persons familiar with field conditions. This limitation notwithstanding, this note may still be useful insofar as it draws attention to the *issues* these price changes pose for agricultural economic development.

Background Information[3]

Since the October 1973 "oil crisis" a combination of world demand and supply factors have actuated a near 200 per cent increase in the world market price for fertilizer. Prices were already rising in the world market prior to October 1973, chiefly due to increases in world demand. World demand increased about 8 per cent between

1. Thanks are acknowledged to Mr. T. B. Subasinghe, Deputy Director Agricultural Development and Mr. P. Senerath, Assistant Director for Agricultural Statistics, who kindly provided data.

2. This question is examined in some detail in the paper by S. N, Samuel and G.M. Abayaratna entitled 'An Analysis of Fertilizer Marketing in the Context of Sri Lanka's Paddy Subsector Development.' in the issue of *Staff Studies*, Volume 4, No. 1 pp. 23—26, Published by the Central Bank of Ceylon, April 1974.

3. This section draws from the paper on fertilizer marketing by Samuel & Abayaratna, *ibid.*

1971 and 1972,[1] while the prices of fertilizer imports into Sri Lanka increased around 20 per cent.[2] In such a situation of increasing world demand, the October 1973 "oil crisis" caused a further price escalation by increasing costs of fertilizer production and curtailing supplies due to petroleum being a major source of fertilizer. In March 1974 the unweighted average fertilizer price had increased 245 per cent from 1971 price levels.

These increases in prices are reflected in the foreign exchange cost of fertilizer in 1973 which increased 76·2 per cent over the previous year and 27·6 per cent over the average cost of fertilizer for the five year period 1965 to 1969. It would be more meaningful however to look at the per unit (cwt) foreign exchange cost. The data in respect of this show that in 1973 the per unit foreign exchange cost of fertilizer was 42 per cent higher than the per unit cost in the previous year and 53 per cent higher than the average per unit cost in the five year period 1965 to 1969.

The Present Position

The data on the July 1974 changes in fertilizer prices to farmers are presented in tables 1 and 2. The unweighted mean price change in the data in table 1 is 305 per cent. But the average price change in the fertilizer package (table 2) is from Rs. 52 to Rs. 247, which is on the order of 373 per cent. Such a change implies that now farmers using the same quantity as before have on average to pay over four and one half times as much as previously for the same quantity.

The price increase to the farmer (373 per cent) is greater than the increase in the Fertilizer Corporation selling price (136 per cent) because there are two elements in the price increase to farmers. One is the passing on to farmers of accumulated import price increases absorbed by the Corporation since 1973, and second the simultaneous abolition of the subsidy of 50 per cent. Thus of the total price increase, 100 per cent is attributable to the abolition of the subsidy and the remainder to world price increases (assuming the Corporation is adhering to a full cost pricing policy).

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1. F. A. O. "Monthly Bulletin of Agricultural Economics and Statistics" No. 6 Volume 22 (June, 1973) F. A. O., Rome.

2. Between 1961 and 1971 fertilizer prices in the world market have risen much less (15 per cent) than those of other purchased inputs (60 per cent). F. A. O. Monthly Bulletin, *ibid.*

Table 1

Increase in Fertilizer Prices in Terms of Fertilizer Type

(Rupees per cwt)

Variety	Subsidized Prices prior to 12th July*	Prices effective 12th July
Urea	26·63	134·25
N. P. K. Pellets (Imported)	24·13	110·70
V_1 Mixture (with S. A.)	26·14	109·20
V_2 Mixture (with S. A.)	15·38	48·10
V_3 Mixture (with S. A.)	26·38	113·25
T. D M.1 Mixture (with Urea) ..	26·38	116·70
T. D. M.2 Mixture (with Urea) ..	26·00	110·55
T. D. M.3 Mixture (with Urea) ..	25·00	98·20
T. D. M.1 Mixture (with S. A.) ..	10·50	55·25
T. D. M.2 Mixture (with S. A.) ..	17·76	55·65
T. D. M 3 Mixture (with S. A.) ..	18·26	56·75
Sulphate of Amonia	17·25	53·30
Rock Phosphate	11·25	41·80
Triple Super Phosphate	28·63	137·05
Muriate of Potash	21·63	61·65
N. P. K. Concentrate (Local) ..	n.a.	65·30

* at 50 per cent subsidy.

Source: Ministry of Agriculture and Lands.

If the world price increases were to be absorbed by the Corporation in order to maintain a constant unit price to farmers, government expenditure on the subsidy to the paddy subsector alone would have increased from Rs. 40 million in 1973 to over Rs. 160 million, assuming a fixed quantity demanded. The subsidy element is much larger if the FEEC–free foreign exchange rate applied to fertilizer imports is regarded as being over valued and therefore not reflective of the true opportunity or social costs of foreign exchange.

Implications of the Price Increases

The implications of the price increases in fertilizer and paddy are examined primarily from the standpoint of agricultural economic develoment, where development is viewed in multi-dimensional terms and defined to include both growth and equity components. The first portion of the following analysis examines the implications of the price increases for paddy output, and the second their implications for income distribution, including agricultural employment. A third section examines the price increases from an administrative and general standpoint.

Table 2

Changes in Fertilizer Prices Classified by Paddy Varieties and Doses

Zone	Paddy Variety and Period (Months)	Recommended Dosage (cwts)	Cost to Farmers with Subsidy			Ceylon Fertilizer Corporation Selling price	
			At Previous Prices (Rs.)	At Present Prices (Rs.)	Percentage Increase	At Previous Prices (Rs.)	Percentage Increase
Low-Country Dry ..	NIV* – 3–3½ M	2	49·50	243·43	391·8	99·00	145·9
	4–4½ M	2¼	68·00	331·61	387·7	136·00	143·8
	OIV† – 3–3½ M	1½	40·13	193·10	381·2	80·25	140·5
	4–4½ M	1¾	43·25	209·89	385·3	86·50	142·6
Low-Mid & Up Country Wet ..	NIV – 3–3½ M	2¼	44·75	197·36	341·0	89·50	120 5
..	4–6 M	3	57·88	254·47	339·7	115·75	119·8
	OIV – 3–3 M	1¾	32·38	139·01	329·3	64 75	114·6
	4–6 M	1¾	32·38	139·01	329·3	64·75	114·6
	NIV – 3–3½ M	2½	57·50	288·52	401·8	115·00	150·8
Ill-drained Soils of Low-Country ..	4–6 M	3	69·53	337·85	385·9	139·06	142·9
..	OIV – 3–3½ M	1¼	28·75	144·26	461·8	57·50	150·8
Wet ..	4–6 M	2¼	51·69	248·71	381·2	103·37	140·5
	NIV – 3–3½ M	2¼	68·13	320·12	369·9	136·25	134·9
Phosphate Deficient ..	4–6 M	3½	86·75	410·32	373·0	173·50	136·4
Soils in Kurunegala ..	OIV – 3–3½ M	1¾	40·38	197·15	388·2	180·75	144·1
and Ratnapura ..	4–6 M	1¾	43·50	213·94	391·8	87·90	145·9
	NIV – 3–3½ M	2¾	67·75	314·06	363·6	135·50	131·7
Normal Soils in ..	4–6 M	2¼	67·75	314·06	363·6	135·50	131·7
Kurunegala ..	OIV – 3–3½ M	1¼	43·13	201·11	366·3	86·25	133·1
	4–6 M	2	49·31	230·28	367·0	98·62	133·5

* NIV is New Improved Variety

† OIV is Old Improved Variety

Source: Ministry of Agriculture and Lands

Output Effect: The effect of the 373 per cent increase in fertilizer prices on the output of paddy will depend on the decrease in fertilizer application. The decrease in fertilizer application is a function of the slope of the demand curve for fertilizer (the elasticity factor) which itself is a function of profitability of cultivation. Profitabililty is in turn dependent on costs and the farm gate price for paddy and other crops, given output. This simple conceptual formulation provides the framework for the following analysis.

Available data on the cost of production of paddy in Yala 1972 and Maha 1972/73 from selected farmers in 5 districts[1] indicate that in the case of the farmers examined, the 373 per cent increase in the price of fertilizer will increase average costs of production from about Rs. 663 per acre to Rs. 877 per acre at 1973 prices.[2] This constitutes a 32 per cent increase in the costs of production of farmers examined. The change is much greater if assessed against the costs of purchased inputs, since fertilizer is the most expensive of purchased input materials. Then the increase in fertilizer prices will cause the amount spent on fertilizer by farmers examined to increase from an average of around Rs 57 to Rs. 270 per acre at previous levels of application, and thus change the cost of fertilizer from constituting 52 per cent of the cost of purchased inputs to 83 per cent.

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1. K. Izumi and A. S. Ranatunge. "Cost of Production of Paddy" in Yala 1972 and Maha 1973, AR & TI Research Series Study Nos. 1 & 12. Agrarian Research & Training Institute, Colombo, July 1973 and April 1974 respectively. The data here could be expected to provide only a rough idea of costs and yields as the farmers examined may not be representative of the farm population. That this may be so is implied in yield data. The farmers examined in this study had an average yield of 63 bushels in Yala 1972 and Maha 1972/73, as against a national yield of around 45 bushels.

2. The average cost of production of farmers examined in Yala 1972 and Maha 1972/73 is Rs. 663, of which Rs. 57 on average was spent on the fertilizer input. After deducting the original fertilizer component of Rs. 57 and adding the new component of Rs. 271 the average cost of production increases to Rs. 877. This assumes somewhat unrealistically that weeding and pesticide costs remain unchanged. Recently received information indicates that these costs have increased some 66 per cent.

But for reasons already stated, the average farmer *from among farmers using fertilizer* probably spends less than Rs. 57 per acre on fertilizer. On the basis of use data in a recent study of the Hambantota district it can be determined that farmers in Hambantota spend Rs. 49 per acre on fertilizer under major irrigated conditions, Rs. 59 per acre under minor irrigated conditions and Rs. 42 per acre under rainfed conditions.[1] An extrapolation for Sri Lanka under these three water supply conditions (on assumptions which cannot be wholly realistic) reveals a weighted mean cash outlay of Rs. 49 on fertilizer. At the revised prices, previous levels of application (an elasticity of demand equal to zero) will cause average farmer expenditure on fertilizer to increase 373 per cent from Rs. 49 to Rs. 223.

But the guaranteed price for paddy was also increased 10 per cent from Rs. 30 to Rs. 33. This must cushion the impact of the fertilizer price increase for all farmers having a marketable surplus, and offset or more than offset the fertilizer price increase for some from among them.

A determinant of farmers who lose and those who gain is the yield above which the Rs. 3 increase in the "guaranteed" price at least offsets the increase in fertilizer price (hereafter referred to as the "offsetting yield"). Since the fertilizer costs increased from around Rs. 49 to around Rs. 223 per acre, it would theoretically take a yield of around 58 bushels per acre, on the assumption that nothing is retained for domestic consumption, for the increase in the guaranteed price by Rs. 3 per bushel to offset the 373 per cent increase in fertilizer

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1. Agrarian Research & Training Institute, "The Agrarian Situation Relating to Paddy Cultivation in Five Selected Districts of Sri Lanka" Part I – Hambantota District, Research Study Series No. 6 (February, 1974) ARTI, Colombo. The fertilizer price was weighted by the average amount of each type of fertilizer used under the three different water supply conditions and this weighted average price used to compute farmer expenditure on each type of fertilizer under each of the three water supply conditions. The price data used are those in table 1 of this note, while the quantity data were derived by synthesizing the figures in tables 5 – XXVII and XXIV in the study under reference.

According to the Central Bank Cost of Production Study, in 1967 the national average farmer spent Rs. 18 on fertilizer. According to a 1968 survey of the Elahera Colonization Project the average quantity used was 2·5 cwts per acre and this exceeds the average quantity in Hambantota in 1972. A 1973 Study of Uda Walawe arrived at a cash outlay of about Rs. 25 per acre on fertilizer, but this computation has presumably taken non-users into account.

prices.[1] If a portion of output is retained for domestic consumption, the offsetting yield may need to be higher, depending on the size of farm and family subsistence needs. That an offsetting yield of even 58 bushels per acre is high can be gauged from the fact that only about 5 of the 22 districts achieve average yields equal to and above 58 bushels. Hence, given a national average yield of about 45 bushels, and assuming a statistically normal yield distribution, a large majority of paddy farmers could be expected to experience declines in their profit margins at previous levels of fertilizer application – the increase in the paddy price notwithstanding.

It is known that the demand for fertilizer is highly inelastic, even near zero, within certain price ranges, because not using fertilizer causes large foregone profits. However, the present increase is probably outside such a price range. Since fertilizer is now so much more expensive, the decrease in returns from applying fewer units of fertilizer may be less than the reductions in cost, particularly for the majority of farmers whose levels of productivity fall short of their offsetting yield level. This theoretical presumption finds empirical support in a 1969 study of nine colonizations schemes in Elahera. According to this report, a return of Rs. 3 to Rs. 4 can be expected for every rupee spent on fertilizer at yield levels of around 38 bushels per acre.[2] The recent 373 per cent increase in fertilizer prices could be expected to wipe out the incremental returns from additional applications. How much fertilizer application will be reduced at the national level is difficult to estimate, and how much yields will fall (if at all) is simply not known. While most farmers can *a priori* be expected to reduce fertilizer application, a minority may in fact increase it. Larger farmers (having a sufficiently large marketable surplus and hence able to benefit sufficiently from the increase in the "guaranteed" price), whose yields exceed the offsetting yield (for them) will experience *increases* in their profit margins despite the near four-fold fertilizer price increase. Even farmers whose level of productivity generates yields below their offsetting yield may be able to prevent significant decreases in yields despite reduced levels of fertilizer application by switching to paddy varieties that are less fertilizer dependent.

1. The offsetting yield will increase or decrease depending on whether the sum spent on fertilizer is greater or less than Rs. 48. The tentative nature of this statistic needs to be emphasized.
2. Rainer Schickele, "Socio-Economic Survey of Nine Colonization Schemes in Ceylon, 1967/68" in *Ceylon Papers*, AER Unit, University of Ceylon, Peradeniya, 1970.

As a matter of fact, this appears to be the strategy of the government. This strategy involves identifying zones suited to varieties like H-4 that are less fertilizer-dependent and advising farmers in those areas to switch to H-4 from new high yielding varieties like BG-11, BG-34/8, LD-66, etc. The rationale is that while H-4 is more susceptible to strong winds than new high yielding varieties, it promises greater security due to less yield variability. The ability of farmers to obtain higher yields from the new high yielding varieties than from H-4 depends *inter alia* on a high level of entrepreneurial capacity and water control. In areas of uncertain water supply, as for instance the Manawari lands of the dry zone, H-4 may be used without loss of yield. The ARTI Hambantota study[1] reports that "yield data for new high yielding varieties show considerable variation according to water supply conditions." The average yield of new high yielding varieties in major schemes was 57 bushels per acre, as against 38 bushels in minor schemes. On the other hand the older high yielding varieties such as H-4 do not show an "appreciable variation" according to water supply conditions-the difference in yields between holdings in major and minor schemes being only 6 bushels per acre. In fact, under rainfed conditions, these older varieties had fared equally well and sometimes even better than under irrigation schemes. Therefore the rationale for advocating a selective switch to H-4 is that new high yielding varieties, fertilizer, technical knowledge, managerial knowhow, agrochemicals, water control etc. are complementary inputs and that if one or more elements are lacking or deficient in the package, fertilizer can be economized by shifting to H-4 without significant yield losses.

While a selective switch to H-4 and similar older high yielding varieties may not reduce yields significantly or at all, it will probably reduce yield potential since these varieties are only intermediate in their ability to use nitrogen. Given the absence of a complete input package for the new high yielding varieties like BG-11, the switch to H-4 would be beneficial. But since the "green revolution" strategy involves the provision to farmers of lacking or deficient elements in the package, like for instance technical knowledge and/or water control,

1. Agrarian Research & Training Institute "The Agrarian Situation....." Hambantota District, *op. cit.*, p. 107.

the switch to H-4 can be beneficial in only a temporary or static sense. If the absence of managerial knowhow and water control are regarded as being temporary deficiencies to be corrected in the future, the shift to H-4 is at best a holding action designed to minimize yield losses from shortfalls in fertilizer availability.

In addition, output potential will also be unfavourably affected by prices that now discourage fertilizer use among potential users, directly by increasing variable capital costs and indirectly by increasing the penalty for error. While farmers experienced in fertilizer use are likely to have some idea of whether continued application will generate sufficiently increased returns to compensate for the higher costs, those with no previous experience will tend to be discouraged from trying because they will now have to risk a greater amount of capital in a situation of increased uncertainty. Non-users who are thus locked into the *status quo* will cease to be potential users.

Even large holdings with yields above the offsetting yield level and that are not required to switch back to a lower yield variety may experience lower yields because of an inadequacy of cash capital for investment in fertilizer. The data in table 3 evidence the shortfall in the credit allocation for fertilizer at the new prices. While the overall average credit requirement is now Rs. 246 per acre, the credit allocation under present schemes averages Rs. 82. The present credit ceilings may contribute to a floor level of fertilizer application for farmers accustomed to applying fertilizer. However this floor is on average more than 65 per cent below the recommended average dosage, given varieties. The present credit allocations may contribute to a mass switch back to less high yielding varieties. If so, a decrease in yields is probable and a decline in yield potential certain.

Income Distribution & Employment Effects: The removal of the fertilizer subsidy and the increases in fertilizer and paddy prices to farmers are likely to contribute to an increase in income disparities. The increase in the "guaranteed price" for rice benefits farmers in proportion to their paddy marketings. Therefore larger farmers who market a larger proportion of their produce will gain (a) in relation to smaller farmers and (b) at the expense of low income non-rice-producers.

Table 3

Revised Fertilizer Prices and Credit Allocations for Fertilizer

(Rupees)

Zone	Variety	Present Credit Allocation	Present Fertilizer Price
Low-Country Dry	NIV – 3 – 3½ M	85·00	243·43
	– 4 – 4½ M	100·00	331·61
	OIV – 3 – 3½ M	70·00	193·10
	– 4 – 4½ M	80·00	209·89
	NIV – 3 – 3½ M	60·00	197·36
	– 4 – 6 M	115·00	254·47
	OIV – 3 – 3½ M	60·00	139·01
	– 4 – 6 M	80·00	139·01
Ill-drained Soils of Low-country Wet	NIV – 3 – 3½ M	65·00	288·52
	– 4 – 6 M	115·00	337·85
	OIV – 3 – 3½ M	65·00	144·26
	– 4 – 6 M	80·00	248·71
Phosphate Deficient soils in Kurunegala and Ratnapura	NIV – 3 – 3½ M	100·00	320·12
	– 4 – 6 M	90·00	410·32
	OIV – 3 – 3½ M	80·00	197·15
	– 4 – 6 M	75·00	213·94
Normal Soils in Kurunegala	NIV – 3 – 3½ M	85·00	314·06
	– 4 – 6 M	85·00	314·06
	OIV – 3 – 3½ M	85·00	201·11
	– 4 – 6 M	70·00	230·28

Sources: Ministry of Agriculture & Lands and Central Bank of Ceylon.

Generally, small farmers using as much fertilizer per acre as large farmers will have to pay more than thrice as much for the same quantity of fertilizer, but benefit proportionately less from the increase in the "guaranteed" price because they would generate a lower output surplus above family subsistence needs for sale[1]. Two questions arise: (a) what is the relationship between farm size and the marketable surplus, and (b) how much fertilizer do small farmers use. In Maha 1973/74 the Paddy Marketing Board purchased about 38 per cent of output produced in the dry zone where the average size of holding is over 2 acres, and only about 15 per cent of output in the

1. In addition to assuming that there is a negligible correlation between farm size and fertilizer application, this also assumes a negligible correlation between farm size and family size, and between farm size and productivity,

wet zone where the average size of holding is under 1 acre.[1] Further, about 85 per cent of purchases of the Paddy Marketing Board is from the dry zone which accounts for some 65 per cent of total production. Also, according to the 1946 Census, 85 per cent of paddy holdings were below 2 acres in size.[2] Secondly, the available evidence from Hambantota and Kandy is that even small farmers use almost as much fertilizer. In Hambantota 89 per cent of small farmers with holdings below 2 acres use fertilizer on 93 per cent of their holdings as against 94 per cent of those with holdings above 2 acres who apply fertilizer on 88 per cent of their holdings. Although 30 per cent fewer farmers in the below 2 acre size category applied fertilizer 3 times, the proportion of farmers who had applied fertilizer was lowest in the above 6 acre size class.[3]

The implications of the foregoing for income distribution is clear. Even if a small farmer's yield exceeds his offsetting yield, he must sell it in order that the increase in the "guaranteed" price may actually offset the higher fertilizer cost. Whether he could sell will depend chiefly on the size of his holding, his productivity, and his family subsistence needs. In fact some farmers with adequately large holdings who get higher yields than their offsetting yield will find that their total profits margins have increased despite the over threefold increase in fertilizer costs. Therefore the minority of high income farmers will tend to get higher incomes while the majority of low income farmers get lower incomes, thus increasing income disparities in both relative and absolute terms.

Large farmers also gain at the expense of non-paddy-producing low income rice consumers. Low income consumers spend a large proportion of their income on food. Since the price of rice has increased,

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1. These computations are based on provisional figures There may be other reasons besides size of farm which accounts for this difference. For instance, due to the greater density of non-agricultural population in the wet zone, leakages into the open market may be much greater. This is presently the subject of a study by the Rural Economics Division of the Research Department in the Central Bank.

2. Census of Ceylon, 1946, Vol. 1, Part II, Table 70. Due to definitions adopted the 1962 Census data do not accurately reflect paddy farm size distribution.

3. Agrarian Research & Training Institute, "The Agrarian Situation..." Hambantota District, *op. cit* pp. 91-2.

there is a transfer of a proportionately greater amount of income from low income consumers to high income large farmers who have the larger marketable surpluses. This can be expected to contribute to further skewness in the distribution of income.

A decrease in employment or employment potential will also be adverse for income distribution because employment is a major element in the explanation of the shape of the distribution of income[1] A decrease in fertilizer use could reduce employment opportunities in agriculture, while a switch to older varieties would reduce the employment generating potential in agriculture. Fertilizer application "normally" increases employment by six man-days per acre for fertilizer application itself as well as concomitant weeding.[2] The use of agro-chemicals and the collection of a bigger harvest probably generates additional man-hours of employment. These jobs may be lost or reduced in number if farmers using fertilizer opt out of fertilizer use or use less. Second, the non-lodging qualities of varities like BG-11 give the farmer greater certainty of returns if he weeds or transplants.[3] Both these potentially employment generating operations might be reduced or lost by the switch to older varieties. Further, by discouraging non-users from being potential users, the high fertilizer price would contribute to a further reduction of employment potential in agriculture.

Administrative and Other Implications: From a primarily administrative standpoint, the passing on of world market prices to farmers renders quantitative restrictions like import quotas, administrative allocations among subsectors, and rationing unnecessary. Since the market price prevails, market forces may be allowed to operate using the present public distribution network. If the marketing of fertilizer at the new (market) price is accompanied by administrative allocations and controls that limit supplies to below equilibrium levels at present prices, leakages through the development of a black market and even higher open market prices for fertilizer prices may result. If gaps develop between demand and supply it will

1. See for instance Dudley Seers in "Income Distribution and Employment: Some Issues Raised by the Colombia Report" *Bulletin of the Institute of Development Studies*, Brighton, England: Vol. 2. No. 4, 1970,
2. International Labour Office "Matching Employment Opportunities and Expectations - a programme of action for Ceylon", I. L. O., Geneva, 1971 p. 103.
3. *ibid.*

necessitate some form of rationing if prices are not to be allowed to increase higher than present levels. Given demand, such administrative interventions are unlikely to preclude leakages through resale both inter-subsectorally and intra-subsectorally. Since the price changes will cause the higher income farmers to experience increases in their profit margins, the more affluent farmers (high productivity and/or large farmers) may find it worthwhile to bid away relatively scarce fertilizer from less affluent farmers (i. e. low productivity and/or small farmers) at a price at least equal to the discounted present value of income foregone by the seller.[1]

Subsidizing inputs like fertilizer ensures that government expenditure is directly proportional to the use of improved technology, while increasing the "guaranteed" price benefits farmers in proportion to their marketings. Hence the former rewards farmers because they are progressive, while the latter rewards farmers mainly because their holdings are large.

Concluding Remarks

The "green revolution" strategy assumed the availability of low cost fertilizer with a highly elastic supply. The present increases in fertilizer prices makes increasing output in terms of the "green revolution" strategy a high cost operation and calls for rethinking on the whole strategy of agricultural economic development. A recent paper argues that improved water management in the dry zone can substitute for imported inputs.[2] The crux of the argument is that since in the dry zone water is land-augmenting, the careful use of water achieves national self-sufficiency in rice with no increase in yields simply by doubling the Maha acreage. The Yala acreage that can be cultivated with water stored from Maha is of the order of only one quarter of the acreage that the same water could irrigate in Maha - thus implying that using additional acreage in Maha is much more efficient.

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1. Theoretically such leakages will occur if $P_o \geq PV = \frac{R}{(1+r)}$ There R is the income foregone due to the non - application of fertilizer, P_o the offer price, r the rate of time preference or discount rate from the time of sale of fertilizer to the time of sale of output, and PV the present value of expected future change in income discounted back to the time of sale of fertilizer.
2. Robert Chambers, "Water Management and Paddy Production in the Dry Zone of Sri Lanka" unpublished UCARTI Working Paper, March 1974.

Although this strategy immediately raises questions about labour availability, labour mobility, and the costs of colonization, it seems worth exploring.

There is an economic case for some increase in the fertilizer price. Fertilizer competes for high opportunity cost foreign exchange resources in the economy; hence it is only if the domestic agricultural sector can pay a high price that it should be allowed to direct these resources away from other sectors. Therefore a large subsidy for fertilizer may be justified only in the early stages in order to introduce farmers to the benefits or marginal value product of fertilizer. Also, if the price of fertilizer is established at artificially low levels for prolonged periods it is conceivable that the point can be passed beyond which the marginal returns from additional applications of fertilizer will be lower than their marginal opportunity costs to society, given available technology, due to the coming into operation of the law of diminishing returns. Moreover, a permanent fertilizer subsidy will eventually get capitalized in to land values and consequently lose its benefits as an incentive.

However, a price increase of the present magnitude will likely make it more profitable for farmers whose levels of productivity and size of holding do not permit them to benefit sufficiently from the higher guaranteed price, to use less fertilizer. Some such farmers can minimize yield losses by shifting to less fertilizer-dependent varieties. But even though shifting to such varieties as H-4 in some areas may not reduce yields significantly or at all, it will tend to reduce yield potential. Generally the price changes benefit high income farmers more than low income farmers or agricultural workers. These effects of the price increases may operate concurrently to decelerate the process of agricultural economic development.

SOME ASPECTS OF THE TYRE INDUSTRY IN SRI LANKA*

R. C. WANIGATUNGA

I. Introduction

1. Apart from the establishment of the cement factory under the Department of Industries in 1951, Sri Lanka did not venture into the establishment of heavy industry until the early 1960s. With the change of Government in April 1956, the Minister of Industries made a policy statement[1] in which he indicated, inter alia, that it was the policy of his Government to establish heavy industry as the economic base of this country. Specific mention was made of the intention to establish a fertilizer industry, a second cement factory, assembly plants for motor cars, motor cycles and bicycles and a tyre manufacturing industry. It was also indicated that foreign investment in industry on a massive scale would not be welcomed. Thus, on account of the large amount of capital required, tyre manufacturing in this country was destined to become a field of activity that was monopolised by the state through the Ceylon Tyre Corporation.

2. Subsequent to the opening of diplomatic relations between Sri Lanka and the Union of Soviet Socialist Republics in June 1957 an Agreement on Economic and Technical Co-operation was signed on February 25, 1958 between the two countries. This provided for the granting by the U. S. S. R. of a line of credit to Sri Lanka to the value of 120 million Roubles at the interest rate of 2·5 per cent with repayment in 12 equal annual instalments, the first of which was due on the completion of deliveries of equipment from the U. S. S. R. The credit offered covered the preliminary investigations by Soviet specialists, the supply of plant and machinery, construction materials, blue prints required for factories, travelling expenses of Soviet specialists to Sri Lanka and the training of Sri Lanka technicians in the

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1. "Ceylon Daily News" of April 24. 1956.

* The writer expresses his gratitude to the willing co-operation extended to him by the Ceylon Tyre Corporation. A great debt is owed to Mr. Joe Aloysius, Managing Director, Autodrome Ltd. for willing help in supplying data and literature on several matters related to this study. Messrs. Bridgestone of Japan supplied valuable information as did two of their associate companies. Mr. K. Abayasiri Silva did much of the statistical work that was necessary for the study. The writer, of course, takes responsibility for any errors and omissions.

U. S. S. R. in respect of 12 projects. One of these was the estiablishment of a factory for the manufacture of motor car tyres and tubes. Sri Lanka received a total of Rs. 36·2 million[1] worth of equipment, building materials and technical assistance from the U. S. S. R. under the Agreement on Economic and Technical Co-operation.

3. At the end of 1958 the U. S. S. R. sent out to Sri Lanka a team of experts to make an 'on the spot' study of the project. On March 10, 1959, the Government of Sri Lanka entered into an agreement with 'technopromexport', a Soviet organization, which undertook to make a complete project report on the establishment of the tyre factory with an annual capacity of 360,000 pneumatic tyres and tubes for motor cars, heavy vehicles and agricultural vehicles.[2] As the annual average imports of tyres and tubes by Sri Lanka in the period 1957 to 1959 were 173,661 and 123,014 respectively and the comparative figures for the period 1960-62 were 190,054 and 118,790[3] the output of the plant was to be chifely geared to meet local demand which was expected to increase in the 'sixties (the import of motor vehicles had not been banned in 1959). The project report was received by the Government of Sri Lanka in January 1961 and after examination by officials Cabinet approval was obtained on August 28, 1961. The work on the establishment of the factory and on the setting up of the necessary infrastructure, which included the construction of a road, an electrical sub-station, a water pumping station and a housing complex commenced in early 1963. The factory was declared open on 22. 3. 1967. However, an excessive length of time seems to have been spent in establishing the factory, for a tyre and tube factory of a larger capacity was constructed in Thailand in 14 months in 1967/68[4] and a similar factory was constructed in Singapore in 12 months in 1963/64.[5]

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1. Ceylon Tyre Corporation: Annual Report for 1967/68. p. 4 and Annual Report for 1969/70 p. 18.
2. The 'Ceylon Daily News' Supplement on the opening of the tyre project on 23. 3. 67.
3. Customs, Sri Lanka.
4. Thai Bridgestone Company Ltd.
5. Bridgestone Singapore Ltd.

4. At the outset only 4 sizes of tyres (5·20 X 14, 560 X 15, 750 X 20, 8·25 X 20) were produced, but the range of tyre sizes and number of tyres produced has increased progressively with time so that by 1973 the factory was producing 17 sizes of tyres and had an output of 149,460 tyres and 115,744 tubes and flaps (see table 1). The factory is still at Stage I which provides for a production capacity of 250,000 tyres and tubes. If Stage II (involving an additional capital expenditure of Rs. 3·9 million on the basis of costs as at 31. 3. 1965)[1] is reached, the factory will have the capacity to produce 350,000 tyres and tubes.

Table 1

Growth of Tyre Production

Year	Production of Tyre sizes commenced	Tyre Production			Tubes & Flaps Production
		Car Nos.	Heavey Vehicle Nos.	Agricultural Nos.	
1967/68	5·20x14; 5·60x15; 7·50x20; 8·25x20	44,202	13,363	—	90,546
1968/69	5·20x13: 9·00x20	31,314	26,808	—	46,582
1969/70	5·60x13 5 90x13; 11·00x20	30,732	40,323	—	63,335
1970/71	6·00x16; 7·00x20	30,957	52,261	—	130,569
1971 (9 Months)	5·60/5·90x14;	70,608	53,820	—	92,725
1972	11·00x28; 4·00x19; 5·50/5·90x15	82,895	63,007	1,145	98,078
1973	6·40x15; 5·25x16	80,422	57,591	11,447	115,744

Sources: Annual Reports of The Ceylon Tyre Corporation for 1967–69 and Ceylon Tyre Corporation

II. Scope of the study

5. This study is concerned with three matters. The first is the cost of establishment and operation of the factory, both in terms of foreign exchange and local resources expended. The second is the saving or otherwise of foreign exchange resources by producing tyres in Sri Lanka as opposed to importing them. Finally, there is the welfare gain or loss to the domestic consumer when he purchases Sri Lanka made tyres as opposed to imported tyres. The criteria adopted in making an assessment in respect of these aspects will be spelled out when they are examined.

1. Ceylon Tyre Corporation: Annual Report for 1964/65 p. 3.

III. Cost of establishing the factory and cost of production

6. In regard to the cost of establishing the factory, there was only a limited amount of information available for an assessment to be made. Sri Lanka's tyre factory which began production in 1967 cost Rs. 66·9 million[1] and was designed to produce 162,000 car tyres and 88,000 truck tyres and a corresponding amount of tubes annually. In 1961 India established a tyre factory with Czechoslovak assistance at a cost of Rs. 20 million. The capacity of this factory was 120,000 truck and 60,000 passenger car tyres and tubes.[2] In terms of the 'weight' of total tyre production there is not much difference between the two factories, but the capital cost of the Sri Lanka factory was over 300 per cent of the Indian one. Further, Messrs Bridgestone of Japan, which claimed to be the world's eighth largest tyre and rubber products manufacturer in 1972, established a factory in Thailand in 1968 to produce motor vehicle tyres. This factory had nearly one and half times the capacity of Sri Lanka's factory, but the entire cost of its construction was only Rs. 42·2 million.[3] In contrast the tyre factory in Sri Lanka, which was completed earlier when the cost of capital equipment was probably lower, needed, as at March 31st 1968, Rs. 18,032,722 to be spent on account of buildings and Rs. 43,902,634 on account of machinery[4] and its total costs were as high as Rs. 66·9 million. Bridgestone's Singapore factory constructed in 1963/64 and the capacity of which was increased in 1969 to almost twice that of the Sri Lanka factory cost only Rs. 37·19 million[5]. Moreover, the Sri Lanka factory was designed to use the obsolete 'air bag' process in the forming and vulcanising of 'green' tyres as opposed to the Thai and Singapore factories which used the more modern 'bagomatic' process. The latter process reduces the cost of the factory as well as the cost of production.[6]

7. The blue prints for the factory and infrastructure were done by a Soviet team and cost Rs. 252,800.[7] Of the total capital cost of Rs. 66·9 million as much as Rs. 36·2 million were the dues of

1. Ceylon Tyre Corporation: Annual Report for 1969/70 p. 27.
2. "Financial Times of Ceylon" First Quarter 1961 p. 1.
3. Thai Bridgestone Company Ltd.
4. Ceylon Tyre Corporation: Annual Report for 1967/68 p. 6.
5. Bridgestone Singapore Ltd.
6. Encyclopaedia Britannica (William Benton, Chicago, 1967) Volume XXII p. 15
7. Ceylon Tyre Corporation : Annual Report for 1969/70 p. 22.

the U. S. S. R., mainly on account of machinery and construction materials supplied.[1] These items were not invoiced separately but the Tyre Corporation was billed on the basis of 71 Roubles per ton c. i. f. in respect of every item imported[2]. The choice of the source of supply was the prerogative of the Soviet contractor. After work on the project had begun, the U. S. S. R. authorities informed the Tyre Corporation that it was advisable to instal the most up-to-date machinery and after consent of the Corporation was obtained, the value of capital goods that had been contracted for was enhanced by Rs. 4·5 million in the year 1964/65.[3]

8. The conclusion is inescapable that Sri Lanka has had to pay far too excessive a sum for its tyre factory, more particularly in terms of the foreign exchange resources expended. The unnecessarily large capital expenditure incurred has also required a substantial sum to be written off each year on account of depreciation (even on the basis of historic costs) which contributes to a relatively high cost of production.

9. In regard to the process of production used in the Sri Lanka tyre factory, which is intimately connected to both the establishment of the factory and costs of production, no comprehesive and detailed examination was possible on account of the limited technical knowledge of the writer. However, a few matters did emerge as being worthy of consideration.

10. The first, which has already been discussed, is that the use of air bags in the process of forming and vulcanizing 'green' tyres is obsolete and has contributed to increased capital and operation costs.

11. The requirement of factory labour in Sri Lanka for the production of a given number of tyres appears to be most excessive in relation to a number of non-socialist countries (no information is available in regard to socialist countires). Assuming that the same factory labour force which was employed in 1970, when only 42·5 per cent of installed capacity was utilized, will be sufficient to work the plant

1. Ibid p. 18.
2. Auditor General's Report 1962/63. Parliamentary Series No. 19. p. 139.
3. Ceylon Tyre Corporation: Annual Report for 1964/65. p. 3.

to its full capacity, an unit of factory labour will produce 226 tyres per year while the comparable figure in respect of the Singapore Bridgestone factory (even totally ignoring its production of bicycle tyres) is 915 and in respect of the Thailand factory, 640 (see table 2). If labour productivity in Sri Lanka was high as the weighted average of the Singapore and Thai factories, the wage bill would have been only 5·5 per cent of the cost of production incurred in 1970/71 as opposed to the 18.9 per cent actually expended.

Table 2

Productivity of Labour and Factory Size in the Tyre Industry.

(Figures relate to the Sri Lanka and Bridgestone owned Factories)

Factory	Date of Establishment	Tyres per worker on basis of capacity installed	Capacity per year (tyre-nos)
1· Sri Lanka	1967	226	250,000
2· Thailand	1969	640	384,000
3· Singapore	1965	915*	522,000*
4· Japan I	1960	2,154	8,400,000
5· Japan II	1931	2,571	9,000,000
6· Japan III	1968	4,023	6,840,000
7· Japan IV	1962	8,640	12,960,000
8· Japan V	1973	3,913	900,000

Source: Ceylon Tyre Corporation and publications of Bridgestone Ltd

* Has also the capacity to produce 180,000 bicycle tyres per year.

12. From the limited data available it appears that the Sri Lanka factory is of exceptionally low size (see table 2): it has only about 65 per cent of the capacity of the smallest tyre producing factory (installed in Thailand) connected to the firm of Bridgestone. This is a consequence of the Sri Lanka factory having been planned to cater almost entirely to the domestic market. A low capacity does not, of course, result in the heavy expenditure on items like an electrical sub-station, a water pumping and sewerage scheme, a boiler house and a refrigeration plant being proportionately reduced. A too small a scale of operation also creates a grave disadvantage to the operators of such a plant, especially if they are not connected to the international tyre giants. Thus, Sri Lanka's tyre factory, when purchasing its requirements of nylon tyre cord, rayon tyre cord, chemicals and carbon black from the international market is unable

to obtain any of the large discounts from manufacturers that the giant tyre producers are in a position to do. The Corporation is not in a position where it can even conceive of adopting capital intensive methods such as the purchase by the Bridgestone tyre factories of fuel requirements in the form of liquefied petroleum gas shipped in specially constructed tankers owned by the firm, which reduce costs of production but would be justified only if operations are on a massive scale.

13. An unrealistic emphasis has been placed on the use of natural rubber in place of synthetic rubber in the manufacture of tyres in Sri Lanka. It is known that at least until the recent world oil crisis, the international tyre manufacturers used mainly synthetic rubber in the production of cross-ply motor car tyres while natural rubber was chiefly used in the production of radial ply motor car tyres (not produced in Sri Lanka) and most of the heavy vehicle tyres. Technical considerations, including the quality of the final product, and the relative cost as between using natural rubber (which enters almost all developed market economies duty free and hence costs the international tyre producers a little more than Sri Lanka's f. o. b. export price) and synthetic rubber have governed decisions of international tyre producers. But, Sri Lanka decided on the exclusive use of natural rubber without apparently fully realising that where natural rubber is used instead of the synthetic product for domestic manufacture the country loses foreign exchange to the extent of the f. o. b. price times the quantity of rubber utilized. However, with the steep rise in the price of synthetic rubber consequent to the international oil crisis the Corporation's policy on this matter is more of historical than of current importance.

14. Costs of manufacturing tyres in Sri Lanka are affected to a large extent by several factors. One of them is a high amount that has to be set aside on account of depreciation (even on the basis of historic costs) because Rs. 67·3 million has been spent on capital assets. The efficacy of the process of production used, the productivity of labour, the scale of operation and, to a lesser extent, the insistence of the use of natural rubber instead of synthetic rubber for the production of tyres affect costs of production. These aspects have already been discussed. Among other determinants is the level

of utilisation of capacity which has not been quite adequate on account of absenteeism among factory employees (reported as a serious problem since 1971) lack of skilled labour (given as an explanation till 1970/71) breakdowns in plant and, since 1973, 'shortages' or the lack of imported raw materials to maintain production (due either to non-availability of imported inputs in the world market, and/or non-availability of foreign exchange resources). The level of capacity utilization as well as the explanations given by the Corporation are indicated in table 3.

Table 3

Capacity Utilisation in Tyre Production

Year	Percentage of Capacity Utilised	Reasons given by Corporation for low level of capacity utilisation
1967/68	22·83	—
1968/69	28·71	A, B, C (13 days) D, E,
1969/70	42·47	B, C (32 days) D, F.
1970/71	56·90	B, D, F.
1971 (9 months)	63·93	B, F, G.
1972	83·02	B, E, F, G.
1973	74·65	H. G.
1974 (Jan.-March)	—	H. G.

Notes:

A An insufficient number of moulds.

B Insufficient demand for a product leading to curtailment in production (due to availability of imports or faulty planning)

C Strikes (no of days lost)

D Lack of skilled personnel

E General management inefficiency.

F Breakdown in machinery

G Absenteeism 'lack of motivation'

H Insufficient quantity of imported raw material available.

Source: Annual Reports of the Ceylon Tyre Corporation 1967/70 and information furnished to the Central Bank.

15. The costs to the Corporation to produce tyres are given in table 4. Factory labour is the most important item, accounting in total for about 19 per cent of the cost of production. Of the other important elements, it is significant that two are the c. i. f. costs of imported raw materials and depreciation on plant and machinery

(mostly involving foreign exchange). Natural rubber consumed is about 12 per cent of the cost of production while the rupee component (F. E. E. Cs, duty, etc.) of imports of raw material is at least equally important.

Table 4

Cost of Production of Tyres - 1969/70

Major Items	Rs. per standard tyre*	As % of total cost of production
1. Depreciation on plant and buildings ..	65	16·58
2. Maintenance of plant and buildings ..	19	4·85
3. Direct labour costs ..	74	18·88
4. Office staff of corporation ..	24	6·12
5. Soviet specialists ..	7	1·78
6. Electricity ..	13	3·32
7. Furnance oil ..	8	2·04
8. c. i. f. costs of raw material imports ..	66	16·84
9. Local costs of raw material (FEECs duty, clearing charges etc) ..	47	11·99
10. Natural rubber ..	46	11·73
11. Other	23	5·87
12. Total ..	392	100·00

Source: Annual Report of the Ceylon Tyre Corporation 1969/70.

* a tyre of the size of 750x20 and 33 kilograms.

16. To judge the efficiency of tyre production in Sri Lanka costs are an all important criterion. The production figures for the Ceylon Tyre Corporation are maintained on the basis of "standard tyres" (750 X 20 in size and weighing 33 kilos) because the process of manufacturing tyres of various sizes is identical (with the proviso that rayon tyre cord is used for the manufacture of motor car tyres and nylon tyre cord is used for the manufacture of heavy vehicle tyres) and the cost of producing a given 'weight' of tyre is almost the same irrespective of tyre size. The cost of producing a tyre size has been derived from the cost producing a 'standard' tyre. It has also been possible to derive the hypothetical cost of producing a given tyre size although it was not being manufactured during a particular year by the Corporation. In table 5 are compared the c. i. f. as well as the c. i. f.+F. E. E. C. import price of Brigestone tyres, (a make produced in Japan) with the cost of production of the Sri Lanka tyres of comparable size. The latter is a bigger figure than the former

irrespective of whether the official or the FEEC rate is used. The only exception is in regard to the imports of sizes 8·2 5X20 and 9·00X20 by the Ceylon Transport Board after the oil crisis in 1973 where the "F. E. E. C. prices', but not c. i. f. prices, exceeded the cost of producing the equivelent size of Kelani tyres in 1973. The figures relating to the cost of production of Kelani tyres for 1973 do not reflect increases in the import costs of inputs like carbon black and tyre cord subsequent to the oil crisis of October 1973. Thus, assuming approximate uniformity in regard to quality, which is justified on the basis of tests conducted on heavy vehicle tyres,[1] the production of tyres in Sri Lanka is seen to be inefficient.

IV. Savings of Foreign Exchange

17. In regard to the question as to whether the country has been able to save foreign exchange by producing tyres instead of importing them two matters have to be considered, viz., the expenditure on imports of tyres of comparable size to those produced by the Tyre Corporation and the foreign exchange costs incurred by the Corporation in producing its tyres. Statistics were considered on an annual basis for the period 1967 to 1970 and 1972/73 so that any fluctuations either in the foreign exchange component of production costs or in the cost of the import of tyres could be isolated, if necessary.

18. To compute the foreign exchange cost of manufacturing a given tyre size in Sri Lanka it was considered necessary to obtain, on an annual basis, the c. i. f, cost of raw materials consumed in the production of tyres and the c. i. f. cost of the spare parts of machinery imported and installed. Some of the advocates of the establishment of the tyre manufacturing industry in this country claimed in its favour that the industry would be using the natural rubber produced in this country. However, as Sri Lanka is a very small producer and supplier of natural rubber to the world market it can export its production without depreciating the price obtained, and consequently any natural rubber consumed by domestic industry is, on the basis of opportunity costs, foreign exchange foregone or lost to the country. To compute the foreign exchange foregone, the quantity of rubber annually consumed in production (only the relatively expensive

1. Ceylon Tyre Corporation.

Table 5

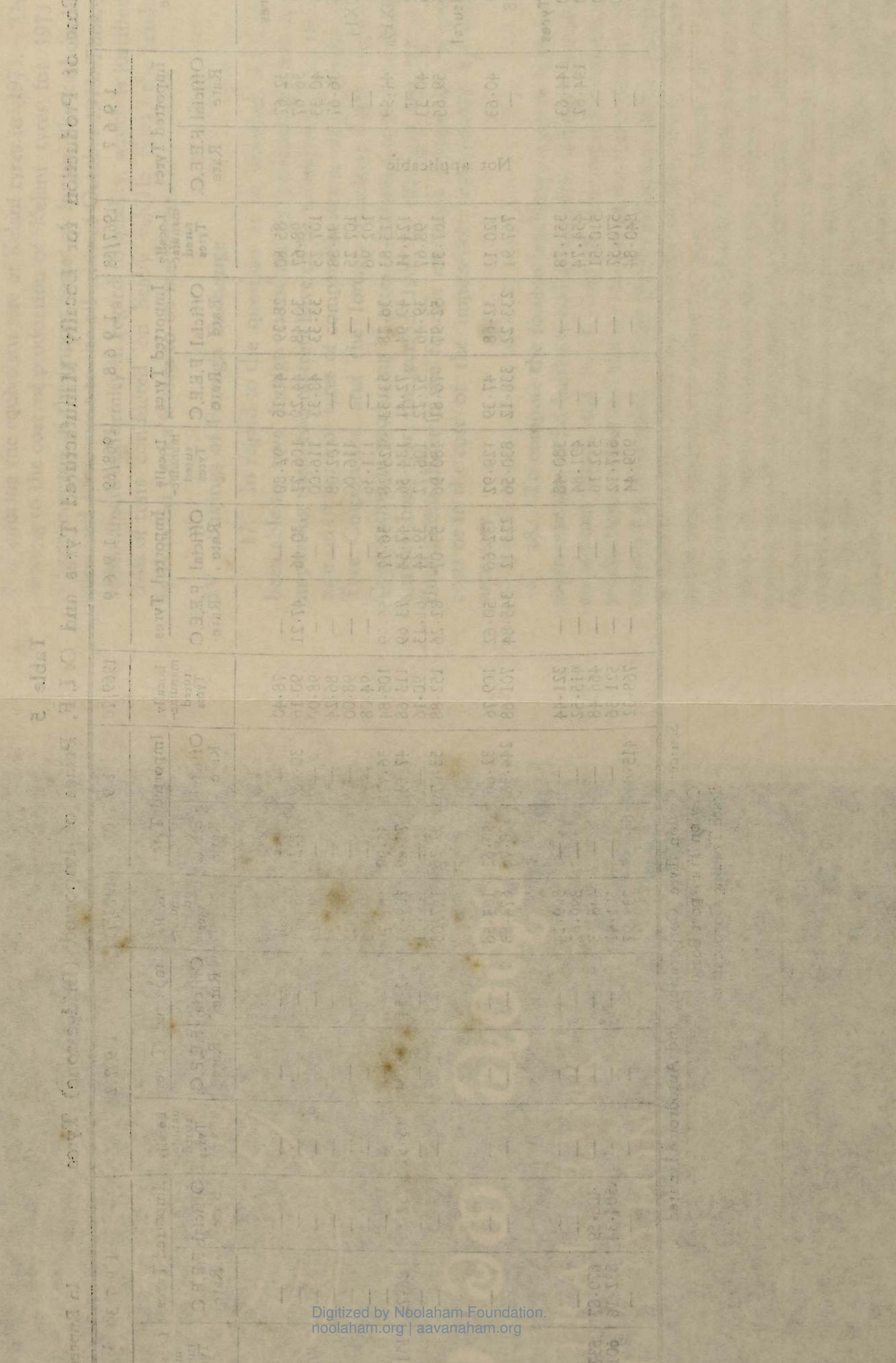
Cost of Production for Locally Manufactured Tyres and C. I. F. Prices of Imported (Bridgestone) Tyres

In Rupees

Size	1967		1967/68	1968		1968/69	1969		1969/70	1970		1970/71	1972			1973		
	Imported Tyres		Locally manufactured Tyres	Imported Tyres		Locally manufactured Tyres	Imported Tyres		Locally manufactured Tyres	Imported Tyres		Locally manufactured Tyres	Imported Tyres		Locally manufactured Tyres	Imported Tyres		Locally manufactured Tyres
	Official Rate	F.E.E.C. Rate		Official Rate	F.E.E.C Rate		Official Rate	F.E.E.C Rate		Official Rate	F E.E.C. Rate		Official Rate	F.E.E.C. Rate		Official Rate	F.E.E.C. Rate	
Car Tyres																		
520X13	32·67		85 80	28·39	41·16	92·80	—	—	78·40	—	—	75·40	—	—	—	—	—	—
560X13	36·67		98·67	30·48	44·20	106·72	30 46	47·21	90·16	30·46	47·21	86·71	—	—	—	—	—	—
590X13	40·33		107·25	33·33	48·33	116·00	—	—	98·00	—	—	94·25	—	—	—	—	—	—
520X14	36·67		94·38	—	—	102·08	—	—	86·24	—	—	82·94	—	—	—	—	—	—
560/590X14	—		107 25	—	—	116·00	—	—	98·00	—	—	94·25	—	—	—	—	—	—
560X15	—		102·96	—	—	111·36	—	—	94·08	—	—	90·48	—	—	—	—	—	—
550/590X15	44·99		115·83	36·78	53·33	125·28	36·77	56·99	105·84	36·77	56·99	101·79	—	—	—	—	—	—
640X15	—		124·41	49 94	72·41	134·56	47·54	73 69	113 68	47·54	73·69	109·33	42·54	65·94	109·91	52·56	86·72	131·08
525X16	40 33		98·67	39·46	57·22	106·72	39·44	61·13	90·16	—	—	86·71	—	—	—	—	—	—
600X16	59·65		167·31	52·97	76·81	180·96	53·07	82·26	152·88	53·07	82·26	147·03	—	—	—	—	—	—
Agricultural Tyres																		
400X19	40·63		120·12	32·68	47·39	129·92	32·66	50·62	109·76	32·66	50·62	105·56	—	—	—	—	—	—
1100X28	—		767 91	233·22	338·12	830·56	223·12	345·84	701·68	244·36	378·76	674·83	—	—	—	—	—	—
Truck Tyres																		
700X20	144·63		351·78	—	—	380·48	—	—	321·44	—	—	309·14	—	—	—	—	—	—
750X20	194·62		454·74	—	—	491·84	—	—	415·52	—	—	399·62	—	—	—	—	—	—
825X20	—		510·51	—	—	552·16	—	—	466·48	—	—	448·63	—	—	—	406·59	670·87	537·88
900X20	—		570·57	—	—	617·12	—	—	521·36	—	—	501·41	—	—	—	504·34	832·16	601·16
1100X20	—		840·84	—	—	909·44	—	—	768·32	415·84	644·55	738·92	—	—	—	—	—	—

Not applicable

Source: Ceylon Tyre Corporation and Autodrome Limited
Ceylon Transport Board
State Trading Corporation



R. S. S. I., sheet is used)[1] was 'weighted' by the average annual f. o. b. price of all sheet rubber viz R. S. S. I. to IV. A large proportion of the foreign exchange expenditure incurred in the production of tyres is that which has been incurred for buildings, plant, machinery and the setting up of basic infrastructure. The contribution to the capital assets of the Corporation by way of machinery and materials received from the U. S. S. R. under the long term credit is as much as Rs. 36·24[2] million. Moreover, a considerable proportion of the 'balance' expenditure which was incurred in the construction of buildings and in the necessary infrastructure comprised items that had been imported but not covered by the U. S. S. R. credit. It was therefore assumed that the foreign exchange component in the capital assets of the Corporation, on which Rs. 67·34 million had been spent as at 31·3·70,[3] was the Rs. 36·24 million obtained from the U. S. S. R. and another Rs. 5·76 million by way of other imported materials used. Thus the foreign exchange expenditure incurred by the Corporation on the depreciation of its capital assets was construed to be $\frac{42}{67} \times 100$ of its total annual depreciation. In view of the low estimate made for the installation of imported equipment and materials not covered by U. S. S. R. credit and as depreciation has been allowed for by the Corporation on the basis of historic cost and not the actual cost of replacement at a future date after making due allowance for the impact of world inflation and obsolescence, the foreign exchange expenditure computed for depreciation is probably an underestimate. A proportion of the cost of production is an account of the consumption of furnace oil (2·1 per cent of the cost of production in 1973). Prior to the commencement of the production of this item by the Sapugaskanda refinery in October 1969 it had to be imported. To obtain foreign exchange component in the expenditure incurred by the Corporation on its consumption of furnace oil, the quantity consumed was 'weighted' by the c. i. f. cost of the furnace oil in respect of the period 1967 to 1969 and the c. i. f. cost of furnace oil incurred in the year 1969 for the period 1970 to 1973. The procedure adopted for the second period, is admittedly, an approximation of the foreign exchange

1. On the discovery by the Corporation as late as the end of 1972 that R. S. S. II & III grades too could be used as well about 30 per cent of the rubber consumed is of this grade since 1973. This does not invalidate the argument presented.
2. Ceylon Tyre Corporation Annual Report for and 1967/68 P. 4
3. Ceylon Tyre Corporation: Annual Report for 1969/70 p. 27.

cost incurred by the country on the furnace oil consumed by the Corporation. Although 1969 c.i.f. prices are used, as the prices of crude oil imported by the Petroleum Corporation have risen sharply in the early 1970s the approximation probably underestimates the actual foreign exchange cost incurred by the country. There is a foreign exchange cost in the production of electricity consumed by the Corporation (2·2 per cent of cost of production in 1973) but this was ignored due to the difficulty in obtaining accurate statistics. On the above basis, the foreign exchange costs of producing a "standard tyre" have been worked out in table 6 for the period 1967/73.

Table 6

Foreign Exchange Cost of Producing a 'Standard Tyre'[1]

(In Rupees)

Item	1967/68	1968/69	1969/70	1970/71	1972	1973
1· Raw material (c. i. f. costs) ..	58·00	66·00	66·00	62·53	77·26	87·68
2· Spare parts (c. i. f. costs) ..	13·06	10·39	7·02	5·24	10·78	11·00
3· Depreciation on account of plant & machinery & building $\left(\frac{42}{67} \times 100\right.$ of depreciation calculated by Corporation.) ..	52·24	59·90	40·73	31·30	22·27	25·39
4· Natural rubber (Quantity consumed x f. o. b. price of sheet rubber) ..	54·83	43·04	58·63	50·12	34·45	65·19
5· Furnace oil ..	2·74	2·98	2·64	3·40	3·86	3·54
Total ..	180·87	182·31	175·02	152·59	148·62	192·80

Source: Ceylon Tyre Corporation

1· 'Standard Tyre' is of the size 7·50x20 and weighing 33·0 kg.

19. As indicated in paragraph 16 it is realistic to derive the cost of production of a given tyre size manufactured by the Corporation by relating the weight of a tyre size to the weight of a "standard tyre". Similarly, it was possible to compute from the foreign exchange cost of producing a "standard tyre" the foreign exchange cost of producing a given tyre size. It was also possible to work out the

hypothetical foreign exchange cost of manufacturing a tyre size for a tyre size not manufactured by the Tyre Corporation during a particular year. This was done in regard to the tyre sizes manufactured by the Corporation in 1973 and the foreign exchange cost of producing 17 tyre sizes manufactured by the Corporation are given in table 7 for the period 1967/73.

Table 7

Foreign Exchange Cost of Producing Different Sizes of Tyres

(Rs. per Tyre)

Size	1967/68	1968/69	1969/70	1970/71	1972	1973
Car Tyres						
5·20X13	36·17	36·45	35·00	30·52	29·72	38·56
5·60X13	41·60	41·93	40·25	35·10	34·18	44·34
5·90X13	45·22	45·58	43·76	38·15	37·16	48·20
5·20X14	39·79	40·11	38·50	33·57	32·70	42·42
560/590X14	45·22	45·58	43·76	38·15	37·16	48·20
5·60X15	43·41	43·75	42·00	36·62	35·67	46·27
5·50/5·90X15	48·83	49·22	47·26	41·20	40·13	52·06
6·40X15	52·45	52·87	50·76	44·25	43·10	55·91
5·25X16	41·60	41·93	40·25	35·10	34·18	44·34
6·00X16	70·54	71·10	68·26	59·51	57·96	75·19
Agricultural Tyres						
4·00X19	50·64	51·05	49·01	42·73	41·61	53·98
11·00X28	323·76	326·33	313·29	273·14	266·03	345·11
Truck Tyres						
7·00X20	148·31	149·49	143·52	125·12	121·87	158·10
7·50X20	191·72	193·25	185·52	161·75	157·54	204·37
8·25X20	215·24	216·95	208·27	181·58	176·86	229·43
9·00X20	240·56	242·47	232·78	202·94	197·66	256 42
11·00X20	354·51	357·33	343·04	299·08	291·30	377·89

Source: Calculated from Table 6

20. To arrive at the foreign exchange cost of imported tyres, importers of tyres were requested by a circular to furnish the average c. i. f. costs for the various sizes imported for each year in the period 1967 to 1973. These have been converted into Ceylon rupees at the rate of exchange ruling during the relevant year. The average annual c. i. f. prices of various sizes of imported tyres comparable to the sizes produced in Sri Lanka are to be found in Table 8. It must be noted that importers were generally not very co-operative in furnishing data as they no longer had the right of importing tyres.

Also, it was claimed that the relevant documents were no longer available. However, data were obtained in respect of two tyre importers of makes of West German and Japanese tyres.

21. Table 8 gives the c. i. f. costs of two varieties of imported cross-ply tyres, viz., 'Metzeler' (manufactured in West Germany) and 'Bridgestone' (manufactured in Japan) together with the foreign exchange cost of manufacturing the 'Kelani' tyre in Sri Lanka. Although it was not possible to obtain more information as the import of a tyre size was usually banned when it was thought that the Tyre Corporation's production of that size could meet demand (with the notable exception of the period 1968/70 when imports were "inadvertently" permitted under the O. G. L. Scheme) it is apparent that with few exceptions importing a tyre has been cheaper in terms of foreign exchange resources than producing it locally. The identical result is obtained if the 'FEEC rate of exchange" is treated as a 'shadow' or realistic one.

V. Welfare Effects

22. An examination was made as to whether there was a welfare gain to consumers when they bought Sri Lanka tyres instead of imported tyres. The methodology used was to compare the retail prices (i. e. prices normally paid by the consumer) of locally manufactured and imported tyres of comparable sizes after making appropriate adjustments for the impact of tariffs, payment of F.E.E.C.s and incidence of the business turnover tax, all of which contribute to government revenue. In respect of imported tyres, the import duty paid, the value of FEECs surrendered and business turnover tax paid on the wholesale and retail sales of the tyres were deducted from the retail prices. In respect of locally manufactured tyres, the import duty paid, the value of FEECs surrendered on imports of spare parts of machinery and raw materials consumed in production during a given year and the business turnover tax paid on production and sales were deducted from the retail price of the tyres. A separate calculation was made under which the value of F. E. E. C.'s surrendered was not deducted from the retail price - the F. E. E. C. element being taken as an approximation of a realistic rate of exchange.

23. The methodology used involved in effect the deduction of moneys paid as taxes to the state from the pricess paid by consumers for their tyres. This is because the extraction of revenue by the

Table 8

Foreign Exchange Cost of Producing and Importing Tyres

(In Rupees)

Size	1967		1967/68	1968		1968/69	1969		1969/70	1970		1970/71	1972		1972	1973		1973
	M	B	K	M	B	K	M	B	K	M	B	K	M	B	K	M	B	K
Car Tyres																		
520X13	33·24	32·67	36·17	—	28·39	36·46	—	—	35·00	—	—	30·52	—	—	—	—	—	—
560X13	—	36·67	41·60	31·08	30·48	41·93	29·52	30·46	40·25	—	30·46	35·10	—	—	—	—	—	—
590X13	40·86	40·33	45·22	33·96	33·33	45·58†	41·70	—	43·76	—	—	38·15	—	—	—	—	—	—
520X14	—	36·67	39·79	—	—	40·11	—	—	38·50	—	—	33·57	—	—	—	—	—	—
560/590X14	—	—	45·22	—	—	45·58‡	—	—	43·76	—	—	38·15	—	—	—	—	—	—
560X15	42·30	—	43·41	—	—	43·75	—	—	42·00	—	—	36·62	—	—	—	—	—	—
550/590X15	—	44·99	48·83	—	36·78	49·22	—	36·77	47·26	—	36·77	41·20	—	—	—	—	—	—
640X15	78·85	—	52·45	50·80	49·94	52·87	—	47·54	50·76	—	47·54	44·25	—	42·54	43·10	—	52·56	55·91
525X16	—	40·33	41·60	—	39·46	41·93	—	39·44	40·25	—	—	35·10	—	—	—	—	—	—
600X16	—	59·65	70·54	—	52·97	71·10	—	53·07	68·26	—	53·07	59·51	—	—	—	—	—	—
Agricultural Tyres																		
400X19	—	40·63	50·64	—	32·68	51·05	—	32·66	49·01	—	32·66	42·73	—	—	—	—	—	—
1100X28	—	—	323·76	—	233·22	326·33	—	223·12	313·29	—	244·36	273·14	—	—	—	—	—	—
Truck Tyres																		
700X20	—	144·63	148·31	149·04	—	149·49	—	—	143·52	—	—	125·12	—	—	—	—	—	—
750X20	—	194·62	191·72	—	—	193·25	—	—	185·52	—	—	161·75	—	—	—	—	—	—
1100X20	—	—	354·51	—	—	357·33	—	—	343·04	—	415·84*	299·08	—	—	—	—	—	—

Sources: Ceylon Tyre Corporation, Don Somapala Corporation, Autodrome Ltd. and Sri Lanka State Trading Corporation

K = Kelani Tyres produced by the Ceylon Tyre Corporation;

B = Bridgestone Tyres.

M = Metzeler Tyres.

† In the quarter Jan —March 1968 this size has been exported at Rs. 41·40 f. o. b. with Tubes.

‡ In the quarter Jan—March 1968 this size has been exported at Rs. 46·57 f. o. b. with tubes.

* A 10 ply tyre not comparable to the Kelani product

state in the form of indirect taxes such as tariffs, value of FEECs surrendered and business turnover tax are deemed to be redistributed among consumers in Sri Lanka on the basis of decisions that are in accordance with their expressed or implied wishes which is also the accepted viewpoint in modern economic thought, particularly in regard to the incidence of tariffs on imported products[1]. The treatment of F. E. E. C.s as a levy made by the state may be justified on the ground that the official exchange rate is applicable to the major exports of tea, rubber and coconut and to two of the three important items of our imports. More particularly, the surrender value of F. E. E. Cs received from the state by those such as exporters of non-traditional items is but a fraction of the income received by the state on purchases of F. E. E. C.s (chiefly by importers). The result is that the F E. E. C.s have become a very important source of revenue for the state. In 1973 Rs. 673·7 million was obtained from this source by way of net government revenue and this sum was 16·6 per cent of total revenue obtained by the state. However, F. E. E. C.s have alternatively been treated as a measure that approximates the official rate of exchange to the real rate.

24. A major difficulty encountered was that whenever local production of particular tyre size was deemed to be of such a quantity as would meet the market requirements the import of tyres of that size was immediately banned with the exception of the period 1968–70. Another was that the range of tyre sizes manufactured by the Corporation was increased only gradually with time.

25. Table 9 gives the retail prices of Sri Lanka made tyres as well as the retail prices of the imported tyres for the period 1967/70 and 1972/73. It is clear that treating the value of F.E.E.C.s surrendered as a tax paid to the state, it would have been more advantageous to the consumer's welfare had he purchased imported tyres in lieu of locally manufactured tyres. The result is identical even if F.E.E.C.s are treated as an approximation of the official rate of exchange except in respect of size 9.00 X 20 in 1973 where imports were ordered subsequent to the "oil crisis".

1. H. G. Johnson: Money, Trade and Economic Growth (George Allen and Unwin. London, 1962) p. 55.

Table 9

Effective Consumer Expenditure on Tyres

Tyre Sizes	1967/68		1967				1968/69		1968				1969/70		
	Kelani Tyres		Bridgestone Tyres		Metzeler Tyres		Kelani Tyres		Bridgestone Tyres		Metzeler Tyres		Kelani Tyres		Bridge
	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp (Td+Fcs)	Rp – Td	Rp–(Td Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp Td
Car Tyres															
520X13	—	—	—	—	79·89	79·89	82·62	89·51	—	—	—	—	82·90	89·60	—
560X13	—	—	—	—	—	—	—	—	59·98	73·70	59·58	73·57	85·53	93·23	58·47
590X13	—	—	—	—	96·20	96·20	—	—	—	—	65·00	80·28	93·81	102·19	—
520X14	103·14	103·14	—	—	—	—	90·89	98·46	—	—	—	—	91·19	98·56	—
560/590X14	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
560X15	117·42	117·42	—	—	89·04	89·04	104·06	112·32	—	—	—	—	104·39	112·43	—
550/590X15	—	—	—	—	—	—	—	—	68·58	85·13	—	—	—	—	—
640X15	—	—	—	—	98·17	98·17	—	—	—	—	96·22	119·08	—	—	—
525X16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
600X16	—	—	—	—	—	—	—	—	97·48	121·32	—	—	—	—	94·71
Truck Tyers															
700X20	—	—	—	—	—	—	—	—	273·76	340·19	281·62	348·69	—	—	266·45
750X20	609·76	609·76	—	—	—	—	550·70	587·20	—	—	—	—	552·19	587·69	—
825X20	641·27	641·27	—	—	—	—	574·98	615·95	—	—	—	—	576·65	616·50	—
900X20	—	—	—	—	—	—	632·82	678·61	—	—	—	—	634·66	679·22	—
1100X20	—	—	—	—	—	—	—	—	—	—	—	—	1,028·24	1,093·88	835·51

Rp denotes retail prices.
Td denotes deductions on account of import duty FEECs surrendered and BTT paid.
Fcs denotes payments on account of FEECs surrendered.

Sources: Celyc

* Estimated o

Table 9

Effective Consumer Expenditure on Tyres

(Figures in Rupees)

1968			1969/70		1969			1970/71		1970		1973			
estone Tyres	Metzeler Tyres		Kelani Tyres		Bridgestone Tyres		Metzeler Tyres		Kelani Tyres		Bridgestone Tyres		Kelani Tyres		Bridgestone Tyres	
Rp–(Td Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp – Td	Rp–(Td+Fcs)	Rp+Td	Rp–(Td+Fcs)
—	—	—	82·90	89·60	—	—	—	—	80·39	87·85	—	—	—	—	—	—
73·70	59·58	73·57	85·53	93·23	58·47	73·70	93·16	110·94	82·64	91·21	55·98	72·73	—	—	—	—
—	65·00	80·28	93·81	102·19	—	—	98·06	116·83	90·68	100·00	—	—	—	—	—	—
—	—	—	91·19	98·56	—	—	—	—	88·44	96·64	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	144·63	153·95	—	—	—	—	—	—
—	—	—	104·39	112·43	—	—	—	—	101·37	110·32	—	—	—	—	—	—
85·13	—	—	—	—	—	—	—	—	—	—	67·89	88·11	—	—	—	—
—	96·22	119·08	—	—	—	—	—	—	—	—	—	—	178·41	197·01	80·19*	114·35*
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
121·32	—	—	—	—	94·71	121·25	–	—	171·48	186·02	72·26	101·45	—	—	—	—
340·19	281·62	348·69	—	—	266·45	340·23	—	—	442·41	472·98	—	—	—	—	—	—
—	—	—	552·19	587·69	—	—	—	—	538·88	578·40	—	—	—	—	—	—
—	—	—	576·65	616·50	—	—	—	—	561·71	606·07	—	—	793·38	869·69	594·27*	858,55*
—	—	—	634·66	679·22	—	—	—	—	617·99	667·52	—	—	880·99	966·28	735·98*	1,063·80*
—	—	—	1,028·24	1,093·88	835·51	1,043·43	—	—	1003·64	1076·71	796·83	1,025·54	—	—	—	—

Sources: Celyon Tyre Corporation, Autodrome Ltd., Don Somapala Corporation, Sri Lanka State Trading Corporation, Ceylon Transport Board

* Estimated on the basis that the importer obtains a 20 percent profit margin

Conclusion

26. Basically, the cost of production of locally manfactured tyres is higher than the prices of imports. This is due to factors such as the excessive costs (most of which were in foreign exchange resources) incurred in respect of the plant and buildings, the low degree of capacity utilisation, the scale of production and the techniques used. When allowance is made for the opportunity cost of natural rubber utilised in the production of tyres it is seen very clearly that generally less foreign exchange resources would have been expended to import a tyre than to produce it in this country. Finally, having to purchase 'Kelani' tyres instead of imported tyres has been prejudicial to consumer welfare. In contrast to Sri Lanka's performance, some South East Asian Countries have been able to set up efficient and export oriented tyre factories.

NET FOREIGN EXCHANGE EARNINGS FROM TOURISM WITH SPECIAL REFERENCE TO SRI LANKA[1]

W. HETTIARACHCHI

Introduction

In recent years, interest in tourism has been aroused on an unprecedented scale in Sri Lanka with the simple belief that tourism provides a lucrative investment. At the national level this enthusiasm has been fuelled by potential which tourism holds for bringing in hard currency into the country. These tendencies were a sequel to the world-wide tourist boom which commenced in the mid-sixties. From the point of view of Sri Lanka there was an urgent need to expand the foreign exchange earnings from non-traditional sources in a background of unfavourable price trends for traditional exports. A number of feasibility studies on the subject commented favourably on the economic potential for tourism in the island.[2] Accordingly, the country embarked on a tourist development programme to attract and cater to an increased volume of tourist traffic.

Sri Lanka, though not necessarily identified as a tourist paradise, possesses a number of attractions which can be gainfully exploited for an expanding tourist industry. Her natural beauty with some of the finest hill and mountain scenery is outstanding. In the north-central part of the island are the majestic ruins and other remains of an ancient civilization which appeals highly to the foreign eye. The island's long stretch of virtually unexploited coastline with abundant sun shine provides a welcome escape to the European tourist specially during winter months. The presence of lobsters and other sea foods is an important attraction to the more demanding tourist. The splendid countryside unaffected as yet by industrialisation provides a contrasting experience to the western tourist who is more accustomed to the cement structures and holiday camps prominent in

1. I am grateful to Dr. L. E. N. Fernando for helpful comments. Responsibility for any shortcomings is solely mine.

2. See specially Harris, Kerr, Forster and Company, **Ceylon Tourist Plan**, Hawaii, December, 1967 and I. B. R. D., **Report of the Prospects for Tourism Development in Ceylon**, Ministry of Planning and Economic Affairs, Colombo, 1968.

the Western world. Above all, the cost of accommodation and other tourist services compare favourably with those in other parts of the world.

Despite these attractions, upto 10 years ago tourism in an organised form did not exist in the island. In fact, as late as 1967 the number of non-Indian tourists visiting the island totalled less than 20,000. The entire country possessed only about 800 hotel rooms and these catered mostly for commercial travellers and business visitors. At the same time there was a noticeable lack of complementary tourist infrastructure. One major reason for the lack of growth in the tourist industry is the country's geographical location which is several thousand miles away from the principal sources of tourist traffic – Western Europe and North America. However, with the expansion of jet air travel the distance barrier was largely neutralised, while the ever increasing charter tours and the introduction of group fare structures have scaled down transport costs.[1] This together with the widening of tourist facilities resulted in a significent change in the flow pattern of tourist traffic to Sri Lanka. Whereas until 1967 there was near stagnation in the annual flow of tourists, since then a marked increase is observed in the number of tourists visiting the island. With the increase in tourist traffic, earnings have registered even a sharper rise. From the point of view of Sri Lanka, it is the latter figure which is more relevant, since the economic significance of tourism arises largely from its potential for earning foreign exchange.

The growth and maintenance of the tourist industry whilst leading to higher earnings, also involves costs. Firstly, there is the need to provide goods and services of a reasonably high standard to visitors which involves both capital and current costs. Secondly, tourism requires the existence of an adequate net-work of infrastructure services. Thirdly, the intensification of competition in the international travel market has necessitated constant promotional activities. A significant share of these represents foreign exchange costs in the form of imported goods and services. To the extent that such costs arise because of the need to provide additional tourist facilities, the net foreign exchange earnings from tourism would be lower by that amount. Thus, while the principal economic benefit from tourism may be viewed in relation to gross tourist earnings, due regard must

1. With the oil price hike and the ensuing increases in air fares there is a tendency for cost of transport to become a limiting factor.

also be paid to economic costs, specially foreign exchange costs, as the gross receipts tend to overstate the true gain to the economy. The purpose of this study is to identify broadly the foreign exchange implications of tourism, with particular reference to Sri Lanka.

It needs to be emphasised however, that the economic benefits of the expansion of the tourist industry cannot be judged from foreign exchange earnings alone. For instance, the growth of tourist industry leads to greater employment opportunities and tourism being a relatively labour intensive activity compares favourably with other lines of activities as a generator of employment. In addition to direct employment prospects, it also generates considerable indirect employment opportunities as the benefits of the tourist industry get diffused widely through the economy. Again, the growth of tourism can help to mitigate regional disequilibrium in development by pushing tourist development into areas which otherwise have very poor prospects of attracting capital. Then, the development of tourist infrastructure will generate considerable external economies for the benefit of other lines of economic activities Above all, tourist income can seep into the economy on a wider front and the multiplier effect of this income can be a number of times the direct income.[1] Thus, in an overall evaluation of the economics of investment in tourist industry, one has to consider all economic costs of developing tourism and all economic benefits resulting from it to determine whether the favourable impact is in line with, if not better than for, other activities which are equally feasible. To put it differently, economic benefits from tourism must be weighed against those that might be obtained from the alternative uses of the same resources. This is all the more important in a situation where tourism must compete for scarce investment resources with other lines of activities. Such a comprehensive exercise is, however, not within the scope of this study.

The study is in two parts. Part I will discuss the theoretical, conceptual and practical problems involved in the exercise. Part II will be devoted to an estimate of Sri Lanka's net foreign exchange earnings from tourism during the period 1970–1973.

1. Multiplier here measures the number of times the original income created by tourism turns over in the national economy.

PART I

The net foreign exchange earnings from tourism is the net gain to the balance of payments, i. e. gross receipts minus foreign exchange outlay on goods and services provided to visitors. Both the computation of gross earnings as well as the estimate of foreign exchange costs is likely to confront a number of theoretical, conceptual and practical problems which render the exercise rather cumbersome. To begin with, tourism, like any other economic activity, is likely to result in both direct and indirect costs and benefits. Similarly, there are some costs and benefits which are measurable while others are not. While an estimate of direct costs and benefits may itself pose certain problems, it is often difficult, if not impossible, to obtain an accurate estimate of indirect costs and benefits. For instance, high incomes in the tourist industry is likely to enhance the demand for imports, causing an outflow of foreign exchange. Incomes received by persons engaged in the tourist industry are partly spent on imported consumer goods and partly on domestically produced goods. Generally speaking, the participants in tourist earnings are such that the import demand stimulated by tourist earnings is likely to be fairly high, assuming no restrictions on consumption goods imports. However, it is often difficult to isolate such excess demands. Similarly, the higher import demand resulting from the impact of the 'demonstration effect' which creates new tastes and stimulates the demand of the residents for sophisticated consumer products is also not readily quantifiable.

On the side of indirect benefits are the increased airport dues, earnings from the supply of aviation fuels, etc. arising from increased airline traffic which are not generally classified as tourists earnings and are therefore not attributed to the tourist industry. Then, a rapid turnover of tourists is likely to result in increased export orders, for certain types of non-traditional exports during later years, but the tourist industry may not get credit for such additional export earnings. Thus, while the expansion of tourist industry is likely to generate indirect foreign exchange earnings, such earnings are not generally identified as accruing to the tourist industry. There are obvious difficulties in chasing up all indirect foreign exchange costs and benefits attributable to the industry; none-the-less, an estimate based on direct costs and benefits only will be an incomplete measure of net foreign exchange earnings.

Even in the case of direct foreign exchange costs and benefits there could be problems of estimation and identification. In less developed countries experiencing foreign exchange difficulties there is a tendency for the official estimates to under-state the foreign exchange earning potential of the tourist industry. The problem is that not all expenditure by tourists gets reflected in official figures, as some part of the tourist expenditure leaks into the unofficial market. The fact that most countries are forced to maintain restrictions on foreign payments has resulted in the creation of an unofficial market for foreign exchange where the sale of currency is at a more attractive rate than the official rate. In view of the difficulties involved in effective offcial supervision of transactions, tourist expenditure fall an easy prey to unofficial transactions. Whereas a more realistic exchange rate may reduce the volume of tourist transactions going into the unofficial market, a complete eradication of such transactions is not possible so long as the country's payments are regimented by exchange control restrictions. While one should recognise the fact that not all tourist earnings are reflected in official estimates, it is common practice to test the viability of the tourist industry on the basis of official transactions. Therefore, the existence of an unofficial market for foreign exchange tends to conceal the actual foreign exchange earning potential of the tourist industry.

One method of estimating the overall import content of tourist earnings would be to disaggregate the earnings on the basis of different sectors providing tourist services, viz. board and lodging, entertainment, internal transport, shopping, etc., and compute the foreign exchange content of each category of earning separately. Each sector providing tourist services would incur both current costs and capital costs and also would consume both domestic and imported inputs, and it is important to distinguish between current costs and capital costs, as well as between domestic and imported inputs. The problems involved in identifying these costs are discussed in detail under each category of expenditure.

Current Costs of Goods and Services

Meeting the demands of a growing tourist industry involves both current costs as well as capital costs a part of which needs to be met in foreign exchange. Current costs relate to expenditure on food, drink and other goods consumed by the tourists, a portion of which needs to be imported because either quantities available locally are

insufficient or the quality not suitable. Statistics of consumer goods imports earmarked purely for the use of the tourist industry are often difficult to obtain. Even when such statistics are available, perhaps through import licensing procedures there is no guarantee that all such imports are consumed in the tourist industry, as the possibilities of leakages into the domestic sector are extremely high, specially in a situation where imported consumer goods are hard to come by. For instance, it is common practice for local residents to consume imported drinks, cigarettes etc. in bars and restaurants. Similarly, it is possible for the tourist sector to purchase imported goods in the domestic market which are meant for other sectors of the economy. Apart from imported goods, tourists also consume domestically produced goods and these can contain an element of import content, due to the dependance on imported raw materials, fuels and capital goods. Also, some part of the goods which have been purchased in the domestic market and therefore being classified as domestically produced goods may, in fact, be imported goods procured domestically. While it is important to take account of such indirect imports, an accurate estimate is often difficult owing to insufficiency of information.

Even in cases where the import content of domestically produced goods is relatively insignificant, it can still involve a substantial element of foreign exchange costs. In a situation where a considerable gap exists between the domestic production and the overall demand for a consumption good, necessitating the shortfall to be made good from foreign supplies, the fact that a part of the domestic production is absorbed by foreign tourists meant that the gap in consumption that needs to be filled from foreign sources gets wider, thus increasing the overall import outlay to a level higher than what it would otherwise have been the case. If no attempts are made to fill the gap in consumption created by the advent of tourism there will be a considerable loss in national welfare specially in a situation where a substantial share of the population live below the so called subsistence level. Thus, tourist consumption even if it is heavily concentrated in domestically produced goods is likely to involve foreign exchange costs, but in practice this aspect of foreign exchange costs has not received due recognition.

Current costs of tourism also cover service payments abroad such as expenditure on advertising and publicity, commission due to travel agents and other enterprises in the country of origin of the

visitors, costs of maintenance of tourist offices abroad, management fees to foreign concerns, investment income accruing to foreign investors in the tourist industry, etc. Then, at least, a part of the remuneration paid to expatriate staff in the tourist industry is remitted abroad. Tourism also involves foreign travel for locals engaged in the tourist industry. The problem, however, is that more often than not information on such matters is not separately available either from the balance of payments records or the exchange control records.

Capital Costs of Goods and Services

If an estimate of import content of current costs of goods and services is complicated, an estimate of the import content of capital costs would be even more difficult. In general, the import content of investment in tourism depends partly on the stage of development of the economy – a more mature economy with an industrial base having potential for providing a greater share of the capital goods internally – and partly on the quality of services provided – the higher the quality of hotel accommodation the higher being the need for imported equipment.

Capital investment in tourism can be broadly divided into two categories: investment in accommodation and transportation, and investment in infrastructure. The problems involved in estimating the foreign costs of each category of investment is discussed separately.

Import Content of Investment in Hotel Accommodation and Transport Equipment

Two principal requirements for tourism are hotel accommodation and transport equipment, both involving substantial capital costs. Generally, investment requirements of category one is directly related to the volume of tourist traffic expected. Investment in hotel accommodation will involve the construction and maintenance of hotels, motels, rest houses, restaurants, tourist resorts, etc. Hotel construction will absorb both imported goods as well as domestically produced goods and, as indicated earlier, the share of the former depends on the stage of development of the country. Imported goods would include building materials, air-conditioning and other equipment, furniture fittings etc. which are either not available locally or the quality of those available locally are not suitable. In addition, as in the case of current goods and services, there are also indirect imports arising from import content of domestically produced goods used in hotel

construction. Once, allowance is made for the import content of domestically produced goods, the overall import content of hotel construction is likely to be substantially high, particularly in the case of hotels providing high quality facilities.

Capital investment in transportation equipment covers purchase of air crafts, helicopters, tourist buses and limousines to facilitate the internal movement of tourists. The intensity of investment depends on whether the country concerned has to obtain such equipment anew or could draw, at least partly, on the existing stock of such equipment. In general, for a less developed country almost the the whole of such equipment needs to be freshly obtained and the investment is financed wholly by foreign exchange. In addition, even the running costs, to a very large extent have to be incurred in foreign exchange as the fuels have to be imported. This means that the overwhelmingly larger share of costs of transport services represents foreign exchange costs.

Import Content of Infrastructure Development

Expansion of tourism requires an adequate net-work of infrastructure services to facilitate the arrival, internal movement and the general comfort of tourists. These consist of transport facilities (roads, railways, airports etc.) electricity supply, pipe-borne water, telecommunications sewerage disposal, maintenance of beaches etc. While some part of this infrastructure development may be induced or necessitated by the expansion of tourism, the greater part of it, particularly the transport net-work, electricity, telecommunication, ports, etc. is very much a part of the country's general infrastructure intended to provide basic public utility services to the community at large. The presence of general infrastructure depends on the structure of the economy, the stage of its development and the pattern of the tourist industry itself. As far as general infrastructure is concerned, it raises a number of practical problems in identifying the costs that should be attributed to the tourist industry. To begin with, the general infrastructure net-work will be made use of by a variety of activities in the economy and the services received by the tourist sector is only marginal to the totality of services provided to different sectors. This raises the issue of sharing the costs by different sectors, but the share attributable to each sector is not easily determined.

To the extent that the provision of infrastructure is dictated by the larger interests of the community, a separate costing exercise to isolate the use made by tourists of such infrastructure is not necessary.

Infrastructure development necessitated specifically by the development of the tourist industry, could be the infrastructure connected with a comprehensive development of a particular tourist zone or region in a relatively non-developed area such as a coastal strip. It can include provision of access roads to tourist resorts, street lighting and paving and other improvements in tourist resorts, additions or improvements to municipal roads, electricity connection to distant tourist resorts, protection of the coast and the beaches and other tourist assets. The major characteristic is that such investments are essentially of a local nature and, therefore, the costs could generally be identified with the tourist industry and should be related to the benefits resulting from it.

There is a considerable degree of overlapping between the specific infrastructure and general infrastructure. For instance, some activities in the area of tourist infrastructure would have taken place even without the development of tourism and it is often difficult to isolate the additional investment made necessary by the advent of tourism. Even in the case of infrastructure that was solely meant for tourism, it is likely that over time it will also serve other sectors of the economy. For example, transport infrastructure such as airports, and roads connecting tourist resorts are likely to serve domestic tourists as well. Similarly, electricity connections, provision of pipe-borne water and sewerage disposal to tourist resorts are likely to benefit residents living in neighbouring areas. These possibilities raise a conceptual problem as to whether the costs of tourist infrastructure should not be shared with other beneficiaries of such infrastructure services. Thus, there are numerous problems of allocating infrastructure costs to the tourist industry. Disaggregating such costs into domestic and foreign costs pose equally formidable problems.

Generally, capital outlays in the tourist industry in a particular year whether it is investment in accommodation, transport equipment or in infrastructure, may not bear any direct relationship to foreign exchange earnings from tourism in that year. In point of fact, it is possible for a number of years to pass before the capital investment is optimally utilised so as to maximise returns through better capacity utilisation. It is the general practice for capital costs to be recouped over a period of years. Hence the comparison of current receipts and outlays is not strictly correct. This raises the question of what part of capital outlay should be charged to an individual year's earnings.

Equally important is the magnitude of capital investments already in industry and the share that should be written off each year as capital consumption. The rate of capital consumption will be higher for transport equipment than that for hotels and it will be higher for hotels than for infrastructure. In the absence of well established formulae to go by, some sort of value judgement is inevitable in estimating the rate of capital consumption in each category of investment.

In part II of this study an attempt is made to estimate the net foreign exchange earnings of the tourist industry during the period 1970–1973. The estimate will be limited to those costs and benefits which are capable of measurement and will be largely confined to direct costs and benefits.

PART II

By mid-sixties the tourist industry in Sri Lanka was still in a embryonic stage. This meant that the bulk of the basic requirements for the development of the industry – hotel accomodation, recreational resorts, infrastructure, etc.–involving heavy capital investments, had to be established anew. The fact that tourist attractions are spread over a wide area made the investment costs still larger. The relatively under-developed state of the economy meant that the import content of this type of investment was relatively high. Then, a variety of imported consumer goods were required for the maintenance of consumption standards in tourist hotels. Sri Lanka's relative isolation in the tourist map dictated that a significant promotional effort was necessary for the attraction of a higher volume of tourist traffic. Also, the fact that domestic capital was in short supply and the obvious advantages of foreign collaboration dictated that at least a part of the capital investment had to come from foreign sources. It is in this background that Sri Lanka embarked on a tourism development programme during the second half of the sixties.

Trends in Tourist Traffic and Tourist Earnings

Details of Sri Lanka's tourist arrivals[1] and tourist earnings during the period 1961–1973 are given in Table I. The data in this table show that there has been no increase in either the number of tourists visiting island or the magnitude of tourist earnings during the period 1961–1967. In fact, it suggests a marginal decrease both in numbers

1. The term 'tourist' refers to visitors who stay for one night or more and exclud- (1) persons coming for gainful employment or to establish residence (2) diploe matic personnel (3) crews of ships and aircraft (even if they stay for one night or more) and (4) dependents of temporary immigrants and children below ten years.

Table 1

Sri Lanka – Tourist Arrivals and Foreign Exchange Earnings 1961 – 1973

Year	Total No. of Tourist Arrivals	Net of Indians	Total Foreign Exchange Earnings		Index		Per Capita Earnings	
			Rs. (000)	U. S. $ (000)	Net of Indians	Total Earnings	Rs.	U.S.$
1961 ..	27,777	17,724	7,661	1,609	100·0	100·0	275·80	57·93
1962 ..	26,397	16,106	5,265	1,106	90·0	68·7	199·45	41·90
1963 ..	18,440	15,103	5,532	1,162	85·2	72·2	300·00	63·01
1964 ..	18,872	16,002	5,462	1,147	90·3	71·3	289·42	60·78
1965 ..	19,781	15,118	6,049	1,271	85·3	79·0	305·80	64·25
1966 ..	18,969	15,325	6,116	1,285	86·5	79·8	322·42	67·74
1967 ..	23,666	19,043	5,859	1,211	107·4	76·5	247·57	51·17
1968 ..	28,272	21,469	10,000	1,770	121·1	134·4	364·32	62·61
1969 ..	40,204	31,363	17,000	2,862	171·3	221·9	422·84	71·19
1970 ..	46,247	35,561	21,503	3,614	200·6	280·7	464·96	78·15
1971 ..	39,654	33,557	20,200	3,400	189·3	263·7	509·41	85·74
1972 ..	56,047	48,204	32,000	5,300	272·0	417·7	570·95	94·56
1973 ..	77,888	70,134	58,600	9,200	395·7	764·9	752·36	118·12

Source: Annual Reports of the Ceylon Tourist Board and the Central Bank of Ceylon.

and earnings. Beginning from 1968, however, there has been an upsurge in the number of tourists visiting the country. The growth of tourist traffic, which was interrupted by the state of civil unrest in 1971, continued its upward trend at an accelerated pace during 1972 and 1973 when the number of tourist arrivals increased by approximately 16,000 and 22,000 respectively. Thus between 1968 and 1973 a near three-fold increase is observed in tourist traffic.

The acceleration in the flow of tourist traffic went hand in hand with the expansion of hotel accommodation, infra-structure and other tourist facilities.[1] The number of accomodation units for international tourists increased from 53 in 1968 to 119 in 1973 while the accommodation capacity increased from 1,125 rooms to 3,023 rooms over the same period.[2] This was accompanied by a substantial expansion in the facilities for the internal transport of tourists-tourist cars, coaches, jeeps, etc. Progress has also been made in the provision of tourist infrastructure such as the improvement of approach roads, development of beaches, protection of coast, etc. Introduction of internal air flights for tourists and ferrying of tourists in helicopters were some of the other developments in this field.

Total foreign exchange earnings from tourism, which had been one of the least dynamic items in the invisibles account of the balance of payments during the period 1961-1967, moved in the same direction as tourist arrivals after 1968. In fact, the increase in tourist earnings had been sharper than the increase in tourist arrivals. Whereas tourist arrivals increased by 68 per cent, tourist earnings increased by as much as 174 per cent between 1970 and 1974.[3] Thus the rise in tourist earnings was the outcome of both the increase in the number of tourists visiting the country as well as an increase in earnings per tourist. The higher level of recorded earnings per tourist can be attributed to such factors as the improvement in the quality of tourist facilities, alignment of local rates with international rates, better facilities for shopping and entertainment, change in the composition of tourists in favour of high spending groups, a fall in the share of tourists enjoying free facilities provided by friends and relatives, and a reduction of earnings channelled into the unofficial market.

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1. Although the international tourist trade has shown some interest in promoting travel to Sri Lanka before 1967, the lack of sufficient and suitable accommodation has prevented any progress. (I. B. R. D., **Report of the Prospects for Tourism Development in Ceylon**, Ministry of Planning and Economic Affairs, March, 1968, p. 14)
2. Annual Reports of the Ceylon Tourist Board.
3. Between 1970 and 1973 the index of tourist arrivals (1961=100) increased by 123 points while the index of tourist earnings increased by 484 points.

Table 2

Foreign Exchange Earnings from Tourism-Estimated and Official, 1970-1973

Rs Million

	(1967)	1970	1971	1972	1973
1. Estimated Receipts ..	(18·7)	36·8	33·3	51·8	80·8
2. Official Receipts ..	(5·9)	21·5	20 3	32·0	58·6
3. Difference (1) - (2) ..	(12·8)	15·3	13·0	19·8	22·2
4. % Leakage ..	(68·4)	41·6	39·0	38·2	27·1

Source: Ceylon Tourist Board and Central Bank of Ceylon.

Table 2 gives estimated and official tourist earnings during the period 1970-1973. Estimated receipts which are based on actual visitor expenditure in Sri Lanka are derived on the basis of information on tourist expenditure per night as revealed in the Visitor Expenditure Surveys conducted by the Ceylon Tourist Board. Official receipts are the actual receipts as compiled by the Central Bank of Ceylon for balance of payments purposes on the basis of information supplied by the commercial banks. The latter represents tourist earnings actually channelled to the banking system, and therefore, gets recorded as official tourist earnings, it is observed that there has been a considerable gap between the estimated receipts and official receipts, though this gap had tended to narrow down over the years.[1] The difference between the two estimates has been identified as the 'leakage of foreign exchange into unauthorised sources'. However, what is relevant from the industry's point of view is the amount of foreign exchange received through official channells. Hence our analysis will be based on official receipts of tourist earnings as reflected in balance of payments records.

The growth of tourist earnings during 1970-1973 as reflected in official receipts no doubt represent a satisfactory achievement. However, it is important to get behind the figures to examine the growth in real terms, particularly the net foreign exchange gain to the economy.

1 The more favourable exchange rate with FEECs, convertible Rupee account facility and administrative and legislative controls intended to arrest the activities of the unofficial market are some of the factors attributed for this phenomenon.

To begin with, the rise in tourist earnings as expressed in Sri Lanka rupees should be viewed with certain reservations. In 1967 the Sri Lanka rupee was devalued by 20 per cent. Since 1971, as a consequence of currency realignments, devaluation of the dollar and the floating of the pound sterling, the Sri Lanka rupee registered a further de facto devaluation of 9·4 per cent. When allowance is made for the depreciation of the rupee the real value of tourist earnings is considerably lower than that indicated by the current rupee values. For instance, when the 1973 receipts (Rs. 58·9 million) are evaluated in 1967 rupees, tourist earnings for that year gets reduced to Rs. 45·5 million.

In Table 3 Sri Lanka's tourist earnings are expressed in U. S. dollars, pound sterling and SDRs. It is seen that the average annual rate of increase between 1970 and 1973 is only 38 per cent in terms of SDRs as compared with 58 per cent when evaluated in rupees.

Table 3

Official Tourist Earnings, 1970–1973

	1970	1971	1972	1973
1. Sri Lanka rupees (Million) ..	21·5	20·3	32·0	58·9
2. U. S. dollars (Million)* ..	3·61	3·41	5·28	9·25
3. U. K. pounds (Million)* ..	1·51	1·34	2·08	3·77
4. SDRs (Million)* ..	3·61	3·14	4·87	7·83

* Conversion into respective currencies is on the basis of the average rate during each year.

Foreign Exchange Costs of Tourist Earnings

Turning next to the more central issue of our study, viz. the net foreign exchange earnings of the tourist industry, it should be emphasised once again that there are numerous problems involved in obtaining an accurate evaluation. Bearing in mind such difficulties, an attempt is made to estimate the foreign exchange costs of tourist earnings.

Table 4

Value of Import Licences Issued to Tourist Industry

Rs. million

	1970	1971	1972	1973
Consumer Goods .	0·2	0·5	0·4	1·8
Transport Equipment ..	0·6	0·5	0·1	1·3
Capital Goods ..	2 9	3·0	4·8	17·3
Total ..	3·7	4·0	5·3	20·4

Source: Department of Import Control

Table 4 provides information on import licences issued to the tourist industry for different categories of imports. It is, however, not possible to draw firm conclusions on the basis of these figures as this industry would have purchased a substantial volume of goods and services, both domestically produced as well as imported, involving foreign exchange costs in the domestic market. Also, investments in hotels and tourist infrastructure are expected to bring in returns over a period of years and the costs applicable to a particular year (capital consumption) will be only a fraction of the overall investment. In the absence of information on the magnitude of overall capital investment, which is the sum total of investment over a period of years less depreciation, the amount of capital consumption is not easily quantifiable. In view of the complexity of the exercise, an indirect method is used. In this method a breakdown of the composition of tourist expenditure is obtained on the basis of different sectors selling direct to tourists, viz., board and lodging, entertainment, internal transport, shopping and miscellaneous, and foreign exchange costs in each category are estimated through the application of a foreign exchange coefficient which would represent the average foreign exchange content in each. In determining each coefficient, account will be taken of imported goods specifically ear-marked for the industry as well as those procured in the domestic market. In addition, the import content of domestically produced goods consumed by the tourist industry will also be taken account of. The fact that tourist consumption results in a reduction in the quantities available for local consumption is also given some consideration. No attempt is made to include indirect costs, such as the excess demand for imports arising from high incomes of those engaged in the tourist industry.

Table 5 gives a breakdown of tourist earnings during the period 1970–1973. The foreign exchange content of each category of earnings, it should be emphasised, varies very widely. For instance, a large share of internal transport will represent foreign exchange costs and the import content of board and lodging could also be substantial. On the other hand, entertainment will involve relatively low foreign costs, while the import content of shopping will depend on the composition of the shopping basket. In what follows we shall endeavour to compute import coefficients in respect of each category of earning, which would be representative of the average import content in each.

Table 5

Composition of Tourist Earnings by Categories of Expenditure*

Rs. million

	1970	1971	1972	1973
1. Board & Lodging (43·3%) ..	9·31	8·79	13·86	25·37
2. Entertainment (8·4%) ..	1·81	1·71	2·69	4·92
3. Internal Transport (14·8%) ..	3·18	3·00	4·74	8·67
4 Shopping (29·9%) ..	6·43	6·07	9·57	17·52
5. Miscellaneous (3·6%) ..	0·77	0·73	1·15	2·11
Total (100%) ..	21·50	20·30	32·01	58·59

* This classification is obtained on the basis of the findings of a Survey of Foreign Tourists in Sri Lanka, January–December, 1972 by the Ceylon Tourist Board. The composition of tourist earnings according to this Survey is as follows: Board & Lodging – 43·3%, Entertainment – 8·4%, Internal Transport – 14·8%, Shopping – 29·9% and Miscellaneous – 3·6%.

As emphasised in part I, the import content of board and lodging, which represents the largest share of expenditure, will depend on a number of factors. Expenditure would be both on imported and domestically produced goods. In 1973, the tourist industry utilised Rs. 1·8 million for the importation of consumer goods. It is estimated that the composite value of Rs. 25·37 million for board and lodging in 1973 was divided in the ratio 40 : 60 as between board and lodging.[1] When the import outlay on consumer goods is compared with total receipts for board, we arrive at an import content of 14%.

1. This estimate is based on the tariff in respect of a sample of 10 hotels.

However, in addition to those imports earmarked for the tourist industry, there are the imported consumer goods which are procured in the domestic market. For example, rice, flour and sugar consumed are almost entirely imported and the foreign exchange implications of consumption of these commodities in tourist hotels have assumed greater importance in recent years with the sharp increase in the prices of these commodities in international markets. In the case of domestically produced consumer goods, such as meat, fish, sea foods, fruits, vegetables, etc., the import content may be small, but the fact that some of these commodities are in short supply means that the corollary of tourist consumption is a reduction in the quantities available for local consumption. In the particular situation prevailing in Sri Lanka where, in view of the foreign exchange difficulties, no imports of these commodities are allowed under any circumstances, there may be no balance of payments costs arising from tourist consumption. In normal circumstances, however, such costs would have arisen as imports have come in to fill the gap. Allowing for the range of imported consumption goods procured both abroad and in the domestic market, and the import content of domestically produced goods an estimate of 45 per cent for import content of tourist consumption in Sri Lanka does not seem too low.

In 1973, a sum of Rs. 17·3 million was released for the importation of capital equipment for the tourist industry, but the whole of it cannot be considered as the foreign costs of accommodation provided in that year[1]. However, it does suggest that imported materials and equipment form a significant share of materials used in the construction of hotels and other tourist facilities in Sri Lanka. Apart from the fact that the tourist industry makes heavy demands on imported goods for construction activities, bulk of requirements such as air conditioning equipment, lifts, kitchen and bathroom equipment and some times even crockery and linen are also imported. Such imported capital goods represent only a part of the requirements of hotel construction and tourist infrastructure development and recourse is made to domestically produced goods too. It is well known that the import content of domestically produced capital goods such as steel and

1. Though imports of capital goods are a charge on current balance of payments, there is no justification that the entire costs should be charged to the current tourist account. Investment in hotels and tourist infrastructure bring returns over a period of years and the costs applicable to a particular year (capital consumption) will be only a fraction of the over-all investment.

cement is substantial. Similarly with domestically produced equipment such as electrical fittings.[1] Also, in cases where domestic production is short of overall demand, absorption by the tourist industry means widening the gap that needs to be filled by imports. Finally, the fact that accommodation capacity is heavily underutilised means high per capita over-head charges.[2] Taking all factors into account, foreign costs of hotel accommodation is estimated to be a minimum of 48 per cent of receipts[3] though the percentage may be lower for low grade accommodation and higher for high grade accommodation. Accordingly, when board and lodging is combined the estimated import content would be 47% of receipts.[4]

In the Entertainment group the import content is expected to be low. Entertainment covers visits to night clubs, cinemas, theatre, folk dancing, etc. However, it also includes expenses incurred outside the place of stay, such as in restaurants. Accordingly, this item includes consumption of imported liquor, refreshments, etc. in restaurants and night clubs, in addition to various types of foods consumed there. Allowing for such items, the import content of this group is estimated at 15% of receipts.

All transport equipment used in the internal transport of tourists – cars, coaches, jeeps, helicoptors, air craft – are imported, whether they are specifically allocated to the tourist industry or drawn from the rest of the economy. In addition, both, spare parts and fuels, which represent running costs, have to be imported.[5] The local value added in this category is confined to such items as labour and commission payments to transport agencies. Accordingly, the import content of Internal Transport is estimated at 55% of earnings.

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1. Imported raw materials accounted for 65 percent of raw materials used in domestic industrial production during 1965–69 (See **Staff Studies**, Vol. 1 No. 2 September 1971, p. 149).
2. The average room occupancy ratio during the period 1970–1973 was only 38·8 per cent.
3. Based on information pertaining to construction costs, materials used and the occupancy ratios.
4. Studies on other countries have shown varying results. Hawaii (1951) — Accommodation 38 – 39 per cent, Restaurants 41 per cent, Food shops 49 per cent; while both in Kenya (1966/67) and Israel (1961) import content of hotels have been estimated to be only 18 per cent. (UNCTAD, **Loc. cit.**, p. 14).
5. The fact that fuels come from the local refinery does not make a significant difference, as the crude oil needs to be imported.

Import content of shopping will depend basically on the composition of the shopping basket between imported and domestically produced goods. In Sri Lanka's case, it is expected that shopping would have been largely for locally produced goods. Account should however, be taken of the sales of imported goods at the duty free shops at the Katunayake airport and Colombo Fort. The larger share of domestically produced goods purchased by tourists, consisting of gems, curios, handicrafts, etc., will contain a very low import content. On the other hand, the import content of other items such as gold jewellery, batiks and garments is substantial.[1] Combining the three groups, i. e., imported goods, domestically produced goods with low import content and domestically produced goods with high import content, on very conservative estimate the average import content of the shopping basket is estimated to be 20% of gross sales.

It is assumed that the Miscellaneous group consiting in the main of tips, taxes, donations etc. does not contain any foreign costs.

On the basis of import coefficients thus derived the overall foreign exchange outlay on tourist earnings is estimated in table 6. When these values are compared with gross tourist earnings, the

Table 6

Foreign Costs of Tourist Earnings

Rs. Million

	Import Coefficient	1970	1971	1972	1973
1. Board & Lodging ..	47%	4·38	4·13	6·51	11·92
2. Entertainment .	15%	0·27	0·26	0·40	0·74
3. Internal Transport ..	55%	1·75	1·65	2·61	4·77
4. Shopping ..	20%	1·29	1·21	1·91	3·50
5. Miscellaneous ..	0%	–	–	–	–
Total ..		7·69	7·25	11·43	20·93

1. In Hawaii (1951) for instance, the import content of jewellery, gifts and souvenirs has been estimated to be 66%. (UNCTAD Loc. cit., p. 14).

overall foreign exchange content is 35·7 per cent. High as it is, this figure excludes foreign exchange commitments which are not identifiable with a particular category of earnings. These include remittances of expatriate personnel, cost of maintaining tourist offices and promotional activities abroad,[1] commissions payable to foreign travel agencies, foreign travel connected with tourism, investment income accruing to foreigners, and the like. These commitments are expected to add up to at least 5 per cent of gross earnings. Accordingly, the overall foreign exchange content of tourist earnings amounts to 40·7 per cent of gross earnings. To put it differently, this computation shows that the net foreign exchange earnings from tourism is 59·3 per cent of gross earnings.

The results we have obtained are at variance with certain estimates made on Sri Lanka's tourist industry in the past, although they are remarkably close to results obtained in studies on other island economies. For instance, in 1967, the I. B. R. D. estimated the import content of receipts from tourism in Sri Lanka at about 25 per cent of gross receipts[2], which is considerably lower than our estimate. On the other hand, in the eastern Caribbean island of Antigua it has been estimated to be 40 per cent while in Hawaii it averaged 45 per cent[3]. Thus, the available evidence suggest that the net contribution of tourism to the balance of payments in Sri Lanka is not as high as it is popularly believed to be.

This exercise raises questions as regards the efficiency of the use of foreign exchange and since it appears that it costs 41 to earn 100 units of foreign exchange there is an urgent case for exploring other avenues of earning/saving foreign exchange with lower foreign exchange costs. The available information, however, does not permit us to compare the earning power of foreign exchange in the tourist industry with other types of investment activity. Further, research into this field is clearly desirable.

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1. Promotional expenditure is more in the nature of capital expenditure and may bear no strict relationship to the tourist traffic of a particular year, but it is customary to treat it as current costs.
2. I. B. R. D., **Loc. cit.** para 41.
3. See, UNCTAD, **Loc. cit.**, pp. 13 – 14.

INFLATION AND THE SRI LANKA ECONOMY

H. N. S. KARUNATILAKE

The inflation that is affecting the Sri Lanka economy today is so complex that it is difficult to ascertain to what extent external and internal forces have contributed to the price increase although it is known that external factors have predominated. In earlier times, when there were price increases in the country, for instance, during the Korean War, these increases could have been attributed to just one or two factors such as a sustained surplus in the balance of payments resulting from very good prices for one or more of the country's export products. In the present case, although it is fairly well-known that the price increases have resulted from external factors, i.e. a sharp increase in the prices of all imports, yet, it is difficult to isolate the internal factors that have played a role in increasing prices following upon the rise in import prices. In developed countries, the analysis of inflation is not as difficult as it is in Sri Lanka because of the availability of data on costs, wage changes, the impact of wage changes on costs, the distribution of purchasing power in different sectors of the economy and the effect of rising prices of inputs on final products. On account of the relatively weak statistical data and the lack of reliable economic indicators in this country, the type of information for a meaningful analysis of the causes of inflation is not available.

Inflation has had a much greater impact on the developing countries with very acute balance of payments problems such as Sri Lanka because they do not have the capacity to increase the supply of goods by increasing domestic production in a relatively short time. Furthermore, the shortage of foreign exchange has also reduced the country's import capacity to such an extent that the relief that may have been brought in through enhanced supplies of imported goods has been precluded. In this country inflation has made substantial inroads into the economic framework by reducing the level of real investment and savings, by cutting real incomes substantially and reducing the purchasing power of money. The extent of inflationary pressure is indicated by the sharp increase in the circulation of currency notes of high denominations. For example, Rs. 100 notes have risen from Rs. 532 million in December

1972 to Rs. 775 million in June 1974, an increase of 44 per cent, while for Rs. 50 the corresponding increase has been from Rs. 351 million to Rs. 447 million or by 25 per cent. The latter could be taken as a very rough index of the fall in the purchasing power of money; because notes of higher denominations are now doing what the smaller denominations did earlier. The relative stability in the circulation of Rs. 10 and Rs. 5 denominations shows that they are now relatively less significant in transactions than the higher denominations. The money supply has risen from Rs 2481 million in December 1972 to Ks. 2924 million in June 1974, an increase of Rs. 443 million or by 14 per cent in an eighteen month period. To this must be added certain near money items particularly savings deposits in the National Savings Bank which have incteased from Rs. 913 million in December 1972 to Rs. 1098 million in June 1974.

The consumer has been faced with shortages of certain essential goods and services and he daily finds the size of the basket of goods that he can buy with his pay packet shrinking rapidly. Even where goods have been available, supplies have been limited and this has tended to progressively push up the price level, very often quite independently, of the price at which goods have been imported. Where goods have been in short supply, the consumer has very little option for substitution, because in many cases, either the substitutes themselves have been beyond the reach of the consumer due to high prices or even less readily available. In the developed economies for instance, consumers are sometimes able to hedge against inflation by moving on to cheaper and inferior substitutes when inflation affects the price of basic essentials.

For a long period, the Sri Lanka economy has been able to contain increases in the prices of essential consumer goods while price levels in other countries have progressively risen in the last five to six year period. The latter has been achieved mainly by a system of comprehensive subsidies. In a sense three price levels have prevailed in the economy one for those very essential items that come within the the index, which have been heavily subsidised or price controlled, another for essentials and semi-essentials that are outside or within the index but not subsidised or price controlled and the third price level for luxuries. For luxury goods such as motor cars, electrical appliances and similar durable household goods, prices have been very high because thare have been severe import restrictions on these goods for

the last fifteen years. These price levels for luxuries should not be associated with the general rise in prices that has taken place in the last one and a half years. The current inflation in the country is essentially the increase in the domestic price level for goods that fall into the first two categories resulting from high prices of imports and the effect of the latter on goods produced at home and on the price of services. The policy which has been put into operation since the middle of 1973 of passing on price increases to the consumer and the progressive elimination of the subsidy on certain categories of essential goods has been a major contributory factor. Despite this policy, the government has not been able to eliminate the subsidy entirely for several essential goods that enter into the consumers' budget. The import prices have risen so sharply that the entire increase has not been passed on to the consumer because it will affect his level of consumption very seriously. In 1974, attempts have been made to progressively reduce subsidies even further by passing on increasing costs to the consumer. Good examples are the recent increases in the price of rice, flour and sugar.

Measurement of the rate of inflation in Sri Lanka has always been a problem in the absence of representative retail and wholesale price indices. The only indicator is the cost of living index. The cost of living index itself shows a fairly substantial increase from 150·8 in December 1972 to 183·8 in June 1974 which is an increase of 22 per cent in a matter of 18 months. In no earlier period has the cost of living increased to this extent. If reference is made to the price increases since the year 1960, the cost of living had at the most increased by about 2 points each year up to 1968. From 1968 onwards, prices began to rise a little faster and between 1968 and 1972 the cost of living index rose by about 8 points yearly with the exception of 1970 when the increase was only 3 points. The Annual Report of the Central Bank has repeatedly pointed out the inadequacies of the cost of living index numbers for the Colombo town prepared by the Department of Census and Statistics, which points to the fact that it is not an entirely reliable indicator of price changes. In the Annual Report for 1973[1], some of these defects were highlighted. These included the fact that the weights used had not been revised since 1952 despite substantial changes in the pattern of consumption

1. Annual Report, 1973, Central Bank of Ceylon, p.202.

of the working class and that inadequate attention had been paid to the relative importance of prices in the open and controlled markets. For the purpose of this index the pattern of family expenditure was determined on the basis of family budget expenditure studies which had been made more than two decades ago. Data on family budgets have been available from subsequent surveys such as the Socio Economic Survey 1969/70 and the Central Bank Consumer Finance Survey 1973. However, the pattern of consumer expenditure obtained from these surveys is also to some extent out of date because the basket of goods that people consume has tended to change drastically with the changes in the ration particularly in 1973 and 1974 and the changes in the relative prices of essential goods.

It may be useful to attempt to isolate the various sources of inflation in the country. One factor that has been given emphasis up to now has been the high prices of imports. Inflation has hit the economy very hard because of the country's heavy dependence on food imports. Apart from this, there have also been scarcities of foodstuffs which are exclusively produced at home and only indirectly related to imports because some of the items required to make them may have to be imported. There have also been price increases which have been caused by autonomous wage increases that have been confined to particular sectors of the economy.

Looking at import prices first the sharpest price increase in the last 18 months took place in the most essential consumer items, particularly rice, flour, sugar and a wide variety of subsidiary foodstuffs including dhal, dry fish, coriander and garlic, etc. These price increases took place well before further pressures were added to world inflation when the Arab nations and other oil producers decided to sharply increase the price of oil in the fourth quarter of 1973, and in January this year. The action of the petroleum producing countries set in motion a chain reaction which influenced the prices of foodstuffs, raw materials and other commodities because to some extent all these are directly or indirectly petroleum based. Quite apart from the latter factor the imbalance between supply and demand has been a major reason for the very sharp rise in the price of rice, flour and sugar. The price of flour rose due to shortfalls in supplies and a low stock position in 1972 and 1973 on account of very heavy purchases of wheat by the Soviet Union

and China as a result of the failure of their harvests. The price of rice, also rose largely due to the failure of the crops in some of the major producers in South East Asia and reduced surpluses in other major exporters such as Thailand in the same period. The price of sugar which has increased by more than 1000 per cent in the last four years, is quite unique from the point of view of price increases for any commodity. The price still continues to go up even after reaching the figure of £ 340 sterling at the end of August 1974. Uncertainties with regard to the prospects of the crop and the current availability of supplies is likely to keep sugar prices in the London Terminal Market at relatively high levels for quite some time. For other foodstuffs there are no indications, of course, that import prices will fall very significantly in the next 12 months, already the price of rice and wheat has come down marginally in the world markets. However, one thing is clear, the prospects of buying these commodities at import prices to which consumers in this country have been accustomed to in the sixties may not appear in the near future. This means, that the prospects of buying rice at £ 60 sterling per ton and flour at £ 50 sterling per ton can be ruled out in the immediate future. The prices for these commodities may fluctuate at appreciably higher levels.

The question is often asked if inflation has been imported into the country why have the prices of goods produced at home such as vegetables, coconut products, fruits, locally grown rice and manufactured products risen? In an economy which is heavily dependent on imports a direct link up between foreign and domestic prices is inevitable. In the case of home grown foodstuffs such as vegetables, fruit and cereals, prices have risen because producers of these goods have to pay more for the consumer goods they purchase themselves most of which is imported, and the cost of materials they need for purposes of production such as fertilizer, insecticides, fuel for equipment and wage rates are also higher. In the case of coconut products, which bulk large in the local diet the domestic price for nuts and oil is determined by the world market prices, especially if no restriction is applied on exports of coconut products.

Apart from this when there is inflation the community as a whole has more purchasing power in its hands and because supplies are inadequate in relation to the amount of purchasing power consumer prices tend to rise. The government's policy of passing on the high costs

of imported foodstuffs to the consumer with a view to containing the subsidies has also had a chain reaction. This has contributed towards raising the cost of living of a large segment of the population. Take the case of a casual worker who is on daily pay. The increase in the price of rationed goods will compell him to seek a higher daily wage rate and this in turn affects the prices of the good or service he provides. Additional factors that have contributed to the price increase have been the rise in transport charges as a result of higher prices for fuel and motor spares. Thus higher prices have the habit of transmitting their impact to other prices either through a higher cost of living for the worker or through diminishing profit margins for the producer. In order to maintain profit margins producers often raise prices. In the case of manufacturing industries in Sri Lanka due to under utilization of capacity and because costs cannot be reduced, say say through the retrenchment of labour, the entrepreneur is compelled to meet the higher unit cost that results by passing on the increased cost to the consumer, while at the same time retaining his customary margin of profit.

Wage increases have also contributed to rising prices, although their impact cannot be clearly ascertained. In the private and government sectors a wage increase of 10 per cent was given in October 1973 for those who were drawing less than Rs 400. In April, 1974 for both public and private sector employees the earlier increase was replaced by a special allowance of 20 per cent subject to a maximum of Rs. 50 for those employees drawing Rs 800 per month or less. Since the beneficiaries of these increases have largely been in the urban areas, the gains have presumably been completely swallowed up by the very large price increases in 1973/74 because the latter have been very much higher than the additions to the pay packets of these categories of employees. When the prices of all goods are taken into account and not necessarily those that fall into the Colombo Cost of Living Index it is probably correct to say that there has been a fall in the real wages despite the wage increases. Wage increases have been significant in the manufacturing trades and the traditional export sector. In the plantation sector, the minimum wage rate index has moved up from 156·1 in December 1972 to 213·3 in June 1974. However, the index of real wages in the same period has gone up from 101·7 to 116·1 respectively. For workers in industry and commerce while the wage rate index moved up from 182·5 in December 1962 to 240·1 in

June 1974 the real wage index rose from 118·9 to 130·7. This shows that the real wage gains of the plantation workers have been more than those of workers in industry and commerce although both categories are governed by wages boards. In fact, workers in industry and commerce have benefited to a smaller extent from wage increases than other categories of workers: This is because the bulk of the workers in industry and commerce live in the urban areas, where the impact of inflation has been more severe than in other areas.

Considering the rural sector, even in the absence of reliable statistical indicators, it is not difficult to say that in relation to the urban districts, there is more purchasing power in the hands of the people who live in the rural areas, particularly where domestic agriculture (the cultivation of paddy and subsidiary food crops) is the predominant occupation. The latter have benefitted to a greater extent from rising prices than those who are engaged in other occupations. The guaranteed price for paddy has been progressively pushed up over a period of two years from Rs. 14/= to Rs. 33/= per bushel. While it is true that costs of inputs for paddy cultivation have escalated sharply, yet for the farmer with high yields the guaranteed price of Rs. 33 is an economic price, while the price of paddy in the open market is higher. The producers of other readily marketable crops such as onions, potatoes and chillies, have also got very good prices for their produce. Excess purchasing power in the rural economy as a whole is evidenced in the steady increase in deposits at the National Savings Bank and in the rural banks. Although not all the increase in deposits in the National Savings Bank has come from the rural sector, a good part of it can be apportioned to that sector. For instance, fixed and savings deposits in rural banks have increased from Rs. 15·6 million in 1971 to Rs. 45·6 million in June 1974. This obviously represents a very insignificant proportion of the total purchasing power in the rural sector.[1] Due to the relatively slow pace at which the

1. An estimate could be made of the purchasing power created during a single cultivation season from the sale of paddy alone. Assuming that the production from the Maha 1973/74 crop is 52 million bushels and assuming that the farmer would keep half the crop for his own consumption and will sell the balance, i.e. 26 million bushels at the guaranteed price of Rs. 33 per bushel. The sale proceeds of the marketable surplus would then amount to Rs. 858 million. If the average net profit per bushel is taken as Rs. 5, then the profit realised from the sale of 26 million bushels would be Rs. 130 million, It should be noted that purchasing power is also generated from the production of other subsidiary food crops like chillies and onions, which are even more profitable than paddy, and for which an estimate of the purchasing power released could not be made for want of accurate production data.

banking habit has caught on in this sector, despite the increase in the number of banking offices the bulk of the purchasing power in the rural sector seems to be outside the banking system.[1] Furthermore, there is a tendency in the rural sector for farmers to spend their income no sooner they sell their produce on items such as clothing and durable consumer goods.

In addition to the purchasing power that has accrued to the farmer through better prices, other factors have also helped to increase his real income. He is entitled to free rice on the ration, free education, free health services and most of them do not pay income tax, even though their incomes may fall within the taxable limits. If the benefits from the latter are totalled up, it will increase the real income of the farmer as against the urban dweller who does not enjoy all these benefits and who must supplement the rice on the ration with purchases in the open market at higher prices. The total amount of agricultural loans in default is also an index of the additional purchasing power that has been pumped into the rural sector over the years. The total agricultural loans for paddy cultivation (excluding subsidiary crops) given since the introduction of the New Agricultural Credit Scheme in 1967/68 up to the end of the Maha season 1973/74 amounted to Rs. 368 million of which repayments amounted to Rs. 201 million and the amounts outstanding Rs. 166 million, representing a rate of default of about 45 per cent. At the end of August 1974, 73 per cent of some Rs. 83 million of loans granted for the Maha season 1973/74 had not been repaid and according to past trends it is very unlikely that the full amount would be recovered. The high rate of default or the low level of repayment of agricultural credit tends to aggravate inflationary pressures because money that should have been earmarked to repay debts is used directly for consumption.

Another source of inflationary pressure in the economy is the pricing policies and the level of productivity in certain vital industrial corporations such as the National Milk Board, Ceylon Oils and Fats Corporation, the National Textile Corporation, and others. There is

1. At the end of 1973 there were 207,718 deposit holders in the rural banks and 14,972 accounts at the Bank of Ceylon sub offices at Agricultural Service Centres making a total of 222,690 accounts. The size of the workforce in 1973 was 5·7 million; The number of account holders in the rural sector is thus only 4 per cent of the workforce. The number of the depositors from rural areas in the National Savings Bank is not known.

an apparent contradiction that arises from the present basis on which prices are fixed. When these corporations are running at a loss they have been asked to raise prices so that they may become financially viable Most corporations can sell their products at the price they want because they are monopoly suppliers. Although sometimes price increases are necessary to make up for the higher costs of raw materials and labour, what is often ignored is the effect of such policies on the cost of living and price increases that they set in motion in other industries that are dependent on them. A single price increase in a particular industry can have unfavourable repercussions on other economic activities. Furthermore, there is a limit to which these price increases can go because even in the case of certain essentials price increases are often met by consumer resistance. A case in point for instance has been the sharp fall in sugar consumption in last twelve months.

The items produced by some of these corporations, notably the National Milk Board, the Oils and Fats Corporation and the National Textile Corporation have a direct effect on prices of essential consumer goods in the country. For example, the recent increase in provender prices has severely affected the poultry, livestock and milk industries. Producers have found it uneconomic to rear poultry and livestock and this has tended to push up the price of chicken, eggs, milk, butter and beef. The shortage of milk tends to push up the prices of milk products in the market. This is due to the fact that adequate supplies of fresh milk have not been made available to the condensery and the spray drying plant and the country has had to depend on milk power that has to be imported at high prices. Similarly, the high cost of basic raw materials for the textile industry, mainly cotton and synthetic yarn, has tended to push up the price of synthetic and cotton material which again bulks large in the consumer budget.

The economy could be insulated from the high world market prices for cotton if attempts are made to rapidly increase the acreage under cotton. One thousand acres of land have been very successfully brought under cotton cultivation in the Uda Walawe development region which proves quite convincingly that cotton can be extensively grown in certain regions of the island where suitable climatic conditions are found.

The price increases in these corporations are not entirely due to the high prices of inputs. In some cases, where local inputs could have been made use of, their non-availability or inability to procure sufficient supplies locally has meant that the raw materials had to be imported. For instance, one reason for the high costs of provender has been the inability of the Oils and Fats Corporation, to obtain adequate supplies of maize. Imports of the latter can be easily dispensed with and the entire requirements grown in the Island. It is also apparent that in some instances the price increases are more than in proportion to the enhanced price for inputs and raw materials, and the explanation for this must be sought elsewhere. One way of reducing unit costs is to fully utilise capacity, eliminate waste, increase efficiency at the management and factory floor levels and effect economies in overheads by ensuring that there is no excess labour. Apparently, these matters have not been rectified in every corporation. In industrial corporations where output has declined, it has not been possible to reduce unit costs; in the face of higher prices for imported raw materials, costs can decrease only with the fuller utilisation of capacity. On account of these difficulties the corporations have had no option but to pass on the higher costs to the consumer.

According to world wide trends, although there is speculation that the inflationary pressures in the developed countries would soon abate and that recession might set in next year, yet it is difficult to believe that this would in fact take place. There is every likelihood that a sharply reduced level of economic activity may be accompanied by price inflation. Many industrialised and developing countries are going through a period of virtual economic stagnation. But at the same time have been severely affected by inflation. The indications for 1975 are that shortages of essential items, particularly foodstuffs, would continue. In this context Sri Lanka would have to face high import prices in the coming year as well, although prices may not be as high as they are in 1974. This prospect calls for a high priority strategy both in the short run and in the long run to counter inflation.

The obvious answer to the problem of inflation is a higher level of output especially of essential commodities which enter into the consumers' budget. The sooner the country is able to reach self-sufficiency in rice, sugar, fish products livestock products and cotton, the greater the gains and greater will be its ability to withstand the pressures of imported inflation. It is not possible to eliminate

imported inflation by fiscal and monetary measures. This would be the most sensible and effective strategy for fighting inflation. It is also the ultimate solution to the country's major economic problems. As far as one can see, in Sri Lanka there are no known constraints in reaching self-sufficiency in rice, fish, livestock products, cotton and sugar; considering the fact that sugar consumption has fallen from about 200,000 tons in 1970 to about 75,000 tons at the present time. The capacity of the two sugar factories at Hingurana and Kantalai, which are idle during most months of the year for want of raw material, is about 54,000 tons. Cane cultivation can be easily extended in the Uda Walawe development area where excellent soils are found for the crop. Cultivation of cane in Uda Walawe will also help to conserve water for paddy cultivation.

The policy of achieving self sufficiency should be tied to an appropriate population policy. Efforts made to achieve early self-sufficiency in these products could be negatived if the present rate of population growth of about 2 per cent per annum is maintained. For instance, at the current rate of population increase, the country will have to produce an additional quantity of 22,000 tons of rice each year merely to meet the ration requirements ($1\frac{1}{2}$ measures) of the addition to the population.

Until the such time as the goal of self-sufficiency is reached, Sri Lanka should endeavour to obtain essential goods at low prices by entering into long term agreements at opportune moments. This means that such price agreements should be made when prices have more or less reached the bottom of the trough and when the seller is not in too strong a position. Although Sri Lanka is now buying sugar at prices quoted in the London Terminal Market, several countries have entered into long term agreements which provide for the sale of sugar at prices which are slightly higher than those fixed by the International Sugar Agreement, i. e. for about £90 to £95 per ton.[1] The same applies to other commodities like cotton, wheat, milk food and even rice. The only issue that stands in the way of such long term agreements, is the non-availablity of foreign exchange to enter into commitments of this kind. In recent years, Sri Lanka

1 Sri Lanka should also explore directly new sources of supply such as Australia Fiji, Mauritius, Swaziland, India and Guyana all of which have surpluses for export and the prices would be subject to negotiation. Very often the present tender procedure encourages speculators and intermediaries.

has had to resort to suppliers' credits, to procure some part of its requirements of essential foodstuffs. On the other hand, hard cash is necessary if the country is to take advantage of these long term arrangements for the supply of essentials. But this would be possible if export earnings from traditional plantation crops are maximised and there is proper planning of the allocation and disbursement of foreign exchange resources.

In the light of the earlier references to self-sufficiency, another essential ingredient is the need for concerted efforts in all sectors of the economy to maximise levels of output. The quantities of goods available to the consumer could only be increased through such a policy. This also implies that productivity in the traditional plantation industries, tea, rubber and coconut, should be maintained at the highest possible levels. Whatever may happen in the new export industries, the traditional sector will continue to provide the bulk of the foreign exchange to finance the country's imports for a very long time to come. Non-traditional exports have brought in about 13 per cent of total export earnings in 1973. The level of production in the traditional export sector is the major determinant of the country's import capacity. Since a reduced import capacity would only aggravate inflationary pressures, it is essential that foreign exchange earnings of the plantation sector are always maximised.

A disquieting trend is the general decline in production in the traditional export industries in 1973 and more particularly in the first half of 1974 when tea, rubber, coconut and cocoa are fetching the highest prices in the last decade. On no previous occasion have all these products enjoyed good prices simultaneously, but the country has not been able to take full advantage of the boom. In the first six months of 1974, tea exports have fallen by 56·4 million pounds and export earnings by Rs. 181·9 million over the same period in 1973. Exports of coconut products in terms of the nut equivalent of the three major export items have declined by 54·3 million nuts in the first six months of 1974 representing a foreign exchange loss of Rs. 54·3 million as against the figure for the same period in 1973. The corresponding decline in rubber exports in the first six months is 52 million pounds with a fall in earnings of Rs. 151·3 million. The estimated loss in foreign exchange earnings as a result of the fall in production and exports of these three crops over the level in the

first six months of 1973 is Rs. 374·7 million in the first half of this year alone. At the same time it is a measure of the extent to which import capacity could have been higher in the first six months.

The Central Bank Annual Report has pointed out that the performance of the economy since 1972 has fallen far short of the targets laid down in the Five Year Plan.[1] This is presumably because the scope for investment in the areas indicated in the Plan are very limited; for instance, the high level of investment projected in the Plan in housing and construction has not taken place on account of the lack of incentives. Emphasis in the Plan should now be focussed on reaching self-sufficiency in essential foodstuffs which have been referred to earlier in this paper. It may be fully worth the while to restructure the Plan on these lines.

1. Annual Report 1973, p. 8 and 9.

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