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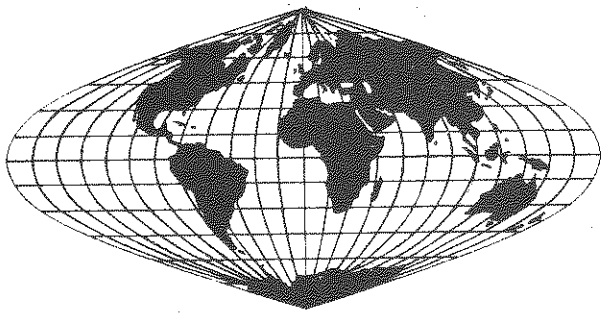
CORNELL/INTERNATIONAL AGRICULTURAL ECONOMICS STUDY

WHITHER INDIAN TEA?

by Prasadranjan Ray



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DEPARTMENT OF
AGRICULTURAL ECONOMICS
WARREN HALL

January 1982

It is a pleasure to introduce Prasadranjan Ray's monograph "Whither Indian Tea?" This study, as many before it, had its genesis in a paper submitted for my Fall term course, "Food, Population, and Employment." It is suggestive of the quality of work now being done by students in Cornell's program in International Economics and Development.

The paper examines the problems of the Indian tea economy against the backdrop of a depressed world market for tea. It identifies low profitability and minimal investment as the principal constraints to a healthy tea industry; but notes that foreign exchange earned by tea exports has been further reduced by rapidly rising domestic consumption and declining real prices. Mr. Ray concludes that the International Tea Agreement, currently being renegotiated, is unlikely to improve the situation radically. Rather, he advocates a host of domestic policy measures, including fiscal incentives and a smallholder tea project, as the main tools for inducing investment and innovation.

Mr. Ray is an officer in the elite Indian Administrative Service and has served for more than five years in the "tea country" of Darjeeling and Dooars in West Bengal. He attended Cornell for one year in 1980-81 under the Hubert H. Humphrey North-South Fellowship Program. Comments and suggestions are welcomed and should be addressed to:

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Mr. Ray has asked me to note that the views expressed are his and do not necessarily reflect the thinking of the Indian government. I can think of no better way to salute the work of a superior student than to suggest that they should.

We are indebted to Lillian Thomas for preparing the graphics and typing Mr. Ray's manuscript.

Thomas T. Poleman

TABLE OF CONTENTS

CHAPTER I. INTRODUCTION

PURPOSE AND SCOPE OF THE STUDY

Tea has been a commodity of significant commercial interest to India from the 1850s onward. Today, it is a major commercial crop in a number of less-developed countries (LDCs) including India, and a widely consumed beverage all over the world. It is becoming increasingly important as a consumption item in many LDCs. As a major LDC agricultural export item, the problems of tea trade due to export price instability and declining terms of trade have attracted international attention (1, pp. 22-26; 2, p. 260; 3, pp. 8-9). Doubts have also been expressed about the future of the Indian tea plantation industry (3, pp. 73-75; 4, pp. 21-34) in view of declining export earnings, inability of the government to induce fresh investments into the tea sector and growing misunderstanding between the industry and the government over major policy issues such as taxation and export policy.

In the context of these issues, this study makes a review of

- the Indian tea economy;
- the world tea market;
- the proposed scheme of international action on tea; and
- the domestic policy issues involved with the rejuvenation of the Indian tea industry.

The study is, therefore, concerned with policy issues at the level of national and international administrators involved with the tea industry.

ARE THERE CAUSES FOR CONCERN?

The major adverse features of the Indian tea economy in the post-World War II period have been:

- a declining share of the world tea market;
- capital-starvation of the industry;
- an atmosphere of distrust between the industry and the government.

Over the period 1955-79, the Indian share of the world tea export market has declined from above 50 percent to about 25 percent. Indian tea exports have stagnated at about 200,000 metric tons (MT) over the entire postwar period and, while the nominal value of tea exports has more than doubled over this period, the real value has been declining. Indian tea exports are being squeezed by rising domestic consumption, and high costs of production adversely affect the competitiveness of Indian tea vis-a-vis African and Chinese tea exports. The issue has become more vital in the context of the rising trade deficit which increased from $132 million in March 1971 to $1419 million in March 1979 (5, p. 89).

Capital investment in the tea industry in India over the last three decades has been grossly insufficient. Replantation of old bushes has progressed at much below optimal level and capital value of tea estates are going down. The low level of tea prices and the heavy burden of taxation are disincentives against investments in the tea sector which have been less profitable than investments in other industrial sectors (6, pp. 36-45).

The climate for investments has also not been very suitable due to a communication gap between the tea industry and the government. While the tea industry has been pointing out the need for taxation relief, many state governments have further increased taxation rates. There has been a tendency for the industry to blame the government for all its ills and for the government to blame the industry for not plowing back enough of its profits (7, pp. 10-23, 38-44).

In the international market, the major concerns have been about export price fluctuations and declining terms of trade.

While most studies find tea to be a relatively stable commodity compared to most primary agricultural commodities, more recent data suggest that the degree of instability in tea export values and prices increased noticeably in the 1970s. A high degree of export instability adversely affects investment planning and may lead to instability of national income, employment and government revenue (8, pp. 18-20; 9, p. 11; 10, pp. 5-6).

With the exception of tea booms in 1953-54 and 1975-78, the terms of trade for tea have been secularly declining throughout the postwar period. David Blandford's analysis (8, pp. 5-18) showed that over the period 1950-76 the nominal value of tea exports increased by 1.3 percent per annum, the real value declined by 0.9 percent per annum and the real unit value declined by 3.1 percent per annum. In terms of growth of real unit value, tea ranked 12 among the 13 major LDC agricultural export commodities compared by Blandford.

IMPORTANCE OF THE TEA SECTOR FOR INDIA

The tea sector in India is important from the point of view of:

- contribution to the gross national product (GNP);
- contribution to export earnings;

- contribution to government revenues;
- contribution to employment; and
- support to other sectors.

Contribution to GNP

The tea sector is a significant contributor to the national income of India. The gross value of tea produced in India was above Rs[1/] 1100 million in 1950-51 and this increased to above Rs 8000 million by 1978-79. Though the share of the tea sector in the national income declined from 1.4 percent in 1950-51 to 0.9 percent in 1978-79, contribution from the tea sector remained significant throughout. The output of the tea sector and the GNP in billions of rupees (undeflated) were as follows (11):

	1950-51	1960-61	1978-79
Output Value of Tea	1	2	8
Gross National Product	80	150	900

The contribution to the value added is about 75 percent from plantations and 25 percent from manufacturing (12, p. 8).

Contribution of Export Earnings

The export earnings from Indian tea increased from about Rs 800 million in 1950-51 to above Rs 3000 million in 1978-79. While the contribution of tea to the export sector has declined from about 20 percent in the early 1950s to below 10 percent by the late 1970s, tea still remains a very important export commodity. The export performance of Indian tea over the last three decades is tabluated below in millions of rupees (11).

	1951	1955	1961	1971	1981
Tea Export Earnings	900	1,500	1,200	1,600	3,000
Total Export Earnings	7,000	6,000	6,500	15,000	57,000
Percentage Share of Tea	13	25	19	10	6

The tea sector has also been a major source of government revenues. The direct government revenues from tea in the shape of tea cess, excise duty and export duty amounted to about Rs 150 million in 1951 and increased to above Rs 1600 million by 1978. Total government revenue from the tea sector has been estimated at about double the direct tax revenues (13, p. 24) by a United States Agency for International Development (USAID)-sponsored study. The direct tax contributions of the tea

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1/ A rupee, the Indian unit of currency, was equal to 20 cents until 1967, and since has floated between 12 and 14.5 cents.

sector in millions of rupees have been (14):

	1951	1961	1971	1978
Direct Tax Revenues from Tea	150	200	400	1,600
Total Revenues of Union of India	3,600	7,300	24,500	70,500

Contribution to Employment

The tea plantation and manufacturing industry directly employed above one million workers in the early 1950s. This has dropped now to about 800,000 during the late 1970s but the total (direct and indirect) employment provided by tea has been estimated at 1.8 million for 1976 (15, p. 115)--a very significant proportion of the total employment in the private organized sector.2/ Direct employment in millions provided by the tea sector has varied as follows (11: 14):

	1951	1961	1978
Direct Employment in Tea Sector	1.02	0.82	0.78
Total Employment in Private, Organized Sector	4.30	5.04	7.05

Growth Linkages

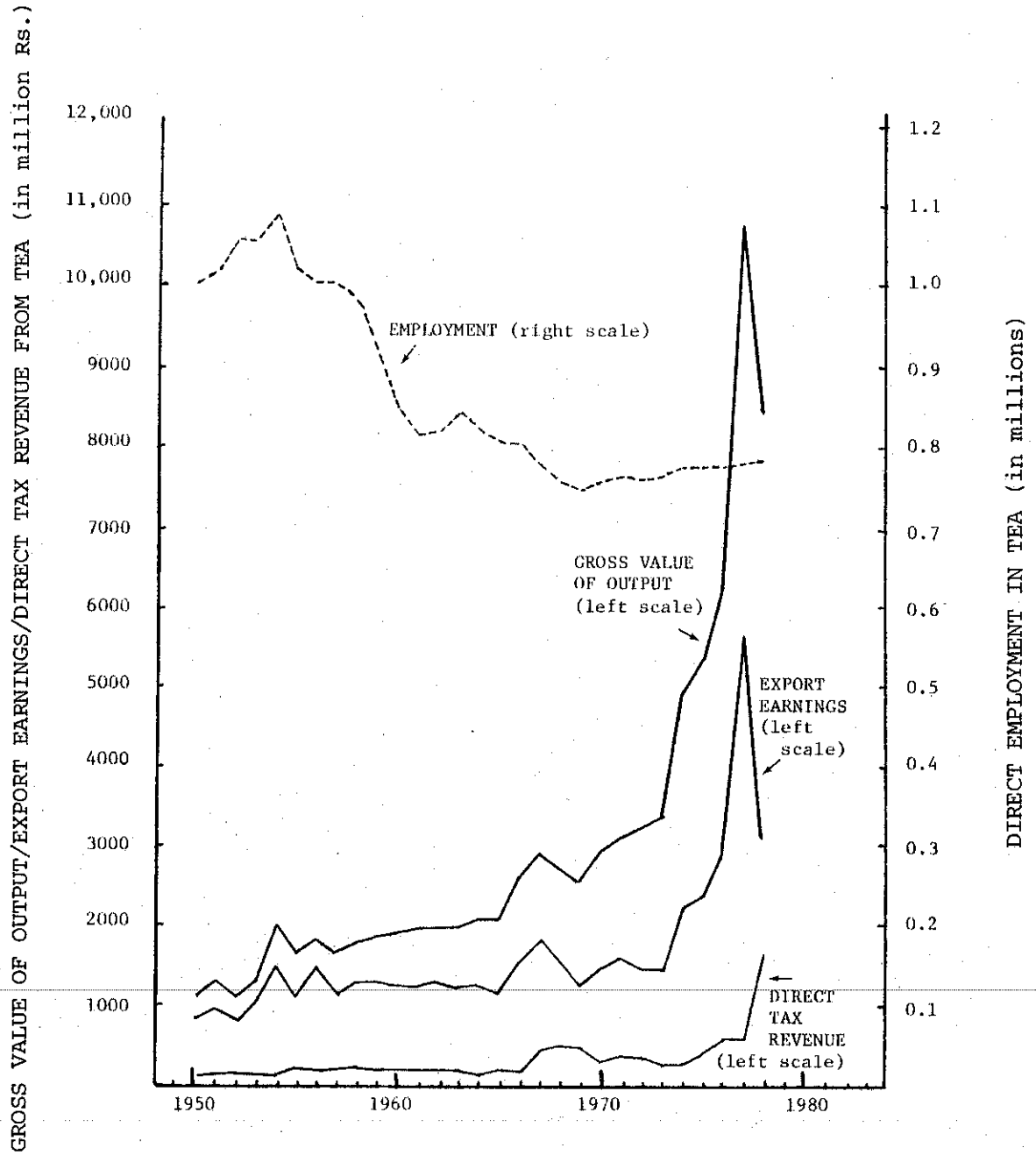
Apart from its direct importance to the national economy, the tea industry in India provided support to the plywood industry in the Eastern India since plywood chests are almost exclusively used as packaging material. The industry also provided a major market for the fertilizer industry, long before domestic fertilizer demand was given a boost by the "Green Revolution." As the tea estates were located in interior forested regions, establishment of the industry led to opening of rail and road links which were important for development of these backward regions. The tea industry also contributed very significantly to provision of housing, medical and educational facilities in the interior.

Changes Over Time

Over the last three decades, the importance of the tea sector to India in relative terms has gradually declined. While the value of the tea output, export earnings and direct revenues have increased, the actual employment generated in tea has declined over 1950-80 (Figure 1). In real terms, the revenues from the tea sector have increased over this period while export earnings have stagnated (Figure 2). Taking into account the overall impact of the tea sector on all aspects of the economy, however, it still counts as one of the most important economic sectors in India and its development prospects remain intimately linked with development prospects of the nation.

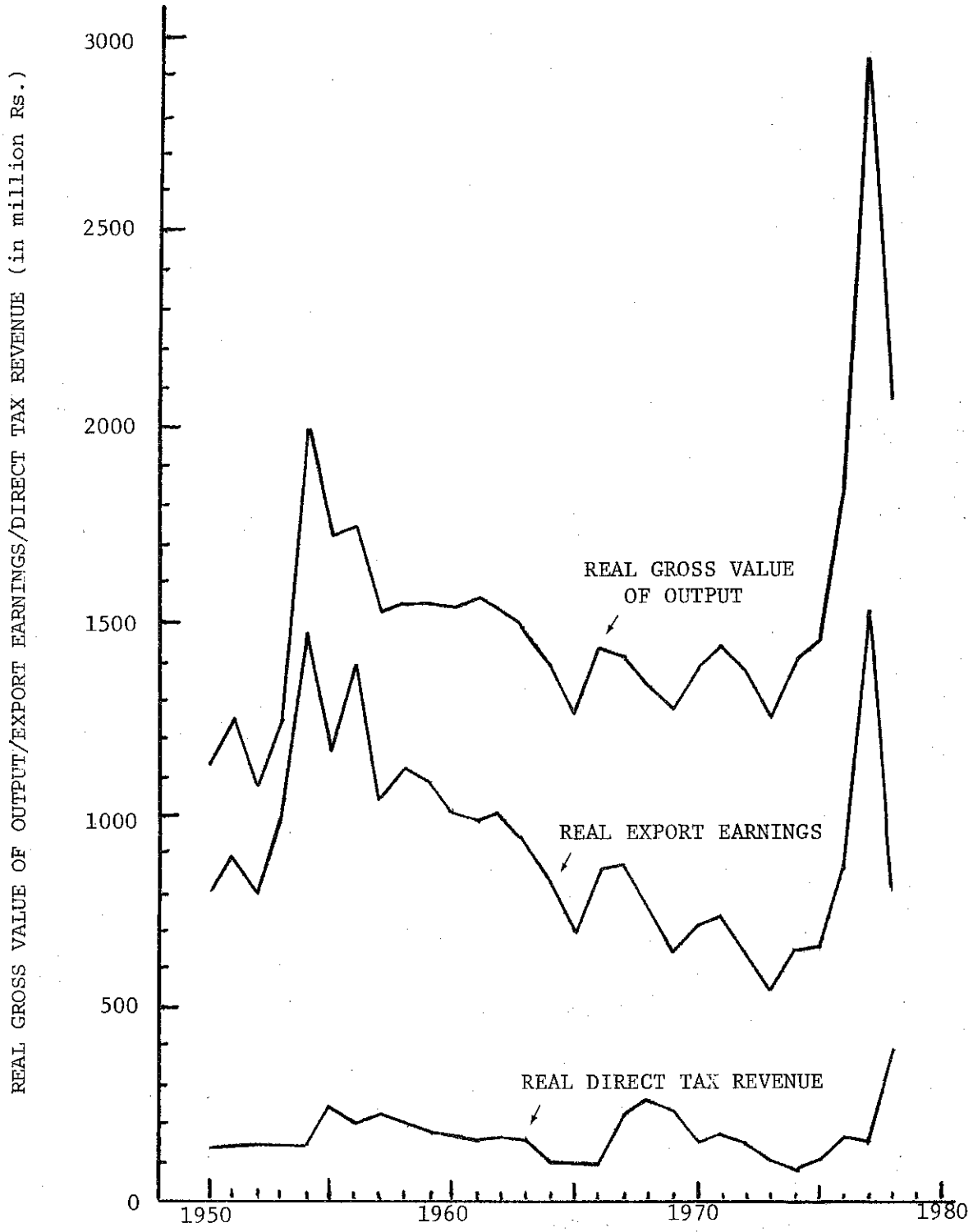
2/ This refers to the private sector establishments employing 25 or more people.

FIGURE 1. INDIA: GROSS VALUE OF OUTPUT, EXPORT EARNINGS, DIRECT TAX REVENUE AND DIRECT EMPLOYMENT FROM TEA, 1950-80.



Source: APPENDIX TABLE I & TABLE V.

FIGURE 2. INDIA: GROSS VALUE OF OUTPUT, EXPORT EARNINGS AND DIRECT TAX REVENUE FROM TEA (IN REAL TERMS)



Source: APPENDIX TABLE I.

TEA AS A CASH CROP

Origins and Ecology of Tea

The origins of tea (Camellia Sinensis) in the region comprising South-East China, Upper Indochina, Upper Burma and Assam seem fairly well established now. Tea was clearly first domesticated in China and, while early uses were probably medicinal, it has a recorded history of 2000-3000 years as a beverage (16, pp. 599-600; 17, pp. 117-119).

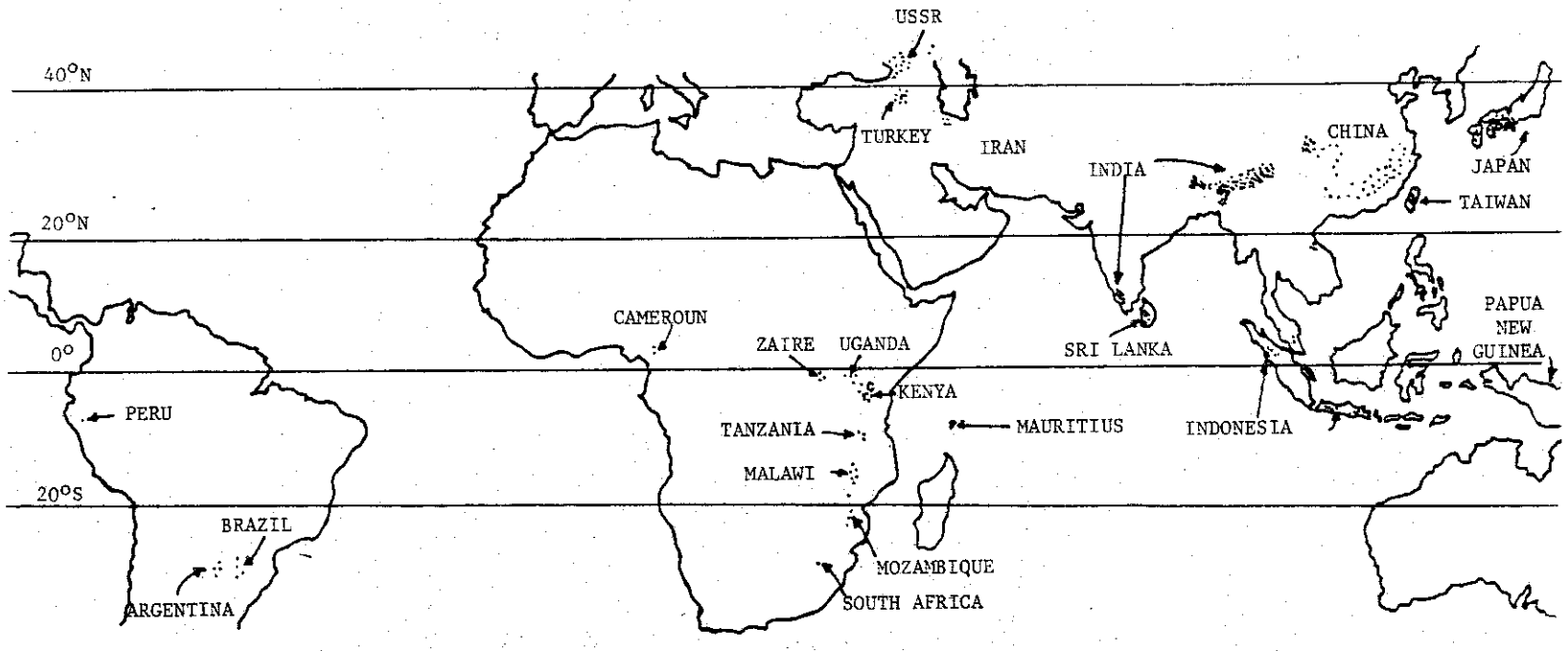
Two subspecies--China tea and Assam tea--are known. The China tree is small, slow-growing, with small erect leaves and singly-borne flowers, resistant to cold but a low yielder. Assam tea is taller, quick-growing, with large drooping leaves and two to four flowers in a cluster and a high yielder, suited to tropical conditions. Numerous hybrids and mutants are used in commercial tea cultivation today (14, pp. 600-601).

Tea is suited for subtropical, rather than tropical ecology. Tea grows best in cool, equable climate with mean temperatures in the range of 55-85°F. and a rainfall of at least 45 inches annually. In the tropics it grows well on elevations of 4000-6000 feet. China teas can tolerate cooler temperatures but very cold weather prevents flowering in winter. Tea also requires well-drained, deep, permeable and acidic soils. While the major tea regions spread from 30°N to 10°S latitude, tea is today grown even up to 50°N latitude in USSR and down to 30°S latitude in Mozambique and South Africa (Figure 3) (16, pp. 601-606; 18, pp. 8-13).

Spread of Tea Consumption

From China, tea is believed to have been first introduced to Japan in the eighth century and, by the 16th century, when Europeans arrived upon the scene, Chinese and Japanese tea drinking ceremonies were well-established. The Portuguese set up a trading post at Macao in 1557 and were the first European nation to be exposed to tea. The Dutch and British East India companies established trading posts in South China and Japan and engaged in the tea trade. While tea consumption did not become very popular in continental Europe, it made quite an impact in Britain. The first public tea sale was held at London in 1657 and British East India Company started importing China tea on a regular basis from 1669. British coffee houses started selling tea for public consumption from 1704. Tea consumption in Britain shot up from about 150,000 pounds in 1701 to 24 million pounds in 1801, and reached 260 million pounds by 1901 (19, pp. 284-285). During the 19th century, tea also became popular in the "white" dominions--Canada, Australia, New Zealand, South Africa and Ireland--though the "Boston Tea Party" spoiled tea's chances in the United States. Tea drinking had already become popular in Czarist Russia through the "Caravan Trade" from China and by 1913 Russians were major tea drinkers. Tea drinking never became very popular in the rest of Europe (except Netherlands). In the present century, tea drinking gradually caught on in producing countries (notably India, Pakistan and Ceylon). Tea was introduced to the Middle-East and North Africa by the late 1930s and became very popular in the postwar period. Recent consumption trends show that tea consumption is rising rapidly in the less-developed countries (LDCs) while consumption is stagnating or declining in the developed countries (DCs).

FIGURE 3. THE WORLD: MAJOR TEA PRODUCING REGIONS



Note: The dots are indicative of geographic location only and have no relation to the actual planted hectarage.

Source: Oxford Economic Atlas, 1975. (Adapted)

Spread of Tea Production

The rising popularity of the drink and the political uncertainties of the China trade induced the British and Dutch East India Companies to introduce commercial tea plantations to their Asian colonies. Though the Dutch made the first attempt to introduce tea plantations to Java in 1690, the British first successfully introduced commercial tea cultivation to North-East India in the 1830s. Following successful early experiments, tea plantations in India expanded fast from the 1850s. Following the coffee rust disease (Hemileia vastatrix) outbreak in the Ceylonese coffee plantations, tea plantations were started in Ceylon in 1867. The Dutch East Indies also had successful commercial tea plantations by 1878. India displaced China as the top tea exporter by 1888 and, by the 1930s, India, Ceylon and Dutch East Indies were the leading tea exporters.

Tea plantations were started in Nyasaland in 1891 and in Kenya-Uganda-Tanganyika between 1909 and 1925 but did not become economically important for Africa before the 1950s. In the postwar period, aided by suitable climate, available land and cheap labor, tea production expanded enormously in Kenya and significantly in Malawi, Uganda, Tanzania and Zaire. African tea exports are expanding very fast now.

Tea production also expanded greatly in the trans-Caucasian region of USSR (notably Georgia and Azerbaijan), Turkey and Iran in the post-1950 period. By 1979, the region produced above 200,000 MT of tea, though largely for domestic consumption.

Tea plantations were started in South Brazil and Northern Argentina in the 1950s and in Papua-New Guinea in the 1960s. Latin American growth appears to have slowed down now and these relatively "new" regions have yet to make an impact on the world trade scenario.

Current Status of Tea as a Cash Crop

Today, tea is cultivated under diverse physical conditions in 32 countries around the world (Figure 3). It is consumed in significant quantities in 97 countries and is a major article of trade. Over the period 1970-75, average world exports of tea amounted to 781,000 MT and they were worth $795 million. In terms of value, tea ranked as the seventh most important agricultural commodity in world trade and the sixth most important agricultural export commodity from the LDCs--following coffee, sugar, cotton, rubber and cocoa (8, p. 2).

HISTORY OF THE TEA INDUSTRY IN INDIA

A Tentative Start, 1778-1840

The rise of the tea industry in India was intimately connected with British colonial and commercial interests. In 1778, Sir Joseph Banks was entrusted with making recommendations for growing new crops in India

and he advocated tea cultivation in North-East India. Missions were sent to China by the East India Company for obtaining detailed information on cultivation and manufacture of tea and the issue gained urgency by 1828 when British commercial relations with China became uncertain. In the meantime, two young officers, Bruce and Charlton, separately discovered "wild" Assam tea. A Tea Committee was set up in 1834 and experimental plantations were tried out in Assam, sub-Himalayan regions, and South India with China and native Assam tea seeds. While experiments elsewhere were less than successful, the plantation at Suddiya (Assam) succeeded and the first batch of tea sent to England fetched high prices in the London auctions in 1839 (20, pp. 33-53).

Steady Growth, 1840-1947

The success in the early auctions encouraged British entrepreneurs at London and Calcutta and, in 1839, Assam Company was set up in London which took over all the East India Company plantations. Money was raised in London for investments and the Assam plantations started expanding. After a troubled phase in 1846-47, the company made profits in 1848 and made steady progress since 1850. From 1851 other companies and individuals also started plantations in Assam and 51 tea estates were set up by 1859. The production of black tea increased from 5,000 pounds in 1839 to 330,000 pounds in 1865 (20, pp. 61-75).

Experimental tea plantations were started in the North-West Himalayas in the Kumaon and Carhwal ranges in 1840-41. Though some estates did start there, the climate and soil were not found to be very good for tea. Other experiments yielded happier results and tea was successfully introduced to Chittagong (Bangladesh) in 1843, to Darjeeling (West Bengal) in 1852, to Cachar (South Assam) in 1855, to Sylhet (Bangladesh) in 1856 and to Terai (submontane West Bengal) in 1860. Following the ravage of the coffee plantations of South India by the coffee trust, tea was introduced to the hill regions of the Nilgiris, Kannan Devan hills, Wynaad and Annamalai hills in the present state of Tamilnadu, Kerala and Karnataka from 1862. Tea soon became the premier plantation crop of South India displacing coffee and rubber (20, pp. 76-95, 156-169).

The early plantations faced acute problems of poor communication, ill health, and shortage of labor. Unhealthy speculation in the tea market also raised its head by the 1870s. However, the planters overcame these difficulties and made steady progress till the turn of the century. Indian tea production expanded from 366,000 pounds in 1853 to reach 6.4 million pounds by 1867 and a staggering 197 million pounds by 1900. In the meantime, during the 1880s, Indian tea and Ceylon tea started displacing China tea from the British market and, by 1900, China had only a tenth of the British market (20, pp. 109-144).

The industry made steady progress since the turn of the century, though the specter of overproduction was haunting the industry, the production having reached 307 million pounds by 1913. The First World War, however, raised demands for tea and brought prosperity to the industry. The high prices of the immediate postwar years brought a wave of new plantings and this, coupled with similar expansions in Ceylon and Dutch

East Indies, brought a serious slump from 1926. Voluntary crop restrictions were tried from 1929 and international regulation from 1933. Prices improved and the Second World War brought another spurt in demand and bailed the industry out of trouble (20, pp. 170-211).

Post-Independence Problems, 1947 On

The immediate postwar period saw Indian independence in 1947. Independence brought to the fore the forces of economic nationalism. While the major expansion of the tea industry had taken place with the help of British capital, Indians started establishing proprietary and company tea estates from the late 19th century. By 1947, however, the British companies were still dominant in the tea sector. Instead of seeking nationalization of tea estates, the Indian government has sought to control the tea companies through the Tea Board (set up in 1954), to Indianize them by gradual restrictions on employment of expatriates in superior positions and to "rupeeize" the sterling companies through monetary restrictions. Despite a progressive Indianization, however, the role of foreign capital is still significant. The liaison between the industry and the government also remains far from ideal (20, pp. 216-239).

The major problem facing the government is the disinvestment of the tea estates over the last three decades, which has caused a decline in the general health of the industry. Inflow of foreign capital ceased in the 1950s and domestic capital mobilization and plow-back have been slow and much below the rate required even to preserve the capital value of the estates. The result has been a slow decline, an outcry from the industry protesting government neglect, and sporadic attempts to provide incentives for investment which, however, have not produced the desired results.

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CHAPTER II. THE STRUCTURE OF THE INDIAN TEA ECONOMY

PRODUCTION OF TEA

Production Growth Over Time

Once the commercial success of Indian tea plantations was established in the 1850s, Indian tea plantations enjoyed sustained growth and survived two periods of uncertainty in the 1870s and 1930s. The sustained growth of Indian tea over the long period has certainly been striking. Over the past century, acreage and production have increased as follows (1, p. 129; 2, pp. 1-3).

	1870	1900	1930	1970
Land Under Tea (1000 ha.)	84	212	325	357
Production of Tea (1000 MT)	20	90	177	435

A review of the current production trends reveals that, till 1930, the expansion was largely extensive, but a large-scale intensive development with yield maximization has taken place over the period 1930-79. The sustained yield increase over the last 50 years has been attributed to (3, pp. 8-11):

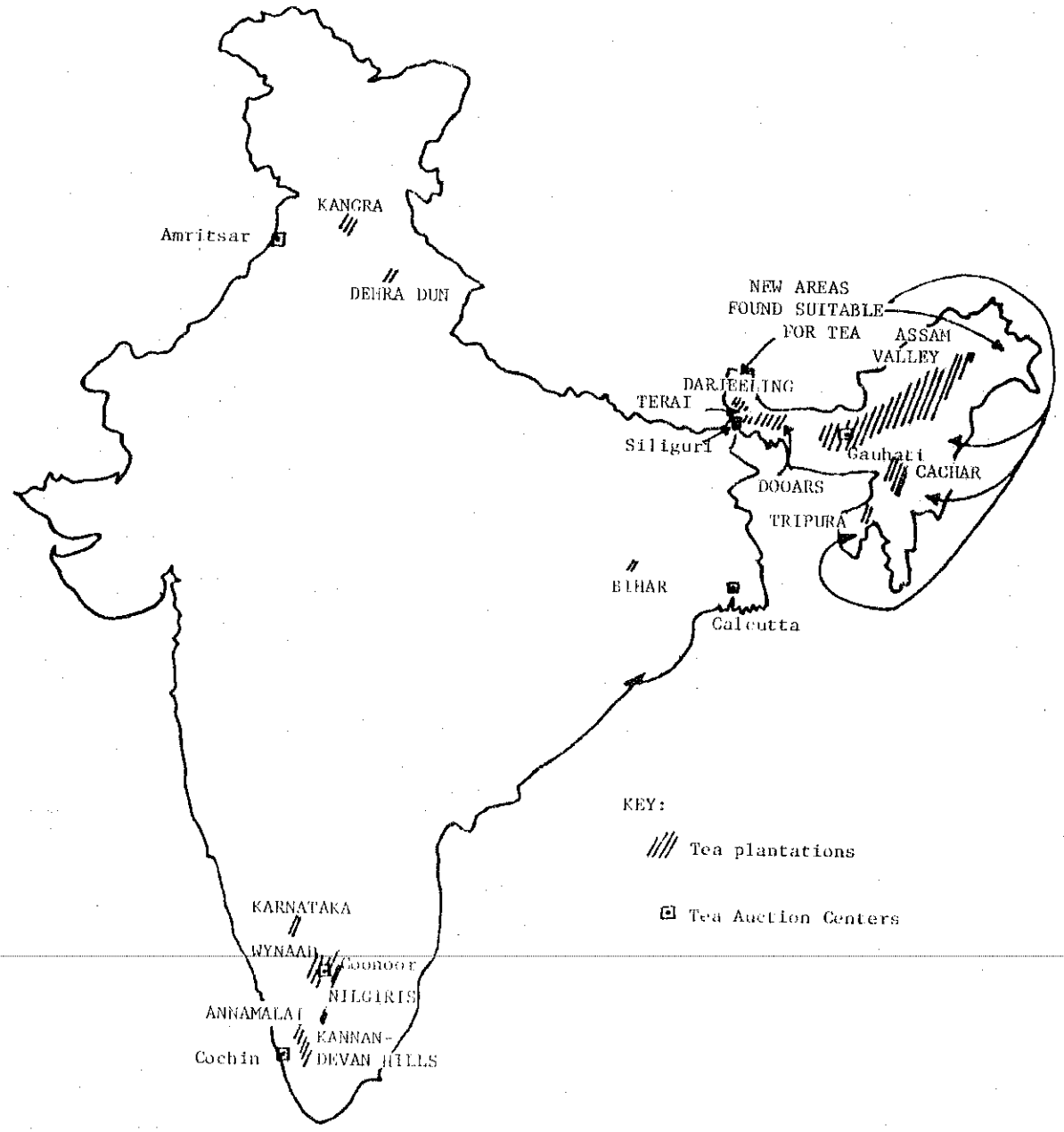
- scientific agronomic practices;
- pest and disease control;
- spread of irrigation;
- replanting with better quality planting material; and
- effective pruning and harvesting techniques.

The current (1979) production level is 550,000 MT from a planted area of 366,000 hectares, which makes India the biggest producer of tea in the world. Indian tea yields over the period 1977-79 have been consistently above 1500 kilograms per hectare. This compares very favorably with Japanese yields around 1800 kilograms per hectare, which are the highest in the world.

Regional Variations in Production

Tea production in India is scattered around diverse geographical regions (Figure 4). The major producing regions are North-East India

FIGURE 4. INDIA: GEOGRAPHIC DISTRIBUTION OF TEA PLANTATIONS



and South India. North-East Indian production is concentrated in the states of Assam and West Bengal--the major tea districts being the Assam Valley and the Surma Valley (Cachar) in Assam, and the mountainous Darjeeling district with the submontane Terai and Dooars in West Bengal. In the south, production is confined to the states of Tamilnadu and Kerala. South Indian tea areas are near the equator and, consequently, tea is cultivated at altitudes of 2000-6000 feet in the Nilgiri, Kannan-Devan and Annamalai mountain ranges. Some tea is also grown in North-West India in the states of Uttar Pradesh and Himachal Pradesh, and an unsuccessful attempt was made to introduce tea cultivation to Bihar (3, p. 95), but these regions are not of commercial importance. An attempt has been made recently to introduce tea plantations to nontraditional areas in North-East India. More than 50,000 hectares have been found suitable for tea cultivation in Tripura, Manipur, Sikkim, Mizoram and Nagaland but, despite state support, little headway has been made in the matter (4, p. 593).

The regional patterns display considerable variations in productivity (Table 1). South Indian plantations showed the highest productivity, followed by Assam, Dooars and Terai while Darjeeling yields were very low by comparison. The nontraditional areas are not yet important in terms of production or yield.

Organization of Production

Production in India has been largely concentrated in large estates rather than in smallholdings. The number of production units has increased considerably over the last three decades (Appendix Table II) to reach 13,000 by 1979 as against 6,500 in 1950. The number of tea estates (above five hectares in size) has, however, remained steady at about 1800 over this period, and the expansion has been due to growth of smallholders as a result of land reforms and as part of the Government program to rehabilitate repatriated tea estate laborers from Sri Lanka. By 1977, out of 13,166 production units in India, 11,507 units belonged to smallholders but they operated only 9,093 hectares between them. Smallholders contributed an insignificant amount to the production, through the exact amount could not be assessed in recent years since their production was channelled through cooperative factories, "bought-leaf" factories and hand-processing units. Their contribution to production was assessed at less than 0.01 percent in 1961 (5, pp. 7-10).

Role of Smallholders

Despite the almost complete neglect of the smallholder sector in the tea production strategy at the national level, organization of smallholders into cooperatives has been receiving increasing attention in recent years, particularly in South India where most of them are located. Most of the smallholders cultivate tea using family labor, use little fertilizer or chemical weedicide/pesticide and sell their green leaves at low prices to "bought-leaf" factories. There are about 80 such factories in South India, which generally advance money to the producers,

TABLE 1. INDIA: PRODUCTION OF TEA ACCORDING TO REGIONS, 1975-77 (AVERAGE)

	Planted Area (1000 ha.)	Production (1000 MT)	Yield (kg./ha.)
North India	290.5	403.6	1389
Assam Valley	158.4	245.9	1552
Cachar	31.1	31.0	994
Darjeeling	18.0	11.2	622
Terai/Dooars	70.9	109.1	1539
Others*	12.1	6.4	530
South India	74.1	115.6	1560
Tamilnadu	36.0	64.6	1792
Kerala	36.3	47.7	1314
Others**	1.8	3.3	1839
TOTAL ALL INDIA	364.6	519.2	1424

* Includes Tripura, Bihar, Uttar Pradesh, Himachal Pradesh.

** Includes Karnataka.

Source: Tea Board of India, Tea Statistics, 1977-78, pp. 5-6, 10-11, 14-15.

purchase their green leaves at a low price and, after processing tea of indifferent quality through old processing equipment, sell it to the domestic market at a low price (6, pp. 71-72).

Following the recommendation of the Plantation Enquiry Commission (1956), the first cooperative tea factory was set up in the Nilgiris in 1958. By 1978, there were 11 cooperative factories in the Nilgiris (Tamilnadu) and four elsewhere. Though cooperative organization of smallholders elsewhere has been far from a success, the movement has acquired some momentum in the Nilgiris where, by 1978, 5,265 growers with 4,691 hectares have been brought into their fold. The prices paid out by the cooperatives to the growers have increased considerably over the last few years. Improved services including supply of fertilizers, pesticides and planting materials, and warehousing and marketing are being provided by the cooperatives and growers are gradually being weaned from the control of the bought-leaf factories.

The quantity and value of green tea leaves bought by the cooperative factories from smallholders are detailed below (7, p. 79):

	Quantity (million kg.)	Value (million Rs)	Price Paid to Growers (Rs/kg.)
1973-74	9.3	7.3	0.8
1974-75	12.1	16.0	1.3
1975-76	14.4	19.6	1.4
1976-77	16.7	34.7	2.1
1977-78	23.0	52.5	2.3

Over 1975-78, due to the buoyant tea market, all but one of the cooperatives were making profits and their volume of business was steadily expanding. The Nilgiri cooperatives had a paid-up capital of Rs 10.4 million by 1978 (of which Rs 1.9 million was the state share) and were being cited as a success story. The turnover of the cooperative factories in Tamilnadu has increased over the last decade (7, p. 79) as follows:

	Quantity Processed (mil. kg.)	Quantity Sold (mil. kg.)	Sale Price (Rs/kg.)	Sale Proceeds (mil. Rs)
1967-68	1.9	1.6	5.3	8.5
1969-70	3.0	2.9	4.6	13.2
1973-74	3.1	2.5	5.1	12.7
1977-78	5.9	5.6	12.1	72.4

The state government is now envisaging a project for smallholders covering 4,500 acres to be served by 5 new cooperative factories at an investment of Rs 100 million. The project will rehabilitate 5000 repatriated estate laborers from Sri Lanka. Despite the widely acclaimed success of the cooperative tea venture, however, its impact has been localized and far from sustained as yet. A national policy toward smallholders is yet to emerge (6, pp. 47-71; 7, p. 79).

Size-Distribution of Estates

While estates overwhelmingly dominate production of tea, the estates are far from homogeneous in size. Estates have been classified as small and marginal (below 100 hectares), medium-sized (100-200 hectares) and big (above 200 hectares) (8, pp. 32-34). The size-class distribution of estates (Table 2) indicates a wide dispersal, though the big estates dominate--having 80 percent of the total planted area under tea--and the average size of an estate is 212 hectares (9, p. 115).

The concentration of estates is more important in North India than in South India--the Hirschmann index of concentration ($I = \sqrt{\Sigma P_i^2}$, where P_i is the percentage contribution of the ith item) for tea areas for the year 1969 being 59.7 for North India and 51.1 for South India. Available evidence also suggests that concentration is tending to increase over time (8, p. 25).

Size-Productivity Relation of Estates

Available data also suggest (Appendix Table III) that the larger estates enjoy the benefits of economies of scale and they are more productive. This implies that concentration of tea production is even higher than concentration of tea area, and the big estates enjoy a disproportionately large share of the production (Figure 5).

Organization of Estate Production

While production is normally regarded as concentrated in large estates, the Indian tea estates are far from homogeneous in organizational structure. From the point of view of ownership, the estates are dichotomized into those controlled by "Sterling Companies" incorporated in the United Kingdom and those controlled by "Rupee Companies" incorporated in India. The Rupee Companies, structurally, are divided into Public Limited Companies and Private Limited Companies. Apart from these, there are proprietary estates, not organized as companies at all.

About 22 percent of the estates were under sterling company management as against 38 percent under rupee company management, and 40 percent were proprietary estates in 1970. However, sterling company estates were much bigger, controlling 43 percent of the planted area, and proprietary estates much smaller with only 15 percent of the planted area. The size-distribution of estates according to management class in 1970 was (6, p. 42):

	Number	Hectarage	Average Size in Hectares
Sterling Companies	349	142,238	408
Rupee Companies (Public)	432	114,612	265
Rupee Companies (Private)	179	27,168	152
Proprietary Estates	621	48,825	79

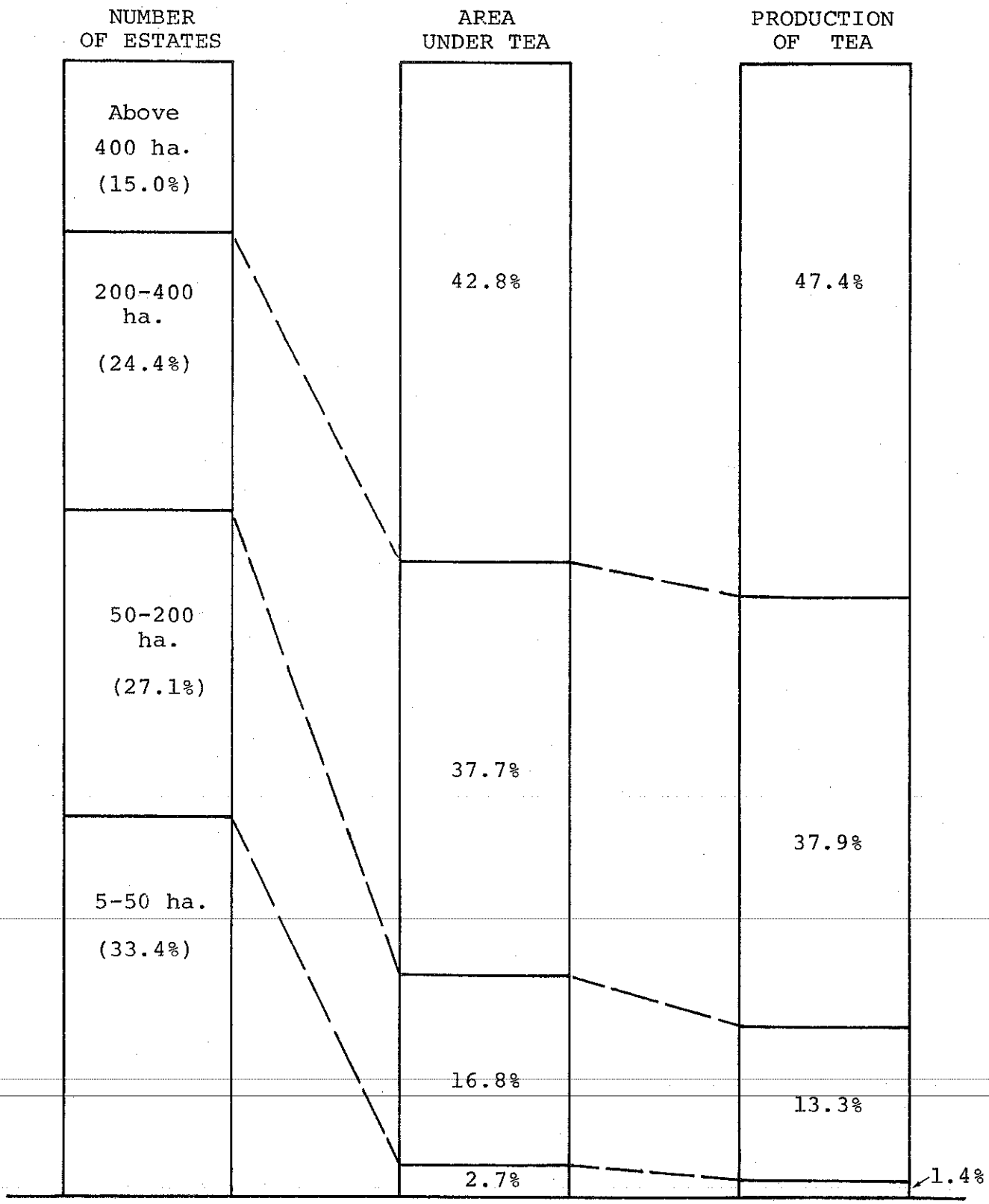
TABLE 2. INDIA: SIZE-CLASS DISTRIBUTION OF TEA ESTATES, 1975 –

	SIZE OF ESTATE						
	0-5 ha.*	5-50 ha.	50-100 ha.	100-200 ha.	200-400 ha.	400 ha.+	TOTAL
NUMBER:							
North India†	22	140	139	250	347	243	1,141
Assam	13	105	97	151	228	162	756
W. Bengal	6	10	15	71	114	81	297
Others†	3	25	27	28	5	-	88
South India	10,020	474	45	64	100	35	10,738
Tamilnadu	6,065	347	24	28	39	17	6,520
Kerala	3,953	123	20	32	57	18	4,203
Others	2	4	1	4	4	-	15
ALL INDIA†	10,042	614	184	314	447	278	11,879
HECTARAGE:							
North India†	59	3,686	9,907	35,945	99,978	135,745	285,320
Assam	38	2,859	6,818	21,009	66,390	91,678	188,792
W. Bengal	11	278	1,139	10,882	32,408	44,067	88,785
Others†	10	549	1,950	4,054	1,180	-	7,743
South India	7,714	5,743	3,397	9,737	29,053	18,155	73,800
Tamilnadu	5,878	3,904	1,837	4,369	11,546	8,077	35,611
Kerala	1,833	1,766	1,493	4,742	16,500	10,078	36,412
Others	3	73	65	627	1,007	-	1,777
ALL INDIA†	7,773	9,429	13,304	45,682	129,031	153,900	359,120

*This category relates to smallholders. †Excluding Himachal Pradesh.

Source: Tea Board of India, Tea Statistics 1976-77, pp. 18-21.

FIGURE 5. INDIA: DISTRIBUTION OF NUMBER, TEA AREA AND TEA PRODUCTION OF ESTATES BY SIZE, 1975



Source: APPENDIX TABLE III

In view of the size-productivity correlation, the control of sterling companies over tea production would be considerably more than the control over planted area. The pattern of control does not vary much regionally--in 1970, 41 percent of North Indian hectarage and 50 percent of South Indian hectarage were owned by sterling companies.

The sterling companies started with British capital and enterprise, enjoyed state patronage in various forms, were better organized, and had a better access to the British market. More than most other industries, tea was dominated by Sterling capital even in the 1950s. The government was concerned about progressive "Indianization" and, while resisting nationalization, has sought to decrease foreign control. Over the years, Indian control over the tea crop has increased (8, p.29):

	1937	1951	1954	1969
Percentage of Tea Crop Under Indian Control	15.9	23.7	30.0	41.6

Nevertheless, role of foreign capital still remained considerable in the 1970s and this was of concern to the central government in view of the implied dependence, lack of control, and heavy rate of repatriation of profits with little fresh inflow (10, pp. 305-320). Over 1956-61, the plantation sector (largely tea) repatriated and distributed 96 percent of net profits, retaining only 4 percent (10, p. 309). Also, over 1970-74, the net capital outflow from the plantation sector was, on an average, 33.4 million rupees per year (11, p. 104). The recent instrument adopted by the Indian government is the Foreign Exchange Regulation Act (FERA), 1974. Under FERA, directions have been issued to foreign companies to convert themselves into rupees companies and to dilute foreign holding of equity shares. As tea belonged to the export-oriented "core" sector, sterling tea companies were directed to reduce foreign holdings only to 74 percent by the end of 1977. However, by mid-1978, only 36 of the 114 sterling companies were "rupeeized" and 20 more were in the process. More time has been granted and the Reserve Bank of India has banned profit repatriation to coerce the rest, but the future is still unclear. Some sterling companies want to sell out to new rupee companies and this could adversely affect the level of management and productivity (12, p. 618; 13, p. 1968).

The Role of the Managing Agency System

The entry of British capital into the tea plantation industry brought with it the rise of the managing agency system. A London-based company entered into an agreement with a Calcutta-based agency house to supervise the functioning of the estates, provide consultancy, and arrange supplies and marketing in a centralized manner in return for profit-sharing and representation on the board of the "home" country. Centralization of services brought an economy of scale and agency houses, almost invariably sterling companies themselves, prospered. Some of the agency houses also financed some tea companies and others took over estates of their own. By 1956, 13 Calcutta-based agency houses controlled 75 percent of North Indian tea production (14, p. 23). By 1966, concentration was reduced but they still controlled over 60 percent of the crop (Table 3). Such concentration

TABLE 3. NORTH INDIA: CONTROL OVER PRODUCTION OF TEA BY LEADING AGENCY HOUSES, 1966

Agency House	Number of Gardens	Production	Percentage Production of North India
		(metric tons)	
Duncan Brothers & Co. Ltd.	45	22,589	8.0
Macneill & Barry Ltd.	40	19,816	7.0
Williamson Magor & Co. Ltd.	46	18,671	6.6
Balmer Lawrie & Co. Ltd.	33	17,733	6.3
James Warren & Co. Ltd.	34	16,028	5.7
James Finlay & Co. Ltd.	24	15,749	5.6
Shaw Wallace & Co. Ltd.	26	13,160	4.7
Octavius Steel & Co. Ltd.	37	13,157	4.7
Jardine Henderson & Co. Ltd.	21	11,229	4.0
Gillanders Arbuthnot & Co. Ltd.	21	10,892	3.8
Davenport & Co. (P) Ltd.	-	7,584	2.7
Andrew Yule & Co. Ltd.	-	5,563	2.0
McLeod & Co. Ltd.	-	5,430	1.9

Source: H. Roy, Tea Price Stabilisation--The Indian Case, 1968, p. 150A.

of production, taken in conjunction with control over many other industrial sectors, concerned the government and led them to impose controls on agency houses through the Companies Act, 1956. Several commissions also expressed concern over the monopolistic power of such houses. Gradually, most of the agency houses have become Indianized through intermingling of commercial interests, but concentration on production of tea remains (15, pp. 165-167; 10, pp. 5-8; 16, pp. 62-63).

Role of the Producers' Associations

The early problems faced by planters, particularly in recruitment of labor, pointed out the need for the tea companies to associate and cooperate. The sterling companies took the lead in this and established the Indian Tea Association, London in 1879 and the Indian Tea Association, Calcutta in 1881. Organically, London and Calcutta associations kept separate, though membership was mostly common. The ITA, Calcutta was and still remains the premier association of tea companies in North India. The ITA set up branches in Assam, Surma Valley, Darjeeling, Terai and Dooars and worked in close cooperation with its member estates.

Since the ITA was set up exclusively by British planters, the Indian proprietory estates and tea companies set up their own associations beginning with the Indian Tea Planters' Association in 1919. Thereafter, various associations representing regional interests in Terai, Tripura, Assam Valley, Cachar, Kangra Valley and Dehradun were established. In the south, similar regional interest groups were formed first, and common interest led them to form a central body--the United Planters' Association of South India (UPASI) in 1893.

Though ultimately all associations including ITA and UPASI were opened to Indian companies, the multiplicity of associations continued and, by 1980, there were 27 tea associations in the country (Appendix Table IV). To set up a common forum, however, the Consultative Committee of Plantation Associations (CCPA) was formed in 1956. The CCPA has since organized several seminars on the tea industry and focused national attention on the problems (17, pp. 142-144; 1, pp. 513-546).

The associations were primarily set up to regulate labor conditions and labor relations in the industry. They also provided technical advice to members, and medical services and food supplies were channeled through them. More important, practically all the research and development work was done by them. The ITA set up its pioneering scientific department at Tocklai, Assam in 1913, and the UPASI set up four research stations in 1919. Work was also initiated on the chemistry of tea and its manufacturing. These pioneering research stations produced major breakthroughs in seed growing, hybridization, vegetative propagation, pruning, shading, plucking techniques, pest and disease control and improved methods of processing leading to the CTC method of manufacture (1, pp. 473-510).

The most important role of the associations, however, has been providing a forum for discussion on problem areas and bringing relevant

points to the attention of the government. Despite considerable cooperation between the representatives of the industry and the government, the liaison between the two have not been very smooth--the major disagreements being over taxation, export restrictions, labor benefits, incentives and provision of finance on easy terms (18, p. 614).

INPUTS INTO ESTATE PRODUCTION OF TEA

Land Availability and Government Policy

When tea plantations were set up, land was far from scarce. Most of the tea estates in Assam and West Bengal were established on lands obtained very cheaply under the "Waste Land Rules" under 99 years' long-term leases. Even when purchased, the price of such land was only Rs 2½ to 5 per acre. Clearing of the jungle and planting tea was much more expensive but, even then, most of the good plantations were produced at an outlay of Rs 300-500 per acre (15, pp. 56-57).

With increasing pressure on land, this has changed. In 1954, of the total land held by tea estates, only about 39 percent was planted in tea and 6 percent put to ancillary use--the rest was forest, bamboo-groves and cultivable land with considerable reserves for expansion (14, p. 442). Subsequently, the forest lands have vested to the state and a considerable part of the reserves have been adjudged "surplus to the requirements" of the tea estates and resumed by the state governments despite recommendations of the Tea Board for leaving enough land for further expansion. Scope for expansion of existing estates is limited by land availability. New areas for planting in Manipur, Meghalaya, Sikkim and Arunachal Pradesh have been investigated and state incentives are available for opening plantations there, but little has been achieved to date (19, pp. 24-27).

Labor Needs of the Industry

The tea industry was, from the beginning, a labor-intensive one. Land preparation, cultivation, planting and maintenance of bushes are all labor-intensive activities, but plucking of tea is the most demanding in terms of labor. C. R. Harler analyzed labor use in Ceylon estates (which are similar to Indian estates) and found that about 85 percent of the labor input went to fieldwork and 15 percent to manufacturing and services. Harler estimated 243 mandays per acre as the labor input into fieldwork and this was divided into various activities (20, p. 154):

Plucking	52%
Weeding	22%
Maintenance	8%
Forking/manuring	5%
Dusting/spraying	4%
Bush sanitation	4%
Green manuring	3%
Pruning	2%

When plantations were opened in North-East India, local labor was found unwilling, inefficient and inadequate and, from 1858, the system of importing labor from Central India was resorted to. The system, known as the "sardar" system, provided an adequate labor force and plantations flourished. The system, however, soon became oppressive and the laborer recruited through a contractor turned out to be practically a slave. Living and working conditions were appalling and facilities minimal, resulting in high death and disappearance rates. This aroused public concern and a Royal Commission was appointed in 1931 to investigate. The Commission suggested regulation of recruitment and, gradually, recruitment of migrant labor was controlled. Labor rules were also framed in the meantime and wages improved from Rs 6 per month in 1900 to Rs 11 per month by 1929 (1, pp. 268-310; 15, pp. 62-64).

The role of migrant labor has been much minimized now as many of them settled down in the tea regions. There is, however, still occasional tension between local ethnic groups and exmigrant groups over tea garden jobs which are scarce. The total employment in tea estates increased steadily through 1954 to reach a maximum of 1.09 million, at 3.40 workers per hectare. Employment has declined since then though planted area and production both increased considerably--suggesting use of labor-saving methods. Current labor input per hectare has been steady at 2.13 over the last decade (Appendix Table V). Over the period 1951-77, labor productivity trebled while land productivity rose by 60 percent (Figure 6). However, the stability of the labor input per hectare in the 1970s indicates that further labor-saving is not feasible and productivity gains in future will have to be supported by yield maximization.

Unionization and Growth of Labor Benefits

While the industry was strongly organized from the beginning, the labor was almost totally disorganized till the 1950s. Independence brought with it a spurt in trade union activities, and union membership increased steadily from 9 percent in 1951 to reach 40 percent by 1960 (22, pp. 248-252). By 1969, there were 13 unions functioning in Assam and West Bengal, 30 in Tamilnadu and 26 in Kerala (23, pp. 64-65). Most of these were affiliated to the central trade unions with party linkages.

The nature of labor problems faced by the industry changed considerably over time. Till the 1890s, the major problem was recruiting. From early in the 20th century, the focus turned to regulating terms and conditions of recruitment and work. From the 1950s, with unionization and a great reduction in migrant labor import, the rate of labor turnover decreased and the labor force became more permanent. The major labor problems faced by the tea estates were in reducing absenteeism, increasing labor productivity, and maintaining smooth industrial relations. On the labor side, the major issues were granting of "fair" wages and welfare benefits, regularization of "casual" staff, regularization of working conditions, particularly of women and children who were an important part of the work force, and provision of employment for "surplus" labor (17, pp. 225-229).

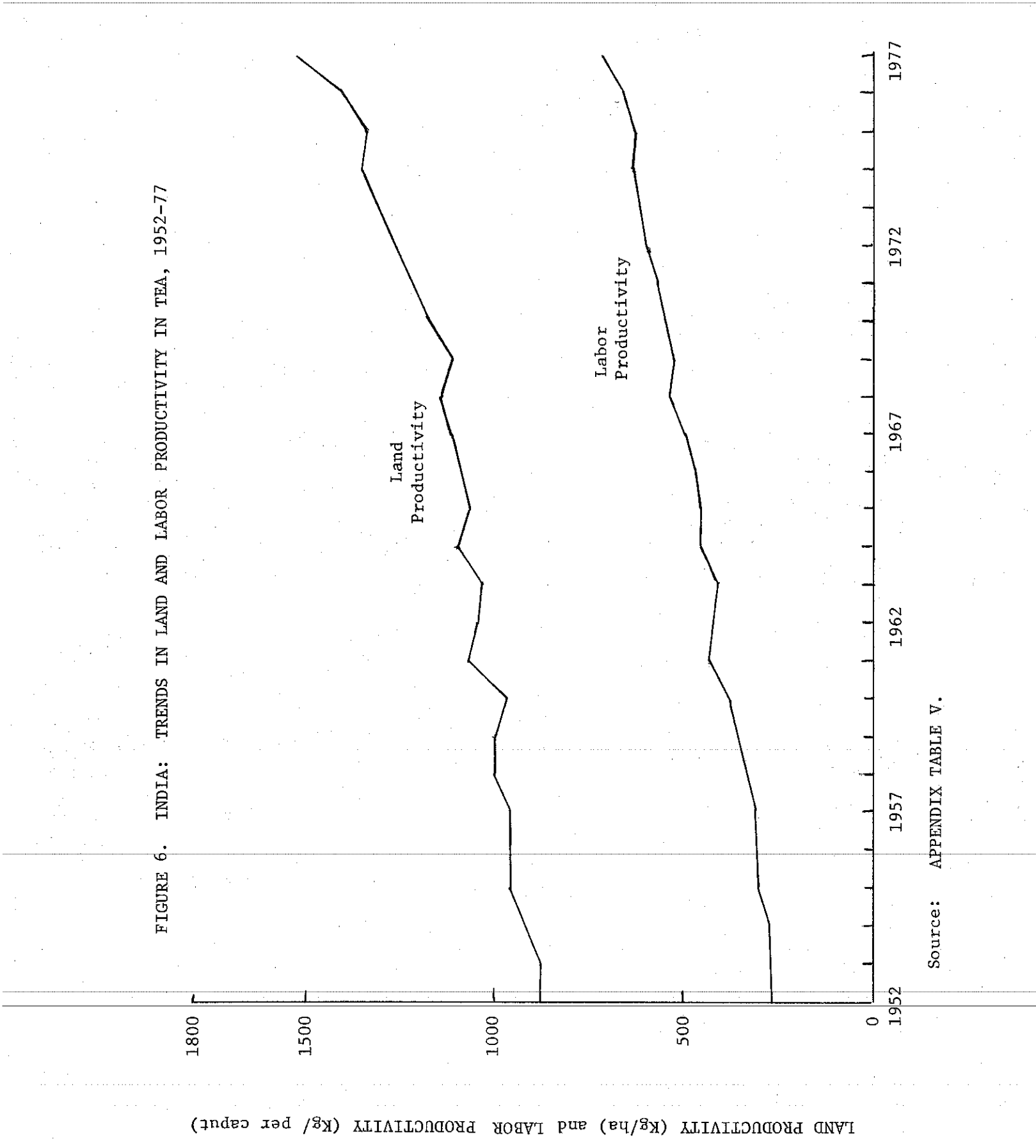


FIGURE 6. INDIA: TRENDS IN LAND AND LABOR PRODUCTIVITY IN TEA, 1952-77

Source: APPENDIX TABLE V.

Following unionization of tea labor, industrial relations in tea depended largely on voluntary negotiations and collective bargaining, followed by conciliation and arbitration by state government officials and, in cases of breakdown of negotiations, have ended in strikes and lockouts. It has been assessed that labor relations in tea plantations have generally been smoother than in other major industries--cotton, coal and jute--and the number of man-days lost has been much less (17, p. 221). However, there have been serious waves of labor unrest in 1955 and 1969 and, even in 1978, about 0.2 percent of man-days were lost due to strikes causing a wage loss of 0.2 percent of the wage bill and a production loss of 0.4 percent of the total production in North-East India (24, pp. 148-149).

Effective labor organization and growth of governmental control gradually won for labor improved wages and other benefits. The Minimum Wages Act, 1948, empowered the government to fix minimum wages for the industry. In 1960 a Wage Board was set up and it recommended a "fair" wage structure in 1966. On the basis of this, yearly settlement of wages takes place in regional negotiations between unions and producers' associations. Apart from wages, the customary benefits of tea estate laborers include provision of cereals at a concessional rate and provision of land for cultivation and grazing. In addition, a laborer is entitled to a CPI-linked Dearness Allowance, overtime allowance under the Minimum Wages Act and payment of bonus at between 8.33 percent and 20 percent of annual wages under the Payment of Bonus Act, 1965. Social security measures include provident fund and gratuity benefits at retirement under the Employees' Provident Fund and Miscellaneous Provisions Act, 1952 and the Payment of Gratuity Act, 1972. The most comprehensive set of welfare benefits are laid down in the Plantations Labour Act, 1951. The Plantation Labour Act and rules made thereunder make provisions for free housing according to specifications, free medical facilities, free education up to the primary stage, water supply and sanitation, recreation facilities and payment of maternity and sickness benefits. The Tea Board and the state governments subsidized various welfare activities by about Rs 2 million annually in the 1970s, but the bulk of the resources were mobilized by the industry itself and added significantly to the cost of production. The most notable achievement has, perhaps, been in the field of health where, by the end of 1977, the tea estates under the ITA provided 32.4 hospital beds and 1.62 doctors per 1000 workers--more than double the standards laid down in the rules (24, p. 128).

Since 1950, the money wage of tea estate laborers has risen steadily but the real wage, after a jump in the 1950s, has gone down steadily. There also does not appear to be much correlation between real wage gains and productivity gains. Over the period 1950-77, wage and labor productivity in the Assam Valley estates have varied as follows (17, p. 180; 8, p. 73; 25, p. 114).

	1950	1955	1960	1965	1971	1977
Basic Wages in Rupees	0.87	1.62	1.89	2.07	2.62	4.80
Index of Money Wages	100	186	217	238	301	552
Index of Real Wages	100	196	178	145	139	136
Index of Labor Productivity	100	108	136	162	203	256

Capital Needs of the Industry

Establishing a tea plantation involves considerable capital investment in the form of land preparation, improvement, planting and maintenance of tea bushes through a gestation period of 5-6 years. In addition, processing facilities, roads and housing are all capital-intensive. The Plantation Inquiry Commission, 1956, estimated the total capital invested in tea in 1954 to be Rs 1130 million, of which Rs 720 million were invested as "foreign" (largely British) capital. The capital investment per hectare was estimated to be Rs 3800 for sterling companies, Rs 3300 for rupee joint stock companies and Rs 1700 for proprietary concerns. Of this, 57 percent was held as paid-up capital while the rest was held as reserves (14, pp. 33-37). It was also estimated that the net assets of tea companies grew from Rs 418 million in 1939 to Rs 561 million in 1946 and Rs 886 million in 1953--a growth rate of 8 percent per annum (14, p. 40).

From the 1950s, however, new capital investments in the established plantations were relatively small. Since most of the original capital investments had already been written off, estates could carry on even under poor market conditions (26, p. 3). The net inflow of foreign capital has been negative in the 1960s and 1970s, and the long-term foreign investments in the plantation sector have been steadily declining (11, p. 103).

Domestic capital formation has also not been adequate even to replant the old and uneconomic bushes and the capital value of the estates is, in general, going down. The rate of replantation of the old tea bushes has been only about 0.6 percent in the period 1950-77--much below the required rate of 2 percent per annum, necessary on a long-term basis as the economic life of the tea plant is 50 years. Capital needs of the industry for expansion are large. The average cost of replanting and new planting was estimated by the Plantation Inquiry Commission to be about Rs. 9000 per hectare in 1956 (14, p. 65). A USAID-sponsored study estimated the cost including maintenance for five years to be Rs 12,500 per hectare in 1971 (6, p. 17). Manoharan estimated the cost including maintenance for eight years at Rs 16,500 per hectare and the value of the old crop lost to be another Rs 27,000 per hectare (8, p. 60). The Consultative Committee of Plantation Associations estimated the total capital needs of the industry to reach a production level of one million MT by the year 2000 at Rs. 10 billion spread over 25 years of Rs 400 million annually (27, pp. 38-39).

As against this requirement, the funds made available to the industry have been far less. Tea estates require both short-term finance to meet working capital needs and long-term finance to meet development needs. The Plantation Inquiry Commission estimated the working capital employed over 1951-53 at about Rs 3000 per hectare--about 62 percent of which was

met from their own reserves, 28 percent from bank loans, and 10 percent from other sources, notably from agency houses and brokers (14, pp. 153-158). Awasthi estimated that, by 1963, only 50 percent of working capital needs were internally mobilized (17, p. 256) and this is now believed to have declined considerably. While bank borrowings have increased considerably in scope, the Tea Finance Committee found that the smaller proprietary estates were more dependent on bank loans and found it more difficult to secure them (28, p. 38).

The situation in long-term finance was worse. Over the period 1950-54, the retained profit per hectare was Rs 250 and the estimated net retained profit was Rs 81 million for all tea estates (14, p. 200). Over 1972-75, the net retained profit was only Rs 38 million (29, p. 2121). The resources internally mobilized were far short of the need and the estates relied on long-term loans provided by commercial banks and government institutions such as the Tea Board and Agricultural Refinance and Development Corporation (ARDC).

The Tea Board operated three major schemes for long-term development: Tea Plantation Finance scheme, Irrigation Loan scheme and Tea Machinery Hire-Purchase scheme. The schemes were initiated in the 1960s with a total fund of Rs 150 million. Plantation finance loans were limited to Rs 11, 250 per hectare for plains estates and to Rs 13,750 per hectare in hill estates while machinery and irrigation equipment loans are limited to Rs 500,000 per case. The net impact of the schemes has, however, been marginal--over 1975-77, the average annual disbursement from these funds stood at Rs 11 million with another Rs 2 million paid as subsidy to facilitate replantation (29, p. 2121). The ARDC also provided refinance only to the extent of Rs 4 million annually in the late 1960s (17, p. 272).

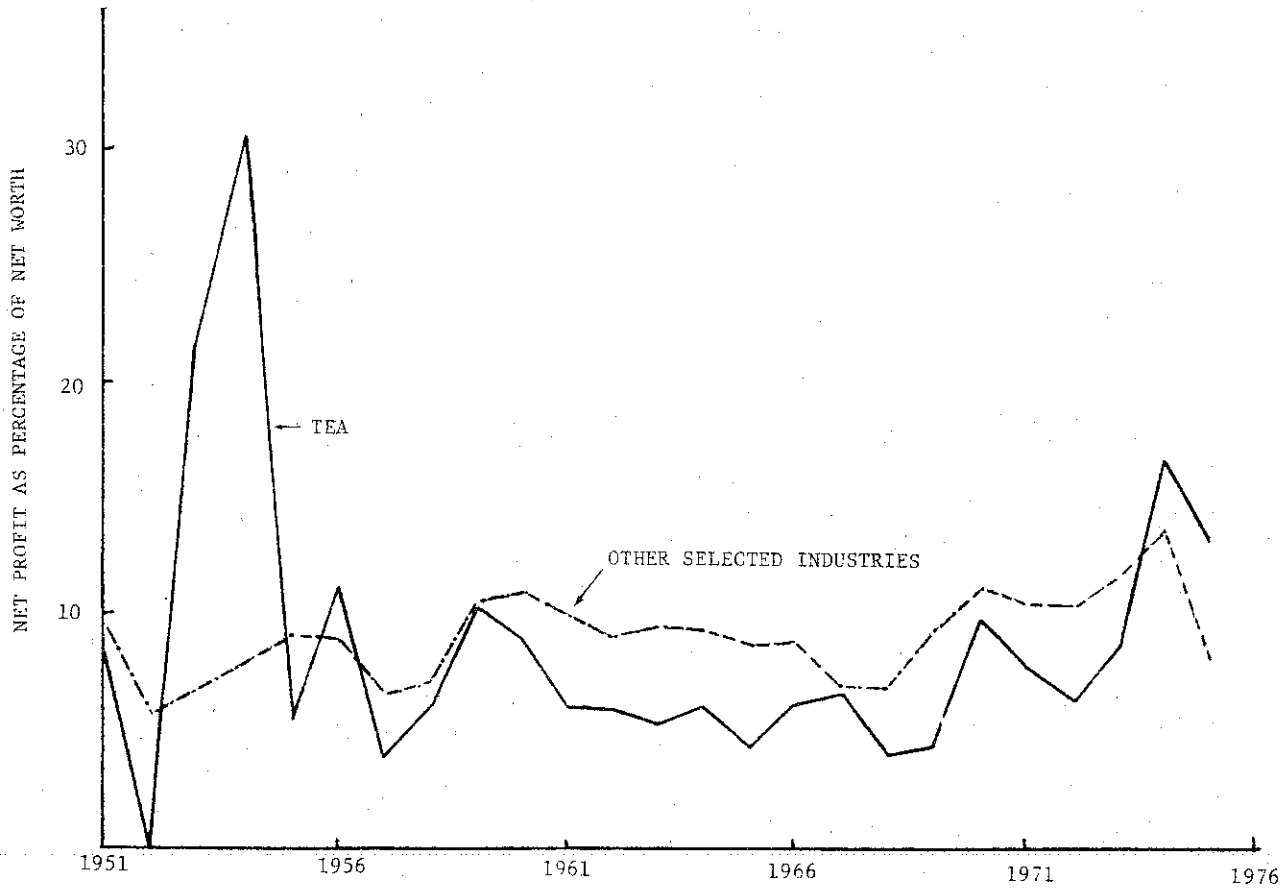
The long-term finance currently available is, thus only about Rs 60 million--far shorter than the Rs 400 million needed annually. During the entire Sixth Plan period (1978-83), the Planning Commission, estimated an investment of Rs 536 million annually--with Rs 48 million provided by the Tea Board and Rs 120 million by the industry with the remaining Rs 368 million to be funded by bank loans--but, in the backdrop of current achievements, the target appears to be very optimistic (30, p. 1322).

PROFITABILITY AND STRUCTURE OF COSTS

Indices of Profitability

Profitability in investments in tea have generally been at a low level. Net profits as a percentage of net worth in tea have been well below the index in other industries surveyed by the Reserve Bank of India except briefly during the periods 1954-56 and 1974-76 (Figure 7). Gross profits have generally varied from 8 to 16 percent of sales in the 1960s and 1970s but net profitability declined due to a rising share of taxation in the gross profits. During low profitability, the share

FIGURE 7. INDIA: TRENDS IN PROFITABILITY OF TEA AND OTHER INDUSTRIES, 1951-75



Source: Reserve Bank of India Bulletins (various issues).

of profits distributed has been high and very little (if any) profit has been retained. The ill-health of the industry is also reflected in the declining debt-equity ratio and the declining current asset-current liability ratio, reflecting increased indebtedness and higher interest burdens. The number of tea companies incurring a net loss also increased from 15 percent to 42 percent during the 1960s (8, pp. 38-45). The variation of major indices of profitability over the last 40 years has been as follows (14, pp. 199-205; 25, pp. 122-129):

Ratios (percent)	1939	1946	1950-54	1960-73	1973-76
Gross Profit/Sales	17.8	31.0	41.3	12.8	11.2
Net Profit/Net Worth	8.3	14.0	15.5	6.4	12.7
Tax Provision/ Gross Profit	24.1	38.3	39.2	56.6	56.5
Retained Profit/ Net Profit	47.4	46.9	52.7	4.1	58.1
Debt/Equity	...	...	4.0	6.1	8.9
Current Asset/Liability	...	...	1.42	1.21	1.22

Determinants of Profitability

At any level of management, the profitability is determined by the yield, price, cost of production and the level of taxation. The fact that, despite continuous improvement in yields, tea estates have suffered from declining profitability may be largely explained in terms of the low real price-levels, escalating costs of production, and increasing incidence of taxation.

Price Trends

Prices in Indian auctions followed the pattern of tea prices in international (London) auctions (Figure 8), and price movements showed two peaks--one in 1954 and one over 1974-78 corresponding to the two periods of high profitability. Over the entire period 1955-73, prices stagnated and declined in real terms (Appendix Table VII).

Trends in Costs of Production

The costs of production have, however, been escalating continuously. Wickizer estimated that over 1938-48, the average cost of production in Indian estates increased three-fold from 7.3 pence to 24.4 pence per pound (31, pp. 465-467) but the prices also more than doubled over the period. In sharp contrast, cost of production increased steadily from the early 1950s despite stagnating prices. Cost of production per kilogram of tea increased from Rs 3.34 over 1950-53 to Rs 5.23 over 1966-70 (14, pp. 72-88; 3, pp. 40-44). A recent study placed the production costs in Kerala estates at Rs 11.49 per kilogram (32, p. 133) in 1979-80.

The major components of the cost of production are labor charges and direct taxes, duties and cess (Table 4). The Plantation Inquiry Commission estimated 38-45 percent of the cost of production to be spent on labor charges over 1950-53 (14, p. 99). The ITA estimated labor

FIGURE 8. VARIATION OF LONDON AUCTION PRICES WITH STOCK, 1951-79

Source: FAO, Commodity Review (various issues).

TABLE 4. INDIA: COST OF PRODUCTION OF TEA, 1966-70

(rupees per kilogram)

	1966	1967	1968	1969	1970
Labor Charges, Salaries and Wages	2.15	2.30	2.24	2.27	2.34
Duties, Cess and Direct Taxes	0.89	0.99	0.83	0.82	1.03
Packing, Transport and Selling Expenses	0.68	0.74	0.76	0.69	0.72
Field Work	0.45	0.50	0.51	0.54	0.54
Manufacture	0.43	0.44	0.46	0.45	0.45
Others, Including Interest and Depreciation	0.36	0.38	0.39	0.39	0.39
TOTAL	4.96	5.37	5.18	5.17	5.46

Source: Marketing Research Corporation of India, Survey of India's Export Potential of Tea, Vol. 1, 1971, p. 43.

costs to contribute 36 percent to the cost of production (26, p. 26). Most tea industry representatives consider rising wages and labor benefits to be the most serious problem with high costs of production (33, pp. 9-15).

Direct taxes and duties present the other rising burden on costs of production. Tea is subjected to a large number of taxes at various levels (Table 5). The most important of the direct taxes levied are: excise duty, cess and export duty, while sales taxes on marketings and corporate and agricultural income taxes are also important sources of revenue. The direct taxes, duties and cess are not only major revenue sources (Appendix Table VIII) but also add directly to the cost of production. The rate of excise duty has increased from Rs 0.13 per kilogram in 1954 to Rs 0.93 per kilogram in 1978. The incidence of direct taxation, cess and duties per hectare of an average estate stood at Rs 1200 in 1970 and this shot up to Rs 9100 by 1978, when a heavy export duty was reimposed. Taxation of the tea sector is, of course, important as a source of revenue (Table 6), but the major complaint of the industry is that very little of the capital mobilized is plowed back by the government into tea. Against receipts of the order of Rs 600-1000 million annually, state investments have only been of the order of Rs 10 million.

Taxation of Tea Incomes

Taxation of the gross profits heavily saps incentives and reduces net profitability. Of the income from tea, 40 percent is subjected to central corporate income tax, while 60 percent of the income is subjected to state agricultural income taxes. The prevailing corporate income tax rate is 55 percent with a 5 percent surcharge, and even this has been found to be one of the highest in the world (34, p. 62). In addition, most of the states, in a quest for resources, started enhancing the agricultural income tax rates till they exceeded the corporate income tax rate. The maximum marginal rate of agricultural income tax is now 69 percent in Kerala and 75 percent in West Bengal and Assam. Sterling companies have to pay even higher taxes--80 percent in West Bengal and 85 percent in Kerala. The average level of taxation in North-East India is about 68 percent, which the industry found hard to bear (24, pp. 19-21). The industry has been seeking taxation relief, a uniform policy in all states, and limiting of agricultural income tax rates to the highest marginal corporate income tax rate. The direct and indirect taxes impacted so heavily upon tea production that, even during periods of relatively high prices, the surplus retained by the estates was modest and the bulk of the price went to meet taxes, costs and margins of dealers (Figure 9).

Economies of Scale

A detailed study by the Tea Research Association found 60 percent of the production costs to be fixed and 40 percent to be variable (35, pp. 45-50). This clearly implies that smaller estates are at a disadvantage in terms of production costs while they also have significantly lower yields. Estates below a certain size would, therefore, be uneconomical. Though no precise, agreed-upon measures of economic viability

TABLE 5. INDIA: INCIDENCE OF TAXATION ON THE TEA SECTOR, 1979

CENTRAL GOVERNMENT	
Excise Duty:	Rs 0.42 to Rs 1.365 per kilogram (depending on zones)
Additional Excise Duty:	Rs 0.40 per kilogram on packaged tea (up to 25 grams); Rs 1.00 per kilogram on packaged tea (over 25 grams); 10 percent ad valorem on instant tea
Tea Cess:	Rs 0.08 per kilogram
Export Duty:	Abolished since February 14, 1979
Central Sales Tax:	4 percent ad valorem on tea sold to other states
Corporate Income Tax:	55 percent tax and 5 percent surcharge on 40 percent of the income
STATE GOVERNMENT	
Agricultural Income Tax:	55 percent to 85 percent (depending on states)
West Bengal Sales Tax:	8 percent on tea sold to other states; 3 percent on tea sold for blending in West Bengal; 1 percent on tea sold for resale in West Bengal
West Bengal Purchase Tax:	2 percent on tea purchased and blended in West Bengal and sold outside
West Bengal Entry Tax:	Rs 0.1378 per kilogram on all tea entering Calcutta region
Kerala Sales Tax:	5 percent on all tea sold for blending/resale
Kerala Plantation Land Tax:	Rs 20 per acre
Assam Passengers & Goods Tax:	10 percent on freight charges
LOCAL GOVERNMENT	
Education Cess Health Cess Road Cess Profession Tax Buildings Tax Chowkidari Tax Water, Lighting, and Conservancy Rates	As levied by local government units from time to time

Source: Compiled from various sources.

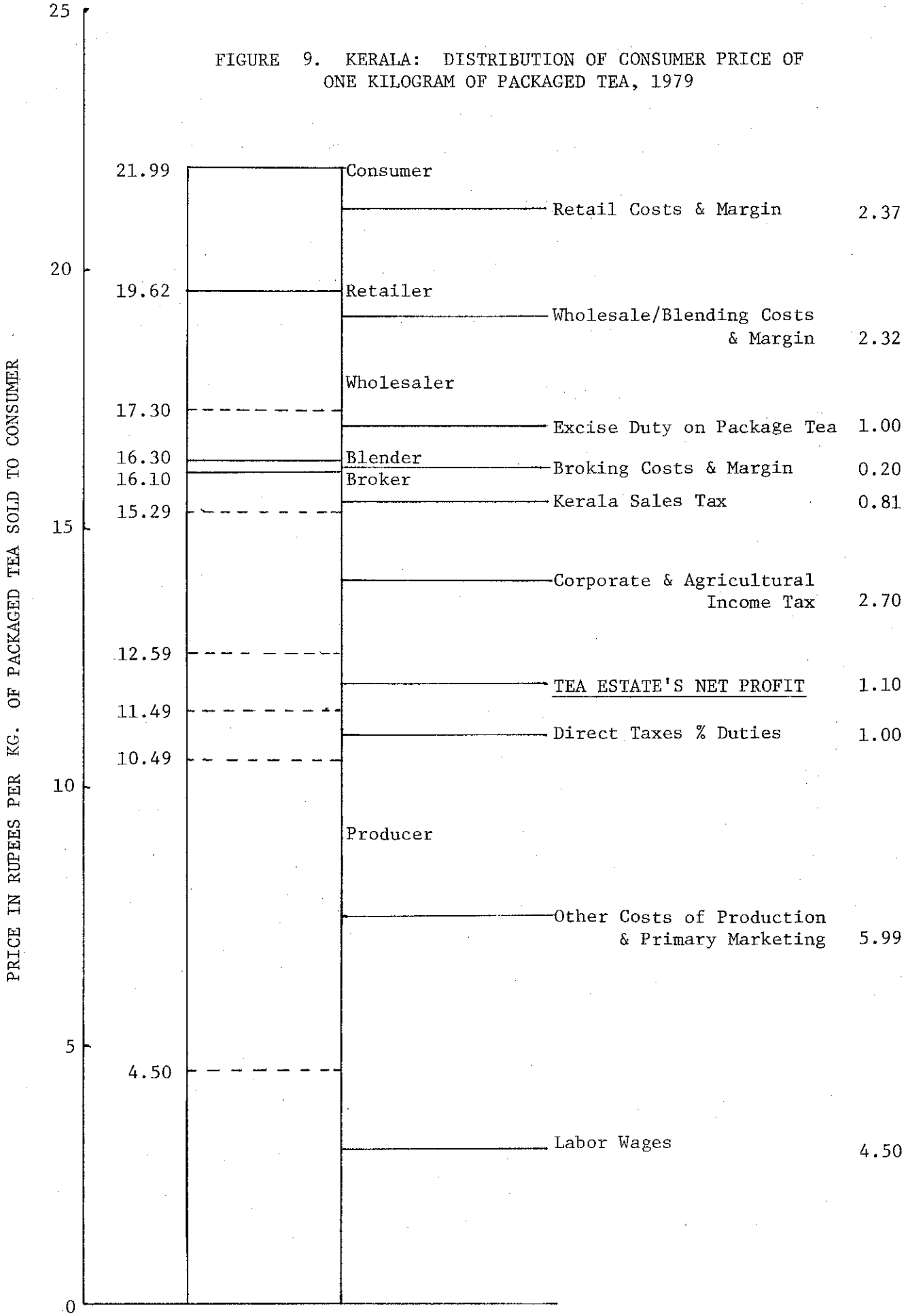
TABLE 6. INDIA: ESTIMATES OF TOTAL TAX REVENUES FROM TEA

(million rupees)

	1971-72	1976-77	1981-82
CENTER:	443.5	708.4	895.0
Excise/Cess	343.5	578.4	665.0
Income Tax	100.0	130.0	170.0
Central Sales Tax	-	-	60.0
STATES:	200.0	270.0	372.0
Sales Tax	120.0	170.0	240.0
Agricultural Income Tax	50.0	61.0	82.0
Other Taxes	30.0	39.0	50.0
TOTAL	643.5	978.4	1267.0

Source: Marketing Research Corporation of India, Survey of India's Export Potential of Tea, Vol. I, p. 24. The 1981-82 estimates were modified by author.

FIGURE 9. KERALA: DISTRIBUTION OF CONSUMER PRICE OF ONE KILOGRAM OF PACKAGED TEA, 1979



Source: Adapted from 'Plantation Blues', India Today, January 16-31, 1981.

exist, most experts agree that the minimum size of a viable estate would be about 200 hectares (26, p. 25; 8, p. 33).

THE DISTRIBUTION SYSTEM

Modes of Primary Marketing

Tea passes from the producer to the consumer through a complex marketing system. The primary marketing of tea by the tea companies owning the estates is done in three ways:

- sales through auctions;
- direct exgarden sales; and
- direct exports under forward contract.

The total volume of sales of tea has expanded secularly in the postwar period. The volume of tea marketed annually (in thousand MT) has varied as follows:

1954	1957	1960	1967	1971	1977
240.7	310.8	321.1	384.8	435.5	558.5

While the bulk of the tea is disposed of through auctions, direct exgarden sales have gradually assumed higher importance. The percentage shares of the various channels of marketing have changed slowly (8, p. 86; 14, p. 759; 25, pp. xii-xiii):

	1951	1960	1971	1977
Auctions	84.0	77.3	67.0	71.2
Exgarden Sales	15.6	19.2	29.0	24.6
Direct Exports	0.4	3.5	4.0	4.2

The rising trend of exgarden sales is generally taken to be an indication of indebtedness of tea estates so that they are compelled to sell quickly to recoup their working capital and may even be compelled to make "distress sales" at lower prices. It has been established that exgarden sales fetch lower prices on an average and the Tandon Committee, appointed by the Government of India in 1977 to enquire into the marketing system, recommended monitoring of such sales by the Tea Board and marketing of at least 80 percent of the crop through auctions (24, pp. 230-231).

Role of Auctions

Despite a gradual reduction in the role of the auction system, the volume of tea marketed through auctions expanded steadily (Table 7).

TABLE 7. INDIA: DISPOSAL OF TEA THROUGH AUCTIONS

(thousand metric tons)

	1936-37	1952-53	1962-63	1972-73	1978-79
Calcutta	55.6	129.8	148.6	175.4	139.0
Cochin	-	11.5	42.6	65.5	74.8
Gauhati	-	-	-	18.9	85.4
Goonoor	-	-	-	9.7	21.5
Siliguri	-	-	-	-	10.8
Amritsar	-	-	-	0.6	0.4
INDIAN AUCTIONS	55.6	141.3	191.2	270.1	332.0
	(35.3%)	(62.4%)	(69.2%)	(87.7%)	(91.6%)
LONDON	101.8	85.2	85.0	37.9	30.5
	(64.7%)	(37.6%)	(30.8%)	(12.3%)	(8.4%)
TOTAL AUCTIONS	157.4	226.5	276.2	308.0	362.5

Source: Tea Board, Tea Statistics, various issues.

The role of London auctions has diminished radically, and London auctions only handled about 8 percent of the Indian tea crop in 1978. The domestic auctions handle the bulk of the tea and the number of auction centers has multiplied over the years: Calcutta (1861), Cochin (1947), Gauhati (1970), Amritsar (1971), Coonoor (1972) and Siliguri (1976). There are clamors for opening a new auction center at Agartala, Tripura. While diversification of auction centers has been acclaimed, it is also seen that opening of auction centers often becomes an issue of regional prestige and may increase overhead costs.

Role of Brokers

At auctions, brokers act as middlemen between producers and buyers who may be exporters and/or packers/blenders. There are usually selling brokers representing producers and buying brokers representing exporters/packers/blenders, though at Calcutta the same set of brokers perform both functions. The selling brokers charge one percent of sale price as brokerage fees and, against that, provide services such as inspecting, tasting and valuation of samples, counseling, providing statistical information and guaranteeing realization of sale proceeds. While these are positive roles, the system of auctions through brokers has been seriously questioned due to concentration of broking powers in the hands of a few brokers. At Calcutta, four foreign broking firms handled about 95 percent of tea sales (Table 8) and Indian firms could make little headway. The oligopsonistic buying power of brokerage firms and their financial relations with producers raise questions of speculative market manipulations and have led some critics to doubt the auction system as a fair and equitable one (36, pp. 32-33, 36-38; 37, p. 63).

Wholesale and Retail Tea Markets

At the auctions, the ultimate purchasers are the exporters and domestic blenders and packers. Exporters normally sell to foreign blenders and packers. It is the blender/packer who blends teas of different characteristics into a mix under a particular brand name and undertakes the secondary marketing of tea at a wholesale level. The retailers finally sell the "brand name" tea in packets to consumers and at a considerable price premium. However, a considerable amount (67-68 percent) of the tea is sold to the consumer as loose tea, which is generally much cheaper than packet tea. The packet tea market is fairly concentrated; the two giants--Brooke Bond and Lipton--dominate 80 percent of the packet tea market. But these two have only about 26 percent of the total domestic market and the rest is controlled by a large number of small packeteers and loose tea dealers. The domestic market is thus fairly competitive (38, pp. 9-12; 24, p. 215).

Figure 10 shows a model of the Indian tea market in 1977.

CONSUMPTION OF TEA

Trends in Consumption Demand

Domestic consumption of tea was at a low level prior to 1950. Several promotion campaigns were mounted after independence and domestic consumption

TABLE 8. CALCUTTA: CONCENTRATION OF BROKING POWERS AT AUCTIONS, 1954-1968

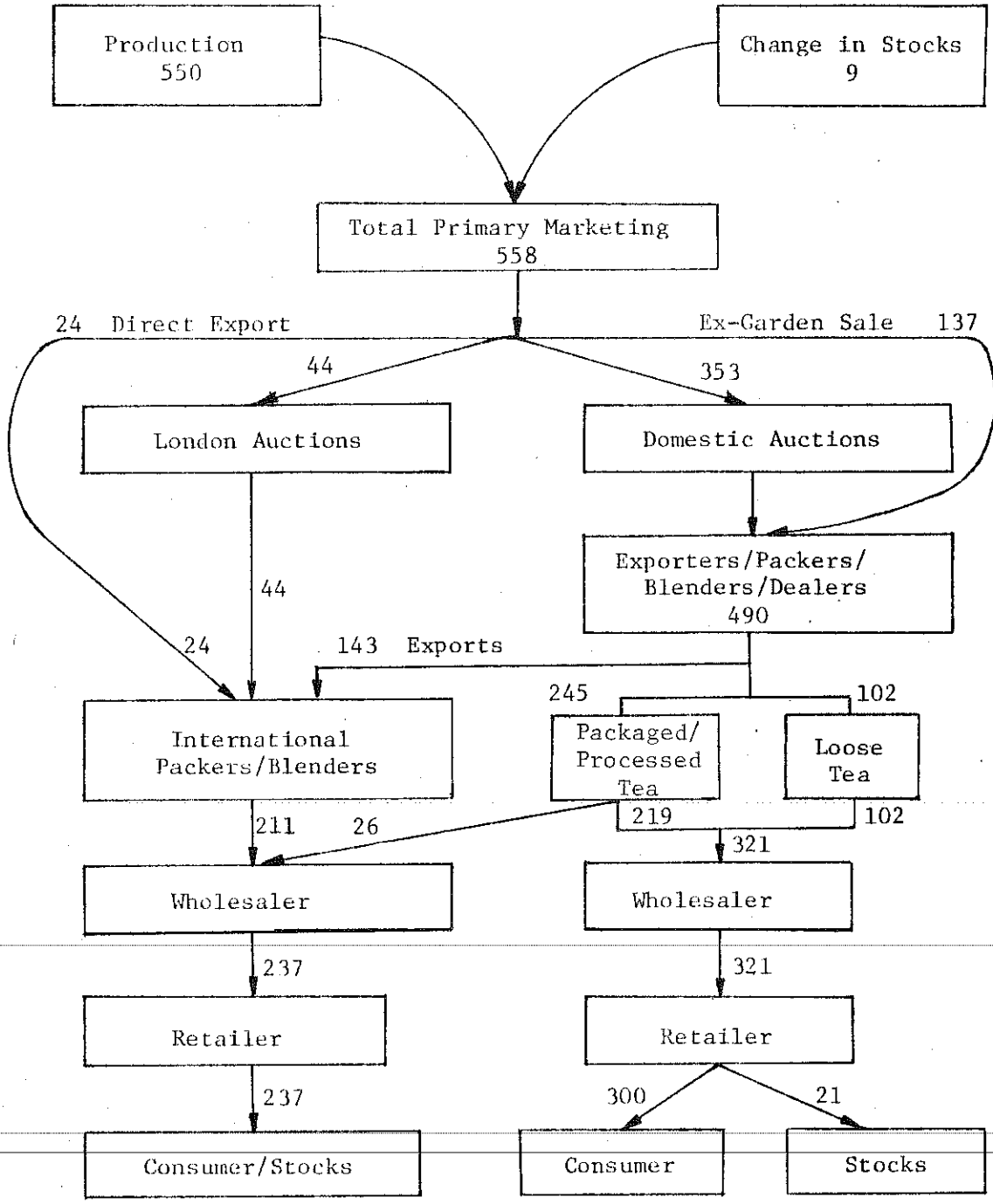
(percent)

	Percentage of Tea Handled	
	1954-55	1967-68
J. Thomas & Co. (P) Ltd.	38.0	42.9
Carritt Moran & Co. (P) Ltd.	21.0	20.5
W. S. Creswell & Co. (P) Ltd.	18.1	16.4
A. W. Figgis & Co. (P) Ltd.	19.5	14.4
NON-INDIAN BROKERS	96.5	94.2
S. Chatterjee & Co. (P) Ltd.	2.0	2.9
Tea Brokers Private Ltd.	-	2.9
S. K. Chakraborty & Co. Ltd.	1.5	-
INDIAN BROKERS	3.5	5.8

Source: Government of India, Report of the Plantation Enquiry Commission, 1956, p. 761; and H. Roy, Tea Price Stabilisation--The Indian Case, 1968, p. 150B.

FIGURE 10. INDIA: MODEL OF THE TEA MARKET, 1977

(Figures indicate flows in '000 M.T.)



expanded speedily. Over 1951-77, the aggregate domestic consumption of tea increased from 72,000 to 300,000 MT and the per capita tea consumption increased from 200 grams to 500 grams. Both the aggregate consumption and the per capita consumption show a strong rising trend (Figure 11). The consumption of tea in India was already the highest in the world, and was estimated to reach 350-400 thousand MT by 1980 (6, p. 84). The per capita consumption is still low but fairly significant at the Indian level of per capita national income.

The USAID-sponsored study found considerable regional variations--per capita consumption being highest in the tea producing states of Assam and West Bengal, followed by the urban, industrial regions of Maharashtra, Gujarat and Delhi, while the poor, rural states of Orissa, Bihar, Uttar Pradesh and Rajasthan had the lowest per capita intakes. In 1967-68, per capita tea intakes varied from 58.5 grams in Orissa to 911.8 grams in Assam, the national average being 361.7 grams (6, pp. 85-89).

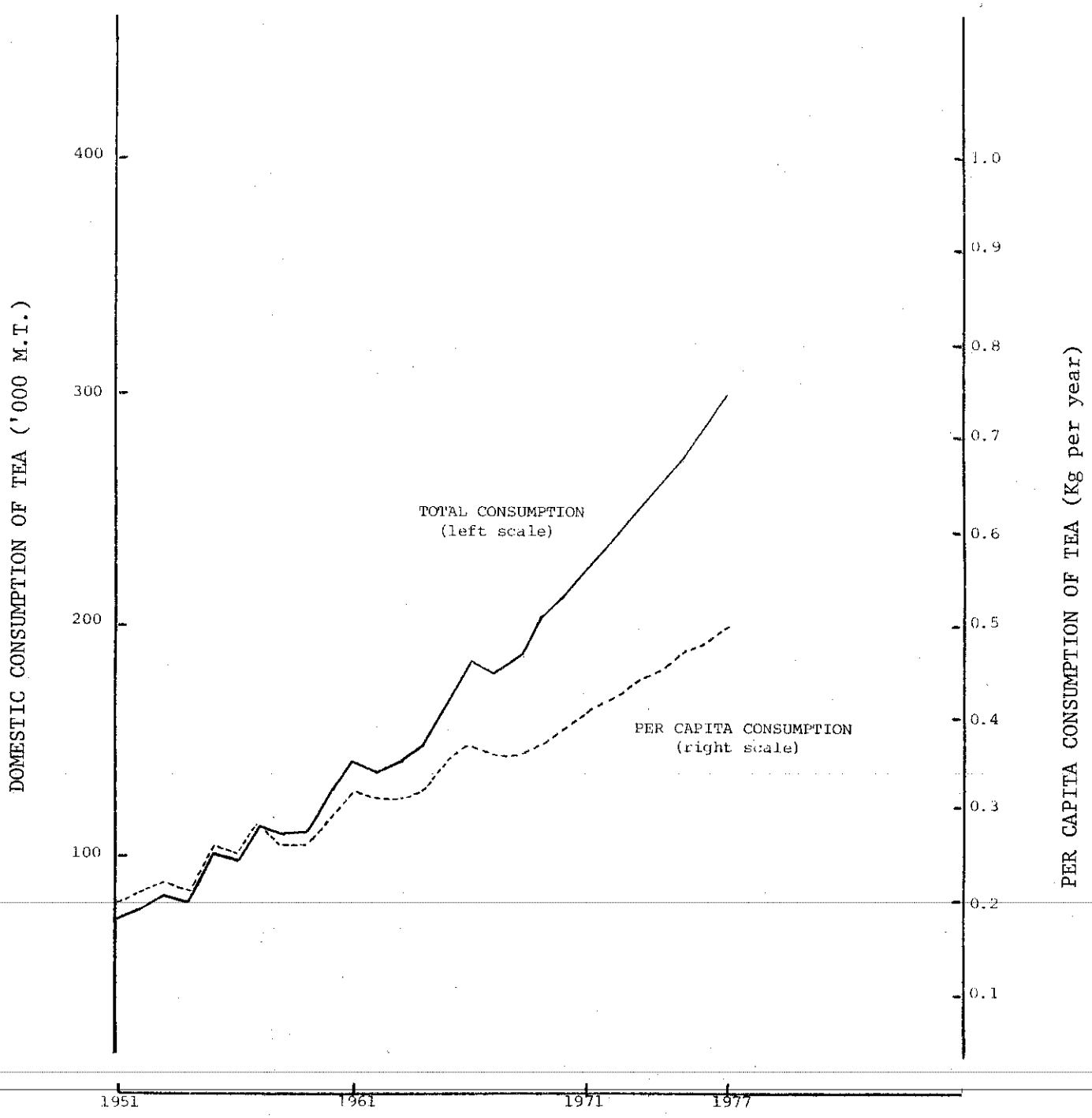
Elasticity of Demand

Though tea is normally regarded as a luxury item in the Western countries, tea is widely consumed in India even by the poorest classes with a lot of sugar, milk, and even spices. The USAID-sponsored study included a household survey which found tea consumption to be significant even in the poorest households and also in rural households, though consumption increased with income and urbanization (Table 9). It was also found that more than 50 percent of the households consumed tea regularly, providing a vast domestic market (6, p. 110).

Tea faced major competition with coffee as a beverage only in South India where coffee drinking was well established. In the urban centers and in relatively better-off groups, however, it faced competition with soft drinks and alcoholic beverages which were much more income-elastic (Appendix Table X).

Tea is regarded as price and income inelastic in Western countries. In India, as in other LDCs, however, the demand is found to be more elastic. The USAID study estimated the income elasticity of demand of tea in India to be 1.90 in 1970 (6, p. 101), while the FAO *ad hoc* working party on tea estimated income elasticity to be 0.91 and price-elasticity to be -1.60 in 1969 (39, p. 64). The high income elasticity indicates the possibility of domestic demand increasing more rapidly with per capita GNP growth, while the high price elasticity of demand has enabled the domestic market to absorb the excess supply in years of poor export prospects and has cushioned the price impacts somewhat. The sensitivity of domestic demand to prices has, however, reduced the benefits in years of high prices. The government repeatedly announced its intentions to protect the domestic consumer against "abnormal" price rises and controlled market prices by levying export duty, restricting exports though quotas, and market participation through National Consumers' Co-operative Federation (NCCF) and National Agricultural Marketing Federation (NAFED). While NCCF and NAFED made purchases in domestic auctions in 1977, their impact

FIGURE 11. INDIA: GROWTH OF DOMESTIC CONSUMPTION OF TEA, 1951-77



Source: APPENDIX TABLE IX.

TABLE 9. INDIA: TEA CONSUMPTION BY HOUSEHOLD INCOME GROUPS, 1970

Income Group (Rs per month)	Rural Per Capita Consumption (grams)	Urban Per Capita Consumption (grams)	Total Per Capita Consumption (grams)
Up to 75	113	189	126
75-150	169	282	188
150-300	129	602	292
300-500	295	610	356
500-750	345	713	416
750-1000	405	838	489
1000 and above	556	1150	671
ALL GROUPS	227	454	265

Source: Marketing Research Corporation of India, Survey of India's Export Potential of Tea (New Delhi, 1971), p. 107.

was not striking. The tea industry, however, protested against government action to regulate prices and exports over 1976-78, when conditions were profitable after 20 years and real prices were still not very high (24, pp. 22-23, 39-40).

EXPORT PERFORMANCE OF INDIAN TEA

Trends in Exports

Indian export performance in tea has been patchy. The volume of Indian tea exports has been stagnating from the early 1950s at about 200,000 MT. The export volume (in thousand MT) has varied as follows (Appendix Table XI):

1950-54	1960-64	1970-74	1976-78
202	209	204	210

Over the same period, world exports have expanded at about four percent per annum, causing shrinkage of India's market share.

In terms of value of tea exports, the same trend is displayed. The Indian share of world tea exports varied as follows (in million dollars):

	1950-54	1960-64	1970-74	1976-78
Indian Exports	203	263	206	448
World Exports	453	624	564	1219
Indian Market Shares (percent)	45	42	36	36

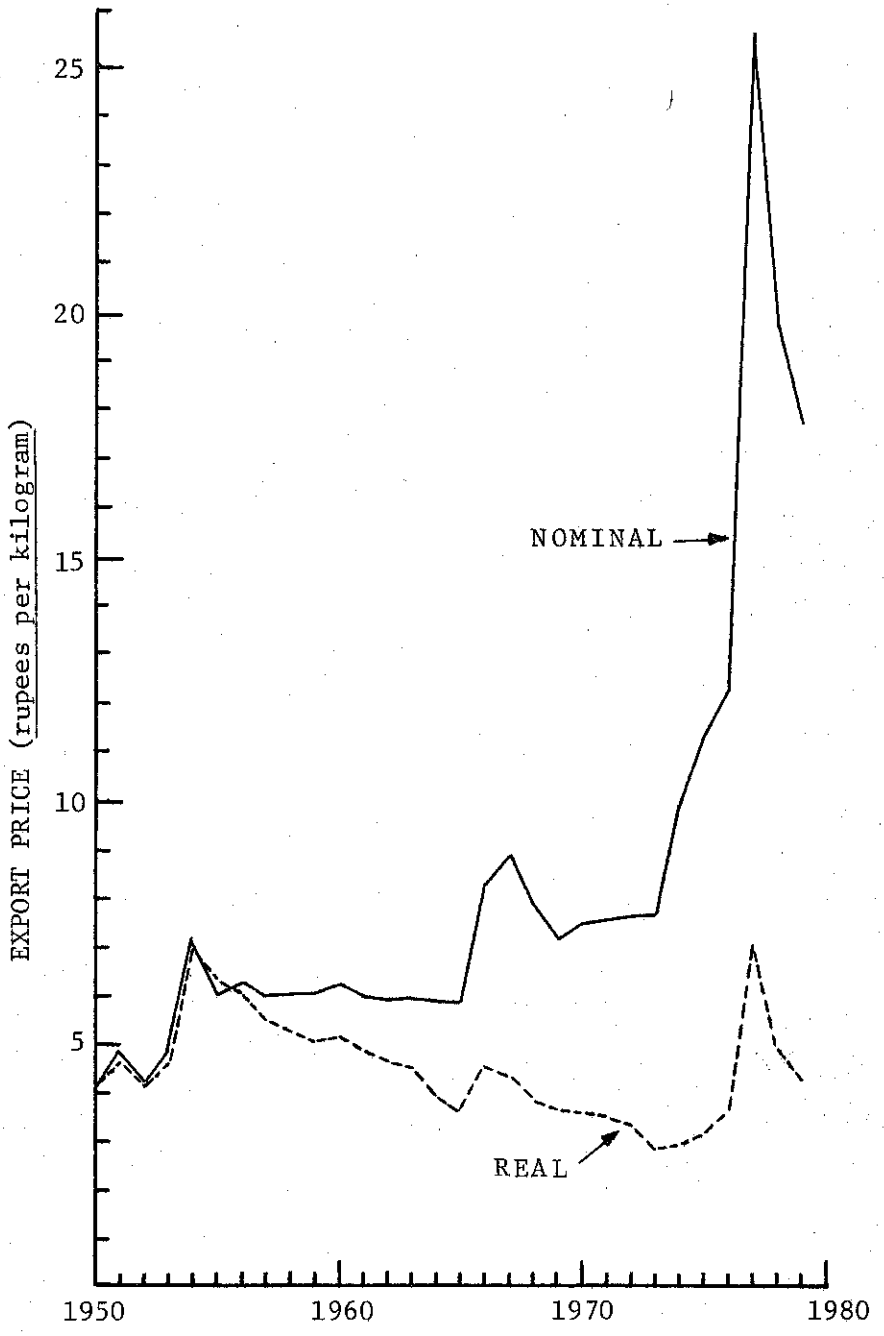
There has been a considerable rise in the value of Indian tea exports and the unit value of exports during 1975-78, but in real terms, the price increase in 1977 is far less striking and the long-term trend shows a declining real unit value (Figure 12).

Country Composition of Tea Exports

The direction of Indian tea export trade also changed in the postwar period (Appendix Table XII). The major changes included a declining market share in hard currency markets and rising market shares in several LDC and East European markets. The market share (in percent) of Indian tea in major markets has varied as follows:

	1950-54	1960-64	1975-77
United Kingdom	63	51	35
United States	36	22	11
USSR	--	66	86
EEC (including France, W. Germany, Italy, Benelux)	16	19	15
Australia/New Zealand	15	12	15
Canada	47	31	14

FIGURE 12. INDIA: TRENDS IN EXPORT UNIT VALUE OF TEA, 1950-1979



Source: APPENDIX TABLES I and XI.

The post-1950 period also saw a spate of bilateral agreements. Over 1974-76, 44 percent of Indian tea exports were covered by such bilateral agreements and the major signatories were USSR, Poland, Iraq, Egypt, Sudan and Afghanistan.

Export Policy

The major problem with Indian tea exports seems to be the absence of a stable export policy. The export duty has been used as the major instrument to restrict exports and also to generate revenues. Export duty was first established in 1947-48 and over the next three decades it has been altered, abolished and reimposed so many times that the tea companies could not be sure about the seriousness with which the government viewed tea export prospects (Table 10). In the 1950s, the Indian withdrawal from the International Tea Market Expansion Board coupled with heavy domestic promotion and an export duty seemed to indicate that the government was not serious about export promotion. Yet in the 1960s, attention was given to export promotion and excise duty rebates were granted to exported tea as incentives. Clearly, there was a basic contradiction in the two different policy objectives--maximizing export earnings and making tea available at cheap prices to domestic consumers (26, p. 38).

In 1977, when tea producers enjoyed high prices after 23 years, a heavy export duty of 5 Rupees per kilogram was imposed--exports were cut from 222,000 MT to 166,000 MT and Rs 1319 million were raised by the tax. Yet, immediately thereafter, the government mounted an export promotion campaign and the Tea Board had an export promotion budget of Rs 15 million throughout the late 1970s (40, p. 64). High export duties clearly had priced Indian tea out of the world market and caused some market loss. The tea companies were in need of assurance that such taxes would not again be reimposed at short notice.

Promotion of Value-Added Tea Exports

A major thrust in export policy in recent years has been the promotion of value-added tea exports--packaged tea, tea bags and instant tea. Major benefits of this approach are the much higher unit value, potential for market development and provision of local employment. The average f.o.b. export unit values in Rupees per kilogram over 1975-1977 were (25, pp. 85-89):

Instant Tea	41.5
Tea Bags	37.3
Packaged Tea	15.7
Bulk Tea	11.5

Positive export incentives have been provided in the shape of cash compensatory support at 10 percent of the price from 1975 and 12½ percent of the price from 1979, excise duty exemption for instant tea and excise duty rebate for packaged tea or tea bags. This has resulted in a ten-fold rise in the value of such value-added exports over 1973-78. By 1978, the share of such exports in total tea export earnings was

TABLE 10. INDIA: RATES OF EXPORT DUTY, 1947-80

(rupees per kilogram)

Date	Rate of Export Duty	Average Export Price
March 1947	0.55	4.02
October 1954	0.97	7.11
March 1955	1.37	
April 1955	1.10	
June 1955	0.55	
August 1955	0.84	
October 1955	1.10	6.10
January 1956	0.84	
December 1956	1.10	
February 1957	0.84	
May 1957	0.55	
August 1957	0.84	
October 1958	0.57	5.97
March 1959	0.53	6.10
March 1961	0.44	5.95
March 1962	0.25	5.87
March 1963	-	5.86
June 1966	2.00	8.21
November 1966	0.80-3.00	
May 1967	0.60-.276	8.32
March 1969	0.60-1.70	7.15
March 1970	-	9.08
April 1977	5.00	25.45
September 1978	2.00	18.00
February 1979	-	15.30

Source: Tea Board, Tea Statistics, various issues.

above one-fifth (Table 11). India has become the world's largest package tea exporter, but such exports are concentrated in the Middle-East. Attempts to penetrate the more lucrative British and European markets have met with resistance from established blenders. Indian exporters could not make much headway against competition particularly as they lacked sophisticated packaging methods, aggressive selling techniques and funds needed to establish brand names (41, pp. 2-3; 42, pp. 11-13).

PROSPECTS OF INDIAN TEA

Projections of Production and Exports

Current trends in production and domestic consumption of tea suggest that, by the year 2000, Indian production of tea will reach 792±72 thousand MT while the domestic consumption, on the basis of the UN medium population variant, is expected to reach 716±60 thousand MT. The net export availability, under current trends of production and consumption, is expected to decrease from a current level of 200,000 MT to about 75,000 MT over 1980-2000 (Figure 13). India's market share is also expected to decline form 22 percent to 6 percent over this period. A brisker growth in per capita income than that experienced over 1950-77 could further reduce the export availability. This raises the very real possibility that India might have to become a net importer early in the 21st century.

The Needed Impetus from Government

Clearly, the prospects of becoming a tea importer are not appealing to the national government and, in national interests, the current trends will have to be reversed and the tea sector used as an "engine of growth" to expand export earnings and provide additional employment. The tea companies, by themselves, will not be able to reverse the trends as they do not have access to the enormous capital needs of the expansion needed to reverse such trends and have, in any case, very little incentive to invest in so unprofitable a business. The government has to play a dynamic role in all this--to take positive steps in improving profitability of the tea industry, to provide incentives to investment, to make available the needed finance on reasonable terms and to continue international efforts at demand promotion and improvement in terms of trade. Above all, the government and the industry will have to close ranks and work together rather than on opposite sides.

Historic Role of the Government

Historically, however, the government played a passive role in the development of the tea industry. Government gave the tea companies assistance in the early days by making cheap land available and placing few restrictions on their expansion. Gradually, the need to tax the tea sector arose and the Indian Tea Cess Committee was set up in 1903 to administer the cess levied on tea, which was supposed to fund publicity and promotion in foreign markets. In 1937, the Tea Cess Committee was reconstituted as the Indian Tea Market Expansion Board, with broader

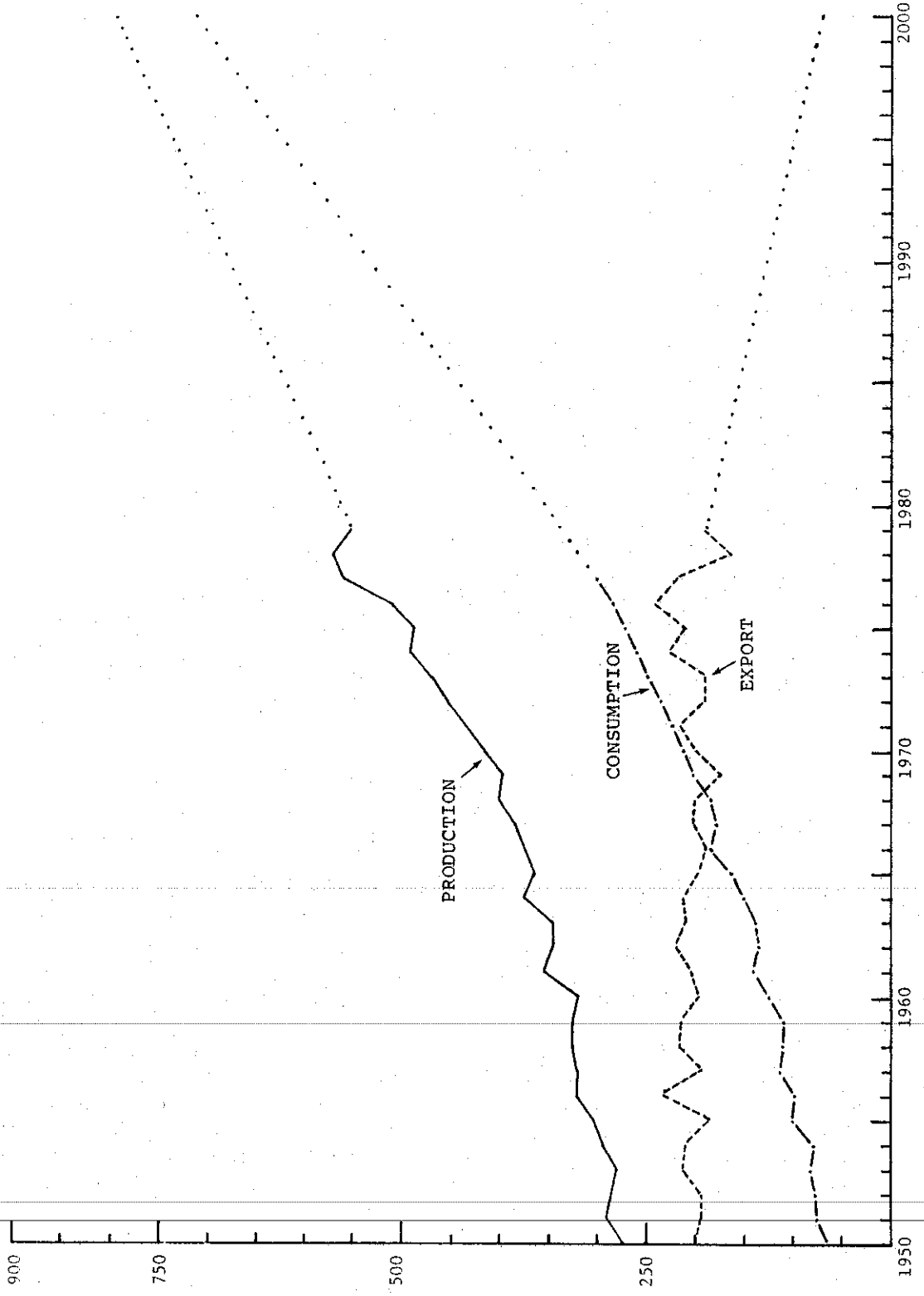
TABLE 11. INDIA: VALUE-ADDED TEA EXPORTS

(million rupees)

	Packaged Tea	Instant Tea	Tea Bags	Total Value-Added Exports	Percentage of Total Export Earnings
1965	11	-	-	11	1.0
1966	25	1	-	26	1.7
1967	24	2	-	26	1.4
1968	35	2	-	37	2.4
1969	31	7	-	38	3.0
1970	37	11	-	48	3.2
1971	44	8	-	52	3.2
1972	47	8	2	57	3.9
1973	50	9	4	63	4.3
1974	84	9	3	95	4.3
1975	173	19	6	198	8.3
1976	194	25	11	229	7.8
1977	520	31	19	570	10.1
1978	655	31	11	697	21.2

Source: Tea Board of India, Tea Statistics, various issues.

FIGURE 13. INDIA: TRENDS IN PRODUCTION, DOMESTIC CONSUMPTION AND EXPORT OF TEA, 1950-1979 AND PROJECTIONS TO 2000



Source: Tea Board of India, Tea Statistics (various issues).

participation from the industry. The ITMEB did good publicity work abroad but was abolished by the national government after independence.

An Indian Tea Licensing Committee was set up in the meantime in 1933 to regulate planting of tea and export of tea and tea seeds in the spirit of the International Tea Agreement. The government also increasingly came to play a regulatory role with the industry, particularly in the fields of labor welfare and taxation. But, apart from promotion, the government had no developmental role to play before independence.

The Tea Board in a Developmental Role

The Tea Act of 1953 repealed all the previous institutions dealing with tea matters and set up the Tea Board in 1954 as the central agency dealing with tea policy. The Board has representatives from the government, industry, consumers, dealers and political constituencies and provides a major forum for policy discussions and decisions.

The major responsibilities of the Tea Board are:

- improvement of quality and productivity of tea;
- regulation of production, manufacture, sale, export, blending and trade of tea through licensing and registration;
- promotion of demand;
- coordination of research and development work;
- extension of financial assistance;
- improvement of service conditions of estate labor; and
- collection of information and statistics.

The achievements of the Board have been mixed. The Board has institutionalized data collection and set up channels of communication with the industry. Tea research had been left almost entirely to the Tea Research Association, a private body funded by tea producers' associations until 1979 when the Board set up its own research station at Kurseong. The Board had also undertaken some applied economic research to investigate the problems and prospects of some regions. The Board has operated promotion campaigns abroad, but these have yielded little concrete results and the administrative costs have been high. In the most vital sector of providing incentives to investments in replanting and modernization, the Board has operated some loan and subsidy schemes, but they have had only a marginal impact and have not been able to stop the disinvestment of the estates.

Other Policy Issues

The Tea Board, however, does not operate in a vacuum and other policy issues over which the Board has little control also impinge on the health

of the industry. A major problem area has been the land reforms policy of the states which has been at cross-purposes with the industry's need of land for expansion. Fiscal policies of the central and the state governments affect the profitability and cost of production. Monetary policies of the Reserve Bank affect the availability of credit. Finally, the export policy of the Commerce Ministry and institutional arrangements for market stabilization directly affect tea prices, but the Tea Board has little control over such issues.

Nevertheless, if the gloomy prognosis for Indian tea is to be challenged, concerted action will have to be launched in all these policy arenas. Different policy instruments of the government will have to be effectively coordinated and the basic problem--inducing investments into tea to reduce unit costs and increase export availability--will have to be addressed, and the task can only be achieved by the government and the industry working together.

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CHAPTER III. THE WORLD TEA ECONOMY

AN OVERVIEW OF TEA PRODUCTION AND EXPORTS

General Trends of Production

The major tea producing nations of the world expanded their planted areas in different time-periods. The Classic far-eastern producers, China and Japan, had major expansions by the late nineteenth century. The traditional plantation economies of India, Sri Lanka and Indonesia had their major expansions over 1870-1930. The "new" producers, namely the East African countries, USSR and Turkey, had large-scale expansions over the period 1950-80.

The postwar period has seen an expansion of plantings at a steady rate of about 2 percent per annum. On a global basis, the tea hectarage growth has been impressive:

1948-52	1961-65	1976-78
994,000	1,250,000	1,582,000

but the pattern shows large regional variations (Appendix Table XIII). While China devoted her energies to rehabilitation of old planted areas, Indian and Sri Lankan planted areas increased at less than one percent per annum. The largest expansion took place in Africa, where planted areas increased five-fold in the last 30 years, the leading performer being Kenya where the area planted to tea increased ten-fold over the period.

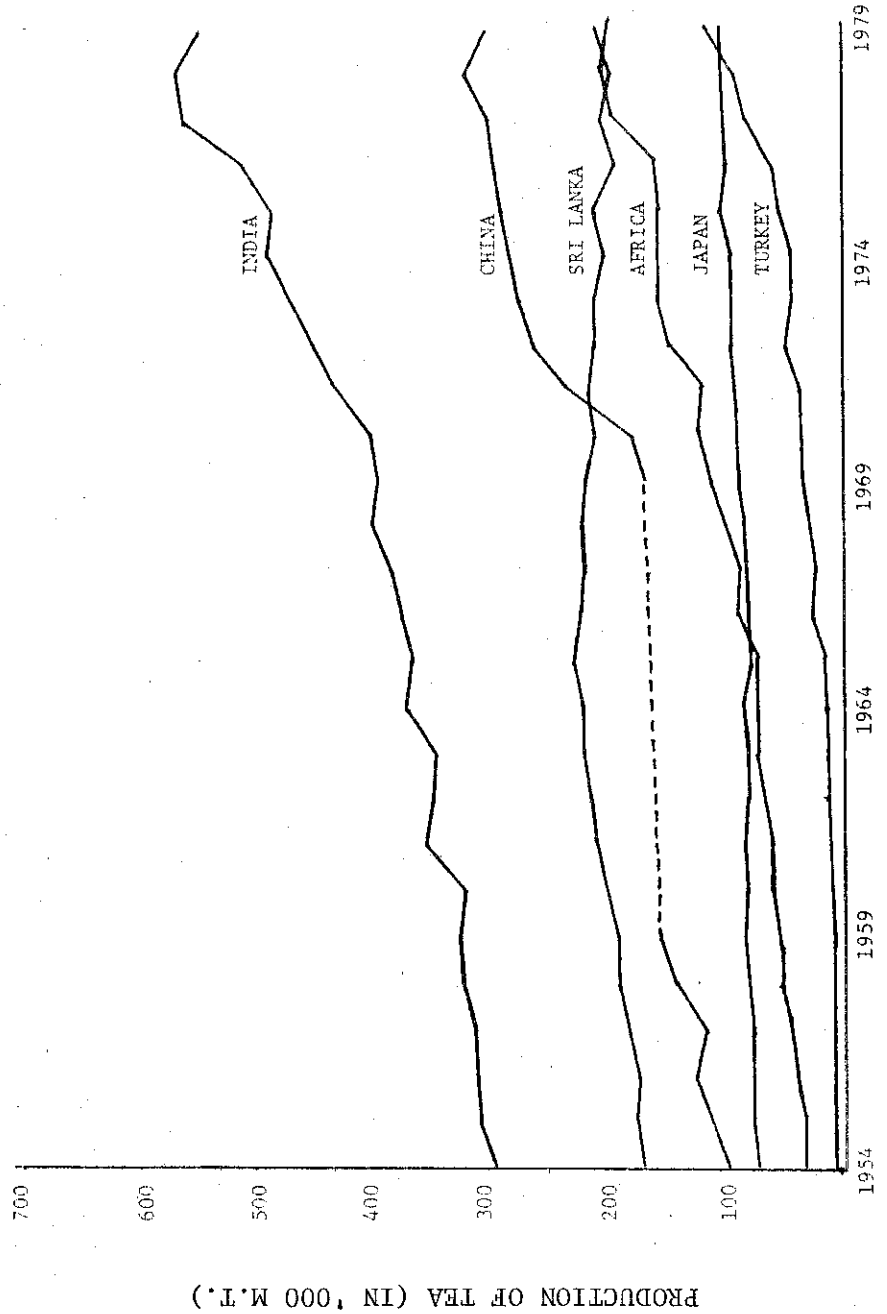
Production of tea increased at a rate above six percent per annum over the postwar period resulting in a staggering production increase of over a million tons over 1950-77. The global production of tea in thousand metric tons increased as follows:

1948-52	1961-65	1976-78
640	1,085	1,730

Production gains were achieved through intensive and extensive developments in the postwar period though there were large regional variations (Appendix Table XIV). All major producers, however, made serious production gains over the period 1950-77 (Figure 14). Indian tea production doubled over this period, Chinese production rose five-fold but still stood at little above prewar levels, African production stagnated and declined from 1965.

The net result was a large expansion along with considerable reduction of concentration from the prewar composition of the tea industry. The four biggest producers of the prewar period--China, India, Ceylon and Indonesia--controlled above 88 percent of the production in 1934-38.

FIGURE 14. WORLD: TRENDS IN PRODUCTION OF TEA IN MAJOR PRODUCING REGIONS, 1954-79



Source: F.A.O., Production Yearbook (various issues).

Today, their share is less than 65 percent. The largest expansion has been shown by the African producers, from about one percent in the 1930s to above 10 percent in the late 1970s.

General Trends of Exports

World exports have also grown steadily in the postwar period. Global tea exports (in thousand MT) have increased as follows:

1948-52	1961-65	1976-78
430	600	860

But, despite a doubling of export levels, the rate of export growth of 3.7 percent per annum has lagged behind the production growth rate of 6.3 percent per annum over this period. This has been due to a slower growth of import demand and promotion of domestic demand in all producing countries, notably in India.

Growth of exports displayed a pattern widely varying from region to region (Figure 15). Indian and Sri Lankan tea exports have been stagnating at around 200,000 MT from 1960, while African exports increased steadily and more than seven-fold over the post-1950 period.

The reduction in concentration of world exports has been even more marked. The "big four"--India, Ceylon, Indonesia and China--controlled above 88 percent of the world export market in 1934-38. Today, their share has fallen to less than 60 percent, while the share of the African countries has risen from less than two percent to 20 percent.

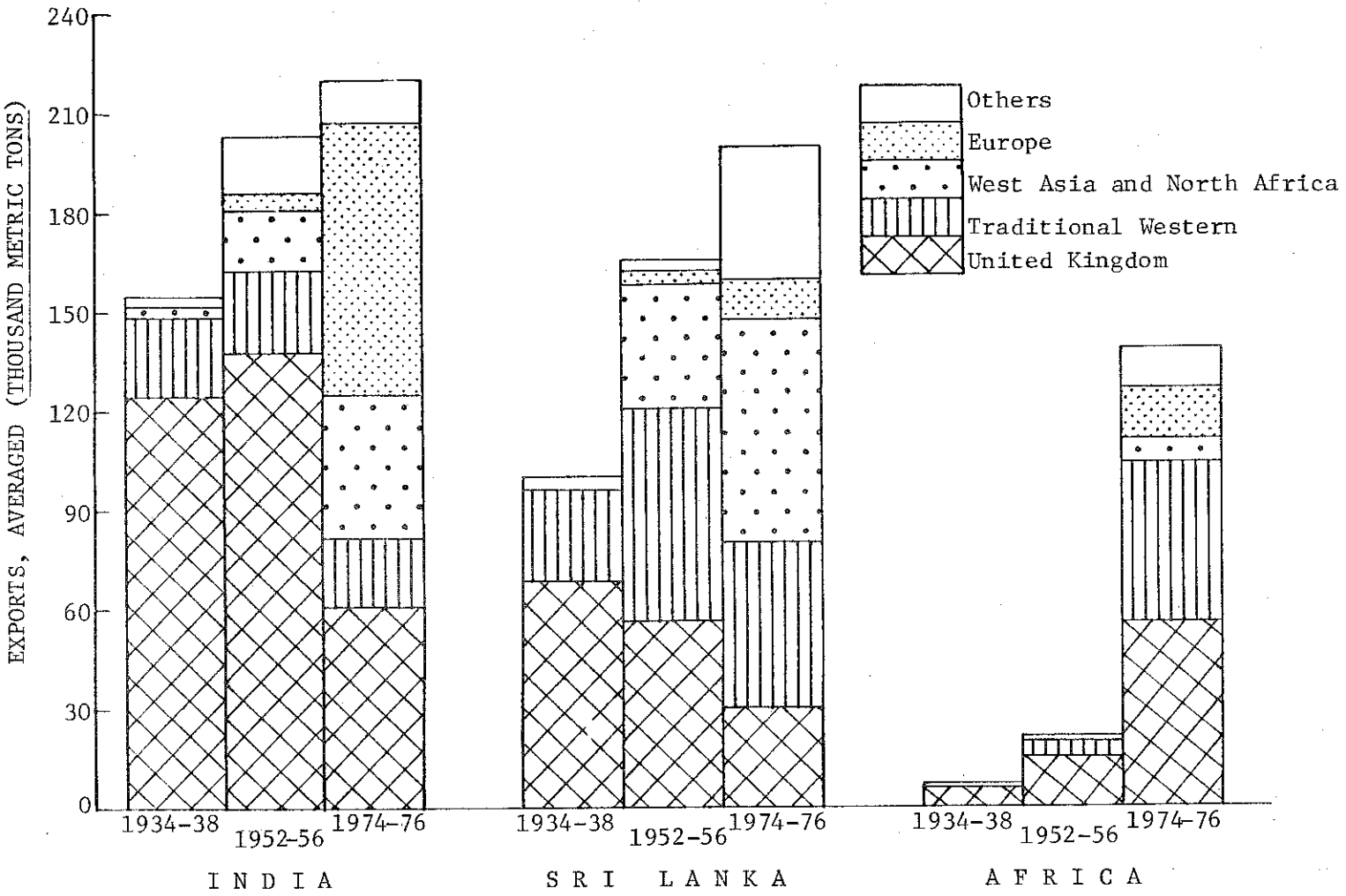
Due to the rising impact of domestic consumption, the export-production ratio has declined from about two-thirds in the early 1950s to less than half by the late 1970s, through the role of the export sector varied widely from country to country. The share of the crop exported in 1978 stood at above 90 percent in Sri Lanka and major African producers, 30 percent in India, and 20 percent in China. Of the major producers, USSR and Japan were net importers and Turkey only a marginal exporter.

The country composition of exports has also changed radically over the last 40 years (Figure 16). The strong dependence of Indian and Sri Lankan exports on the markets of the United Kingdom and the traditional Western importing countries--Australia, New Zealand, Canada, United States, South Africa, and Ireland--decreased and market dependence on the Middle Eastern countries increased. India was also able to carve out a large East European market, largely due to bilateral agreements with USSR and Poland. Only the African countries were able to expand their markets in the United Kingdom and the traditional Western countries in the postwar period--at the expense of India and Sri Lanka.

The Nature of the Competition in the World Market

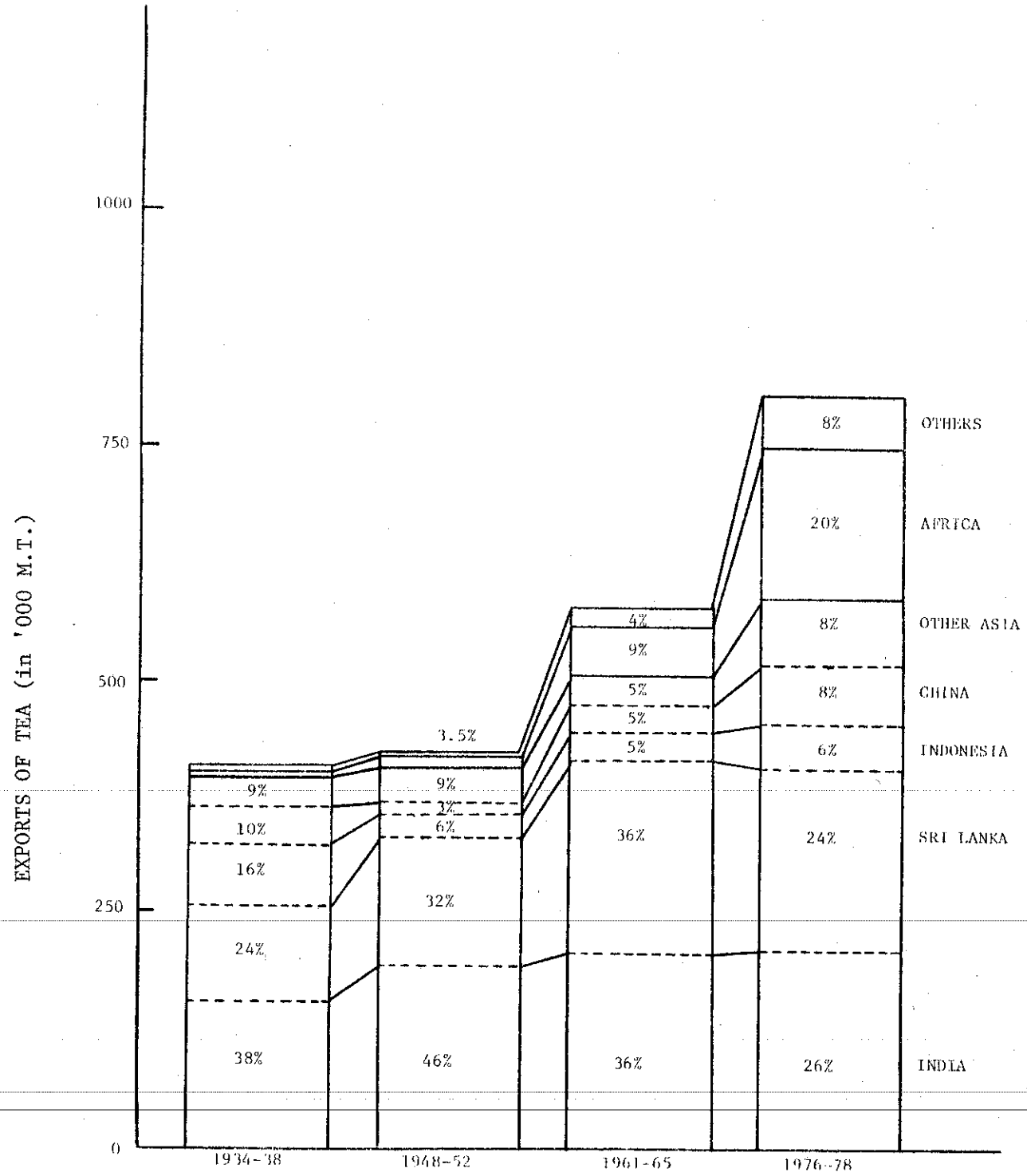
Competition in the world market has increased considerably over the postwar period. This has been due to narrowing down of yield gaps and

FIGURE 15. DIRECTION AND VOLUME OF EXPORTS OF MAJOR EXPORTERS



Source: ITC, Annual Bulletin of Statistics, various issues.

FIGURE 16. WORLD: TRENDS IN TEA EXPORTS, 1934-38 - 1976-78



Source: APPENDIX TABLE XV.

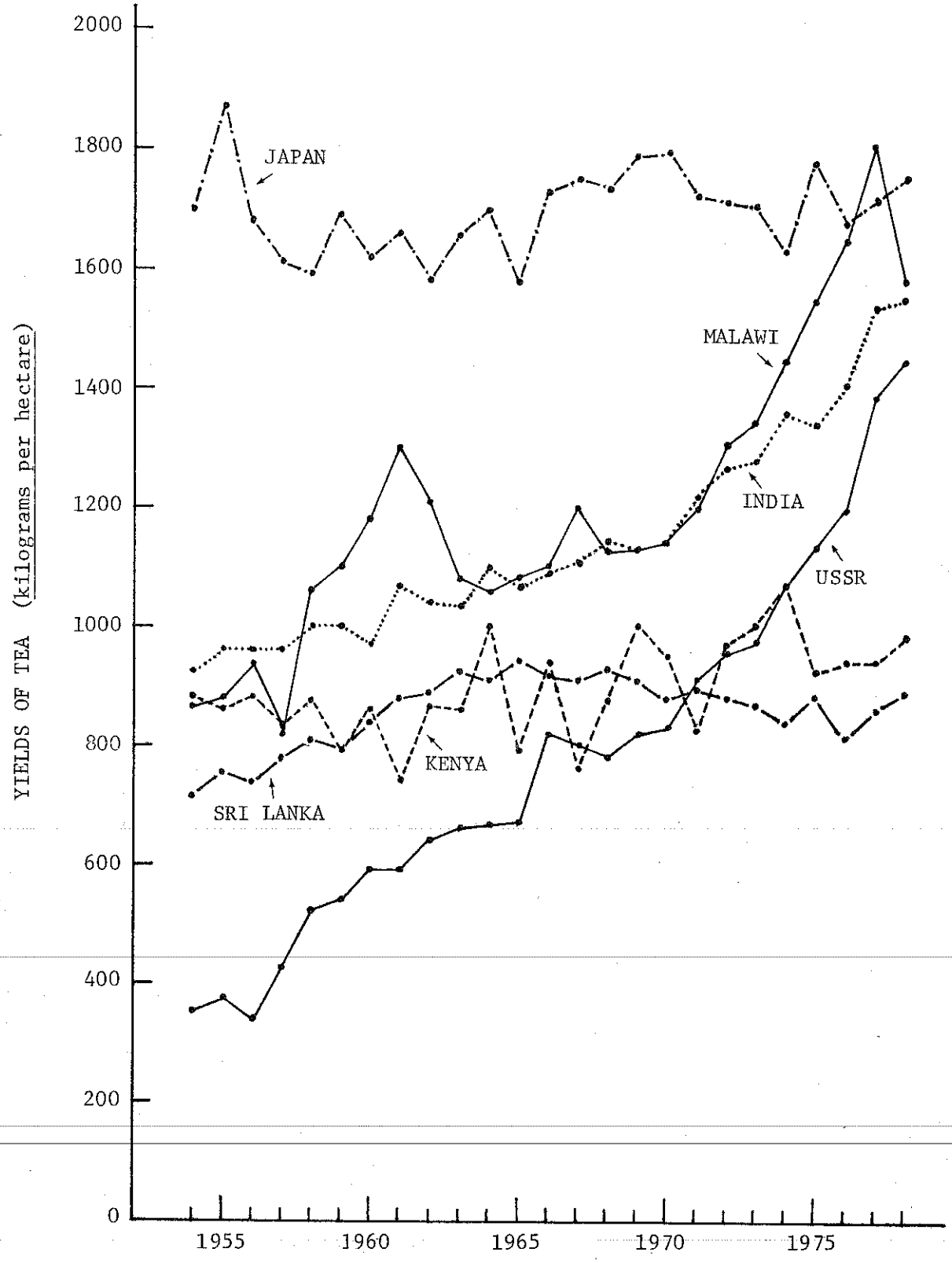
price gaps and also due to the cost advantages of new entrants to the tea trade.

Over the last 30 years, yields in most producing countries have increased considerably. The yield-gains have been caused by replanting with better quality material, improvements in agricultural techniques--particularly planting, pruning and fertilization--and the relative freedom from serious diseases and pests (1, p. 7). The yield-gains have been particularly dramatic in the cases of USSR and Malawi, both of which had low yield levels in the early 1950s, and the range of yield variations has been considerably narrowed down over 1950-80 (Figure 17). Whereas in 1950, Japanese yields were far ahead of all other producers, current yield levels in Japan, Malawi, Turkey, India and USSR are pretty close. Yield levels in Sri Lanka and Kenya have, however, stagnated over the period. This has been attributed to uncertainties over the nationalization issue in Sri Lanka and the very rapid growth of smallholder tea production in Kenya with a correspondingly high proportion of immature tea.

Traditionally, the comparative advantage of Indian and Sri Lankan tea was maintained through their superior quality, particularly of the highland production, as this superior quality fetched them considerable price premiums. Over 1955-57, North Indian and Ceylon tea fetched at least a 30 percent premium over Kenyan, Malawian and Indonesian tea. This price premium was gradually eroded over the period 1955-80 (Figure 18) and, in recent years, Kenyan tea has been fetching top prices at London auctions. The quality improvement of African tea is certainly discernible but the trend also reflects a shift in demand for "filler" teas with the rising popularity of tea bags and instant tea (2, p. 61). It has also been held that there has been general quality deterioration of Indian and Ceylonese tea due to "coarse" plucking and a shrinking share of the quality upland tea (3, pp. 37, 50).

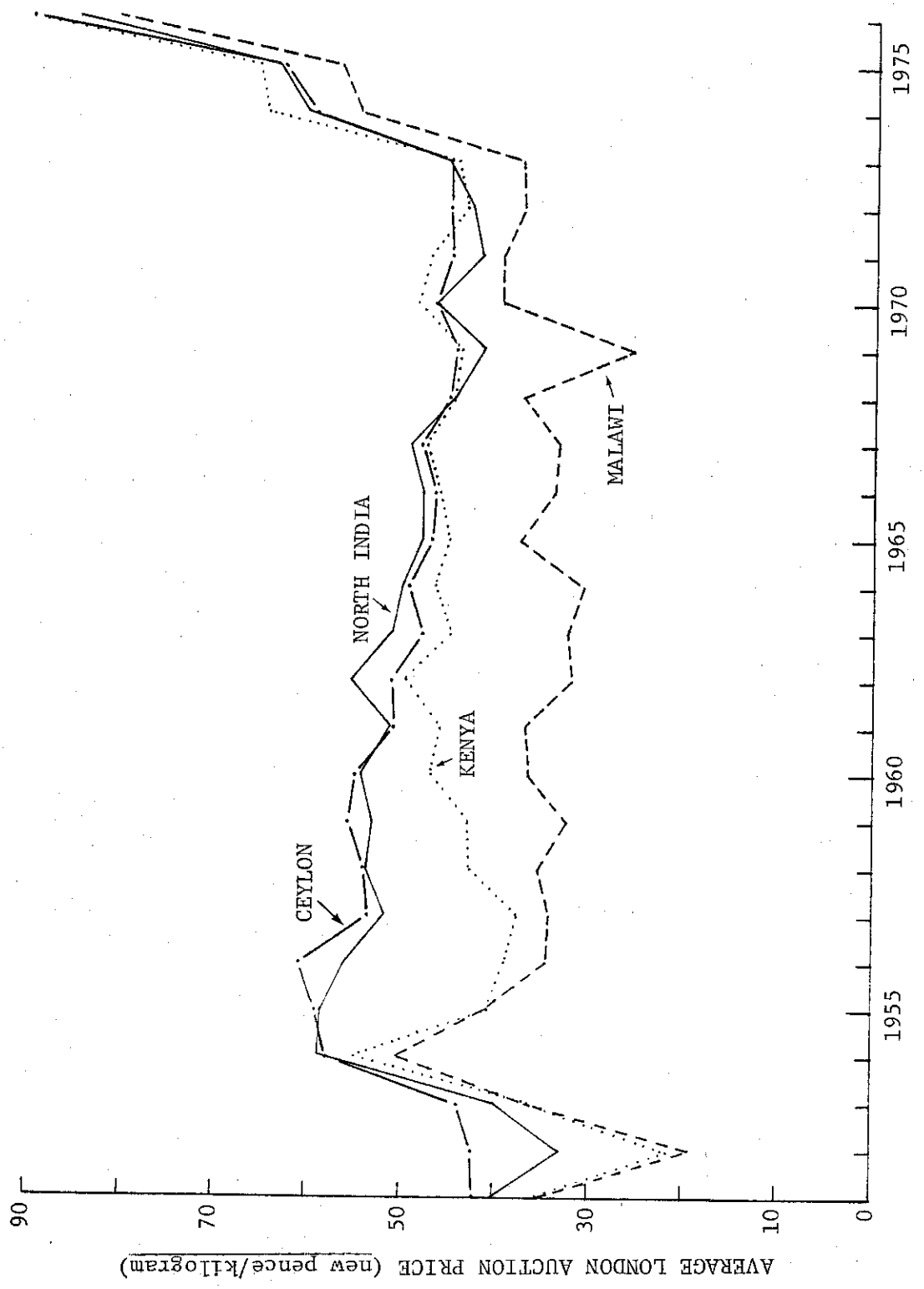
Apart from these factors, the cost of production in the old plantation economies of India and Sri Lanka were, on an average, considerably higher than cost of production in the East African estates. Both land and labor were considerably cheaper in East Africa (4, p. 100). and levels of taxation were much lower. A World Bank study found that duties and taxes were at a much higher level for India and Ceylon--accounting for 60-80 percent of the gross margin or pretax profits (3, p. 4). The net result was a striking difference in profitability from tea investments between India and Ceylon on the one hand and East African countries on the other (Table 12). The much higher profitability of tea investments in Africa coupled with apprehensions over the security of investments in India and Sri Lanka after their independence led a number of tea companies to divert profits from India and Sri Lanka and invest in East Africa. Notably, James Finlay and Brooke-Bond-Liebig invested heavily in East Africa, and such continuous investments there coupled with disinvestments in India and Sri Lanka further eroded the comaprative advantage of India and Sri Lanka. Large-scale smallholder production further reduced production costs in Kenya (5, p. 255).

FIGURE 17. YIELD TRENDS OF TEA OF SELECTED PRODUCERS



Source: FAO, Production Yearbook, various issues.

FIGURE 18. LONDON AUCTION PRICES FOR TEAS OF DIFFERENT ORIGIN



Source: ITC, Annual Bulletin of Statistics, various issues.

TABLE 12: COMPARISON OF PROFITABILITY OF TEA MANUFACTURE IN ESTATES, 1968

(U.S. cents/lb.)

	Assam	South India	Ceylon	Uganda	Kenya	Malawi	Tanzania
REVENUE:							
1968 London auction price	48.07	42.26	49.30	42.99	48.71	40.58	46.29
COSTS:							
Factory costs	28.50	24.00	28.80	26.40	24.60	21.50	24.60
Transportation and charges	8.00	8.00	8.10	8.00	7.00	8.50	7.00
TOTAL Costs	36.50	32.00	36.90	34.40	31.60	30.00	31.60
GROSS MARGIN:	11.57	10.26	12.40	8.59	17.11	10.58	14.68
TAXES:							
Cess	0.24	0.24	1.73	0.28	0.28	0.33	0.10
Excise duty	2.88	1.99	-	-	-	-	-
Export duty	2.68	1.84	6.72	-	-	-	1.40
Sales Tax, etc.	0.96	1.61	2.12	-	-	-	-
TOTAL Taxes	6.76	5.68	10.57	0.28	0.28	0.33	1.50
NET MARGIN:	4.81	4.58	1.83	8.31	16.83	10.25	13.18
NET MARGIN AS PERCENTAGE OF COST	13.2	14.3	5.0	24.2	53.2	34.2	41.7

The differences in profitability in tea investments led the World Bank to recommend diversification out of tea in India and Sri Lanka, while it made available $26.1 million in IDA loans to East Africa over 1964-72 (2, p. 73). Such diversification has not been taken very seriously by India and Sri Lanka in view of the difficulties of such adjustments and the unattractiveness of alternative crops from the export point of view (3, pp. 3, 31).

Production Strategies of Major Competitors

Sri Lanka. Sri Lankan production strategy in the field of tea changed radically over the last decade. The structure of the Sri Lankan tea economy was very similar to the structure in India. Smallholdings comprised only 17 percent of the acreage in 1967 and large estates, typically owned by sterling companies, dominated the production. The state largely played a role in taxation and tea export duty, ad valorem sales tax and cess provided major sources of revenue (6, pp. 19-20; 3, pp. 42-44).

Perturbed by the loss of markets, the Sri Lankan government also relied on subsidies to encourage replanting and to introduce technological changes. The Sri Lanka Tea Board operated three major subsidy schemes involving tea replanting, tea fertilization and tea factory development to encourage private investments and to expand production and exports. In spite of these incentives, however, the rate of replanting never exceeded one percent against the optimal rate of two percent per annum. The low profitability appeared to inhibit private investments in tea (3, pp. 45-49).

The production of tea (in thousand MT) stagnated from the mid-1960s:

1961-65	1969-71	1976-78
217	215	201

and export availability was restricted. On top of this, the Bandaranaike government introduced land reform laws in 1972 and 1975 limiting private ownership of tea land to 50 acres. The government also announced its intentions to nationalize the tea estates, and alienation of prime tea land and the threat of nationalization further deterred investments in the mid-1970s (7, p. 36).

However, by 1979, the nationalization of tea companies had been completed and two state public sector corporations controlled 80 percent of the production. Competent managers have been retained for the estates even after nationalization and the situation is believed to have stabilized. However, it remains to be seen how effectively the government can directly fund tea development after nationalization (8, pp. 6-7).

The second major change has been caused by the land reforms policy. The smallholders controlled no less than 38 percent of the crop acreage by 1979. Emphasis has been laid on incorporating smallholders in the national production strategy and a minimum price of 70 cents per kilogram of green leaves has been guaranteed from October 1980 (9, pp. 26-27). Major development projects are being initiated to rehabilitate

smallholder tea areas with finance from the World Bank and the Asian Development Bank.

Current Sri Lankan plans envisage an investment of Rs 125 million annually for five years (10, pp. 56-57). In addition, the government raised replanting subsidies and reduced export duty and ad valorem taxes in 1979 (11, p. 6). It is expected that the stalemate will cease and Sri Lankan output begin to increase, though a lot depends on the efficiency of the nationalized plantation corporations.

China. Not much is known about actual Chinese production and export plans. Tea in China was cultivated in the hilly regions of Central and South China, typically by smallholders who processed green tea in small processing units. Production was serious hampered by the Second World War, but postwar rehabilitation was achieved systematically through organization of growers' cooperatives, channelization of long-term loans, improved processing and blending facilities and applied research. At the same time, production was reorganized through production teams and brigades as in other crops (1, p. 48). By the late 1970s, China was consistently producing above 300,000 MT annually--a higher level of production than before the war.

The Chinese impact on the world market was very modest in the 1950s and 1960s--her share of the world export market stood only at about five percent. From 1970, however, China has made progressively larger market entries. Chinese exports (in thousand MT) over the decade varied as follows (12, p. 10):

1970-72	1974-76	1978-79
45	60	90

and her 1979 market share was above ten percent. About half the Chinese tea exports now are black tea and, due to a low cost of production, they have created favorable market impacts in Australia, New Zealand, U.S. and Europe. Experts foresee a much stronger market entry by Chinese tea in the hard currency markets (13, p. 3) in the near future.

Kenya. Amongst all "new" tea producers, Kenya most rapidly increased her tea production and exports. In the postwar period, Kenyan production and exports (in thousand MT) have been as follows:

	1948-52	1961-65	1976-78	1979
Production	6	17	81	99
Exports	4	15	75	86

Until the early 1960s, tea production in Kenya was confined largely to estates and, in fact, cultivation of tea as a smallholder crop was forbidden until 1954. Under pressures arising from the MauMau revolution, the Swynnerton plan (1954) recommended introduction of tea as a cash crop for the smallholder. Initial developments were tentative and slow in view of the major problems of smallholder tea cultivation--capital

needs, quality control and the long gestation period. The first tea factory for smallholders was built in 1957 at Ragati and much-needed institutional support was provided by the Special Crops Development Authority (KTDA) (14, pp. 4-5; 15, pp. 7-8).

The KTDA provided the focus of development of the smallholder tea project and the dynamism of the Kenyan tea sector has largely been attributed to the success of the KTDA program. The organization of the KTDA (Figure 19) comprised three major field activities--Nursery Development with vegetatively propagated, high-yielding stock and distribution of planting materials; Field Development which comprised supervision of planting and cultivation, licensing and regulation of cultivators and training; and Leaf Cultivation and Processing which involved inspection and procurement of green leaves through buying centers, their transport and processing through factories. The head office of the KTDA obtained finances from the International Development Association and Commonwealth Development Corporations, maintained liaison with other government departments and gave technical and administrative direction to the whole project. The program provided supervised cultivation of tea and ensured that credit and inputs flowed in and the leaves produced flowed out through KTDA channels. The success of the program has been attributed to its all-encompassing nature and autocratic control over growers (14, pp. 11-12).

The success of the program has been startling. Over the past two decades, the percentage of the planted area and production share of the smallholders have been:

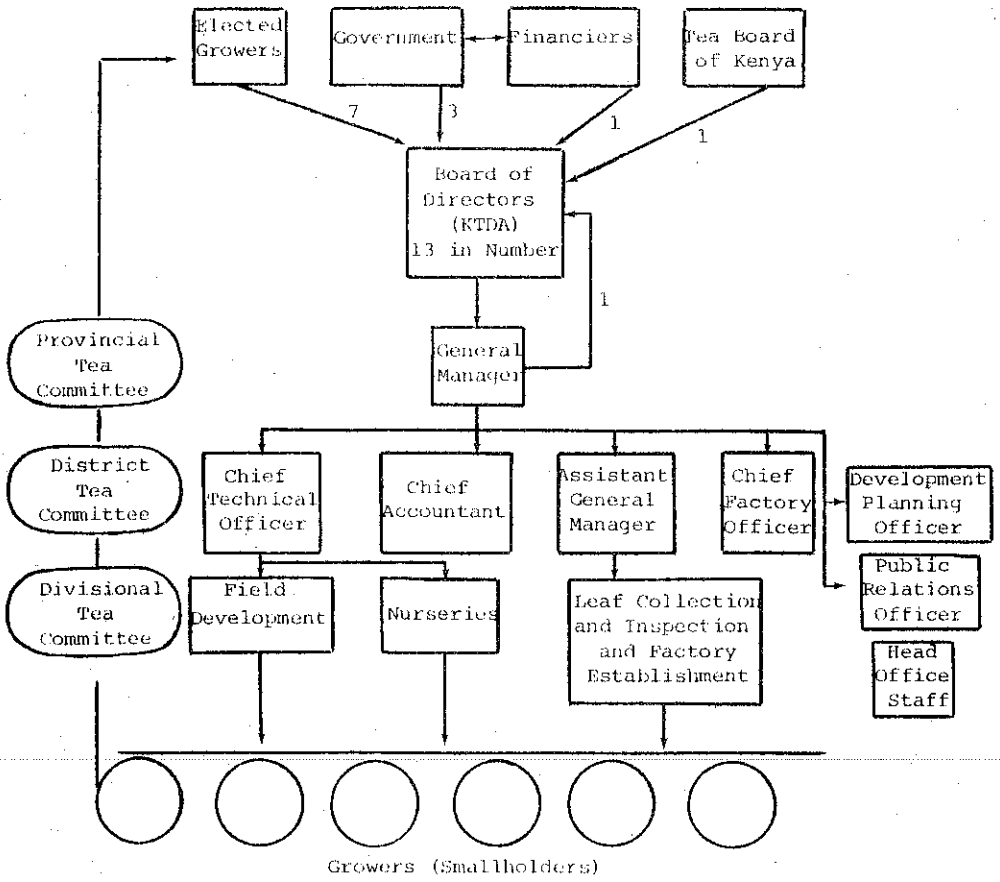
	1960	1965	1970	1976	1979
Area	6	21	45	63	56
Production	-	6	21	31	45

The major achievements have been planting of about 50,000 hectares, owned by 100,000 smallholders, in this period, coupled with significant income improvements of the smallholders and opening up of the interior due to the tea roads and other linkages of the tea sector with the rest of the economy. It was also found that KTDA tea fetched as good or higher prices than estate tea, establishing that high quality can be achieved under supervised smallholder production (14, pp. 20-21; 16, p. 4).

Kenya is proceeding apace with smallholder tea projects. She has already installed 50 tea factories for smallholders and plans to install 17 more by the end of 1982 in a World Bank-aided project involving 35,000 smallholders. The availability of suitable land is no constraint and only the prospects of world price drops affecting export revenues may deter continued large-scale expansion (17, p. 95).

Other African Producers. Performances of the other exporters have so far been patchy. The scope for expansion in the major African producers--Tanzania, Uganda, Mozambique, Malawi, and Zaire--are enormous, but little of the potential has so far been tapped. Tanzania and Uganda have both enunciated policies involving smallholders as a major growth

FIGURE 19. ORGANIZATION CHART OF THE KENYA TEA DEVELOPMENT AUTHORITY



Source: K. W. A. Oluoch, Labour Absorption in Smallholder Tea Production in Kenya (Appendix II).

strategy. But problems over nationalization of estates in Tanzania and Mozambique have made production stagnate, and domestic political troubles have reduced production in Uganda and Zaire. Malawi has made steady progress but scarcity of suitable land restricts further expansion. Nevertheless, during the next two decades, African producers may well overcome these difficulties and make further inroads into the world market (18, p. 235).

Smallholders versus Plantations

The Kenyan experience has considerably altered expectations of the structure of the world tea economy. Traditionally, it was held that the estate mode of production was the only feasible one for commercial production of tea in view of the needs of heavy investments, availability of cheap and abundant labor, linkages with processing and marketing sectors, access to technical information based on applied research and the economies of scale of large-scale operation (19, pp. 51-67). On these foundations were built the plantation systems of India, Ceylon, Indonesia, and early East Africa. The only exceptions to this pattern were the green-tea countries of China, Japan, and Taiwan, where peasant enterprises with on-farm processing dominated and tea was largely for the domestic sector (20, p. 17).

Wickizer analyzed the performance of tea production by smallholders in Ceylon and Indonesia and concluded that the poor skill and technical knowledge of the smallholders produced low yields and poor quality. Tea was thus found to be ill-suited for smallholder production (21, pp. 63-65). Gamble, on the other hand, of smallholders in Ceylon and Indonesia attributed failures to poor soil, poor quality of planting materials and poor cultural practices due to little or no supervision (14, pp. 4-5). The Swynnerton plan accepted Gamble's conclusions and relied on the presumption that with proper selection of site and growers, central supply of planting materials and other inputs, an extension service teaching proper husbandry techniques and central processing and marketing, production of quality tea through smallholders was viable. The KTDA experience showed that smallholder tea production was indeed viable and has two major advantages over estate production--low cost of production due to use of family labor and flexibility, since the smallholder usually does not rely on a monoculture for subsistence (19, pp. 124-125). In addition, smallholder production may be politically more acceptable and ensures that the profits accrued are spent locally (4, pp. 97-102). These give smallholder production a distinct edge over estate production and future large-scale expansions are anticipated in the smallholder sector. In spite of the problems of finances needed to build up the infrastructural support needed including the extension service, the World Bank found smallholder tea projects in Africa to be highly desirable with an estimated "social rate of return" of 38 percent (22, p. 101).

AN OVERVIEW OF TEA CONSUMPTION AND IMPORTS

Trends in Tea Consumption

Tea consumption in the world has expanded considerably over the last four decades. In the mid-1930s, world tea consumption stood at

half a million tons (excluding China) and, in the immediate postwar period, consumption was even lower due to supply constraints and rationing in the United Kingdom. From the 1950s, however, tea consumption expanded at a steady rate of about 4.4 percent per annum. Estimated global tea consumption (excluding China), in thousand MT, increased as follows:

1950-54	1955-57	1965-67	1976-78
625	760	1030	1290

In addition, Chinese domestic consumption was estimated at 130,000 MT by the mid-1960s and is expected to have gone beyond 200,000 MT by 1979 (23, p. 17).

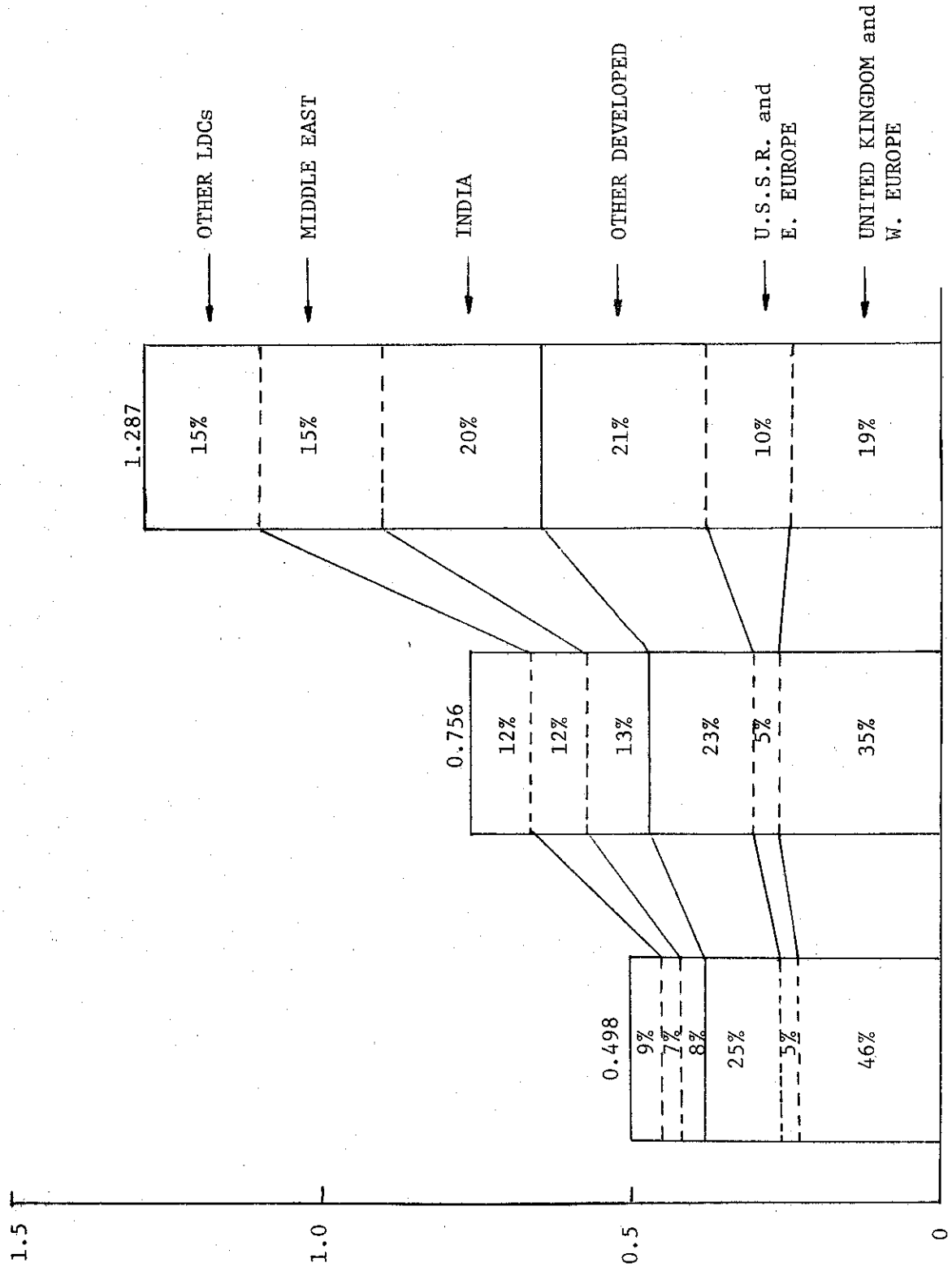
However, the pattern of global tea consumption changed radically over this period (Figure 20). Over 1933-35, the developed countries had three-quarters of the world tea consumption, but their share dropped to half by 1973-75 and is expected to have gone down to about 30 percent by 1980 (18, pp. 234-236).

Of the developed countries, the United Kingdom was and still remains the largest consumer but British consumption has been stagnating around 200,000 MT over the last four decades and the British share of world consumption dropped from about 40 percent in 1933-35 to about 15 percent by 1973-75. Outside the United Kingdom, consumption was also high in the white commonwealth countries--Ireland, Canada, South Africa, Australia, and New Zealand--which had 12 percent of the world market in 1933-35. Despite some increase in consumption, their share of world consumption dropped to about 8 percent by 1973-75. Of all the developed countries, consumption has a secularly rising trend only in Japan, Eastern Europe and the U.S. These three regions had about 20 percent of world consumption in 1933-35 and above 25 percent in 1973-75. Over 1955-75, consumption in all three regions had a remarkable increase--doubling in the U.S. and Japan and trebling in Eastern Europe.

The steady growth of consumption of tea in the LDCs has been spearheaded by a remarkable rise of consumption in the producing countries--notably India, which became the largest consumer in the world from 1970. All other producers also expanded domestic consumption but, barring India, China, and Turkey, none had a domestic market comparable with the export market. Outside the producing countries, consumption increased largely in West Asia and North Africa. The middle-east (including North Africa) expanded its tea consumption from 33,000 MT in 1933-35 to 196,000 MT in 1973-75--a growth rate of 12 percent. Outside these regions, tea consumption was significant only in Pakistan, Afghanistan and Chile and most LDCs still had a very low level of consumption.

Over the last two decades, LDC tea consumption has been growing at 7 percent while consumption in developed countries grew only at 2 percent. The net outcome has been a shift in the consumption pattern with the LDCs' share rising from 37 percent to 50 percent, and the shift is occurring at

FIGURE 20. WORLD: TRENDS IN CONSUMPTION OF TEA, 1933-35 - 1973-75*



* Excluding China
Source: APPENDIX TABLE XVII.

an accelerated pace now. Overall world consumption is projected to grow at three percent (2, pp. 68-69).

Trends in Per Capita Consumption

Trends in per capita consumption bring the consumption trends into sharper focus. The per capita tea consumption levels in the world vary widely (Figure 21). Libya has now (1976-78) become the heaviest tea-drinking nation in the world displacing Eire and the United Kingdom. These three nations consume about four kilograms per capita annually while those in the 1-2.5 kilogram range include New Zealand, Australia, and several Middle-Eastern countries. Per capita consumption in most European countries is still at a low level--well below one kilogram per capita annually. There thus appears to be considerable potential for expanding consumption in the European countries, the U.S., and the LDCs provided the right impetus can be given.

In per capita terms, consumption in the traditional Western consumers--United Kingdom, Australia, New Zealand, Canada, and South Africa--shows a declining trend while consumption in the U.S., Japan and Eastern Europe are rising (Figure 22). British per capita consumption has been declining from a peak of 4.6 kilograms in 1956 fairly steadily, and this was only halted in 1975-76 as coffee prices climbed sky-high. The declining trend was resumed in 1978 (24, p. 3).

Consumption patterns in LDCs exhibit a wide variation (Figure 23) but generally display a rising trend. Over 1955-75, most Middle-Eastern countries display a rising per capita consumption trend--notably Libya and Turkey.

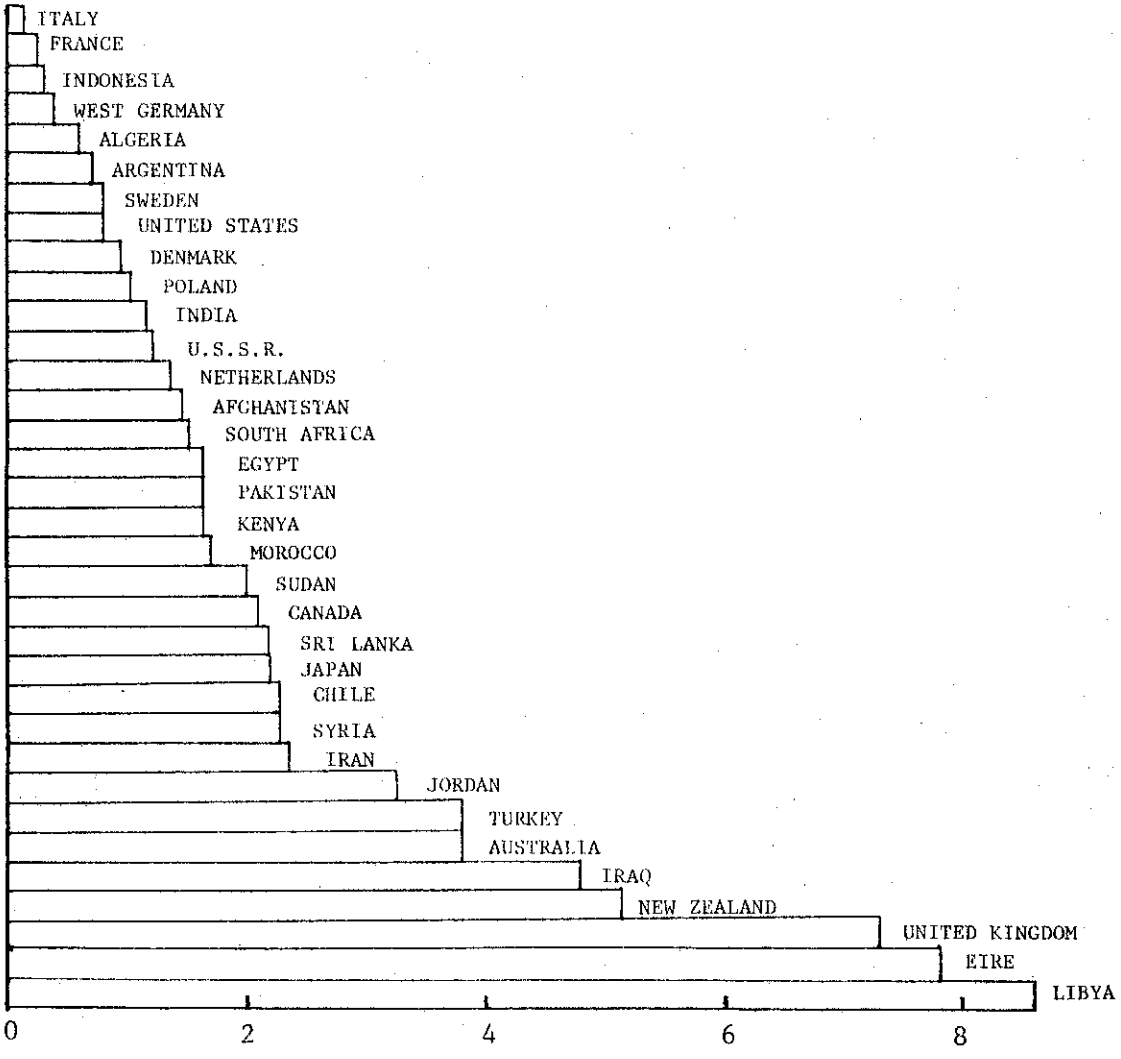
Trends in Imports

Import trends reflect the production and consumption trends of the regions. The world import level increased very little between the mid-1930s and mid-1950s due to supply constraints but expanded at a steady rate of about 3.5 percent over the next two decades, the net imports (in thousand MT) varying as follows:

1950-54	1961-65	1976-78
450	610	850

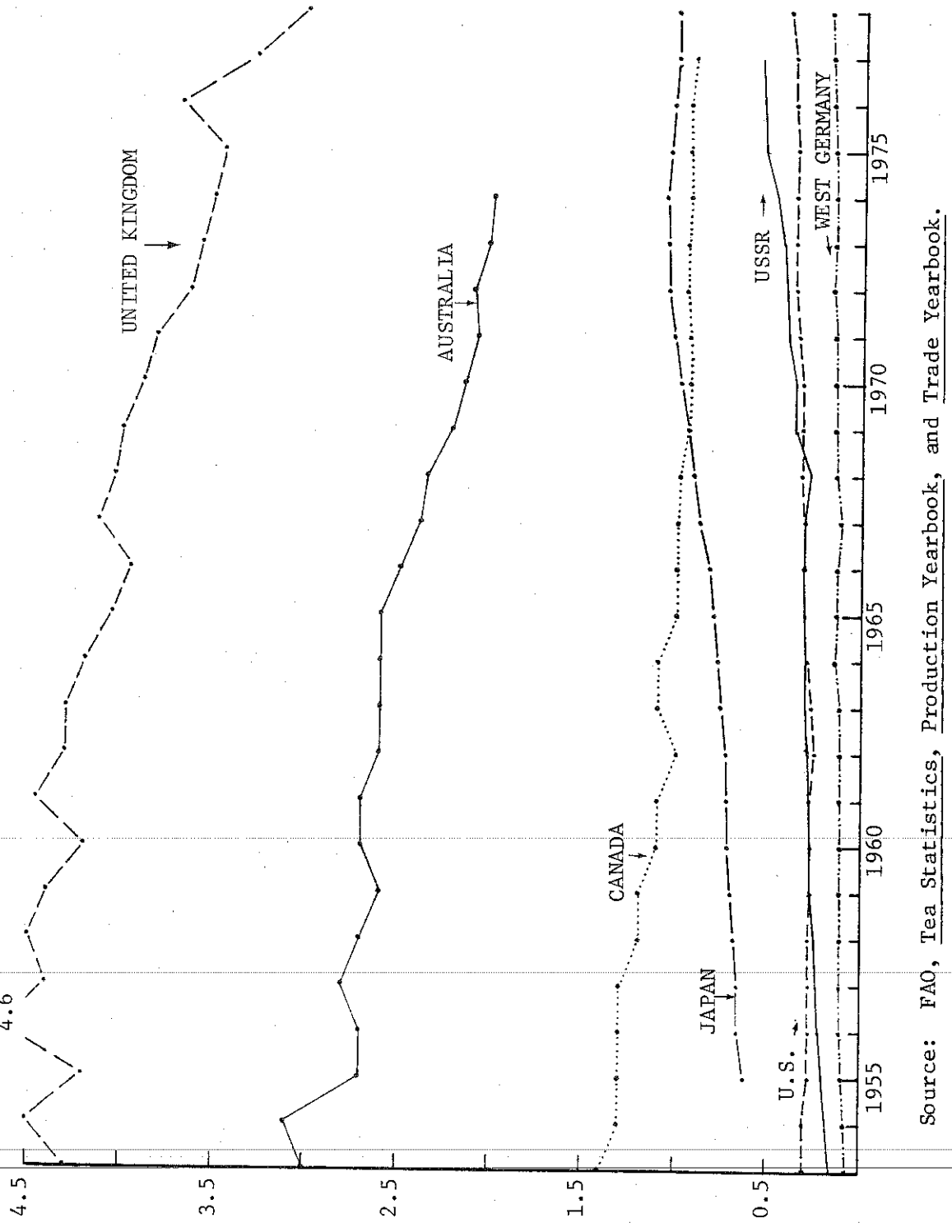
Reflecting the asymmetric pattern of growth of tea consumption in the world, the import patterns also changed (Figure 24). Whereas the developed countries had 86 percent of the market share in 1933-35, their share dropped to 65 percent by 1976-78. Most notably, the British market share dropped from above half to about a quarter during this period and, with that, the center of gravity of the world tea market shifted from London. The other developed nations--U.S., Canada, Australia, New Zealand, South Africa, and Japan--maintained their market share while Eastern Europe gradually became a major market. The LDCs' market share improved from 14 percent to 35 percent, most of which went to the Middle East. In the 1980s, the LDCs are projected to have about half the world import market (2, pp. 68-69). This will clearly exacerbate the difficulties of

FIGURE 21. WORLD: VARIATIONS IN PER CAPITA TEA CONSUMPTION, 1976-78 (AVERAGE)



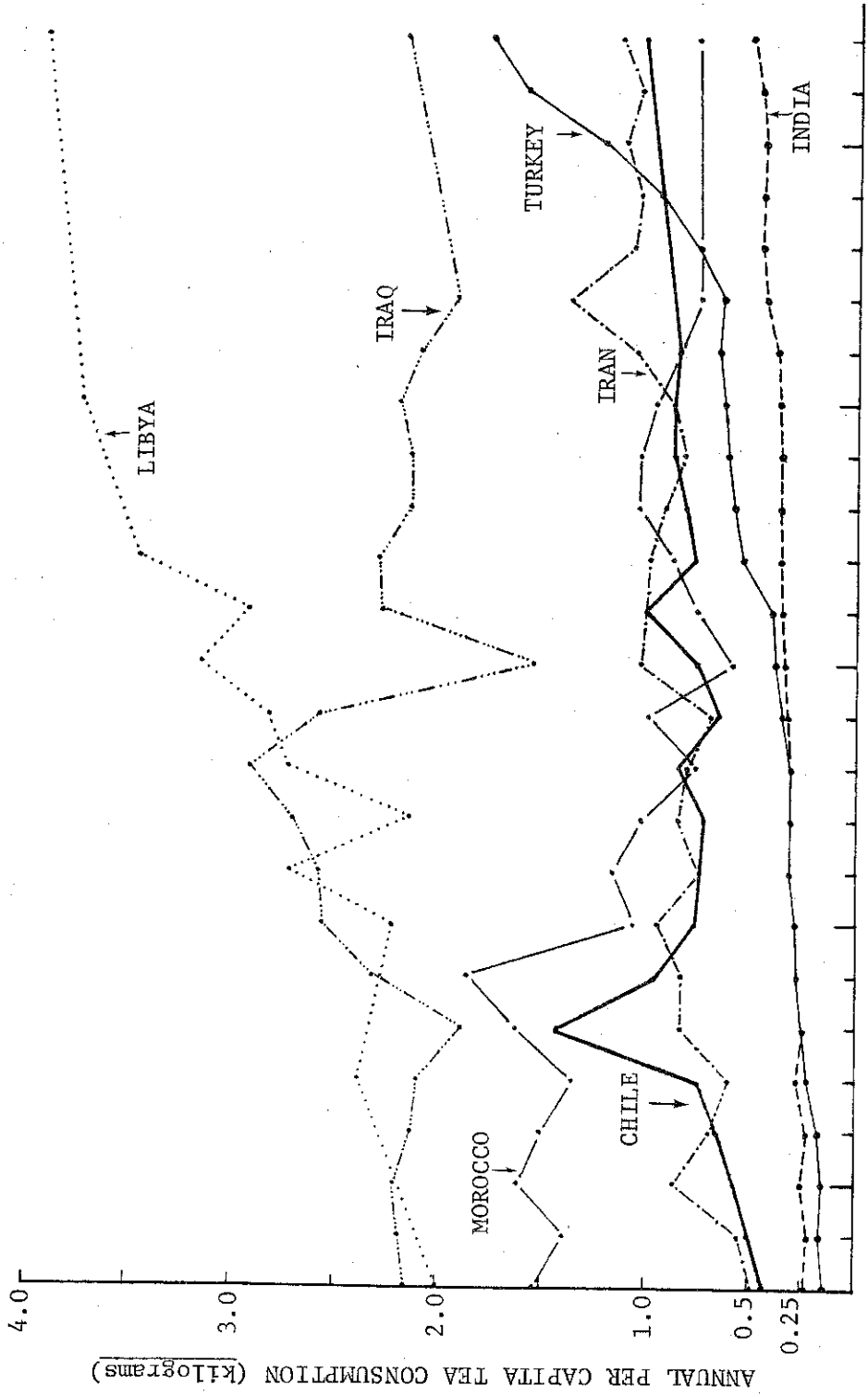
Source: APPENDIX TABLE XVIII.

FIGURE 22. TRENDS OF PER CAPITA TEA CONSUMPTION IN SELECTED DEVELOPED COUNTRIES



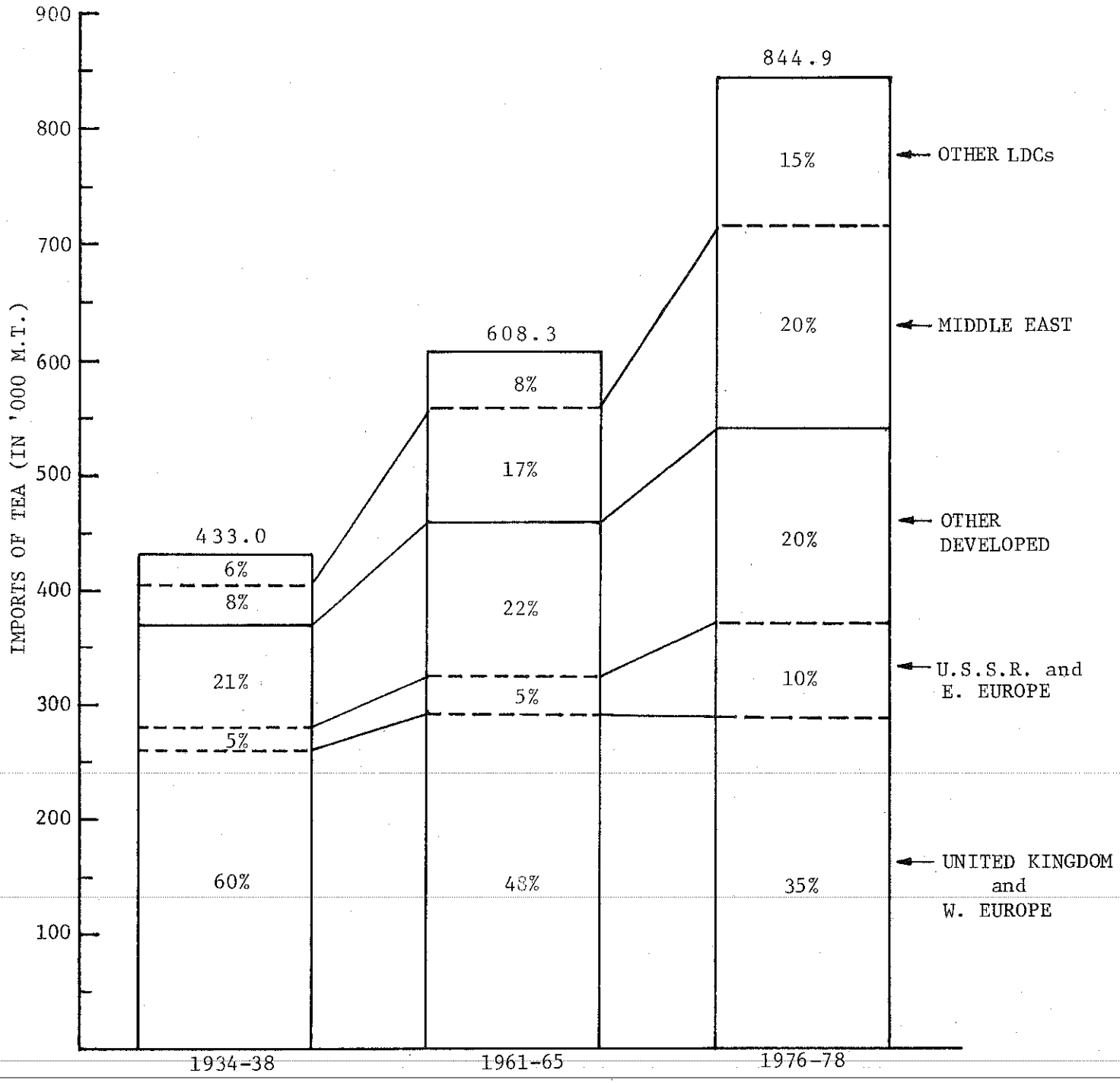
Source: FAO, Tea Statistics, Production Yearbook, and Trade Yearbook.

FIGURE 23. TRENDS OF PER CAPITA TEA CONSUMPTION OF SELECTED LDCs



Source: FAO, Tea Statistics, and FAO, Production Yearbook, and FAO, Trade Yearbook.

FIGURE 24. WORLD: TRENDS IN TEA IMPORTS, 1934-38 - 1976-78



Source: APPENDIX TABLE XIX.

obtaining "hard" currency for tea. The growth of tea markets in the Middle East, however, opened up possibilities of swapping tea for crude oil and both India and Sri Lanka had a series of bilateral agreements with Libya, Iraq, Iran, and United Arab Emirates (25, p. 45).

The import flows also changed significantly over this period (Figure 25). The new producers from East Africa captured much of the established markets in the United Kingdom and the traditional Western importers while India and Sri Lanka relied increasingly on the Middle East market.

Determinants of Demand

Empirically, variations in demand have been related to variations in price and income. Demand for a particular commodity is also affected by competition from substitutes, technological developments, quality of the product and promotional activities.

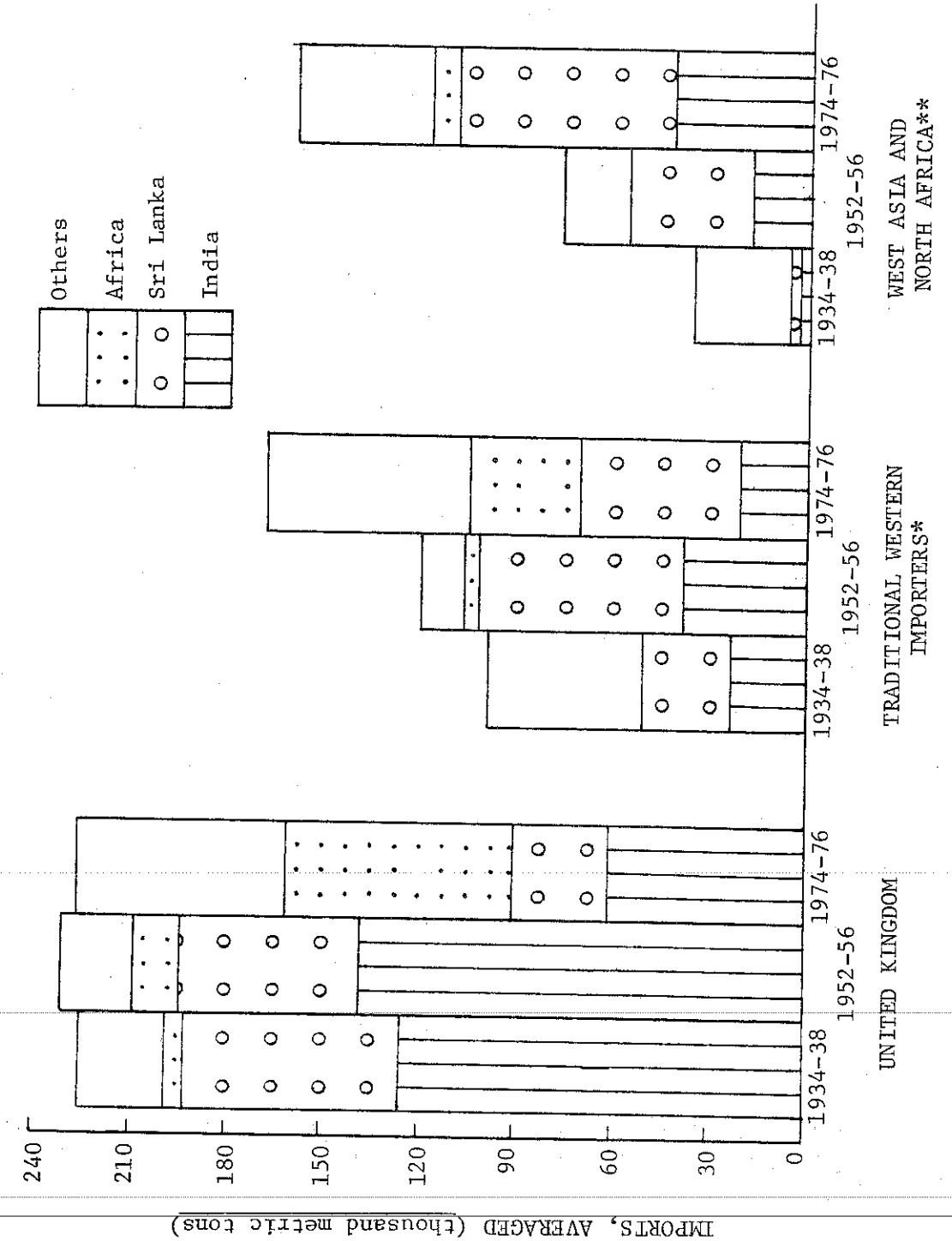
Elasticities of Demand. Classically, tea is regarded as a low-cost habit-forming drink with no substitute. Accordingly, the demand for tea is postulated to be inelastic with respect to both price and income variations (26, pp. 383-390). The analysis of consumer expenditure in the United Kingdom by Stone revealed an income-elasticity of demand of +0.04 and a price-elasticity of demand of -0.26 (1).

The current estimates of elasticity of demand show wide variations (Table 13). Generally, however, it appears that the demand for tea is fairly elastic with respect to both price and income variations in LDCs, while income and price elasticities are low in developed countries, particularly where tea drinking is well-established. Income can significantly shift demands in LDCs and much of the demand expansion in LDCs and stagnation in developed countries can be explained in terms of these empirical parameters.

Competition Between Beverages. The major competing hot beverages in the world are coffee and tea. Traditionally, both were presumed to be noncompetitive, and coffee consumption was high in the U.S. and Western Europe which were very minor markets for tea; tea consumption was high in the United Kingdom, Eire, Australia, New Zealand, and South Africa, where coffee consumption was low. The only countries where there was some competition between coffee and tea were Canada and the Netherlands. Price relationships between coffee and tea were found to have only limited effects on their respective demands over the period 1910-40 (27, pp. 70-71).

In the postwar situation, this appears to have changed radically. The decline in per capita tea consumption in the United Kingdom from 4.6 kilograms in 1956 to 3.0 kilograms in 1979 corresponded to a rise in coffee consumption from 0.7 kilograms to 2.5 kilograms over the same period (Appendix Table XX) and reflected a clear shift in consumer preference (3, p. 67). This took place in spite of declining tea prices and

FIGURE 25. DIRECTION AND VOLUME OF IMPORTS OF MAJOR IMPORTERS



* - U.S., Canada, New Zealand, Eire, Australia, South Africa.

** - Iraq, Iran, Syria, Jordan, Lebanon, Arabia, Egypt, Sudan, Libya, Algeria, Tunisia, and Gulf States.

Source: ITC, Annual Bulletin of Statistics.

TABLE 13. ESTIMATED ELASTICITIES OF DEMAND FOR TEA IN SELECTED COUNTRIES, 1954-66

Country	Price Elasticity of Demand	Income Elasticity of Demand
Developed:		
Australia/New Zealand	-0.93	0.31
Canada	-0.87	0.12
Eire	-0.24	0.25
Germany (West)	-0.73	0.59
Japan	-	0.32
Netherlands	-0.64	0.86
South Africa	-0.32	0.69
United Kingdom	-0.33	0.17
United States	-0.34	0.52
LDCs:		
India	-1.60	0.91
Kenya	-1.70	-
Pakistan	-0.32	1.35
Sri Lanka	-0.54	1.20
UAR (Egypt)	-0.50	-

Source: S. Singh, J. de Vries, J. C. L. Hulley and P. Yeung, Coffee, Tea and Cocoa-Market Prospects and Development Lending (World Bank Staff Occasional Papers, No. 22, Baltimore, 1977), p. 64.

rising coffee prices. Only in 1976-77, when coffee prices rose five-fold due to the Brazilian coffee freeze, was there a significant swing back from coffee to tea. In all the traditional Western consuming nations, tea is steadily losing ground to coffee. Coffee has also made significant inroads into Japan. It appears that tea is increasingly being regarded in the Western world as a cheap drink of low status and any promotional measure should attempt to build up the status of tea as an exotic drink (28, p. 5).

In sharp contrast to the consumption decline of tea in the United Kingdom and other traditional Western consumers, secular trends in the U.S. reveal a declining coffee consumption from 7.2 kilograms per capita in 1956 to 5.6 kilograms per capita in 1975 as against a rise in per capita tea consumption of 30 percent over the same period, though American tea consumption levels were still low (Appendix Table XXI). This has been attributed to the growing popularity of iced tea in the U.S. in the summer, particularly amongst the younger age group, and coffee consumption has dropped markedly (by more than 50 percent) in the below-30 age group over the last 15 years (29, pp. 12-13; 30, pp. 28-29). It is also possible that the reverse trends in the United Kingdom and the U.S. can be explained by the desire of the consumer for a change from the routine.

Apart from the substitution between tea and coffee, both hot beverages face increasing competition from soft drinks and alcoholic beverages, the demand for both of which are much more income-elastic. With growing urbanization and rising incomes, such competition becomes significant for LDCs also (3, p. 15).

Role of Technological Changes. Technology has molded demand for tea to a certain extent. One of the major reasons why tea lost ground to coffee so rapidly was the development of "instant coffee" in the early 1950s, which simplified coffee-making to such an extent as to sponsor its demand. The major technological changes in tea have certain drawbacks. Teabags, while fairly popular, are bulkier than packaged tea and add to freight charges (31, p. 793). Iced tea strongly promoted tea consumption in the summer in the U.S., but has not gained popularity elsewhere. The major brands of hot instant tea on the market are not quite savored by connoisseurs and a popular hot instant tea could strongly promote tea consumption (29, pp. 12-13).

Another factor which affected the demand for tea in the postwar period was the change in processing technology. The modern method of processing is the crush-tear-curl or "CTC" method which produces small and flaky tea in a more efficient manner. Most modern East African factories use the CTC process and many of the Indian factories have switched over from orthodox processes to the CTC method (32, pp. 182-183). Over the period 1961-76, the proportion of tea manufactured in India by the CTC method increased from 30 percent to 60 percent. The CTC method, however, while it improved estate economics in the short run, eroded demand for tea in the long run as CTC tea produced almost twice the cuppage of orthodox tea. It has been estimated that over 1951-70, global consumption of liquid tea rose by 145 percent while consumption of tea leaves/dust increased by only 92 percent (33, pp. 9-10).

The impact of technological change on the demand is clearly illustrated in the U.S. case. U.S. retail tea sales doubled over the period 1958-73 and doubled again over 1973-79 to reach $750 million in 1979, but the composition of the sales changed radically (Figure 26). In 1940, loose and packaged tea sales comprised 92 percent of sales but this dropped to 5 percent by 1979, while tea bags and instants including mixes had 52 and 43 percent of the market respectively. In contrast, the British tea market has been much more conservative and, by 1970, only 10 percent of British consumption was in tea bags and less than 1 percent in instants (24, pp. 3-4). Continuous technological improvements catering to the tastes of an increasingly more sophisticated Western consumer seem necessary for tea to regain its market share.

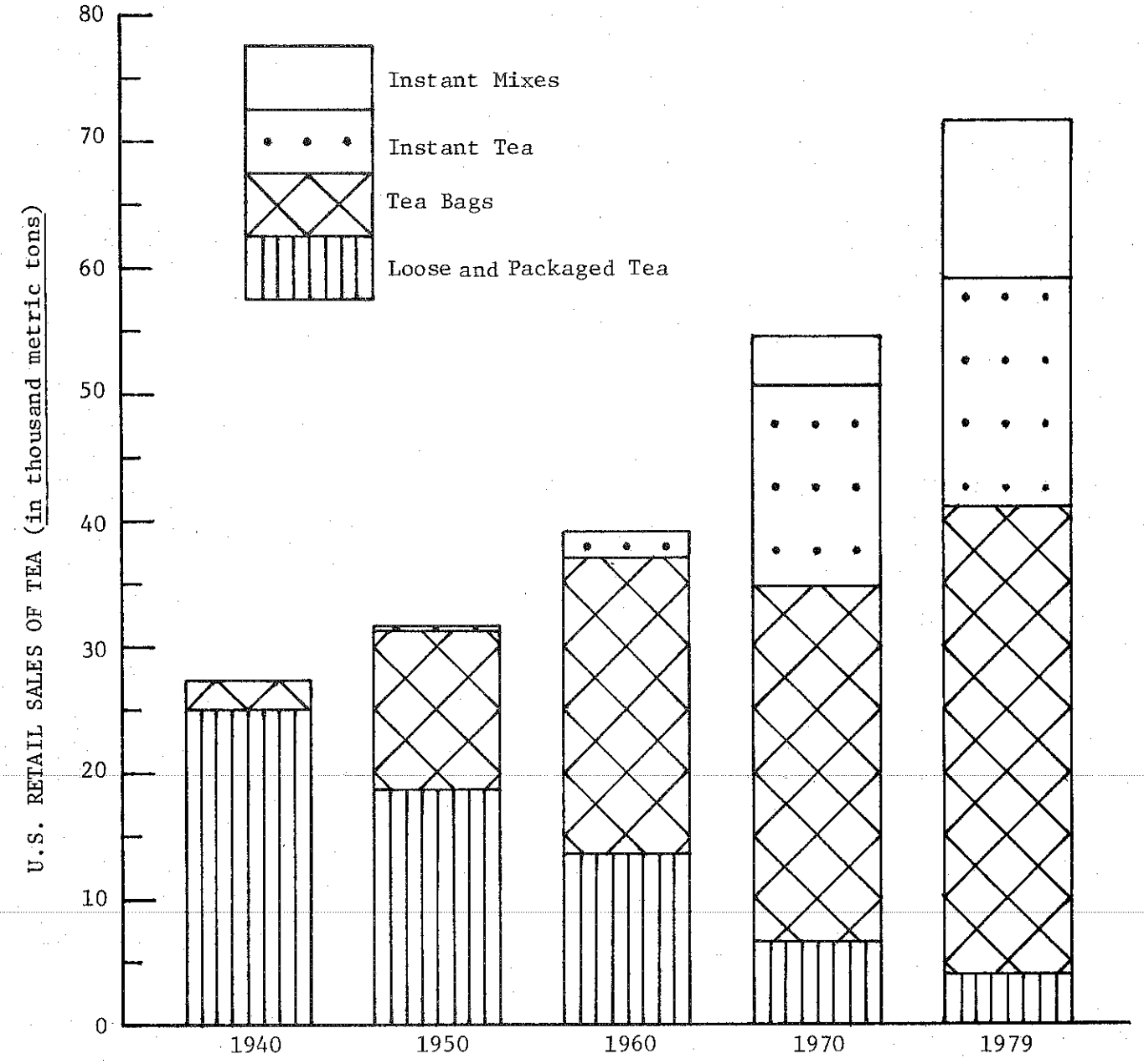
Quality. The definition of quality of tea is elusive and most tea blenders speak in terms of a combination of flavor, strength, briskness, and color, though the combination varies from blend to blend (34, pp. 6-7). Cultural practices--particularly the coarseness or fineness of plucking, processing with modern machinery and packaging practices--all affect quality. With the Western market becoming more and more sophisticated, the need for quality control has often been emphasized. For the domestic market and for most LDC markets, quality may be a less important factor than price (3, p. 18).

Role of Demand Promotion. The declining status of tea, increasing competition from other beverages and the significant cross-elasticity between tea and coffee emphasize the role of demand promotion. Typically, tea has not been able to command the amount of resources available to its competitors for promotion. Over 1966-68, global promotion expenditure on tea ($3.2 million per year) was less than half that on coffee ($7.0 million per year)(3, pp. 15-16). Advertising of other beverages has been even more significant--typically tea promotion expenditures are less than 10 percent of expenditures on promotion of soft drinks or beer in Western countries (35, pp. 1114-1117).

Promotion of tea has also largely been uninational with India, Sri Lanka, and East Africa opening Tea Board offices and tea sale centers in Western cities. Such efforts entailed heavy administrative expenditure and produced little tangible effect as the consumer encounters labels of major blenders which are mixtures of tea of different countries. Uninational promotion is of very limited use unless there are national brands on the world market, and penetration of Western markets by national brands is still insignificant. An effective promotion policy should be based on generic promotion and should work in close cooperation with the major blenders (36, pp. 72-75). The U.S. Tea Council has utilized resources of major blenders successfully in a promotion campaign and has stimulated demand. It has often been quoted as a model but the success of other Tea Councils in the United Kingdom, Canada or Australia has been open to question (37, p. 240).

The need for institutional arrangements for generic promotion on the world market was met when producers agreed to set up the International Tea Promotion Agency (ITPA) in 1978. The ITPA went into operation in June 1980. The issue of funding for generic promotion is, however, still unresolved as the ITPA started with an interim budget of

FIGURE 26. CHART SHOWING BREAKDOWN OF RETAIL TEA SALES IN THE UNITED STATES



Source: USDA, Foreign Agriculture Circular--Tea (October 1980).

$5 million funded by the producers, though experts consider that 2 percent of export revenues would be needed. This implies a budget currently at the level of $16 million. It remains to be seen how effectively the ITPA can coordinate national interests and sponsor demand in the world market (38, p. 5; 35, p. 1116).

WORLD TEA PRICE PATTERNS

Trends of World Tea Prices

World tea prices demonstrated considerable variations over the post-war period. The United Kingdom tea market was the center of the world tea trade until the 1950s and the London auction prices are still taken as the indicator of world prices. During World War II, the British government controlled the tea trade in the United Kingdom, and London auctions were only resumed in 1951 when prices immediately jumped more than three-fold over auction prices in 1939. However, production costs also rose almost three-fold in the interim period (26, pp. 236-239, 466-469).

Over the period 1951-79, however, London tea prices showed a sharp upward movement only twice--in 1954 and 1977 (Figure 27)--and both coincided with Brazilian coffee freezes which drove coffee prices very high. Over the entire period 1955-75 tea prices stagnated and, after the peak of 1977, prices started declining again. The prices have largely been fairly stable in nomimal terms, the only really sharp movement being from an average level of 60 pence per kilogram in 1976 to 121 pence per kilogram in 1977, with the April 1977 price level reaching 187 pence per kilogram.

In real terms, however, the trend is more discouraging (Figure 28) and real prices can be seen to have declined steadily since 1954. Even the remarkable price jump in 1977 could not fully restore the parity. Blandford found that, over 1950-76, the volume of tea exports increased by 2.2 percent per annum while real value of exports declined by 0.9 percent per annum--causing a real price decline of 3.1 percent per annum (39, pp. 65-66).

Supply-Demand Imbalance

The continuing deterioration in the terms of trade for tea has been seen in terms of a long-term supply-demand imbalance. Over the entire post-1950 period, production of tea has grown at about 6 percent per annum while world consumption has grown at less than 5 percent per annum. The steady decline in the world price reflected a steady supply pressure against a relatively static demand and created a buyers' market. Also, the prevailing low prices could not sponsor major demand growth in the developed countries as the demand was price-inelastic (3, pp. 11-12).

The long-term supply-demand imbalance also caused stocks to pile up. The British tea stocks rose from 51,000 MT in 1950 to 127,000 MT in 1968 and have since varied around 100,000 MT (Figure 26). In the

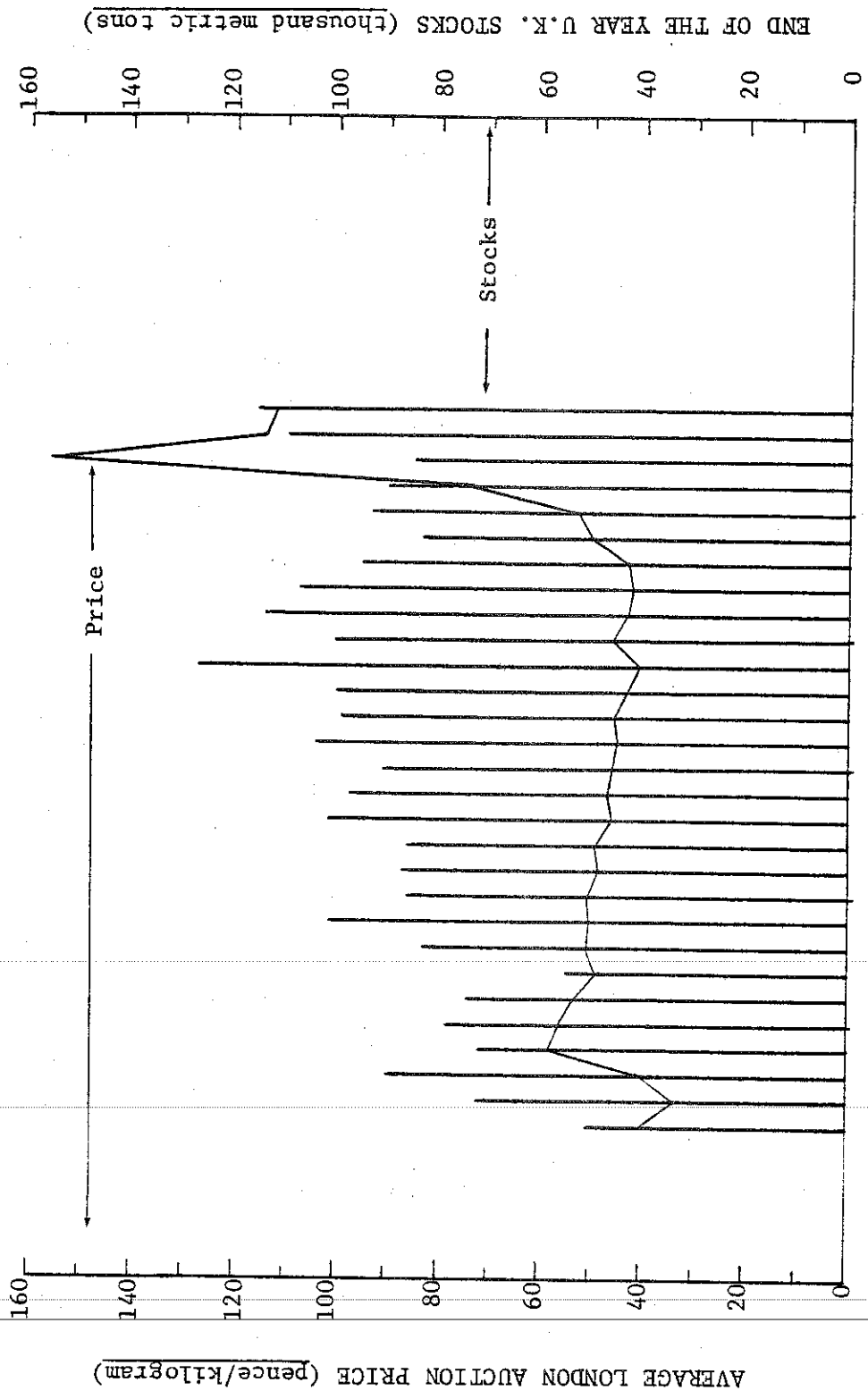
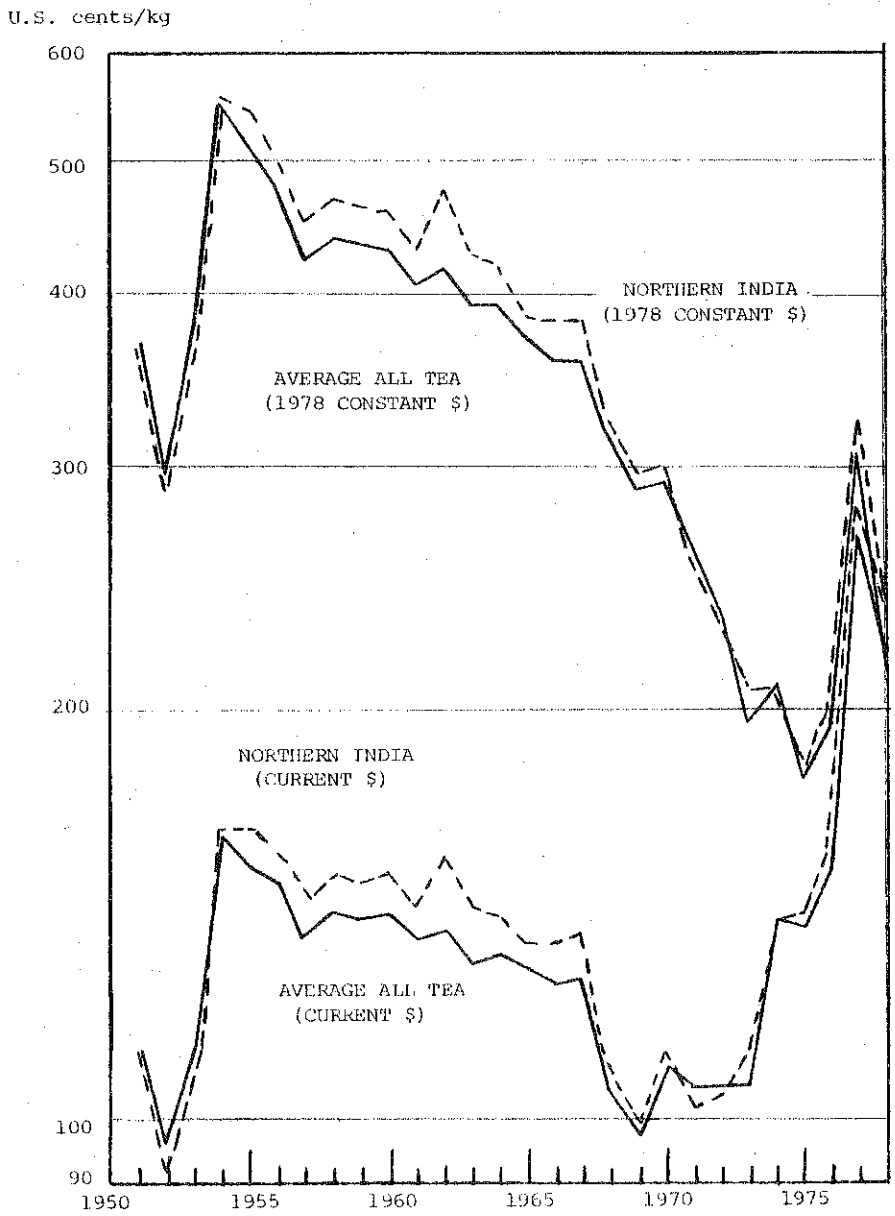


FIGURE 27. VARIATION OF LONDON AUCTION PRICES WITH STOCK, 1951-79

Source: FAO, Commodity Review (various issues).

FIGURE 28. WORLD: TEA PRICES OVER 1950-78 IN NOMINAL AND REAL TERMS
(1978 BASE; YEARLY AVERAGE)



Source: IBRD, Commodity Trade and Price Trends (1979), p. 41.

United Kingdom and the two major producers, India and Sri Lanka, the stocks mounted from about 100,000 MT in 1950 to 313,000 MT in 1976 (40, p. 30). Any excess in the level of stocks forced the price down, and the World Bank study found by regression analysis that change in the United Kingdom stocks of 10,000 tons was associated with a price change of 7.3 U.S. cents per kilogram (3, p. 13).

Prospects for prices in the future also appear gloomy. With supplies outstripping demand and a low global price elasticity of -0.3 (2, p. 7), prices are expected to fall further in real terms. FAO projections indicate that, even with considerable consumption growth in producing countries, exportable supplies are likely to grow at 4 percent annually while import demand grows at only 2 percent per annum, resulting in a surplus of about 150,000 MT by the mid-1980s and a real price drop of 30 percent (18, pp. 237-238). Other projections are even gloomier and Tyler considers the possibility of the real price dropping to 14.5 pence per kilogram in 1953 terms, or less than half the current real value by 1990 (41, p. 43).

The Cobweb Model of the World Tea Economy

The major features of the world tea economy are a relatively stable demand, persistent oversupply and deteriorating real prices. This can be explained in terms of the cob-web model which has been used to explain the behavior of most tree crops (Figure 29).

The price-elasticity of demand in the world market is low and the elasticity of supply is also low in the short run, in view of the heavy initial investment and the long gestation period. But, in the long run, high prices such as those prevailing in 1954 and 1977 induce some plantings. The long-run price elasticity of supply has been estimated at 0.3. Due to the long gestation period, the production effect is only felt after six years and, even if prices are low by then, the planted trees are harvested (adding to the oversupply) since the plants are perennial and the producer is keen to recover as much of his investment as possible. The time lag between planting and production and the disinclination to uproot the plant even during oversupply are the essential features of the model (42, pp. 1-3; 43, pp. 22-29).

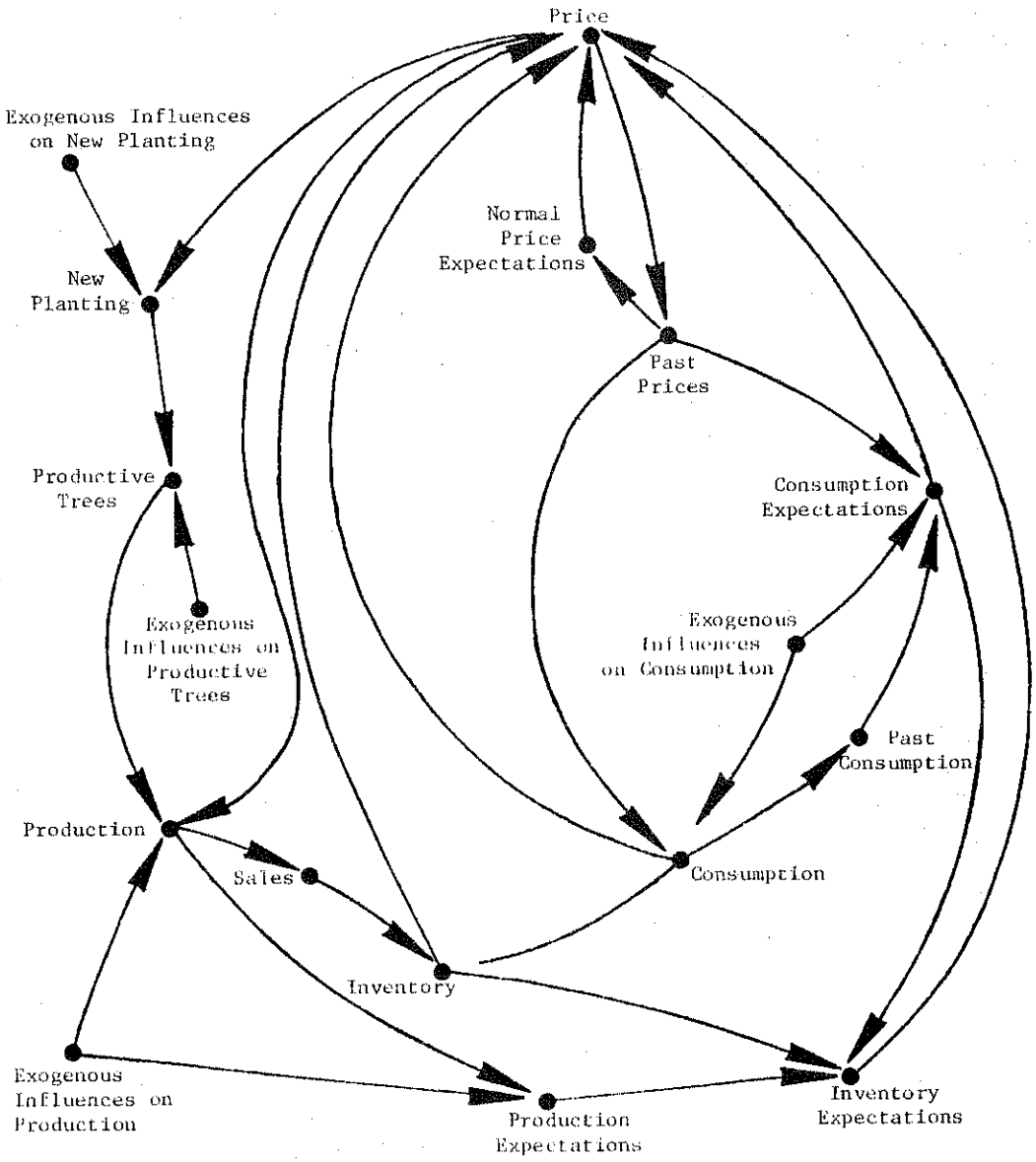
In addition, the case for tea is further complicated by the competition between African and Asian producers and the ability of the African producers to expand their market shares and gross earnings by continually expanding supplies even in the face of falling prices during 1950-70 (2, pp. 73-75).

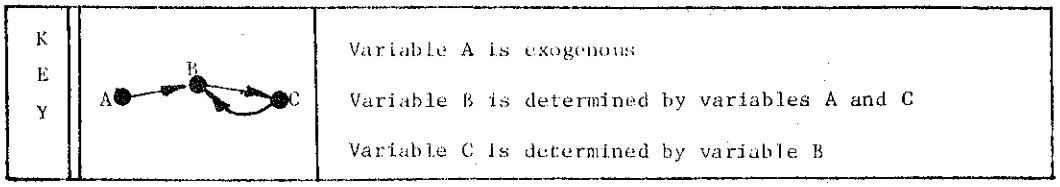
DISTRIBUTION AND MARKETING SYSTEMS

Role of London Auctions

In the early parts of the century, most of the tea in international trade passed through the London auctions, and London was the center of the world tea trade. In the postwar period, with the independence of

FIGURE 29. THE COBWEB MODEL





Source: Helmut F. Weymar, The Dynamics of the World Cocoa Market, Cambridge: M.I.T. Press, 1968, p. 2.

the tea producing countries and the relative decline of the United Kingdom as the consumption center, this has changed (Table 14). By 1979, only 12 percent of the tea was auctioned at London, the rest being channelled through the various Indian auction centers at Colombo, Chittagong, Mombasa, Djakarta, and Limbe.

The producing countries also had strong reservations about the London auction system. There were 19 active selling brokers and eight buying brokers at London but four of the buying brokers controlled 98 percent of the business (44, p. 93). This oligopsonist market control by a few brokers raised fears of collusion and both India and Sri Lanka seriously considered withdrawing from London auctions. The Tandon committee appointed by the Government of India, however, concluded in 1979 that withdrawal from the London market could snap the remaining links with London-based blenders and lead to market loss. All major producing countries now seem destined to use the London auctions along with domestic auctions (45, pp. 230-231).

Nature of the World Tea Market

Quite apart from the concentration of brokers, the world tea market is oligopolistically dominated by a few large blenders. Four large blenders--Brooke-Bond, Lyons, Typhoo-Cadbury and Co-operative--control 86 percent of the British market (46, p. 21) while five blenders--Lyons, Twinings, Halpin, Barry and Millar, and Irish Tea Merchants--have 90 percent of the Irish market (47, p. 38). The markets in Europe and the U.S. are less highly concentrated (37, p. 243), but the world market as a whole has been found to be fairly concentrated and vertically integrated, with the largest transnational corporation (TNC) commanding 25 percent of global sales (48, p. 20).

This concentration, coupled with the linkages that some blenders have with manufacturing companies, has been viewed with increasing concern by LDC producers. This is also the most serious obstacle to increasing exports of value-added components from LDCs.

Fairness of Marketing Margins

The concentration of market power in the hands of a few TNCs has also led LDCs to doubt the fairness of the marketing margins of tea in developed countries. A study of the UNCTAD and the FAO revealed that retail prices of tea in the various developed countries varied widely, that the variations could not be explained by variations of duties and internal taxes, and that the marketing margin including marketing costs was on the order of 60 percent (Table 15). LDCs normally believe that "inordinate" profits are reaped by TNCs in the European countries, and one way of rectifying the situation is by market penetration through value-added tea exports (20, p. 60).

Role of Trade Barriers

It is generally held that tea is a tropical product, noncompeting with temperate products, and thus trade restrictions are not very significant for tea. UNCTAD found that only 8 percent of tea imports in 1962 were subject to duties and fiscal charges (amounting to $19 million) and

TABLE 14. QUANTITIES OF TEA SOLD IN AUCTIONS IN DIFFERENT YEARS

(thousand metric tons)

	1934-38	1950	1955	1960	1965	1970	1974
EUROPE:							
London	183.0	-	132.7	135.3	162.7	109.2	91.8
Amsterdam	12.0	5.8	4.3	-	-	-	-
Antwerp	-	-	-	1.5	0.3	0.3	-
Hamburg	-	-	-	0.4	0.4	-	-
PRODUCING COUNTRIES:							
Calcutta	55.7	111.3	125.7	136.1	153.3	154.1	168.8
Colombo	46.6	80.6	130.8	151.8	167.1	168.2	177.8
Chittagong	-	5.1	14.5	18.5	26.0	30.0	27.4
Cochin	-	3.1	15.7	32.9	48.7	62.7	58.6
Nairobi/Mombasa	-	-	-	4.7	8.5	12.2	20.3
Gauhati	-	-	-	-	-	9.1	26.6
TOTAL	297.3	205.9	423.7	481.2	567.0	545.8	571.3

Source: ITC, Annual Bulletin of Statistics.

TABLE 15. RETAIL PRICES OF TEA IN SELECTED DEVELOPED COUNTRIES, 1960-62

Country	Import Unit Value	Taxes and Duties	Average Retail Price	Costs and Margin
	(cents/kg.)	(percent)	(cents/kg.)	(percent)
United Kingdom	-	4	201	40
Netherlands	-	7	244	49
Japan	-	35	362	59
United States	-	-	378	69
Italy	-	42	485	66
Belgium	-	7	558	78
France	-	126	625	58
Germany	-	53	766	77
AVERAGE	116.8	34	506	69

Source: UNCTAD, "Access to Markets for Primary Commodities," Proceedings of U.N. Conference on Trade and Development, Vol. III, Commodity Trade, 1964 (New York, 1964).

that trade liberalization would bring expanded export revenues on the order of $6 million only (49, p. 35).

Currently, however, duties and taxes are significant in the European market and the important Middle-Eastern market. Duties and taxes are also fairly heavy on tea extracts, concentrates and value-added items. Accordingly, the potential gains from trade liberalization are much more now. A World Bank study showed that liberalization could earn LDCs an added $100 million in constant-1974 dollars per year and would also greatly help export of value-added items. However, few general gains have been made by the LDCs from the GATT negotiations, and the African producers continue to enjoy market preference in European countries following the Lomé Agreement (2, p.11).

PROBLEMS OF THE WORLD TEA MARKET

The major problem of the international tea trade is the declining real level of prices caused by general oversupply. Attempts have been made to counter this by demand promotion in developed countries but there has been little actual impact. The stagnant demand in developed countries has led the producers to seek markets in LDCs and sponsor consumption at home. Concentration in the distribution system also appears to have aggravated the situation and the producers' attempts to expand value-added export have not met with very conspicuous success generally. The situation also promises to deteriorate further unless current trends can be reversed.

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CHAPTER IV. THE POTENTIAL FOR INTERNATIONAL ACTION

COMMODITY PROBLEMS AND INTERNATIONAL ACTION

General Commodity Problems

The general problems facing most LDC commodity exports in the postwar period are fluctuations in export prices and declining real export price levels leading to reduced real export earnings. Both problems appear to be stronger in LDC agricultural primary exports and acquire urgency in the backdrop of a steadily worsening balance of payments position due to the OPEC oil price hike.

The potential gains from price and income stabilization have often been questioned by economists. Hirschmann, for example, has argued that price fluctuations can provide a stimulus to the economy and that stabilization may lead to inefficient deployment of resources (1, p. 82). Most economists, however, seem to be veering around to the view that export instability will affect export earnings, capacity to import, and investments, with the major cost being the deterrence of future investments (2, p. 6). In measuring the impact of export instability on LDCs, Macbean found little difference between LDCs and developed countries over 1946-58 (3, pp. 34-36). Later studies by Erb and Schiaro-Campo and Maya indicated that, in the postwar period until the late 1960s, LDCs were subject to much greater export instability (4, pp. 575-580; 5, pp. 629-641). Glezakos also found that export instability had a negative impact on real GNP growth rates in LDCs and thus, stabilization would appear to be a desirable policy for LDCs (6, pp. 670-678).

The potential advantage of raising export earnings of LDCs by manipulating the terms of trade has not been questioned, but the feasibility of such programs has been examined by economists and the prospects are found to vary strongly from commodity to commodity. There is a broad consensus that institutional arrangements backed by buffer stocking and/or export restrictions can yield substantial benefits to LDC producers if a broad range of commodities can be covered, but the costs are substantial and the benefits to individual countries vary substantially (7, pp. 11-15; 8, pp. 48-51).

Blandford has assessed the vulnerability to decline of the 13 most important agricultural commodity exports of LDCs in terms of trade and fluctuations (Table 16). He found that the real export price of the commodity group as a whole declined by 1.2 percent per annum and the real export value fluctuated by 8.6 percent per annum, measured by the coefficient of variation. He found that the problem of real export price decline was most acute for rubber, pepper/pimento, tea, bananas, and cotton, while the problem of real value fluctuations was most acute for sisal, pepper/pimento, jute, and sugar (9, pp. 5-28).

TABLE 16. VULNERABILITY OF LDC AGRICULTURAL EXPORTS TO MARKET INSTABILITY

Commodity	Value of World Exports, 1970-75	Percentage of LDC Exports, 1970-75	Annual Percentage Export Growth Rate, 1950-76					Annual Percentage Instability, 1950-76		
			Quantity	Value	Real Value	Unit Value	Unit Real Value	Quantity	Value	Real Value
	(million U.S. dollars)									
Sugar	4,221	84	2.9	5.0	3.7	2.9	0.7	2.9	16.8	12.4
Coffee	3,663	95	2.4	4.0	1.8	1.6	-0.6	2.9	11.3	7.6
Cotton	3,639	58	1.6	1.8	-0.4	0.2	-2.0	3.1	10.4	6.4
Rubber	1,480	97	1.4	-0.7	-2.8	-2.1	-4.3	3.0	11.5	10.4
Cocoa	1,078	99	2.4	4.4	1.8	2.0	-0.2	4.1	14.6	10.3
Tea	795	79	2.2	1.3	-0.9	-0.9	-3.1	1.8	5.9	7.1
Banana	631	89	4.3	4.4	2.2	0.1	-2.1	2.4	3.9	5.1
Palm Kernel/Oil	567	94	2.9	3.4	1.3	0.5	-1.7	8.8	16.0	11.0
Ground Nut/Oil	549	66	0.9	2.6	0.5	2.1	-0.1	6.3	7.4	4.9
Coconut Oil/Copra	527	89	0.5	0.9	-1.2	0.4	-1.8	5.4	8.9	6.8
Pepper/Pimento	189	84	4.2	2.2	0.1	-1.0	-4.1	5.3	15.9	13.8
Jute	186	95	-1.1	0.4	-1.8	1.5	-0.7	5.6	10.4	12.7
Sisal	137	97	-0.2	0.1	-2.0	0.3	-1.9	8.5	15.7	15.1
OVERALL WEIGHTED AVERAGES	17,662	83	2.2	2.7	0.5	1.0	-1.2	3.5	11.5	8.6

Source: P. Blandford, Trends and Fluctuations in the Agricultural Exports of Less Developed Countries, 1950-76 (Cornell International Agriculture Mimeograph 66, July 1979), pp. 2, 6, 20.

Role of International Commodity Agreements

The major commodity problems have been seen in terms of supply-demand imbalances caused by yield fluctuations, demand fluctuations, cyclical boom-bust phases of industrial economies, speculation, long-term supply responses, impact of synthetics, and long-term demand declines. The major institutional approach to a solution of the problem has been through International Commodity Agreements (ICAs) which attempt to redress the supply-demand imbalance by controlling the world market supply through a buffer-stock arrangement, an export quota arrangement, a combination of the two or a multilateral contract arrangement (2, p. 5).

Historically, attempts to negotiate ICAs were preceded by attempts to solve the commodity problems through national efforts. Such attempts, the most notable being the Brazilian Coffee Valorization scheme, had to be abandoned ultimately as controlling the world market proved to be beyond the capability of one nation. The depression in the commodity markets in the late 1920s gave an impetus to ICAs and the postwar commodity problems rekindled interest in ICAs. Recent international negotiations in the UNCTAD and the "North-South Conference" have also focused attention on ICAs as an instrument of rectification of the market situation.

In the last 50 years, there have been a number of ICAs negotiated over nine commodities--bauxite, cocoa, coffee, copper, rubber, sugar, tea, tin, and wheat. In addition, informal cartelization without an ICA has been attempted to control commodity markets in bananas, bauxite, copper, iron, petroleum, and rubber. While cartelization usually has a negative connotation for importers, the ICAs were aimed at stabilizing fluctuations and improving terms of trade, which are of interest to producers, and were also aimed at "orderly" marketing, which is of interest to both producers and consumers. Yet, on an average, such ICAs lasted only four years, and the price stabilization objective was not achieved at all in several cases--notably coffee and sugar--though export earnings were boosted significantly in several cases (8, pp. 18-23).

ICAs seemed to function satisfactorily only if demand for the commodity was strong and the price inelastic, concentration in the market was high (with all exporters having nearly equal and stable shares and nearly equal costs of production), barriers to new entries were high, and major decisions were made by commercial interests, not governments. Most ICAs broke down over producer disagreements about market shares, exporter-importer differences, and attempts to sabotage the provisions with the help of major importers or exporters outside the umbrella of the ICA (10, pp. 195-202).

In spite of the historic nonsuccess of the ICAs, most LDC governments increasingly see them as the only solution to commodity problems. ICAs in sugar, coffee, cocoa, and tin have been renegotiated in the 1970s, and informal study groups and intergovernmental negotiations were initiated in tea, rubber, jute and kenaf, hard fibers, bananas, and hides and

skins (11, pp. 13-14). Most of the negotiations were sponsored by the international agencies, FAO and UNCTAD. The most significant development of the 1970s was the emergence at UNCTAD IV of the Integrated Commodity Program (ICP) involving 17 major commodities important for the LDCs, nine of which are more important or "core commodities"--cocoa, coffee, copper, cotton, jute, rubber, hard fibers, tea, and tin. The ICP envisages a host of policy instruments--international buffer stocking, production control, export quotas, market promotion and compensatory finance to support the different commodities--but relies on buffer stocking funded by a "Common Fund" to support most of the "core commodities." The UNCTAD estimated the fund needs to be $6 billion. Behrmann estimated that about $10 billion will be needed for the "Common Fund," but the program may yield real benefits on the order of $700 million per year to the LDC exporters (12, pp. 295-298, 309-313).

Tea as a Problem Commodity

The relative stability of tea yields and tea prices led most researchers to conclude that tea was a fairly stable commodity in the international market (13, p. 20). Blandford also found that export revenue fluctuations were relatively minor for tea. In fact, real value fluctuations of tea were less than those of ten of the 13 commodities compared by Blandford. But the ratio of real value instability to quantity instability was higher for tea than for 11 other commodities, indicating that the problem with tea was not primarily supply fluctuations but demand fluctuations and vagaries of the distribution system (9, pp. 21-27). FAO studies have also shown that tea price fluctuations considerably increased in the 1970s (13, p. 11). The impact of export price instability is strongly correlated with export concentration and is thus expected to affect Sri Lanka most severely since more than 50 percent of Sri Lankan export revenues still came from tea (14, pp. 127-132).

The declining real price trend is a more serious problem for tea, and Blandford found that tea export's real value decline was worse than those of eight other commodities and the real price decline was worse than for ten other commodities (9, pp. 6-16). The Asian Development Bank also found that the barter terms of trade of tea with cereal products declined from 100 to 61 over 1965-75, and tea fared much worse than the other nine agricultural commodities compared (15, p. 400). While declining terms of trade adversely affected all exporting countries, the African countries were able to expand exports rapidly and increase export earnings despite falling terms of trade. From 1955 to 1976, Indian and Ceylonese export revenues from tea stagnated around $200 million while African export revenues increased from $30 million to $154 million. This demonstrates the comparative vulnerability of Indian and Ceylonese tea exporters. It has been suggested that increasing stakes in tea of the African producers has changed the situation (16, p. 107). Table 17 suggests that the leading African producers, Kenya and Malawi, are, indeed, more vulnerable now to tea commodity problems than India, and this has made them more amenable to acceptance of ICAs as a policy goal.

TABLE 17: DEPENDENCE OF NATIONAL ECONOMIES ON THE TEA SECTOR

Time-Period	Country	Per Capita Tea Production (kg.)	Per Capita Tea Consumption (kg.)	(Net) Percentage of Crop Exported (percent)	Percentage of Export Earnings From Tea (percent)
1934-38					
	Sri Lanka	17.45	0.85	96	65.4
	Malawi	1.36	0.05	96	46.7
	India	0.64	0.10	88	18.8
	Indonesia	1.10	0.12	91	8.3
	Kenya	1.35	0.16	79	13.2
	Japan	0.78	0.50	35	0.5
	China	0.71	0.61	14	4.1
1952-56					
	Sri Lanka	17.82	1.32	92	61.5
	Malawi	2.30	0.09	96	30.0
	India	0.73	0.25	65	16.2
	Kenya	1.20	0.31	73	9.2
	Indonesia	0.45	0.21	53	3.3
	Japan	0.68	0.58	15	0.4
	China	0.14	0.12	15	1.0
1976-78					
	Sri Lanka	14.43	1.40	89.8	48.9
	Malawi	6.04	0.19	96.8	20.3
	Kenya	6.33	0.76	87.9	17.0
	India	0.85	0.58	29.9	6.4
	China	0.39	0.29	23.9	1.8
	Indonesia	0.50	0.14	73.4	0.6
	Japan	0.91	1.00	-10.0	—

Source: Commonwealth Economic Committee, Tropical Crops (various issues).

Review of the International Tea Agreement, 1933-55

An International Tea Agreement (ITA) was put into operation in 1933 as a response to the worldwide depression of 1927-33. In the early 1920s, tea consumption tended to expand with the return of prosperity to the Western world. Prices were fairly high--above 19 pence per pound until 1927--profits to tea plantations increased and higher profits stimulated new plantings and coarser plucking to raise the output. Between 1921 and 1930, tea production in India, Ceylon and Dutch East Indies rose by 60 percent, exports rose by more than 50 percent and stocks in England doubled. This brought pressure on prices which dropped to reach 9.5 pence per pound in 1933--half the level prevailing over 1923-27. The concern among the major producers produced voluntary crop restrictions in 1930 and finally led to the first ITA of 1933 (17, pp. 58-70).

The ITA made provisions for restriction of black tea exports through quotas, prohibition on new plantings and seed exports, study of consumption developments and demand promotion through the International Tea Market Expansion Board and collection and publication of statistics. The signatories were the tea planters' associations of India, Ceylon and Indonesia and were later backed by the concerned governments. This is in sharp contrast to current ICAs where governments are the only parties. In 1934, Malaya and the British East African colonies also became members and the ITA signatories controlled 97 percent of world black tea exports. Also, the nonsignatory countries, primarily green tea producers, China and Japan, were at war and could not exploit the ITA to expand their market shares (17, pp. 72-84).

Over 1933-39, export quotas were restricted to levels from 7½ to 17½ percent below "standard quotas" and the price immediately recovered by more than 60 percent. By 1938, tea prices had recovered far better than other tropical crop prices--cocoa, coffee, and sugar--both in nominal and real terms (Table 18).

In terms of recovery of terms of trade, the ITA was a clear success. It was extended in 1938, 1943, 1948 and 1950, but due to favorable market conditions, no restrictions were placed on exports. In 1950, the African countries withdrew from the ITA and, with the failure to involve China and Japan in the ITA, the monopoly of the members over the world tea trade declined. The 1954 high prices also generated a sense of complacency. By 1955, India, Ceylon and Indonesia agreed that the ITA was serving no useful purpose and allowed it to expire (18, pp. 27-29).

Review of International Negotiations, 1955-1980

The steady fall of real tea prices over 1955-76 concerned most producers and international opinion again veered toward the possibility of an ITA. From 1965, the commodity problems of tea started being discussed in international forums. The FAO Ad Hoc Committee on Tea started the discussions in Sri Lanka in 1965. Gradually the FAO-sponsored Study Group, the Inter-governmental Group, the Exporters' Subgroup, the Promotion Subgroup and the UNCTAD became the major forums where discussions and negotiations toward an ITA took place.

TABLE 18. PRICE INDICES OF SELECTED PLANTATION CROPS, 1925-38

(1925-29 = 100)

	Nominal Price Index				Real Price Index			
	Tea	Coffee	Cocoa	Sugar	Tea	Coffee	Cocoa	Sugar
1925-29	100	100	100	100	100	100	100	100
1930	85	60	67	56	-	-	-	-
1931	68	39	43	44	-	-	-	-
1932	33	48	47	37	53	77	76	60
1933	66	42	37	33	-	-	-	-
1934	74	51	43	35	-	-	-	-
1935	75	40	44	34	-	-	-	-
1936	73	43	57	34	-	-	-	-
1937	85	50	70	44	-	-	-	-
1938	81	35	43	39	-	-	-	-
1933-38	75	44	49	36	115	67	75	48

The major bottleneck of the 1960s was the hiatus between the Asian producers, primarily India and Sri Lanka, on the one hand, and the African producers, primarily Kenya and Malawi, on the other. India and Sri Lanka were losing ground and were in support of immediate restrictions on global supply with quotas based on historical performance. The African producers, aware of their cost advantages, opposed restrictions and sought quotas which would give them an edge over India and Sri Lanka. The FAO and UNCTAD were appointed conciliators, but no immediate solution acceptable to both groups emerged (18, pp. 128-129).

The first successful negotiation resulted in the Mauritius Agreement of 1970, under which all exporters agreed to restrict exports to predetermined quotas. Following an interim one-year quota for 1970, the arrangement ultimately provided three yearly moving quotas from 1973-74. To satisfy all parties, however, quotas have generally been fixed generously and have played no restraining role whatsoever. The export quotas have always exceeded actual export performance by 2 to 5 percent (19, pp. 69-70).

The other major breakthroughs achieved were the establishment of the International Tea Promotion Agency (ITPA) in 1979 and, finally, the unanimous agreement in the UNCTAD-sponsored meeting at Blantyre in 1979 to have an ITA to regulate tea supply to international markets. It was also agreed that the ITA would be based on a buffer stock and export quota arrangement. Despite the achievements, however, the working details of the ITA were yet to be worked out. The level of prices to be defended, the size of the buffer stock, the operation of the buffer stock and its funding were yet to be sorted out. The subsequent negotiations at Bandung and Salisbury in 1980 have not brought conclusive results and more negotiations may be needed before the issue can be resolved to mutual satisfaction.

Shape of the New ITA

There is general agreement that the mode of operation best suited for the ITA would be a buffer stock operation in conjunction with export quotas, as in the International Cocoa Agreement. The Experts' Subgroup on tea found buffer stocking technically feasible after drying for 4-6 months in tropical countries and 7-9 months in temperate countries, necessitating rotation of stocks (20, pp. 38-39). Bennett had earlier estimated the annual storage cost for tea to be about one percent of its price and categorized tea as one of the cheapest commodities to stock (21, pp. 106, 191).

Fixation of global export quotas will have to be done more firmly with a view to restricting supply. Division of the global quota into national quotas is likely to give rise to most problems. The International Coffee Agreements of 1962 and 1968 were under severe strain due to constant clamor for waivers and increases in quota and overshipping and transshipments through third countries until it evolved an enforcement machinery and a principle for quota allocation on the basis of export performance and stocks held (22, pp. 81-91, 96-113; 23, pp. 183-184). The proposed ITA has to pass through the same difficult period.

Etherington suggested that the African countries deserved quotas somewhat higher than their historic performances and that gradual acceptance of this point is gaining ground among Asian producers (16, pp. 102-106).

The buffer stock would defend a price range--buying at a given floor price and selling at a given ceiling price--export quotas being brought into operation as price falls below a trigger price and being reduced gradually for lower world prices. No agreement has been reached on the price-band. The Blantyre meeting agreed to defend a floor price of $2.14 per kilogram in 1980--lower than the earlier UNCTAD suggestion of $2.80-2.90 per kilogram in real 1974 prices (24, p. 5). This is more than double the current world price and it is doubtful whether the importing countries would agree to the doubling.

The size of the buffer stock would be determined by the width of the price band, the level of the floor price and the market conditions. The size of the stock, in turn, determines the cost of purchasing the stock. The Blantyre meeting agreed on a buffer stock of the order of 10/15 thousand tons--much smaller than the earlier UNCTAD estimate of 90,000 MT (24, p. 5; 12, p. 65). Behrman estimated by simulation that, to defend a realistic price band of 15 percent width, under current market conditions, a buffer stock of 161,000 MT would be required. This would necessitate a cost of $238 million in real 1970-74 prices--more than double the UNCTAD estimate of $90 million (12, p. 37). Such an amount is small compared to the Common Fund requirements of $6-10 billion, but will have to be funded by exporters in case the ICP does not materialize (25, pp. 11-19).

The exporters have to sort out these issues before the ITA can be put into operation. Any buffer stocking arrangement requires effective price forecasting to work well, and the job of the buffer stocking authority in the ITA will be all the more difficult as tea is a commodity far from homogeneous. Outside the ITA, the major institutional support for the tea producers will be derived from the ITPA and the UNCTAD/GATT work on tariff liberalization and encouragement of value-added exports. Work of all these agencies will have to be coordinated to yield optimum benefits for producers.

A PANACEA FOR ALL EVILS?

The major question confronting the tea producers is: "What concrete gains can be expected from the ITA?" Studies of feasibility of using an ICA for price stabilization and resource transfers have been made by the Economist Intelligence Unit, OECD, and Hveem, and all of them rate the chances of tea as "Medium (to Low)" to "Medium/High" (26, pp. 113-117).

The positive points for an ITA, from the points of view of efficiency and justice, are:

- More than 94 percent of the tea exports are from the poorest countries with income below $500 per year (27, p. 254).

- Exports are fairly concentrated with the top four exporters controlling 65 percent of the market (8, p. 70).

- Demand is inelastic with the global price elasticity estimated at -0.3 (28, p. 7).

On the negative side are:

- Cohesion among exporters is weak (26, p. 115).

- The world market is controlled by a few Transnational Corporations (26, p. 20).

- Demand has been declining in developed countries, LDCs already have about half the export market and the ethics of large-scale resource-transfers may cause rifts in the forum of LDCs, the Group of 77.

- Rapidly growing market shares and lower costs of production of African exporters may add to the producer discord.

In any case, the relative advantages of the ITA in the 1930s related to world market concentration and decision-making by commercial interests and these advantages do not exist to the same extent today. Coffee, cocoa, and rubber are expected to benefit more from ICAs through buffer stocking than is tea. Behrman estimated that the annual net revenue gains for tea will be modest (about $11 million) under a pure price-stabilization operation of the buffer stock. However, Behrman indicated that annual net revenue gains can be substantial (above $1 billion) if buffer stocks are operated to increase secular trends in real prices by two percent per annum, but suggests that such ICAs would be under great strain due to the difficulties of such oligopolistic market operations and opposition from consuming countries (12, p. 256; 8, pp. 50-51).

The ultimate gain from the ITA would depend on the extent of producer cohesion forged out in international forums. The consuming nations have not responded much and are not likely to respond very enthusiastically in the light of experiences with sugar, cocoa, and coffee, where they felt that producers did not do enough to hold down the price line when prices went sky-high. The TNCs--packers and blenders--are likely to resist raising of export unit values through ICAs or value-added tea exports, and the General Foods-Brazilian government showdown

over soluble coffee[1/] in 1970 may yet recur in the case of tea. But, unless LDC producers toe the line, each may expand the market for short-term gains and the long-term results could be disastrous for all (29, pp. 32-33).

1/ In the 1960s, Brazil expanded her soluble coffee manufacturing capacity significantly and, with the advantages of cheaper processing and fiscal incentives, was able to increase soluble coffee exports to the U.S. from 33,000 pounds in 1964 to 39 million pounds in 1972. General Foods, the largest U.S. roaster, protested against this loss of the domestic market and the U.S. brought pressure on Brazil to stop this, despite the fact that it did not violate the ICA. The Brazilian government had to yield and agreed to a "soluble coffee agreement" in 1971 which made Brazilian coffee lose its advantage (30, pp. 39-53).

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CHAPTER V. INDIAN TEA: A STRATEGY FOR REVIVAL

PROBLEM AREAS AND ALTERNATIVE STRATEGIES

The major problems confronting Indian tea in the 1980s are:

- declining export earnings caused by loss of competitiveness due to high cost of production;
- declining export availability due to growth rate of production compared to domestic consumption; and
- lack of investments in tea due to a low level of profitability.

The problems are exacerbated by a communication gap between the industry and the government and have to be visualized against the backdrop of a world market with relatively stagnant demand and a declining real price level. The world market trends also seem very unlikely to change radically.

Under the circumstances, a World Bank study found expansion of the Indian tea plantations to be "uneconomic" and suggested that India could benefit substantially by diversification and restriction of tea output (1, p. 73). On the other hand, Indian economists, the government, and the industry suggest "rationalization" to improve productivity and reduce unit costs backed by the long term strategy of demand promotion (2, pp. 175-194; 3, pp. 147-154; 4, pp. 115-121; 5, pp. 23-28).

A Strategy of Diversification

A strategy of restriction and diversification, however, does not appear to be acceptable to Indian planners for several reasons.

First, in several regions, because of the high soil acidity, alternative crop possibilities are poor and the opportunity cost of the land may be very low.

Second, even where it is feasible to replace tea with another crop, rice appears to be the major alternative, and the export earning possibilities of even low-yielding tea at depressed world prices are better than the export earning or import substitution capabilities of rice as an alternate crop (6, p. 31).

Third, the scope for labor absorption is much higher in tea. The average annual labor input into tea in India over 1968-72 had been 703 man-days (Appendix Table V) as against an average labor input of 94 man-days per cropped hectare for all crops in 1970-72 (7, p. 50) and an average input of 195 man-days per triple-cropped hectare over 1970-72 (8, p. 57).

Fourth, the employment provided by tea is more evenly distributed throughout the year due to a 8-12 month harvesting season.

Finally, the net returns per hectare were much higher for tea than for alternative crops. In 1975-76, the net returns per hectare were Rs 5000 for tea in Assam and Tamilnadu compared to only Rs 1000 for rice (9, pp. 76-80).

Besides, the idea of restricting exports to raise export prices cannot be put into effect uninationally, as other exporters may quickly expand their market shares to fill the gap. This has happened in the world coffee economy with Brazil and may happen here if India attempts it. Export restrictions could only work under an effective ITA and the difficulties of reaching an effective ITA are well-known.

A Strategy of Rationalization

Since diversification and restriction of output as a policy measure would not be acceptable to Indian policy planners, the only need is for a policy of "rationalization." Such a policy would involve optimum factor utilization and technological improvements leading to maximization of land and labor productivity and would simultaneously improve export availability and reduce unit costs. This would have to be backed up by demand promotion measures and improvement of the distribution system. The policy would also involve a reshaping of the land policy to make available land needed for expansion, provision of fiscal incentives to encourage investments, and provision of export incentives. The need is for a concerted policy in all these spheres so that the different policy instruments act in harmony (2, pp. 175-176).

Technological improvements comprise divisible and indivisible innovations. The major "divisible" innovations--fertilization, close planting, pest and disease control, pruning and superior varieties--have provided the major yield gains from the 1950s and constitute the major source of future increases in tea production. Indivisible innovations are "lumpy" and include irrigation provisions, renovation of factories, and mechanization to displace labor.

While other indivisible innovations have a positive role to play, the role of mechanization as a labor-saving device in a labor-surplus economy is of doubtful value and is likely to be resisted by the unionized labor. Since harvesting is the most labor-intensive and the most expensive of all operations, Eden suggested mechanized harvesting as in USSR and Japan to reduce costs (10, pp. 66-68). The unacceptability of large-scale labor displacement and the reduced quality of tea due to mechanical plucking appears to rule this out (2, pp. 179-182).

ELEMENTS OF A POLICY FOR RATIONALIZATION

Role of Technological Developments

The most significant yield-gains have been achieved by and will continue to be achieved by improved planting varieties, fertilization,

infilling, weed control, pest control, pruning, drainage and irrigation.

Improved Planting Materials. The major thrust for an improvement in productivity will come from planting with superior high-yielding, vegetatively propagated planting materials or "clones" which have been used in East Africa on a large scale. The theoretical yields of such clones with improved pruning cycles varies from region to region but the Tea Research Association (TRA) considers it technologically feasible to have yields of 3600 kilograms per hectare following the planting and pruning cycle (11, p. 21):

Year	Cultural Operation	Yield (kg./ha.)
1	Plant and center	-
2	Unprune	900
3	Unprune	1800
4	Unprune	2500
5	Prune	2250
6	Deep Skiff	2700
7	Medium Skiff	3200
8	Prune	2900
9	Deep Skiff	3600

Thus, doubling the yields is possible with these clones. Some of the TRA clonal experiments of 1974-75 show the possibility of even higher yields. The yields obtained in the fourth year on some experiments were as follows (12, p. 56):

Dooars	4,566	kilograms	per	hectare
Terai	3,460	"	"	"
Cachar	3,315	"	"	"
Assam	3,000	"	"	"

Some of the clones already released by TRA and the scientific department of UPASI, with established yields, were (11, p. 23):

B/5/63 . . .	3,021	kilograms	per hectare
B/1/62 . . .	2,453	"	" "
B/4/142. . .	2,256	"	" "

Even on a conservative estimate, yields of the order of 2,500 kilograms per hectare are achievable (11, p. 16) and such yields are comparable with results in Kenya and Sri Lanka. New planting and replanting with improved clones, thus, is the key tool for yield maximization and unit cost reduction.

Infilling. Planting denisty in older plantations varied from 7,000-8,000 bushes per hectare. Eden concluded that it is possible to increase yields considerably by planting up to 18,000 bushes per hectare (10, pp. 43-45). In addition, some tea bushes do not survive transplantation, and it is possible to replace the dead bushes and plant up the vacant

area by "infilling." The Lamond Committee of the ITA estimated such "vacancies" to be of the order of ten percent and estimated that it was possible to enhance yields by ten percent by infilling at an expense of Rs 200 million over ten years (11, p. 29).

Pruning. The TRA experimental results, now adopted fairly widely, proved that adoption of three-year pruning cycles increased crop yields considerably. Remarkable yield gains have also been achieved by early pruning of young tea (13, p. 57) with different clones:

	New Clearing, 5th Year (kg./ha.)	Pruned Field, 4th Year (kg./ha.)
B/5/63	2,960	5,600
B/6/61	2,055	4,600
B/6/62	2,050	4,200

The Lamond Committee estimated that it was possible to enhance yields at least by 7-8 percent by simply altering the pruning cycle (11, p. 32).

Fertilization. Standard dosages of fertilization included 35-55 kilograms per hectare of straight nitrogen and 45-100 kilograms per hectare in a 1:2:2 N-P-K mixture and had been regularly used by tea plantations. It was discovered recently that much of the tea land was potash-deficient and had to be given extra doses of K to ensure absorption of N. Also, zinc deficiency was found to be important and needed to be corrected by zinc sulphate sprays. Better methods of fertilization have also been established and all these are capable of significantly boosting yields (14, pp. 47-48).

Weed Control. The ideas of weed control have undergone serious changes and, instead of the old practice of clean weeding, it is recommended to weed out only grasses, leaving dicotyledon weeds. The older practice of manual weeding has been proposed to be replaced by application of chemical weedicides which avoids root injury. Effective weed suppression is expected to cause at least a ten percent saving of the crop (15, p. 2).

Pest and Disease Control. While pests and diseases are relatively less damaging for tea than for other plantation crops, the major diseases--blister blight, red rust and black rot--and pests--thrips and mites--have caused some damage. Improved plant protection measures and some chemical pesticides which are compatible with biological control may further reduce damage and save about ten percent of the crop (14, p. 48; 11, pp. 30-33).

Drainage and Irrigation. The beneficial effects of irrigation on the tea plant, particularly during summer drought, are well-established (10, pp. 109-110). It has generally been held that irrigation and drainage can improve yields by 15 percent, and at least 60 percent of the tea

area has irrigation potential (15, p. 2). In particular, sprinkler irrigation has been found to be beneficial to tea, but the lumpiness of irrigation investments has not allowed tea estates to go in for irrigation in a big way. A seminar organized by the Indian Institute of Foreign Trade recommended that the government should provide irrigation for tea as for other crops, but no such action has been taken (16, pp. 50-51).

Processing. The major innovations in processing have been the switch over from the orthodox processing method to the CTC/Rotorvane method and the introduction of continuous processing. Further R&D work on processing and packaging is going on and may yield substantial benefits in the future (14, p. 49).

The Key Role of Replanting

Of all the technological innovations cited above, replanting with improved material plays a key role. Tea is a wasting asset and tea bushes have an economic life of 50 years. A uniform replanting policy should envisage replanting of two percent of the bushes each year. Unless the uneconomic bushes can be replaced, fertilization, pest control or pruning cannot give sustained yield gains, and the yields of old bushes drop to low levels around 300-600 kilograms per hectare (11, pp. 15-17). Thus, replanting is the key tool of the rationalization policy.

Against an optimum replanting rate of two percent per annum, actual replantation in India over the period 1951-77 stood at an average rate of 0.6 percent per annum (Appendix Table XXII). The proportion of uneconomic tea bushes in India has, therefore, been significant and rising. The Tea Finance Committee estimated 21 percent of the bushes to be above 60 years old on March 31, 1963 (17, pp. 20-21) and the Tea Board estimated 38 percent of the bushes to be above 50 years old by 1976 (18, pp. 22-23). At the current rates of replanting and extension, this would reach 48 percent by 2000 and tea yields might start dropping. Over 1950-80, yield gains were made despite suboptimal replantation due to improved planting materials and improved practices, but this would not be possible over 1980-2000 in view of the much larger percentage of uneconomic bushes.

By the year 2000, only 123,000 hectares planted after 1950 will be of an economic age-group. The remaining 243,000 hectares should be replanted over 1980-2000--a replanting rate of 3.3 percent. Given the current status of replanting, is such a rate at all attainable?

How to Overcome the Obstacles to Replanting?

The major policy instrument intended to induce replantations in India has been the replantation subsidy. The subsidy scheme was introduced to induce replantation investments in 1968-69. The initial level of the subsidy was Rs 3000 per hectare in the plains and Rs 4000 per hectare in the hills--later amended to Rs 4000 and Rs 5000, respectively. In spite of the subsidy, however, very little replanting was done.

The broad and obvious conclusion was that the benefits of replanting even with the subsidy were not commensurate with the costs, after taking into account the price of the old crop foregone. A World Bank study (6, Annex II) found that, over a ten-year period, the cost of replanting per hectare was Rs 42,310, income from replanting per hectare was Rs 34,730, and value of the old crop foregone was Rs 3,441--causing a net loss of about Rs 11,000 per hectare, which the subsidy of Rs 4,000 could not counterbalance. World Bank studies showed that benefits exceeded costs only after 17 years, and discounting of cash flows made it a better choice for the planter not to replant.

While current high clonal yields make the economics a little more attractive, the same general conclusion still holds. The economics can be made favorable for replanting by increasing the subsidy level, but even this may not induce the planters to invest about Rs 12,500 per hectare when the profitability of tea investments is low. Given current levels of production costs and prices, the profitability can be enhanced only by reducing the taxation. Logically, too, high taxation rates and high subsidy rates seem incompatible. The current level of taxation of gross income on tea is 67 percent compared to 58 percent for other industries due to the high level of Agricultural Income Tax incidence. The Tea Finance Committee had recommended that Agricultural Income Tax rates should not exceed corporate Income Tax rates (17, pp. 32-33), but no action was taken and state Agricultural Income Tax rates were enhanced steadily thereafter.

A reduction of taxation levels from 67 percent to 55 percent can make replanting economical and eliminate the need for subsidies.1/ It would, however, be necessary to devise a mechanism to ensure that the funds released by taxation actually go into investments. A tax rebate, contingent upon fulfilling the replantation target, may achieve this. A meaningful discussion between the center and the state governments is called for to decide the mechanism of the rebate and each government's share and also to ensure that no further escalation of agricultural income tax rates takes place.

A fiscal incentive, thus, would be the key instrument used to induce replanting.

Rational Target-Setting and Cost Benefits

In the past, the government talked glibly of production and export for the tea industry. The Tea Board set a production target of 750,000 MT for 1985 (4, p. 120) and 1.3 million MT for 2000 (18, p. 41). The Ministry then revised the target for the year 2000 to 1.4 million MT and the export target for 2000 to 40 percent of the world market (18, pp. 41-42).

1/ In an unpublished paper by the author, it was established by cost-benefit analysis that replantation at the desired rate of 3.3 percent could be made financially viable for an "average" estate with an additional subsidy of Rs 3,100 per hectare or with a tax reduction to 61.3 percent. Tax reduction was a much stronger tool to induce investments since it improved profitability. For different regions, however, the conditions differed. South Indian estates were the worst off, due to size disadvantages, and required tax reduction to 55 percent to make replanting viable without subsidies.

The current production trends fall far short of these unrealistic targets, and production is only projected to reach 792,000 MT by 2000 at current rates of replantation and extension (Chapter III). With projected consumption for 2000 at 729,000 MT, even to enhance export availability a little beyond the current level of 200,000 MT would imply a target of one million MT.

How feasible is the target of one million tons and what are its implications?

Of the 366,000 hectares of tea in 1980, 243,000 hectares need replantation by 2000. Assuming that 2,500-kilograms-per-hectare yields would be reached by replantation from the ninth year onward, the replanted area could yield about 404,000 MT by 2000.

The remaining 123,000 hectares of economic bushes currently yield about 1,500 kilograms per hectare (1980). The Lamond Committee estimated the following production gains due to technological innovations in North-East India (11, p. 32):

	COST (in 10 years)	PRODUCTION GAIN (from 10th year)
Infilling	Rs 178.4 million	33,000 MT
Drainage	Rs 46.7 "	20,500 MT
Pruning	-- "	23,500 MT
Weed control	Rs 75.0 "	43,000 MT
Manuring	Rs 26.3 "	39,000 MT
Pest control	Rs 19.6 "	32,000 MT
	Rs 346 "	191,000 MT

It has been suggested that these estimates are unduly optimistic, but that improvements within 50 percent of these are attainable (11, p. 31). This would be consistent with the yield gains of 2.5 percent achieved over 1948-78 and would imply a production of 275,000 MT from 123,000 hectares at a total cost of about Rs 380 million.

The production from the entire existing tea area would, thus, be about 679,000 MT by 2000--the remaining 321,000 MT would have to be met by extensions on land adjacent to tea areas and expansions in new areas. According to the National Commission on Agriculture, about 85,000 hectares of land was available for extension in the tea estates in 1972-73 (5, p. 26). Extension on this land can produce 159,000 MT by 2000 at an extension rate of 1.2 percent per annum. The remaining 162,000 MT can be produced by expansion in new areas on 86,000 hectares.

Land and Credit Policy

The target of one million MT by 2000 is attainable, but implies availability of land and capital. Land availability in the new areas to the extent of 86,000 hectares is not seriously questioned, but the land policy of the traditional tea producing states will have to be changed so that the land for extension is made available for tea production and not put to other usage under pressure of land reforms. It

should also be considered whether the tea expansion should be through estates or smallholders.

The capital needs would be very large and may be computed as follows. Replantation of 243,000 hectares at Rs 12,500 per hectare (cost for first five years) (6, Annex II) would involve Rs 3 billion. Extension and expansion of 171,000 hectares at Rs 9,900 per hectare (cost for first four years)(6, Annex II) would involve Rs. 1.7 billion. Technical improvement of the existing crop of 123,000 hectares would involve Rs 400 million. The capital needs for plantations add up to Rs 5.1 billion against the CCPA estimate of Rs 5.3 billion (19, p. 39). The CCPA also estimated Rs 4.7 billion to be the supporting investment needed for construction of factories, houses, roads, renovation of factories, etc., bringing the total capital need to Rs 10 billion. This compares well with an estimate of the ITA of Rs 16.8 billion to reach an output of 1.4 million MT by the year 2000 (18, p. 19).

The capital needs of the industry thus amount to Rs 500 million annually. As against this, the industry's net profit in a moderately good year (1974-75) was Rs 118 million of which Rs 86 million were retained for plowback (20, p. 2121). At 1980 real cost price structure and with the proposed tax cut, this could rise to Rs 125 million annually, leaving a credit need of Rs 375 million to be met by the government and the banks. The government's major loan schemes--the Plantation Finance scheme, Tea Machinery and Irrigation hire-purchase scheme and Irrigation Loan scheme--have altogether a revolving fund of Rs 100 million with average annual disbursements over 1975-77 of only Rs 11 million (20, p. 2121). The credit needs of the industry would have to be met and the Tea Board would have to centrally monitor the long-term credit flows from banks and from its own funds. With a 10-year repayment period, a total fund of Rs. 3.75 billion would be required to meet the long-term credit needs.

Rationalization of the Tax Base

Apart from the income tax reduction, a rationalization and simplification of the tax base has been proposed. This has essentially two components--taxation at a single point and remodeling the levy of excise duty on an *ad valorem* basis.

The many forms and levels of taxation on tea (Table 5) have often been pointed out by the industry as worthy of rectification. Collection of all the levies at one point, preferably the auction/sales (if outside an auction) point can ease the accounting and cash flow problems of the industry.

The levy of excise duty at a flat rate per kilogram within each zone can be inequitous, as prices fetched by different tea estates within a zone vary sharply (3, p. 79). The impact of excise duty on prices also varies widely from zone to zone. Over 1975-77, excise duties have

varied as percentages of Calcutta auction prices of the zone as follows (21, pp. 29, 96):2/

Zone I	3.7 percent
Zone II	5.3 percent
Zone III	7.8 percent
Zone IV	10.4 percent

At 1980 prices, excise duty incidence is, on an average, 7.5 percent. Reorganization of the excise duty system on such an ad valorem basis would be more "just" and would give a relief to small estates for whom the present mode of taxation is regressive.

A Shift to a Smallholder Policy

A major impact on the cost of production could be made by a shift to a smallholder-oriented production policy. It is not suggested that existing estates be chopped up into small units but the entire extension and expansion in new areas could be through smallholder projects rather than estates. Tamilnadu and West Bengal state governments are paying serious attention to this, but this needs to be taken up on a concerted basis at the national level.

The KTDA experience has proven that it is possible to grow tea on a large scale through smallholders and ensure high yields and quality products. It would be necessary to set up an extension agency and provide institutional arrangements to provide inputs and credit, collect tea leaves, and arrange processing and marketing. The beginnings of the project would have to be slow in view of the intense supervision and training needs but, over an intermediate term (20 years), this policy would give dividends. Most state governments do have plantation corporations already. They have well-developed marketing channels and could provide the institutional backing needed for smallholders' cooperatives. The KTDA experience also illustrates that the administrative costs of the institution are relatively small compared to the costs of setting up the infrastructure which would be needed even for an estate mode of production. Savings in cost of production may be considerable and, politically, a smallholder project is far more acceptable to most state governments and may resolve the conflict between land reforms and tea land needs. Such a shift would imply that one-third of the Indian tea area would be under smallholders' by 2000 as against 2 percent in 1980 and, on the present estimates of 40 percent of estate costs being labor costs, could reduce average cost of production by 13 percent and enhance Indian tea's competitive position.

Problems with Nonviable Estates

Nonviable and sick estates already present a major problem to the industry. By 1976, 38 tea estates had fallen "sick" and closed down (22, p. 784). Most of these were small (less than 100 hectares), proprietary estates squeezed out by the diseconomies of scale. A study

2/ Zones represent administrative jurisdictions of the Central Excise Department, within which excise duty is fixed at a flat rate per kilogram.

by the National Council of Applied Economic Research also found them to be badly managed, short of capital, highly indebted and with old machinery (23, p. 380).

The rationalization policy with large capital investment will pay off in large estates due to the economies of scale. The smallholder sector, with state support, can thrive on the new areas. It appears that the small estates are caught in between with an outmoded estate production process but on a scale too small for the estate system to work properly. The response of the government has been to take over the management of "sick" tea estates which incurred loss for three out of five years, had yields at least 25 percent less than the average, and were habitual defaulters on statutory obligations (22, p. 784). Such taken-over estates, however, did not in general attain viability but merely transferred the losses to the public coffers. The logical step for such small estates would be to either amalgamate with others into a larger, viable estate or to be split up into smallholdings to be operated by the estate workers.

Amalgamation has long been recommended (2, p. 185) but little has been achieved on the ground. Amalgamation of units may proceed quicker after government takeover of units, but splitting up estates may present organizational problems and it is suspected that this will continue to be a problem area. Fortunately, the magnitude of the problem is not large, as less than six percent of tea land is under estates below 100 hectares.

BACKUP POLICY OF DISTRIBUTION AND TRADE

Reform of the Auction and Distribution System

The auction system has often been blamed as the villain responsible for low prices (24, pp. 146-150). Restructuring of the auction system has been suggested, but, given the concentration of buying and selling powers in the hands of a few big blenders, restructuring of auctions cannot change things much (25, P. 827). The alternatives to auctions as the primary marketing system are not clear. Direct ex-garden sales fetch lower prices, monopoly state marketing boards appear to be inefficient, and futures markets are strongly susceptible to speculation. The Tandon Committee, appointed by the Government of India to look into this, found auctions to be a fair system of disposal on the whole and no immediate change seemed called for.

To relieve concentration in the distribution system, the Tea Trading Corporation of India (TTCI) has emerged as a buyer in the domestic auctions and a seller of packaged tea in the international market. With greater emphasis on export of value-added tea from producing countries, concentration in the world market is expected to decline. The large packers and blenders, however, are resisting this and it has been suggested that the LDCs set up a large packing/blending company to compete with the TNCs (26, p. 18). This is expected to be a slow process and only an ITA can provide the institutional framework for encouraging value-added tea exports.

Need for a Steady Export Policy

The industry has always suffered from uncertainties regarding the export policy, with the export duty being imposed on and off for the last 30 years. The export duty was abolished in 1979, but the industry needs some reassurance that it will not be reimposed. In view of the need for export earnings and the declining competitiveness of Indian tea due to heavy tax incidence, the present policy may be continued as a stable export policy (18, pp. 12-15). If the rationalization policy is pursued properly, domestic consumption is not expected to be restricted and exports can still pick up somewhat.

Export promotion measures in the shape of import facilities, cash incentives, and excise duty refunds have encouraged exports of value-added items in the 1970s and will continue to do so. Expansion of value-added exports to developed countries is expected to be slow. A phased approach might work--concentrating first on the Middle East market where there is little competition and then proceeding to developed countries in collaboration with the blenders there. Since labor is cheaper in India than in developed countries, it may be possible to work out an arrangement to the mutual benefit of blenders and Indian national interests (26, p. 3).

Need for Promotion

The Indian government traditionally spent considerably less on promotion than their Sri Lankan counterpart (6, pp. 37-38). During 1953-60, there was no organized promotion drive in foreign markets, but overseas promotion gained importance in the 1960s. The 1978 promotion budget of Rs 15 million was probably inadequate, and an amount of Rs 60 million would be required on the yardstick of two percent of export earnings (27, p. 24). Most of the promotional work through Tea Centers in foreign cities has been found to be of limited utility, and future promotion should proceed more in line with commercial interests and through professionals (18, p. 233). Uninational promotion may effectively follow introduction of national brands in markets, while broad support of generic promotion through the ITPA would be more relevant in the Western markets.

Support for the ITA

The major international issue of forcing a higher "real" price of tea can only be resolved through an international arrangement such as the ITA. The Indian government, therefore, should continue its support of the ITA. A flexible approach during negotiations is called for regarding quota fixation, as it is extremely unlikely that India can maintain her current market share. Even under the plan advocated here, Indian exports by the year 2000 can only be on the order of 250,000 MT--only 16 percent of the world market.

WHAT THE FUTURE HOLDS FOR INDIAN TEA

The package of policy measures advocated here involves fiscal incentives and a liberalized credit policy to induce investments for replantation of the entire aged tea-bush population with clonal varieties backed

up by other technical improvements, a large-scale shift to smallholder tea production under state involvement, a stable export policy, effective demand promotion, and an International Tea Agreement. The steps can yield a production of one million tons by the year 2000 but would involve a heavy investment of Rs 10 billion.

The investment of Rs 10 billion, however, generates an additional crop of 450,000 tons by 2000--valued at Rs 5.4 billion at 1980 prices. The capital-output ratio of 1.9:1 is much higher than the average rate of 6.2:1 for all industrial investments (28, p. 174). Further, the horizontal expansion envisaged would provide 364,000 direct jobs and, perhaps, 500,000 jobs in all, including processing and trade (15, p. 2). The tax rebate would cost the government Rs 40 million annually in the early 1980s, but the added crop could bring in an extra Rs 400 million annually as excise duty and total government revenue gain could be above Rs 700 million per year (19, p. 40). The plan should also ensure annual export revenues above $500 million in real 1980 terms, if the ITA is able to defend a real price-line.

The investment, then, seems worthwhile. The task, however, is extremely difficult. To pump finances at eight times the rate of the 1970s, to replant at five times the rate of 1950-77 and to expand at four times the rate of 1950-77 with a shift to the smallholder mode of production, all imply a task imposingly difficult. But time is of the essence. At current trends of replantation, the earning capacity of the estates is depreciating rapidly. By 2000, unless the current trends are reversed, the required rate of replantation would be above four percent, the capital needs and the complexity of the task would increase several-fold and more estates would be sick or abandoned.

The time to act is now! Rehabilitation of the tea sector is an important task and one that deserves the attention of both the government and the industry. The sector cannot, perhaps, return to the preeminent position it had in the Indian economy before 1950, but it can still be nursed back to health, and its continued good health is of importance to the government, the industry, and the people of the tea growing areas.

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APPENDIX TABLES

APPENDIX TABLE I. INDIA: CONTRIBUTION OF TEA TO THE NATIONAL ECONOMY

Year	Gross Value of Tea Produced In India	Export Earnings From Tea	Direct Tax Revenue From Tea	Consumer Price Index No.
	(million Rs)	(million Rs)	(million Rs)	(1950=100)
1950	1,120.2	804.2	135.6	100
1951	1,298.8	939.4	146.0	104
1952	1,087.1	808.8	145.1	102
1953	1,298.7	1,020.6	140,8	105
1954	2,015.3	1,482.5	137.1	101
1955	1,635.1	1,096.4	229.3	95
1956	1,824.9	1,451.3	210.0	104
1957	1,659.0	1,136.4	236.6	109
1958	1,788.0	1,297.0	229.5	115
1959	1,847.7	1,290.8	209.8	119
1960	1,880.4	1,222.5	206.5	122
1961	1,946.2	1,221.7	193.7	124
1962	1,958.5	1,296.0	206.1	128
1963	1,954.3	1,231.9	202.5	132
1964	2,076.7	1,246.7	158.0	150
1965	2,071.1	1,148.4	171.7	164
1966	2,612.7	1,562.2	170.1	182
1967	2,901.4	1,802.0	471.6	205
1968	2,724.7	1,565.1	531.0	204
1969	2,535.5	1,245.0	461.9	199
1970	2,919.4	1,482.5	310.3	210
1971	3,110.8	1,609.2	375.6	216
1972	3,191.4	1,472.9	343.5	231
1973	3,368.0	1,448.5	296.1	269
1974	4,890.2	2,235.4	303.0	346
1975	5,344.2	2,382.9	400.6	365
1976	6,277.0	2,952.6	566.2	338
1977	10,790.4	5,637.2	578.4	365
1978	8,409.6	3,285.6	1,603.6	405

Sources: J. Thomas & Co., Tea Statistics 1978-79, pp. 2-3; Tea Board, Tea Statistics (various issues); United Nations, Statistical Yearbook (various issues).

APPENDIX TABLE II. INDIA: NUMBER OF TEA ESTATES, AREA UNDER TEA, PRODUCTION AND YIELD OF TEA, 1900-79

	Number of Production Units	Area Under Tea	Production	Yield
		(hectares)	(metric tons)	(kg./ha.)
1900	-	211,443	89,567	424
1910	4,402	228,062	119,569	524
1920	5,054	284,922	156,645	550
1930	4,743	325,057	177,391	546
1940	6,564	337,296	210,415	624
1950	6,731	314,640	275,475	876
1960	9,499	331,229	321,077	969
1970	12,015	356,516	435,468	1,174
1979	13,229	366,000*	550,000*	1,503*

Source: J. Thomas & Co., Tea Statistics 1978-79, pp. 1-3; FAO, Production Yearbook, 1979.

* FAO estimates.

APPENDIX TABLE III. INDIA: DISTRIBUTION OF SIZE, PRODUCTION AND PRODUCTIVITY OF TEA ESTATES/SMALLHOLDINGS IN 1975*

Size/Class (hectares)	Number of Units	Hectarage under Tea (hectares)	Production of Tea (metric tons)	Yield (kg./ha.)	Average Size (hectares)
0-5	10,042	7,773	-	-	0.8
5-50	614	9,429	6,406	679	15.4
50-100	184	13,304	12,716	956	72.3
100-200	314	45,682	49,981	1,094	145.8
200-400	447	129,031	178,467	1,321	288.7
400 and over	278	153,630	222,751	1,450	552.6
TOTAL	11,879	358,849	470,321+	1,340+	191.0+

* Excluding Himachal Pradesh.

\+ Excluding smallholders.

Source: Tea Board of India, Tea Statistics 1976-77, pp. 18-21.

APPENDIX TABLE IV. INDIA: PRODUCERS' ASSOCIATIONS IN TEA

	Name of Association	Tea Area of Members, 1979
		(hectares)
1.	Indian Tea Association (5 branches)	193,572
2.	Tea Association of India, Calcutta	61,407
3.	United Planters' Association of South India, Coonoor	52,914
4.	Indian Tea Planers' Association, Jalpaiguri	22,660
5.	Assam Tea Planters' Association, Jorhat	21,180
6.	Bharatiya Cha Parishad, Calcutta	11,454
7.	Kannan Devan Planters' Association, Mattupatti	-
8.	Wynaad Planters' Association, Chundale	-
9.	Terai Indian Planters' Association, Matigara	6,055
10.	Tripura Tea Association, Agartala	4,637
11.	Kangra Valley Tea Planters' Association, Palampur	4,000
12.	Kangra Tea Association, Bajnath	
13.	Central Travancore Planters' Association, Vandiperiyar	-
14.	Indian Tea Growers' Association, Silchar	-
15.	Dehra Dun Tea Planers' Association, Dehra Dun	1,082
16.	Surma Valley Tea Planters' Association, Calcutta	-
17.	Anamallai Planters' Association	-
18.	Coorg Planters' Association, Mercara	-
19.	Kanyakumari Planters' Association, Nagercoil	-
20.	Malabar Planters' Association, Malabar	-
21.	Mundakayam Planters' Association, Mundakayam	-
22.	Mysore Planters' Association, Mysore	-
23.	Nilgiri Planters' Association, Kotanaad	-
24.	Nilgiri-Wynaad Planters' Association, Devala	-
25.	Planters' Association of Tamilnadu, Coonoor	-
26.	Nelliampathy Planters' Association, Nelliampathy	-
27.	Association of Planters of Kerala, Kottayam	-

Sources: International Tea Agreement, General Report, 1979, p. 61. M. Halayya, An Economic Analysis of the Indian Tea Industry and Public Policy, p. 74.

APPENDIX TABLE V. TRENDS IN LABOR PRODUCTIVITY IN INDIAN TEA PLANTATIONS 1951-77

	Area Under Tea	Average Labor Employed	Labor Per Hectare	Yield Per Hectare	Yield Per Yield Per Laborer
	(ha.)		(persons)	(kg.)	(kg./capita)
1951	316,870	1,017,989	3.21	901	280
1952	317,916	1,054,295	3.32	877	264
1953	318,642	1,054,102	3.31	875	264
1954	319,478	1,085,191	3.40	925	272
1955	320,238	1,017,483	3.18	961	302
1956	320,588	1,004,683	3.13	963	307
1957	323,285	1,004,257	3.11	961	309
1958	325,357	980,238	3.01	1,000	332
1959	326,494	919,405	2.82	998	355
1960	330,738	845,166	2.55	971	380
1961	331,229	822,834	2.48	1,070	431
1962	332,524	816,262	2.45	1,043	425
1963	334,036	847,372	2.54	1,037	409
1964	337,874	818,783	2.42	1,102	455
1965	341,762	807,169	2.36	1,072	454
1966	345,256	804,135	2.33	1,089	467
1967	347,653	775,184	2.23	1,107	495
1968	351,065	755,729	2.15	1,146	533
1969	353,359	747,835	2.12	1,114	526
1970	354,133	759,646	2.14	1,182	552
1971	356,516	766,593	2.15	1,221	568
1972	358,675	761,919	2.12	1,271	600
1973	360,108	766,036	2.13	1,311	615
1974	361,663	771,717	2.13	1,353	635
1975	363,303	774,897	2.13	1,341	629
1976	364,275	776,162	2.13	1,405	659
1977	366,276	780,160	2.13	1,525	716

Source: Tea Board of India, Tea Statistics, (computed from various issues).

APPENDIX TABLE VI. INDIA: PROFITABILITY INDICES FOR TEA PLANTATIONS, 1939-76

(percent)

Year	Gross Profit to Sales Ratio	Net Profit to Net Worth Ratio	Tax Provision to Profits Before Tax Ratio	Retained Profit to Profits After Tax Ratio	Current Asset to Liability Ratio
1939	17.8	8.3	24.1	47.4	-
1946	31.0	14.0	38.3	46.9	-
1950	41.5	16.8	41.5	55.0	-
1951	17.2	8.6	-	-	-
1952	2.6	-	-	-	-
1953	35.0	21.5	-	-	-
1954	48.9	30.6	36.8	65.7	1.42
1955	15.3	5.4			
1956	23.6	11.2			
1957	12.0	3.8	49.9	7.3	
1958	15.2	6.0			
1959	20.6	10.3			
1960-61	20.1	9.2	46.5	19.7	1.42
1961-62	14.5	5.9	51.8	3.3	1.38
1962-63	16.7	6.1	61.4	11.4	1.30
1963-64	12.9	4.9	56.0	4.2	1.26
1964-65	14.5	5.6	53.8	9.6	1.22
1965-66	13.3	5.2	60.0	4.7	1.18
1966-67	16.2	6.9	53.4	4.7	1.20
1967-68	16.1	7.9	57.0	8.3	1.21
1968-69	8.6	3.9	62.6	-18.3	1.15
1969-70	7.6	4.3	66.0	-28.4	1.17
1970-71	10.2	9.8	51.2	17.8	1.21
1971-72	8.2	7.7	55.1	9.4	1.21
1972-73	7.7	6.3	61.3	7.1	1.17
1973-74	8.4	8.7	50.4	42.7	1.19
1974-75	14.6	16.3	57.0	73.4	1.23
1975-76	10.5	13.0	56.0	58.2	1.25

Sources: Government of India, Report of the Plantation Inquiry Commission, Appendix LXXXIV. Tea Board, Tea Statistics 1961-63, pp. 85-88. Tea Board, Tea Statistics 1977-78, pp. 123-129.

APPENDIX TABLE VII. PRICE VARIATIONS FOR TEA IN DOMESTIC AND LONDON AUCTIONS, 1950-78

Year	Average Domestic Auction Price		Average London Auction Price	
	Nominal	Real*	Nominal	Real*
	(Rs/Kg)		(pence/Kg)	
1950	4.23	4.23	38.2	38.2
1951	3.74	3.67	34.5	28.8
1952	3.10	3.04	35.9	29.7
1953	4.26	4.06	44.8	38.2
1954	6.12	6.06	63.0	55.0
1955	4.35	4.58	51.3	44.2
1956	4.94	4.75	54.5	45.3
1957	4.39	4.03	52.5	42.6
1958	4.55	3.96	49.7	40.8
1959	5.04	4.24	51.4	42.7
1960	5.28	4.33	53.0	
1961	4.86	3.92	50.5	40.5
1962	5.26	4.11	50.4	40.9
1963	5.27	3.99	48.0	38.5
1964	5.18	3.45	48.5	38.5
1965	5.46	3.33	47.6	37.3
1966	5.66	3.11	46.2	35.4
1967	6.06	2.96	47.4	35.9
1968	5.75	2.82	41.2	31.6
1969	5.88	2.95	45.7	33.5
1970	6.55	3.12	43.1	29.7
1971	6.79	3.14	42.0	27.3
1972	6.54	2.83	44.8	26.9
1973	6.85	2.55	52.8	26.6
1974	10.04	2.90	63.0	25.9
1975	10.74	2.94	68.3	24.9
1976	12.34	3.65	148.7	53.4
1977	15.29	4.19	129.3	44.6
1978	12.65	3.05	109.8	37.9

*Domestic prices deflated to 1950 base through CPI and London prices deflated to 1950 base through Index of LDC import unit values.

Source: J. Thomas & Co., Tea Statistics 1978-79.

APPENDIX TABLE VIII. INDIA: DIRECT TAX REVENUE FROM TEA

Year	Export Duty	Central Excise/ Tea Cess*	Total
		(in millions of rupees)	
1949-50	109.9	25.7	135.6
1950-51	112.4	33.6	146.0
1951-52	102.0	43.1	145.1
1952-53	106.2	34.6	140.8
1953-54	116.2	20.9	137.1
1954-55	197.4	31.9	229.3
1955-56	178.3	31.7	210.0
1956-57	204.7	31.9	236.6
1957-58	190.9	38.6	229.5
1958-59	162.7	47.1	209.8
1959-60	122.7	83.8	206.5
1960-61	111.7	82.0	193.7
1961-62	98.3	107.8	206.1
1962-63	66.0	136.5	202.5
1963-64	--	158.0	158.0
1964-65	--	171.7	171.7
1965-66	--	170.1	170.1
1966-67	315.1	156.5	471.6
1967-68	282.8	248.2	531.0
1968-69	210.7	251.2	461.9
1969-70	78.6	231.7	310.3
1970-71	4.0	371.6	375.6
1971-72	--	343.5	343.5
1972-73	--	296.1	296.1
1973-74	--	303.0	303.0
1974-75	--	400.6	400.6
1975-76	--	566.2	566.2
1976-77	--	578.4	578.4
1977-78	984.3	619.3	1,603.6

*Cess collections showed with export duty revenues till 1962-63 and with excise revenues thereafter.

Source: Tea Board of India, Tea Statistics, (various issues).

APPENDIX TABLE IX. INDIA: CONSUMPTION OF TEA

	Total Apparent Consumption	Apparent Per Capita Consumption
	(1000 metric tons)	(kilograms)
1951	72.8	0.20
1952	76.8	0.21
1953	82.7	0.22
1954	78.9	0.21
1955	100.5	0.26
1956	97.4	0.25
1957	112.5	0.28
1958	108.9	0.26
1959	109.1	0.26
1960	126.8	0.29
1961	139.6	0.32
1962	135.7	0.31
1963	140.7	0.31
1964	149.0	0.32
1965	166.0	0.35
1966	184.2	0.37
1967	179.5	0.36
1968	185.9	0.36
1969	203.3	0.37
1970	213.0	0.39
1971	224.7	0.41
1972	236.9	0.42
1973	248.0	0.44
1974	260.0	0.45
1975	272.0	0.47
1976	286.0	0.48
1977	300.0	0.50

Source: Tea Board of India, computed from Tea Statistics 1977-78, p. 93.

APPENDIX TABLE X. INDIA: TRENDS IN BEVERAGE CONSUMPTION, 1960-70
(Per Capita)

Year	Tea (grams)	Coffee (grams)	Beer (litre)	Milk (kilograms)	Soft Drinks (litre)
1960-61	291	83	0.022	46.1	0.028
1961-62	314	113	0.024	45.3	0.044
1962-63	298	57	0.025	44.5	0.075
1963-64	301	74	0.026	43.7	0.125
1964-65	312	73	0.030	42.9	0.148
1965-66	339	72	0.035	42.1	0.175
1966-67	367	88	0.036	41.4	0.195
1967-68	351	76	0.037	40.6	0.216
1968-69	352	83	0.037	39.8	0.241
1969-70	418	83	0.037	39.1	0.269
Index no. for 1969-70 (1960-61= 100)	144	100	168	85	961
Income-elasticity	1.90	0.48	3.95	0.80	10.62

Source: Marketing Research Corporation of India, Survey of India's Export Potential of Tea, pp. 97, 101, 102.

APPENDIX TABLE XI. INDIA: TREND OF EXPORTS AND EXPORT EARNINGS, 1950-78

Year	Exports	Export Earnings	Unit Value
	(1000 MT)	(million Rs)	(Rs/Kg)
1950	200.85	804.2	4.01
1951	194.7	939.4	4.83
1952	193.9	808.8	4.17
1953	213.5	1,020.6	4.78
1954	208.5	1,482.5	7.11
1955	183.8	1,096.4	5.97
1956	233.1	1,451.3	6.23
1957	191.8	1,136.4	5.93
1958	217.3	1,297.0	5.97
1959	215.5	1,290.8	5.99
1960	196.5	1,222.5	6.22
1961	205.3	1,221.7	5.95
1962	220.8	1,296.0	5.87
1963	209.3	1,231.9	5.89
1964	212.3	1,246.7	5.87
1965	197.4	1,148.4	5.82
1966	190.4	1,562.2	8.21
1967	203.3	1,802.0	8.86
1968	200.8	1,565.1	7.79
1969	174.1	1,245.0	7.15
1970	199.1	1,482.5	7.44
1971	214.3	1,609.2	7.51
1972	193.2	1,472.9	7.62
1973	190.3	1,448.5	7.61
1974	225.1	2,235.4	9.93
1975	211.4	2,382.9	11.27
1976	242.4	2,952.6	12.18
1977	221.5	5,637.2	25.45
1978	166.3	3,285.6	19.76

Source: J. Thomas & Co., Tea Statistics 1978-79, pp. 2-3.

APPENDIX TABLE XII. INDIA: PATTERN OF TEA EXPORTS

	1938-39		1951		1961		1971		1977	
	('000 M.T.)									
W. Europe:	140.7	(89%)	145.7	(75%)	130.9	(40%)	78.4	(40%)	90.8	(40%)
U.K.	138.5		130.9		121.8		66.2		74.3	
Eire	1.5		10.9		5.8		5.3		6.4	
Others	0.7		3.9		3.3		6.9		10.1	
E. Europe	--	(-)	2.5	(1%)	13.0	(6%)	45.4	(23%)	59.2	(26%)
U.S.S.R.	--		2.3		11.9		39.6		47.7	
Poland	--		0.2		1.0		3.4		5.3	
Others	--		--		0.1		2.4		6.2	
America:	10.8	(7%)	23.7	(12%)	17.9	(9%)	12.3	(6%)	12.6	(5%)
U.S.	3.7		12.1		1.0.9		8.5		10.0	
Canada	7.0		8.7		6.4		3.8		2.5	
Others	0.1		2.9		0.6		--		0.1	
Asia:	5.2	(3%)	14.6	(8%)	17.4	(8%)	32.2	(16%)	32.5	(14%)
Afghanistan	1.2		1.5		3.5		14.9		8.6	
Iran	3.4		5.0		3.5		3.2		6.5	
Iraq	--		0.3		2.4		6.4		4.6	
Gulf States	0.3		3.0		1.5		3.3		5.8	
Other W. Asia	0.3		3.3		5.1		3.4		1.1	
Others	--		1.5		1.4		1.0		5.9	
Africa:	0.4	(-)	3.5	(2%)	23.8	(12%)	23.5	(12%)	28.7	(13%)
Egypt	0.2		1.6		17.2		8.4		14.0	
Sudan	0.1		1.2		6.5		12.4		13.0	
Others	0.1		0.7		0.1		2.7		1.7	
Oceania:	0.7	(1%)	3.6	(2%)	3.2	(2%)	3.4	(2%)	5.9	(2%)
Australia	0.6		3.0		2.5		3.1		4.6	
New Zealand	0.1		0.6		0.7		0.3		1.3	
Others	--		--		--		--		--	
World	158.6		193.6		206.2		195.2		229.6	

Source: Tea Board of India, Tea Statistics (various issues).

APPENDIX TABLE XIII. AREA UNDER CULTIVATION OF TEA IN PRODUCING COUNTRIES: 1934-38 TO 1976-78

(thousand hectares)

	1934-38	1948-52	1961-65	1969-71	1976-78
ASIA:	905	889	1082	1170	1277
India	309	316	335	355	365
China	...	87	187	249	306
Sri Lanka	226	229	239	242	242
Indonesia	204	139	134	109	103
Japan	39	28	49	52	60
Turkey	-	3	17	27	53
Bangladesh	44	30	35	44	42
Taiwan	45	35	37	36	34
Iran	3	10	22	27	27
Others	35	12	27	29	45
AFRICA:	17	36	78	121	179
Kenya	5	8	21	40	84
Malawi	7	9	13	16	18
Others	5	19	44	65	77
EUROPE:	40	63	68	75	77
USSR	40	63	68	74	77
Others	-	-	-	1	-
SOUTH AMERICA:	-	6	22	47	51
Argentina	-	2	16	36	40
Others	-	4	6	11	11
OCEANIA:	-	-	-	1	5
WORLD TOTAL	962	994	1250	1414	1582

Source: FAO, Production Yearbook.

APPENDIX XIV. PRODUCTION OF TEA IN PRODUCING COUNTRIES: 1934-38 TO 1976-78

(thousand metric tons)

	1934-38	1948-52	1961-65	1969-71	1976-78
ASIA:	724	598	966	1123	1403
India	178	273	357	416	550
China	270	60	158	220	313
Sri Lanka	104	140	217	215	201
Japan	49	40	80	91	102
Turkey	-	-	9	34	77
Indonesia	75	39	75	65	66
Bangladesh	26	22	26	25	36
Taiwan	11	10	20	26	26
Iran	1	5	12	18	22
Others	10	9	12	13	10
AFRICA:	8	19	60	117	177
Kenya	4	6	17	38	81
Malawi	4	7	13	18	31
Others	-	6	30	61	65
EUROPE:	5	21	45	65	100
USSR	5	21	45	65	100
Others	-	-	-	-	-
SOUTH AMERICA:	-	1	14	34	44
Argentina	-	-	10	26	32
Others	-	1	4	8	12
OCEANIA:	-	1	1	1	6
WORLD TOTAL	738	640	1085	1341	1730

Source: FAO, Production Yearbook.

APPENDIX TABLE XV. TEA EXPORTS: 1934-38 TO 1976-78

(thousand metric tons)

	1934-38	1948-52	1961-65	1969-71	1976-78
ASIA:	396.0	407.9	507.8	538.7	589.1
India	154.7	193.5	207.1	189.5	212.1
Sri Lanka	99.6	137.4	210.3	205.8	192.8
China	40.0	11.8	30.9	31.3	64.7
Indonesia	67.6	26.0	30.8	40.6	51.7
Bangladesh	-	13.2	2.0	22.0	26.8
Taiwan	10.5	8.9	15.2	21.5	20.8
Turkey	-	-	0.8	11.2	2.2
Others	23.6	17.1	10.7	16.8	18.0
AFRICA:	7.0	14.8	53.4	105.1	158.3
Kenya	3.1	3.8	15.3	37.8	74.9
Malawi	3.4	6.7	12.6	17.7	31.1
Others	0.5	4.3	25.5	49.6	52.3
SOUTH AMERICA:	-	0.5	9.6	23.1	34.8
Argentina	-	-	8.0	18.7	27.7
Others	-	0.5	1.6	4.4	7.1
EUROPE:	5.5	-	8.1	11.2	17.5
USSR	5.5	-	8.1	11.2	17.5
OCEANIA:	-	-	-	1.5	6.0
RE-EXPORTS:	33.5	7.4	20.2	47.0	53.4
UK	31.4	6.0	17.0	21.4	29.5
Netherlands	0.1	0.4	0.8	21.4	16.0
Others	2.0	1.0	2.4	4.2	7.9
WORLD TOTAL	442.0	430.6	599.1	726.6	859.1

Source: FAO, Trade Yearbook; and ITC, Annual Bulletin of Statistics.

APPENDIX TABLE XVI. TRENDS IN YIELDS OF TEA IN SELECTED PRODUCING COUNTRIES, 1933-35 TO 1978

(kilograms/hectare)

	1933-35	1951	1961	1971	1978
Japan	1158	1555	1668	1724	1750
Turkey	-	110	404	1138	1585
Malawi	341	591	868	1198	1577
India	523	901	1070	1221	1548
USSR	126	342	625	909	1448
China	...	747	837	594	1047
Iran	-	498	500	530	1000
Kenya	393	865	712	828	983
Sri Lanka	446	641	869	901	888
Bangladesh	...	798	838	290	825
Taiwan	210	246	379	787	762
Indonesia*	435	327	540	730	716
Argentina	-	74	304	802	539

Source: FAO, Production Yearbook.

*Indonesian yield--figure for 1933-35 refers only to the plantation crop.

APPENDIX TABLE XVII. APPARENT ANNUAL CONSUMPTION OF TEA: 1933-35 TO 1973-75

(thousand metric tons)

	1933-35	1955-57	1965-67	1973-75
EUROPE:	254.1	302.5	351.6	374.4
UK and Eire	211.6	237.4	234.7	208.0
West Europe	22.5	36.1	75.0	117.3
USSR	16.0	23.4	31.7	33.1
East Europe	4.0	5.6	10.2	16.0
ASIA (excluding China):	119.9	273.9	453.4	636.2
India	40.0	100.0	177.7	260.0
Japan	32.5	58.7	82.7	116.4
West Asia	15.0	45.7	63.7	112.0
Pakistan*	-	17.1	28.3	44.6
Indonesia	8.8	24.3	45.8	24.0
Sri Lanka	4.6	8.1	16.4	20.5
Others	19.0	20.0	38.8	58.7
AMERICAS:	63.9	77.0	94.0	114.5
US	41.0	47.7	59.7	77.0
Canada	17.6	20.2	19.6	21.1
Others	5.3	9.1	14.7	16.4
AFRICA:	33.6	70.1	98.8	127.2
North Africa	18.0	43.4	64.0	84.0
Union of South Africa	6.9	11.9	17.2	20.6
East Africa	1.0	6.2	8.8	12.0
Others	7.7	8.6	8.8	10.6
OCEANIA:	26.9	32.1	36.8	34.4
Australia/New Zealand	26.9	32.1	36.7	34.2
Others	-	-	0.1	0.2
WORLD (excl. China)	498.4	755.6	1034.5	1286.7

Source: ITC, Annual Bulletin of Statistics.

*Pakistan consumption figures for 1955-57 and 1965-67 include figures for Bangladesh.

APPENDIX TABLE XVIII. TRENDS IN APPARENT PER CAPITA TEA CONSUMPTION

(pounds)

	1936-38	1956-58	1966-68	1976-78
TRADITIONAL CONSUMERS:				
Eire	7.74	6.89	8.84	7.84
United Kingdom	9.20	9.97	8.97	7.28
New Zealand	6.85	7.19	6.30	5.14
Australia	6.85	5.96	5.28	3.88
South Africa	1.54	1.85	1.87	1.52
Netherlands	2.66	1.77	1.53	1.35
OTHER DEVELOPED:				
Japan	1.04	1.56	1.95	2.18
USSR	0.23	0.46	0.63	1.19
Poland	0.11	0.24	0.50	1.03
Denmark	0.34	0.63	0.70	0.96
US	0.66	0.59	0.71	0.82
Sweden	0.16	0.35	0.47	0.80
West Germany	0.19	0.25	0.29	0.39
France	0.07	0.08	0.12	0.25
Italy	0.01	0.06	0.10	0.13
WEST ASIA AND NORTH AFRICA:				
Libya	3.59	5.33	8.18	8.59
Iraq	1.95	4.34	5.05	4.79
Jordan	0.53	1.35	2.48	3.26
Syria	0.12	0.73	1.34	2.25
Sudan	1.05	1.31	1.81	2.00
Morocco	2.64	3.28	2.00	1.69
Egypt	1.01	1.60	2.00	1.62
Algeria	0.44	0.69	0.50	0.62
PRODUCERS - LDCs:				
Turkey	0.13	0.47	1.23	3.87
Iran	1.15	1.58	1.96	2.33
Sri Lanka	1.85	2.31	3.22	2.14
Kenya	0.34	0.69	0.88	1.68
India	0.24	0.56	0.80	1.14
Tanzania	0.09	0.29	0.31	0.84
Indonesia	0.27	0.34	0.95	0.31
OTHER LDCs:				
Chile	0.91	1.95	1.70	2.24
Pakistan	0.24	0.44	0.61	1.66
Afghanistan	0.55	0.45	1.40	1.46
Thailand	0.13	0.15	0.11	0.03

Source: ITC, Annual Bulletin of Statistics, and FAO, Production Yearbook.

APPENDIX TABLE XIX. TEA IMPORTS: 1934-38 TO 1976-78

(thousand metric tons)

	1934-38	1950-54	1961-65	1969-71	1976-78
EUROPE:	280.8	247.3	325.4	346.5	372.0
United Kingdom	225.0	214.5	251.3	230.6	215.1
Eire	10.6	10.9	11.2	11.5	12.8
Netherlands	12.6	8.2	9.8	31.7	24.6
Other W. Europe	10.8	10.7	20.1	25.5	39.1
USSR	18.8	-	24.3	33.3	55.2
Poland	1.7	3.0	3.8	8.8	16.4
Other E. Europe	1.3	-	4.9	5.1	8.8
ASIA:	33.0	44.6	71.1	135.7	207.2
Iraq	2.8	10.0	18.8	20.8	25.8
Other W. Asia	9.0	15.6	23.3	28.1	68.4
Pakistan	-	0.5	0.2	29.7	56.9
Japan	-	0.4	2.5	13.8	13.9
Others	21.2	14.5	26.3	43.3	42.2
AFRICA:	32.0	59.5	88.0	104.4	112.7
Egypt	7.1	16.9	25.5	28.7	27.4
Other N. Africa	15.2	24.4	33.8	41.0	50.2
South Africa	6.5	10.9	15.7	18.7	18.1
Others	3.2	7.3	13.0	16.0	17.0
NORTH AMERICA:	56.0	68.7	78.4	91.7	106.0
U.S.	38.2	46.9	57.1	68.4	81.0
Canada	17.8	21.3	20.6	22.2	23.7
Others	-	0.5	0.7	1.1	1.3
SOUTH AMERICA:	5.0	5.3	7.4	15.3	12.9
OCEANIA:	26.2	34.4	38.0	33.2	34.1
Australia/New Zealand	26.1	34.1	37.7	32.7	33.6
Others	0.1	0.3	0.3	0.5	0.5
TOTAL WORLD	433.0	450.8	608.3	726.8	844.9

Source: FAO, Tea Statistics and Production Yearbook.

APPENDIX TABLE XX. UNITED KINGDOM: PER CAPITA CONSUMPTION OF TEA AND COFFEE

Year	COFFEE		TEA	
	Retail Price	Average Per Capita Consumption	Retail Price	Average Per Capita Consumption
	(pence/lb.)	(lb.)	(pence/lb.)	(lb.)
1955	84.3	1.3	176.4	9.3
1956		1.5		10.1
1957		1.6		9.8
1958	...	1.7	...	10.0
1959	...	1.9	...	9.7
1960	84.1	2.1	168.8	9.3
1961		2.3		9.8
1962		2.9		9.5
1963	...	3.1	164.7	9.5
1964	89.9	2.7	163.8	9.4
1965	93.8	2.9	163.4	9.0
1966	95.5	3.1	162.5	8.8
1967	...	3.3	163.4	9.1
1968	...	3.5	...	8.8
1969	...	4.0	...	8.5
1970	...	4.4	...	8.6
1971	...	4.7	...	8.2
1972	...	4.4	...	8.0
1973	...	4.9	...	7.5
1974	...	4.5	...	7.8
1975	...	4.4	...	7.6
1976	...	3.8	...	8.1
1977	...	3.7	...	7.2
1978	...	4.2	...	6.4
1979	...	5.5	...	6.6

Source: D. Elz, A Review of the World Tea Economy; FAO, Tea Statistics; and ICO, Annual Bulletin of Statistics.

APPENDIX TABLE XXI. UNITED STATES: TRENDS IN PER CAPITA TEA AND COFFEE CONSUMPTION

Year	COFFEE		TEA	
	Average Annual Retail Price	Per Capita Consumption	Average Annual Retail Price	Per Capita Consumption
	(cents/lb.)	(lbs.)	(cents/lb.)	(lbs.)
1955	93.0	15.3	24.2	0.59
1956	103.4	15.9	23.2	0.59
1957	101.7	15.6	23.6	0.60
1958	90.5	15.6	24.0	0.60
1959	77.9	15.7	24.2	0.61
1960	75.3	15.7	24.4	0.61
1961	73.6	15.9	24.6	0.62
1962	70.8	15.9	24.5	0.64
1963	69.4	15.5	63.6	0.66
1964	81.6	15.3	63.1	0.66
1965	83.3	14.9	61.4	0.68
1966	82.3	14.6	61.2	0.68
1967	77.5	14.7	60.8	0.70
1968	76.4	14.5	60.6	0.73
1969	76.5	14.3	...	0.73
1970	91.1	13.8	...	0.73
1961	93.4	13.6	...	0.74
1972	92.7	13.8	...	0.79
1973	104.0	13.7	...	
1974	122.9	12.8	...	0.80
1975	133.4	12.4	...	0.80

Source: D. Elz, A Review of the World Tea Economy; ICO, Statistical Bulletin; and FAO, Tea Statistics.

APPENDIX TABLE XXII. INDIA: EXTENSIONS, REPLACEMENTS AND REPLANTINGS OF TEA, 1951-77

Year	Extensions	Replacements	Replantings
	(in hectares)		
1951-52	1,571.27	302.35	1,509.01
1952-53	1,116.83	180.00	1,189.70
1953-54	1,346.78	239.72	844.40
1954-55	2,322.41	549.85	1,418.05
1955-56	655.01	264.03	2,004.72
1956-57	954.29	480.80	2,400.46
1957-58	1,952.28	755.29	2,399.97
1958-59	2,109.32	580.08	2,434.33
1959-60	2,316.83	526.00	1,886.86
1960-61	1,713.47	352.77	1,781.87
1961-62	1,852.20	393.18	1,607.48
1962-63	2,224.88	401.13	1,571.16
1963-64	3,135.38	411.62	1,758.84
1964-65	3,860.15	551.14	2,024.26
1965-66	3,494.43	510.45	1,937.36
1966-67	3,328.88	459.83	1,628.07
1967-68	2,960.81	474.63	1,307.11
1968-69	2,635.19	373.20	1,188.68
1969-70	2,174.68	277.98	987.42
1970-71	2,355.35	201.12	1,118.96
1971-72	1,831.63	194.66	1,322.21
1972-73	1,632.98	180.36	1,109.22
1973-74	1,801.01	322.48	1,090.35
1974-75	1,762.29	319.83	1,220.07
1975-76	1,658.89	362.22	1,177.83
1976-77	1,769.69	366.26	1,202.76

Source: Tea Board of India, Tea Statistics 1977-78, p. 7.