

Plantation Rubber Industry in Ceylon

I. Early History of Rubber

UNTIL the last years of the nineteenth century the demand for crude rubber had been small, and the entire world supply came from uncultivated sources. Brazil provided about half the total quantity, and the remainder came from other parts of tropical South America and Africa. Beginning about the end of the nineteenth century, the rise and expansion of the motor vehicle industry led to an enlarged and progressively increasing demand for rubber. The available supply of rubber soon proved inadequate and prices rose sharply, increasing on the London market from 2s. 7d. a pound for fine hard para (wild, uncultivated rubber) in 1890 to 4s. 8d. in 1900.¹ The establishment of the plantation rubber industry in the East was the result of this revaluation.

The rubber tree was first introduced into the island of Ceylon in 1876; the Royal Botanical Gardens opened an experimental plantation at Heneratgodā near Colombo, and obtained successful results in its cultivation. The soil and climatic conditions of the wet, low country proved quite suitable for its growth. Rubber seeds from its experimental plantation were also sent to botanical gardens in India, Burma and Malaya, where again rubber growing proved quite successful. In the island the Forest Department adopted rubber seedlings in its afforestation schemes. However, in spite of these encouraging experiments, commercial estates were not established till the beginning of the new century. In 1898 there were only 300 acres planted with rubber, and that was interspersed among tea bushes.²

There were many obstacles to economic development, in particular the low value of crude rubber, which fetched no more than 2s. 6d. a pound in the 1880's and 90's. The planters' attitude depended on such information as was available concerning rubber tapping, since this was an entirely new enterprise to them. Methods of collection and manufacture employed for wild rubber were not applicable to plantation culture, since this involved

1. Rubber prices from Rickinson: *The World's Rubber Position*, London (Series).

2. Wright: *Hevea Brasiliensis*, p. 30. London, 1908.
Ceylon Sessional Paper XVIII, 1957.

Rajaratnam: *Growth of Plantation Agriculture in Ceylon, 1888-1931*. *Ceylon Journal of Historical and Social Studies*, Volume 4, No. 1.

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the felling of the trees. Early tapping procedure used in Ceylon and elsewhere was likewise unsatisfactory, based as it was on the pricking of a number of punctures in the bark which extracted as little as $3\frac{1}{2}$ ozs. from each tree annually ; whereas later methods were to produce twentyfive pounds.³ Until 'cuts' were introduced, the whole process was, in fact, primitive and unpromising.

All countries were subject to the same drawbacks, as a satisfactory method of tapping the rubber tree was as yet unknown. In Ceylon there were additional local problems. The *Castilloa* and *Ceara* species of rubber, which had monopolised first experiments, proved suitable for the island's soil and climate, but gave poor yields.⁴ They flourished only in the wet low country, a fact which led J. C. Willis, the Director of the Royal Botanical Gardens, to estimate that only about 10,000 acres of Ceylon were suitable as rubber lands.⁵ By about 1900, however, the scene had changed. Not only had practical tapping techniques been evolved, but a new and more suitable species had been developed—para rubber. Para gave greater latex flow; and was adaptable to varied types of earth and climatic conditions; it gave satisfactory quantities of latex up to 5,000 feet above sea level. In short, para proved that rubber production was not a limited proposition in the island: indeed within a short time it covered an area equal to that of tea.⁶

II. *Price Movement in the Plantation Rubber Industry*

When the price of rubber rose to 4s. 8d. in 1900, rubber growing offered better prospects. Unlike tea, rubber gained much assistance from the Royal Botanical Gardens at Peradeniya (where Parkins' research on wound response developed early tapping methods) and the Government. Research was also conducted in India and Malaya so that technical knowledge on rubber production rapidly became available.⁷

3. Wright: *Hevea Brasiliensis*, pp. 9 and 121.

4. Ferguson: *Mercantile and Planting Directory 1891*, p. 88, Colombo.

5. Royal Botanical Gardens Circular, 1898.

Wright: *Hevea Brasiliensis*, p. 30.

6. Sir Herbert Wright wrote in 1903: "Ten or eleven years ago it was thought advisable not to tap trees until they were at least ten years old, and an estimate of $1\frac{1}{2}$ lbs. of dry rubber per tree, per year, from the twelfth to the twentieth year was considered satisfactory. Since that time it has been proved that some trees when four or five years old may yield rubber of marketable value, and in exceptional cases individual trees about 11 years old have given no less than 12 lbs. of dry rubber in eight months, and others as much as 25 lbs. per tree in 12 months." *Ibid.* p. 3.

7. *Ibid.* p. 31.

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The depressed tea market also contributed towards the greater interest shown in rubber. By 1897 the price of tea had reached unremunerative levels, particularly affecting low and mid-country estates. These very districts are the best rubber producing land in the country; so that plantation rubber began with interplanting among tea bushes in these marginal estates. The new industry not only offered fresh opportunities to Ceylon planters, but also provided an alternative to further extension of tea.

The extension of rubber planting was related to the price structure of the world market, which may be generally described as follows. The price paid for rubber in 1900 declined to 3s. 3d. in 1902. After 1902 there was a steep rise to the then phenomenal rate of 6s. in 1905. Thereafter fluctuations in crude rubber prices have created a record in the history of tropical agricultural produce. Beginning late in 1905, the price dropped to 2s. 9d. at the end of 1907; but early in 1908 began to rise again, and reached 5s. 2d. at the end of the year. 1909 began with an active demand for rubber which became steadily stronger until September when the highest price so far recorded was attained; fine hard para fetching 9s. 2d. The price then declined to 7s. in December of the same year. This was the forerunner to the 1910 boom, when fluctuation reached its maximum. The price of fine hard para was 7s. 7d. in January, 12s. 8 $\frac{3}{4}$ d. in April and 7s. in December; the average price for the year was 9s. 2d. with plantation rubber at 9s. 0 $\frac{1}{2}$ d. From 1911 the price of rubber fell away as supplies from plantations mounted.⁸

A note of explanation is necessary about the relationship of the price of fine hard para and plantation rubber. Though there was a close relationship between rates for wild and cultivated rubber in the early days, this was not very strict. Before the beginning of the war, wild sources contributed the bulk of crude rubber, so that plantation produce was on the whole at a discount. Before the world war, the price advantage which wild rubber had was due to two reasons. In the first place manufacturers were more accustomed to wild rubber, and the smoking it undergoes in processing was more suitable for vulcanisation. In the second place there was no uniformity in plantation produce; while rubber was put on the market in large standard blocks, estates sold theirs in many forms—blocks, crepe, lace, sheet, biscuit, blanket, etc. By 1914 plantation rubber was beginning to take pre-eminence as an industrial raw material, and by this time some uniformity had been established. Thereafter the price of fine hard para does not come within the rubber market.

8. Rubber prices from Rickinson: *The World's Rubber*. London (Series).

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III. *Supply and Demand for Rubber During the Early Stages of the Industry*

THE PLANTATION RUBBER INDUSTRY (WORLD POSITION)⁹ In Acres

	Annual Planting	Total
1905	116,500	116,500
1906	77,700	294,200
1907	212,250	506,550
1908	188,800	687,350
1909	173,800	861,150
1910	261,400	1,122,550
1911	382,800	1,505,350
1912	312,000	1,817,350
1913	204,400	2,021,750
1914	159,300	2,181,050

The price pattern of the rubber market showed characteristics common to perennial crops that take a period of several years to come into bearing. There were both similarities between the behaviour of the tea and rubber industries, and differences arising from the nature of the demand for the two products. While tea left the factory as a finished product, available almost immediately for the consumers who directly determined a fairly stable demand, rubber had to undergo further processes of manufacture, so that demand was regulated by industrial consumption in the United States of America and Western Europe, subject to violent economic fluctuations which were followed by price movements in the London market.

The supply of rubber during the early stages of the industry showed a great degree of inelasticity. The high but unstable price of rubber during the first decade of the century resulted in the cultivation of rubber and its extension in Malaya, Ceylon and the Netherlands East Indies. The rate of expansion was phenomenal, especially after the two price booms of 1905 and 1910. By 1914 over two million acres had been brought under its cultivation, but production and exports both from cultivated and uncultivated sources remained limited.

SUPPLY OF CRUDE RUBBER. (tons)¹⁰

	Plantation	Brazil	Other Sources	Total
1906	510	36,000	29,700	66,210
1907	1,000	38,000	30,000	69,000
1908	1,800	39,000	24,600	65,000
1909	3,600	42,000	24,000	69,600
1910	8,200	40,000	21,500	70,500
1911	14,419	37,730	23,000	75,149
1912	28,518	42,410	28,000	98,928
1913	46,000	41,000	25,000	112,000
1914	65,000	38,000	19,000	122,000

9. Rubber Growers' Association Bulletin, 1928.

10. Rubber Growers' Association Bulletin 1928 (London).

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While prices were high and demand was keen, wild rubber supplies remained stable, averaging between 60,000 and 70,000 tons from 1900 till 1914. The nature of wild rubber collection was largely responsible for this. It had been gathered by devastation of jungles for many years. When demand rose, there were few accessible rubber trees left. It was said that rubber tapping was almost impossible within two or three hundred miles radius of Manaos or Para in Brazil, the chief sources.¹¹

Increased supplies from the estates came on the market years after the high demand was over, and as a result they exceeded demand. The overstocked rubber market of the war years was due partly to oversupply and partly to the decline of rubber manufacture as a result of wartime difficulties. Inelasticity was further aggravated by the absence of substitutes for rubber. Synthetic alternatives were still confined to the laboratory by prohibitive costs, though the threat of their eventual commercial production discouraged rubber expansion in the early days. Reclaimed rubber was a more real threat; but here again high costs made the venture uneconomic. Not till the boom prices of the mid-1920's were being paid did reclaimed rubber appear as a competitor; by this time the cost of the process had been much reduced. American industry preferred cheap reclaimed rubber, rather than pay prohibitive prices for natural supplies resulting from the Stevenson Restriction Scheme.

At first the growth in the demand for rubber came entirely from the motor vehicle industry, which was dependent on general economic activity, so there was a close co-relation between prices and commercial fluctuations. Unstable early rubber prices were further due to the discouragement of buyers by high rates, which resulted in periodic drops in charges.¹² Had the demand been consistent, high prices would have been maintained until supplies were adequate to meet the demand. Moreover, there was much speculation in rubber buying. Purchases were postponed in anticipation of lower prices. And rings were created in the American market for the purpose of abstaining from buying rubber in order to bring rates down.¹³ In these ways the buyers caused high prices to fluctuate from time to time.

IV. *Limitations to Rubber Cultivation in Ceylon*

Ceylon may legitimately be called the birthplace of the plantation rubber industry. It was here that rubber seeds from Brazil were first introduced, the tree nurtured during the experimental stages, and considerable

11. *Economist*, 7 July, 1900.

12. *Statist*, April 30, 1910.

13. Wright: *Rubber in the British Empire*, p. 6. London, 1907.

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	WORLD RUBBER POSITION ¹⁴		Average Declared Value	
	Supply	Demand	of U.K.	Imports
	tons	tons	s.	d.
1900	44,000	53,000	2	6
1901	45,000	52,000	2	3
1902	42,000	50,000	2	3
1903	49,000	57,000	2	6
1904	53,000	64,000	2	9
1905	56,000	70,000	3	0
1906	63,000	74,000	3	0
1907	74,000	77,000	3	0
1908	70,000	74,000	2	6
1909	78,000	86,000	3	6
1910	94,000	99,000	5	3

progress was made in techniques. During the initial period a larger area was under cultivation in Ceylon than in Malaya—eventually the principal source. Ceylon was soon left behind in the acreage race.¹⁵ By 1914 Ceylon's part in a world acreage of 2,000,000 was 225,000, or about half that of Malaya.

The emergence of the Malayan Peninsula and the Dutch East Indies as leading producers was largely due to geographical advantages, in particular the shorter period required for trees to come into production,—four years as against seven or more in Ceylon. Ceylon's rivals, being nearer the equator, have a more equable climate. Rubber requires a mean temperature of 80°F. to 85°F. with as small a range as possible, and a well distributed rainfall of between 100" and 150" a year. In Ceylon the rainfall is seasonal; the wet low country, maintaining the bulk of her rubber, has rain in two seasons—the south-west monsoon between late May and August, and the north-west monsoon between November and February. Although convectional and cyclonic rains fall at other periods, distribution is uneven in most rubber growing areas. With a steadier climate the trees grow faster, mature earlier and produce more uniform latex output. Latex production is much reduced by dry periods, or completely stopped if these are prolonged.

The land itself also limited rubber production. Rubber requires relatively flat land between sea level and 1,500 ft. Malaya and the East Indies were well provided with such lands, but in Ceylon they were confined to the south-west low country. Although rubber was grown in the hill country of Uva, Sabaragamuva and Matale, these are exceptions.

14. Sir Andrew McFadecan: *History of Rubber Regulation 1934-43*. London, 1944.

15. Figart: *The Plantation Rubber Industry in the Middle East*, p. 207.

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The wet low country was the home of most of the indigenous population who were dependent on paddy cultivation. The few crown lands in these areas were largely in the nature of reserves; and the remainder were sold with reluctance. Prospective investors in the early days complained of the delay in government sale of suitable rubber areas. A senior government official intimately associated with the rise of the rubber industry explained this delay as a deliberate government policy to discourage the so-called 'holiday investors'.¹⁶ Not since the beginning of the coffee era had there been such a demand for land as in 1905, and the state was unwilling to part with its lands for purely speculative projects, as it had done previously. Holiday investors were categorized as those who bought land as an investment with little or no intention of cultivation.

Thus planters were limited to buying peasant lands. Prices were high and sales were slow, which explains the sluggish expansion in the island in comparison with other countries. Early records of increasing area are to be accounted for by the rubber grown between tea plants; and the conversion of marginal estates. The availability of land suitable for rubber cultivation in the hands of the native population resulted in their taking a greater share of the rubber enterprise. Peasant agriculture in the island was backward; paddy yields were extremely poor, among the lowest in south-east Asia. The high price of rubber and European example encouraged the peasants to convert their property to the growing of rubber. By 1914 about 30,000 acres were in smallholdings; the area owned by native capitalists was much greater; while European enterprise was hampered by the difficulty of obtaining land, and its concern with the tea industry.¹⁷ By 1914 about 30% of Ceylon rubber was in local hands, a proportion which was to increase further.

With regard to capital and labour, rubber was better placed than tea had been. When rubber growing became systematic the financial position of the plantation sector was sound. The estate agency houses were by now in firm control of the estates, and capital was readily forthcoming. In fact, the tea slump was a boon to borrowers as reserve capital of estates and agencies were now available for investment in a more profitable venture. Tea had been established by proprietary planters; European joint stock companies were largely responsible for rubber projects.¹⁸ Since 1893 there had been a tendency to group tea estates under joint-stock companies,

16. Sir Herbert Wright's article in the Rubber Exhibition (1906) Handbook, p. vi. (Colombo).

17. Wright: *Hevea Brasiliensis*, p. 21.

18. Villiers: *Mercantile Lore*, p. 40. Colombo, 1940.

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which participated in rubber development either by converting tea lands or cultivating virgin ground. The trend towards company management was accelerated by the new enterprises; new companies were floated, old companies expanded to include rubber interests. Between 1900 and 1914 there was intense activity in the money markets of Colombo and London to finance the industry. Most companies were rupee registered although owned by Europeans. They were largely the product of pooling capital from the plantation sector at the instigation of the estate agency companies.

Rubber investment became international when the possibilities of cultivation were realised; companies were floated and shares sold in American and European financial centres. During the boom of 1909-11 the nominal capital of rubber companies registered in London alone exceeded ninety million pounds. Ceylon, however, benefited little from this international scramble for rubber shares, the bulk of the capital going to Malaya, where investors could hope for quicker returns.¹⁹ Land was cheap and plentiful in the Malay Peninsula, with an upset price of \$ (Straits) 1 an acre, compared to an average of Rs. 100 for ground bought from natives of Ceylon.²⁰ Malaya had the further advantage of bigger acreage returns, difficult to estimate in the early years, but exceeding that of Ceylon by about eighty pounds after the war.

Malayan planters were unfettered by alternative crops. In spite of the low price for tea, Ceylon growers were wary of substituting one crop for another, since there had early been misgivings about the profitability of growing rubber in the island. There was a genuine fear among the Ceylon community that the rapid expansion of the new staple would soon lead to overproduction. There was little faith in the motor industry, as yet in its infancy, absorbing the growing output; and the possible development of synthetic rubber still loomed in the future. These fears were overcome by the continuing high prices for the plantation product.

Labour was no great problem in comparison with the early days of tea. By 1900 immigration had recovered from its previous decline and was now on the increase, with the encouragement of the government in providing better facilities and the creation of the Ceylon Labour Commission. Casual labour, no longer needed for cultivation and manuring

19. Statist, 26 February, 1910.

Wight: Rubber Cultivation in the British Empire, p. 4.

20. Villiers: Mercantile Lore, pp. 38-42.

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in the slumping tea industry, was available for the new crop. And the indigenous population made itself available as wage labourers on account of the worsening economic conditions of the Sinhalese villagers.²¹

V. *Supply and Demand*

During the war a number of important changes were made in the world rubber trade, determining the course of the industry in the post-war years. Increasing output, eventually outstripping demand, was a major factor. Before 1914 supply had fallen short of the heavy demand, but production increased in the war when consumption was throttled, and more competitive prices resulted. Acute shortage of shipping and high freight charges slowed the rising consumption, as manufacturers found the transit costly and risky. Consequently stocks were built up in the producer countries throughout the war, but less rapidly before the United States of America joined the hostilities and cut imports. The hold of the American market on plantation rubber continued after the war, and was important in fixing rubber prices. The pre-war consumption of 50% of the world supply by the United States rose to 75% and remained at that level.

WORLD SUPPLY AND DEMAND FOR RUBBER²²
(thousands of tons)

	Supply	Demand	Average London Price (per lb.) s. d.	Average American price (per lb.) cents
1911	94	99	5.6	141.30
1912	114	121	4.9	121.60
1913	120	130	3.0	82.04
1914	123	121	2.3	65.33
1915	171	160	2.6	65.85
1916	214	188	2.9	72.50
1917	278	250	2.9	72.23
1918	220	216	2.3	60.15

In spite of the decline in the price of rubber during the war, its cultivation and production continued to be profitable. The cost of production responded very favourably to economies, partly arising from the maturity of trees and partly from improved techniques. Cultivation was thus extended even under falling prices, especially by the smallholders, who were

21. Rajaratnam: *Plantation Labour in Ceylon*, Pts. 1-2, in *Young Socialist*, Vol. I, Nos. 3 and 4.

22. *Planters' Association of Ceylon Proceedings*. Colombo (Series).
Rubber Growers' Association Bulletin (Series).

American Prices from Cornell and Glover: *American Industries*, p. 808.

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by now an important rubber growing body in Malaya and the Dutch East Indies as well.

Improved production in Ceylon in fact aggravated the excess of supply over demand. The monsoon of 1917 was comparatively mild so that the number of tappings was increased.²³ Thinning of trees during the war had also raised productivity per trunk. At first 150 to 200 rubber trees per acre was the normal planting. Researches by the experimental station showed that fewer trees per acre meant fuller growth and more bark surface, producing increased latex.²⁴ The coverage had therefore been reduced to between 90 and 100 trees an acre. Such improvements in production came at a particularly inopportune moment, and growers were compelled to hold stocks in Colombo and on the estates.

'Slow tapping' methods were introduced at the end of 1917. One cut or two cuts in a V-shape had been normally made on each tree daily; but now cutting was limited to alternate days. This scheme had become almost universal in the island by the end of the next year. Some estates even reduced tapping to every third day to prevent unwieldy stock-piling.²⁵

From the end of 1917 future rubber prices were causing growing concern. In spite of the decline to date, production remained profitable and companies were able to pay handsome dividends. Now there were fears of a sudden collapse in the market, which were augmented when the United States of America government limited rubber imports to conserve shipping space. In May 1918 the United States of America War Trades Board, in conference with representatives of rubber manufacturers, restricted intake into the country to 25,000 tons a year, raised to 28,000 tons in August.²⁶ This control was ineffective since it ended with the armistice. However, the threat of important restrictions was enough to cause panic among the planters.

The Rubber Growers' Association, representing London registered companies, suggested the restriction of the 1918 output to 80% of the

23. Planters' Association of Ceylon Proceedings 1917, p. 43.

24. *Ibid.* p. 41.

25. Planters' Association of Ceylon Proceedings 1918, p. 67.
Ceylon Association in London Proceedings 1918, p. 33.

26. Whittlesey: Government Control of Crude Rubber, p. 10. Princeton (U.S.A.), 1931.

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FINANCIAL RESULTS OF RUPEE RUBBER COMPANIES²⁷

	Average Ordinary Dividend %	Number of Companies	Non-paying Companies
1911	28.33	24	—
1912	42.58	28	1
1913	27.46	33	5
1914	20.83	43	8
1915	38.53	44	6
1916	34.79	48	11
1917	29.94	50	5
1918	21.12	54	8
1919	22.37	54	8
1920	4.65	54	37
1921	7.49	56	24
1922	13.53	47	10

FINANCIAL RESULTS OF STERLING RUBBER COMPANIES

	Average Ordinary Dividend %	Number of Companies	Non-paying Companies
1911	11.35	26	8
1912	14.64	28	8
1913	8.80	28	8
1914	9.80	28	7
1915	18.70	28	—
1916	19.14	28	1
1917	13.30	28	3
1918	10.10	28	3
1919	16.48	28	2
1920	1.16	28	21
1921	1.60	28	22
1922	5.90	28	9

previous year as a temporary measure to reduce stocks.²⁸ This suggestion was enthusiastically received by sterling companies in Ceylon and Malaya, but was disfavoured by the rupee companies and native producers. In addition, there was a substantial minority of planters in both countries who objected to voluntary restriction on principle.²⁹ The Dutch East Indies also overruled any limitation of production. The Rubber Growers' Association, as a last resort, appealed to the Colonial Office for a compulsory restriction of production in British territories, but this was not granted.³⁰ Since the end of the war was in sight the Association did not press the matter further.

VI. *The Post-War Slump*

Of all the raw materials used by industry, rubber was perhaps the only important commodity that did not experience a price rise during the war; and the decline continued after 1918 in spite of increased consumption.³¹

27. Maclaren: *The Resources of the British Empire—Rubber, Tea and Cocoa*, p. 78. London 1924.

28. Ceylon Association in London Proceedings 1917, p. 32.

29. Planters' Association of Ceylon Proceedings 1917, p. 28.

30. *Ibid.*

31. Whittlesey: *Government Control of Crude Rubber*, p. 12.

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Between 1913 and 1917 the United States of America's rubber consumption alone more than trebled, increasing from 52,179 tons to 177,088,³² War-time decline was thought to be temporary, but it persisted and over-production resulted. Exports between 1918 and 1919 rose by 176,000 tons, including released stocks.³³ The position of rubber in relation to other raw materials in the United States of America can be seen in the following table.

RUBBER PRICES COMPARED WITH PRICES OF OTHER RAW MATERIALS [U.S.A].³⁴

	Market Price Rubber (per lb.)	Index	Total Raw Products Index
1913	\$0.820	100	100
1914	0.653	80	99
1915	0.659	80	101
1916	0.725	88	126
1917	0.722	88	187
1918	0.602	73	205
1919	0.487	59	218
1920	0.363	44	229
1921	0.163	20	142
1922	0.175	21	159
1923	0.295	36	159
1924	0.262	32	159
1925	0.725	88	154
1926	0.487	59	164
1927	0.381	46	154
1928	0.226	28	151

The year 1919 was a particularly disappointing year for the whole rubber industry. Increased output combined with distribution of stocks to flood the market, but consumption did not mount as steeply as had been anticipated. By 1920 a severe recession in American industry had worsened the picture still further.³⁵

WORLD SUPPLY AND DEMAND 1919—25³⁶
(thousands of tons)

	Supply	Demand	Average London Price		Average American Price
1919	398	330	2s.	1d.	60.15 cents
1920	353	310	1s.	9d.	48.70 "
1921	300	270	1s.	6d.	36.30 "
1922	400	390		9d.	16.36 "
1923	407	435		11d.	17.50 "
1924	428	470	1s.	2d.	29.45 "
1925	500	517	2s.	1d.	72.46 "

32. Rubber Growers' Association Bulletin, November 1919.

33. *Ibid.*

34. Whittlesey: Government Control of Crude Rubber, p. 12.

35. Planters' Association of Ceylon Proceedings, 1921. p. 68.

36. Rubber Growers' Association Bulletin.

American Prices from Cornell and Glover: American Industries.

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CONSUMPTION OF RUBBER³⁷ (thousands of tons)

	U.S.A.	U.K.	Others
1919	225	35	70
1920	215	24	71
1921	170	18	82
1922	285	10	95
1923	305	27	103
1924	335	22	113
1925	390	30	114

The slump in the rubber price 1920-22 was undoubtedly due to the bad misjudgement of investors and growers. During the war years a large area had been added to cultivation in anticipation of improved demand which did not take place: the average price declined to 1s. 9d. in 1920. The lowest price recorded for this year was 9d., and a penny lower the next year.³⁸

The first definite step in regard to restriction of rubber production came from the Rubber Growers' Association, controlling about 50% of the total rubber acreage. Under pressure from rubber-growing interests in London, a committee of the Rubber Growers' Association recommended the limiting of output for twelve months from 1st of November 1920. 70% of all producers, including many Dutch and Chinese, at first agreed to restrict output by 25% of capacity.³⁹ But restriction schemes seldom achieve the end for which they are begun, and many growers either did not keep to their agreement or withdrew from it at an early stage. Actual production declined from 316,600 tons in 1920 to 277,200 in 1921; in Malaya this represented a drop from 181,000 tons to 151,000; the Dutch East Indies 80,000 to 71,000; while in Ceylon output actually increased, from 39,000 to 40,000. Since effective reduction had been only 10%, when the scheme came up for renewal it was decided that voluntary restriction was unsuccessful, and limitations were removed.⁴⁰

As production figures for the island suggest, the scheme had no success in Ceylon. From the start there had been objections to restrictions, especially from the rupee registered companies, and only sterling companies, representing about 35% of the total acreage under rubber, consented to reduction.⁴¹ The Ceylon Estate Proprietary Association, a representative

37. American Prices from Cornell and Glover: American Industries.

38. Ferguson: Directory and Handbook of Ceylon, 1920-1921.

39. Whittlesey: Government Control of Crude Rubber, p. 23.

40. Planters' Association of Malaya Proceedings 1922, p. 11.

41. Planters' Association of Ceylon Proceedings 1921, p. 135.

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body of the rupee interests, condemned voluntary restriction unreservedly, and it was their defection that was responsible for the failure. Of the total of 405,026 acres under rubber cultivation in 1920, only 161,000 acres actually underwent restriction. The latter comprised almost entirely London controlled firms. The areas that did not undergo restriction were the small-holdings and the bulk of the Ceylon controlled lands. Restriction was in fact limited to lands owned by members of the Planters' Association. But even here, a substantial proportion did not undergo restriction. Consequently, despite the restriction scheme, the island's production of rubber increased as a result of increased production from non-restricted areas.

OWNERSHIP OF RUBBER LANDS IN CEYLON⁴²

Members of the Planters' Association (over 15 acres)	285,539 acres
Non-members (over 15 acres)	71,083 acres
Smallholders (under 15 acres)	48,404 acres
Total	405,026 acres

The scheme had been accepted in Ceylon on the assumption that 70% would carry out restriction, but when this was not the case, even those interests that originally assented withdrew.⁴³

Voluntary restriction failed because producers were not agreed as to its efficacy. Even members of the Rubber Growers' Association and the Malayan and Ceylon Planters' Associations had not been wholly in favour, and the Dutch and Chinese growers who entered the scheme were not enthusiastic. Another difficulty was the large and growing proportion of small native producers. As early as 1925 over a third of the area under rubber in the East was controlled by Asiatics principally Malays, Javanese, and Chinese.⁴⁴ Their holdings as a rule were small and the rubber had been planted as a sideline to the cultivation of rice. Capital investment was low, equipment was the simplest, and overheads were slight, since there was none of the management and home office expense which entered into the cost of estate rubber. Moreover, labour on the smaller holdings involved practically no monetary outlay as the whole family may have been involved in tapping. These factors enabled the smaller producer to continue in production even at lower price levels. Production may in fact have increased if the small holder was entirely dependent on rubber cultivation.

42. Planters' Association of Ceylon Proceedings 1921, p. 135

43. Figart: *The Plantation Rubber Industry in the Middle East*, p. 13. Washington (U.S.A.), 1925

44. Whittlesey: *Government Control of Crude Rubber*, p. 8.

Limitations to rubber production in Ceylon were similar to those affecting tea. Low or even unprofitable prices are not in themselves always an incentive for abandoning production. Even when output is at a standstill, a considerable maintenance staff must be employed, so under these circumstances it is most practical to continue producing as best one may. Operation will normally carry on until prices equal fixed costs—about a third of the total. The large capitalisation created vested interests in unbroken productivity: "Rubber untapped is rubber lost." Many Ceylon growers interplanted tea and rubber, so that losses on one crop could be compensated for by profits on the other, so that it was more possible to ignore falling prices. Two further difficulties undermined the 1920 restriction plan. Firstly, companies paid dividends up to the hilt, and so no reserve capital was built up to meet crises.⁴⁵ Secondly, forward contracts with American buyers withheld many planters from slowing output in both Ceylon and Malaya.⁴⁶

Labour probably exerted an important influence in addition. Restriction would have necessitated repatriation of coolies with consequent loss on their coast advances and on recruitment costs. No coolies were dismissed, but restricting companies suspended the employment of their male workers' dependents.⁴⁷

On the credit side, the slump lowered production costs, as a result of severe economy. Though yield per acre was low in Ceylon, working expenses were cut by suspending cultivation, manuring, and by latex conservation. The fall in the cost of production was most marked in Ceylon, and by 1921 rock-bottom level had been reached, with firms working at their maximum efficiency at the same time as expenses were minimised. The following table shows the extent of the decline in the major producer countries. "All-in costs" comprise all estate expenditure (other than capital expenditure), staff bonuses, allowances for depreciation of buildings and machinery, freight to London or New York, marine insurance brokers' or agency commission, as well as directors' fees and the cost of London administration. These costs do not cover depreciation on the planted area, nor do they include items such as foreign or domestic taxation. These are treated under normal accounting systems as allocation of profits and not as costs of production.

45. Phillipson: *The Rubber Position and Government Control*, p. 24.
Planters' Association of Ceylon Proceedings 1917, p. 94.

46. Whittlesey: *Government Control of Crude Rubber*, p. 23.

Phillipson: *The Rubber Position and Government Control*, p. 24.

47. Planters' Association of Ceylon Proceedings 1922, p. 131.

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ALL-IN COSTS OF STERLING COMPANIES⁴⁸ (in pence per pound; Fs = number of firms)

	1919		1920		1921		1922	
	Fs	Costs:	Fs	Costs:	Fs	Costs:	Fs	Costs:
Malaya	64	13.12	64	14.48	64	10.70	60	8.43
Ceylon	12	14.59	14	16.49	13	8.65	13	7.46
Java	8	13.74	8	16.04	8	13.39	8	10.23
Sumatra	10	16.24	10	17.89	10	14.28	10	9.42
N. E. I.	18	15.11	18	17.14	18	13.92	18	9.74
India	5	16.18	5	17.29	5	10.37	5	7.83
Burma	3	16.67	3	17.04	3	10.37	3	9.08
Br. N. Borneo	12	14.81	12	14.14	12	13.34	12	9.22
Dutch Borneo	2	21.47	2	16.99	2	16.22	1	10.75

DECLINE IN FREIGHT AND INSURANCE CHARGES⁴⁹ (per pound to London)

	1919	1920	1921	1922
13 Ceylon Sterling Companies	1.04d.	1.04d.	0.58d.	0.52d.
16 Malayan Sterling Companies	2.00d.	1.86d.	1.23d.	0.95d.
10 Sumatra Sterling Companies	1.81d.	1.15d.	0.61d.	0.38d.

Although costs decreased, the price decline was felt acutely by producers. Growing interests in Malaya and Ceylon suggested a variety of restrictions on output. Among these were a complete prohibition of above 50% of capacity; and heavy taxation on exports above a certain quota.⁵⁰ The Rubber Growers' Association in London had always favoured a limitation scheme; their hands were further strengthened by the formation of the Rubber Shareholders' Association in 1921.⁵¹ The aims of this body were

- (i) the organisation of public opinion for control schemes and or restriction of output;
- (ii) the collection of information on the working of the rubber industry;
- (iii) to protect interests of shareholders;
- (iv) to conduct a programme of propaganda.

In this move the Rubber Growers' Association and the Rubber Shareholders' Association worked in conjunction.

In Ceylon there were objections to restrictions from rupee companies and the indigenous producers. These interests regarded the problem not as over-production but slack consumption in the United States of America,

48. Figart: The Plantation Rubber Industry in the Middle East, p. 75.

49. Figart: The Plantation Rubber Industry in the Middle East, p. 75.

50. Planters' Association of Malaya Proceedings 1922, p. 11.

51. Whittlesey: Government Control of Crude Rubber, p. 17.

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and suggested an advertising campaign for increasing consumption similar to that of the Thirty Committee [Tea propaganda] for tea.⁵² On the initiative of the Ceylon Planters' Association, the Rubber Growers' Association and the Rubber Shareholders' Association started canvassing the promotion of new uses for rubber, including the paving of roads, and the spraying of eggs for preservation.

Both over-production and under-consumption were, in fact, the twin problems. Even in the 1920's rubber was used extensively only in the motor industry, but here the proportion of rubber costs to the total outlay on a car was negligible—2% to 3%. While greater demand for cars was correlated to higher rubber prices, when these prices were low there was no compensatory stimulation of the market. Rubber was a classic "joint demand" commodity, as its consumption was not dependent on price so much as on the sale of motor cars. The use of rubber for consumer goods like shoe heels, soles, stationery goods and hose increased consistently but consumed negligible quantities.⁵³

The organisation of rubber producers and consumers was strongly contrasted. While output was conducted by a great number of small concerns, the most extensive unable to produce even 1% of world production, the manufacturing industry was in the hands of a few. In the United States of America two-thirds of the total rubber was handled by five huge companies.⁵⁴

At the end of 1921 the rubber industry was in a desperate state. Inferior rubber (which every estate produced in some quantity) no longer paid for its costs.⁵⁵

PRICE OF CEYLON RUBBER AND STOCKS IN LONDON⁵⁶

	Highest	Lowest	London Stocks 31st December
1916	4s. 3½d	2s. 1¾d	9,774 tons
1917	3s. 4d	2s. 2½d	11,405 tons
1918	2s. 6¾d	2s. 0d	12,420 tons
1919	2s. 10½d	1s. 10½d	22,282 tons
1920	2s. 10½d	9d	50,241 tons
1921	1s. 3½d	8d	69,465 tons
1922	1s. 2¾d	6¾d	72,165 tons

52. Planters' Association of Ceylon Proceedings 1922, p. 98.

53. Knorr: World Rubber and its Regulation, p. 73. Stanford (U.S.A.), 1945.

54. *Ibid.*

55. Ceylon Association in London, Proceedings 1922, p. 33.

56. Planters' Association of Ceylon Proceedings (Series).

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The Malayan planters in particular were severely affected, and their association suggested the restriction of output by 50% in British territories. It further advised the payment of three dollars (straits) on every acre of native rubber left uncultivated.⁵⁷ These ideas were transmitted to the Colonial Office but were rejected by the Secretary of State for the Colonies, who replied:

that no legislation for compulsory restriction should be introduced by the Government. Conditions should be allowed to right themselves.⁵⁸

The deterioration of the rubber market, however, was rapid, and in spite of this decision the British Government looked upon the whole situation with undisguised anxiety.

VII. *The Stevenson Rubber Restriction Scheme*

In October 1921 a committee of eight, popularly known after its chairman as the Stevenson Committee, was appointed by the Colonial Office to "investigate and report upon the present rubber situation in the British colonies and protectorates for the information of the Secretary of State for Colonies, and to advise what remedial measures should be taken to improve the existing position".⁵⁹ This committee proceeded to analyse the supply and demand for rubber. For the past two years the rubber available had been as follows :

	1920	1921
Plantation	335,000 tons	260,000 tons
Wild	35,000 tons	22,000 tons
Total	370,000 tons	282,000 tons

The total supply of rubber available for 1922 was estimated by the committee at 400,000 tons, of which 380,000 came from plantation sources, the remainder being uncultivated. The consumption for 1922 was predicted by the committee at 300,000 tons, although a minority believed that the maximum consumption would be no more than 250,000 tons. Even

57. Whittlesey: Government Control of Crude Rubber, p. 24.

58. Planters' Association of Malaya, Proceedings 1922, p. 11.

59. *Ibid.* p. 19.

Report of a Committee on the Rubber Situation in British Colonies and Protectorates, June 1922. Cmd. 1678.

The members of the Committee were Sir James Stevenson (Chairman), Sir Stanley Bois, Sir Edward Brockman, E. J. Bryne, N. Duncan, Eric Miller, Sir Gilbert Grindle and Sir Edward Rosling, with S. H. Leake as Secretary.

taking the more optimistic figure a reduction of 25% was necessary in order to reduce supply to equal demand.⁶⁰ Therefore the whole problem was analysed by way of four suggestions:

- (1) Promotion of new and extended uses; this would require time and was thus no immediate solution; prolonged life of improved manufactured goods would counter-balance such eventual increases.
- (2) Voluntary restriction. The Rubber Growers' Association had already tried this and found it unworkable.
- (3) *Laissez faire*. This course of action would have been grossly unfair to shareholders in England and native smallholders.
- (4) Government action. The committee was aware of the danger of such limitation of a valuable raw material, but decided on state intervention as the lesser evil.

Of the eight members of the committee, four were members of the council of the Rubber Growers' Association, and so the proposals were not a surprise.

A report and a plan of restriction had already been issued on the 19th May, 1922, and the committee emphatically stated that the co-operation of the Dutch East Indies was essential to success. The Dutch, however, refused to co-operate. They pointed out that it was unwise and undesirable to introduce government legislation into industry, and that restriction was artificial and unnatural, and would tend to support inefficiency and extravagance in production.⁶¹ It was further maintained that unless restriction was permanently applied, a policy of the survival of the fittest should be as far as possible encouraged.

It was widely believed that the Dutch had contracted a loan from the Americans, and did not want to earn their displeasure as the chief buyers of Indonesian rubber.⁶² A large acreage in the Netherlands East Indies was in the hands of native smallholders, and it had been the deliberate policy of the Dutch to encourage the locals to cultivate rubber so as to keep them contented.⁶³ Another report of the committee appeared in October 1922,

60. Rubber Situation in British Colonies and Protectorates, June 1922. Cmd. 1678. Economist, 17 June 1922.

61. Commerce Reports, 4 September 1922, p. 670. (London).

62. Rubber Growers' Association Bulletin, November 1923, p. 609.

63. Whittlesey: Government Control of Crude Rubber, p. 27. Manchester Guardian, 6 October 1927.

Phillipson: The Rubber Position and Government Control, p. 37.

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stating that although the co-operation of the Dutch was a vital issue, British planters should, as a last resort, make unilateral arrangements, since the plight of the industry was serious. As some consolation, however, the Rubber Growers' Association could call on the support of British growers in Dutch territories.

The Stevenson Scheme applied from November 1st, 1922; it was based on three main principles—

- (a) Restriction of export,
- (b) Application of a sliding scale to export duties,
- (c) Fixing of the percentage of the harvest which would benefit by the minimum export duty in accordance with world prices.

The provisions of the scheme were as follows:—

- (i) The standard of production was to be based on the actual output for the year ending 21 October 1920.
- (ii) In lieu of all existing export duties, a minimum rate was to be levied not exceeding *1d.* per pound on the permitted percentage production. Should a planter exceed his limit, duty on all his exports would be measured according to an independent sliding scale.
- (iii) The initial percentage of standard production to be allowed at the minimum rate was to be 60%, to be varied in accordance with fluctuations in the price of standard quality, smoked, sheet rubber in the London market, according to the following schedule—

When the average price for the 3 months has been maintained at:	The percentage exportable at the minimum rate of duty during the next 3 months shall:
1s. 6d. or more	increase 10%
1s. 3d.—1s. 6d.	increase 5%
1s.—1s. 3d.	remain unchanged
less than 1s.	decrease 5%
less than 1s. 3d. in a quarter in which a change in the quota (up or down) has already taken place	decrease 5%

The scheme aimed at a fair price of 1s. 3d., which would be satisfactory both to manufacturers and consumers. The sliding scale made some elasticity in supply possible.

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The scheme improved market prices. At the same time as it began to operate, United States of America and European business activity recovered. Buyers, anticipating that restriction would raise prices, bought immediately at prevailing prices, so that there was a sudden stiffening of the market. The price climbed above the 1s. 3d. deadline to 1s. 4.8d. for the quarter 1 February to 30 April 1923, so that the exportable quota went up to 65% for the following three months. This increase was premature; despite reduced output from Malaya and Ceylon, the large stocks still available continued to act as a drag on price levels. The Netherlands East Indies rapidly stepped up quantities, cancelling out the control in British lands. As prices declined, the exportable quota dropped to 60% for the quarter commencing 1 August 1923, and rested there till the price dropped to 10.974d. in the three months commencing 1 May 1924, and brought the proportion down to 55%, and again down to 50% in the following quarter.⁶⁴

The end of 1925 witnessed the long-awaited recovery of the rubber market. The drastic cuts in exports, the exhaustion of stocks and the recovery of American business all contributed.⁶⁵ High rates and dwindling reserves led to near panic and scarcity rates, although increased quotas were tied to the improvement. The period from 1 November 1925 saw the unusually high level of 3s. 10d. and the quota was restored to 100%. Favourable rates in 1925 and 1926 raised criticism of the scheme from the consumers; the United States of America condemned its rigidity—which was well illustrated in the panic of 1925-6 when demand was starved by the limitations.⁶⁶

As a result of this boom the provisions of the plan were altered. The price pivot was advanced to 1s. 9d. and more flexibility was granted to the export quota. The changes may be summarised thus :—⁶⁷

- (1) An average London price between 1s. 3d. and 1s. 9d. in a quarter would reduce the quota for the ensuing quarter by 10%, unless the prevailing level were 100%, when it would then be altered to 80%.

64. Rubber Age. Semi-monthly Statistics (London).

65. Whittlesey: Government Control of Crude Rubber, p. 34.

66. Hearings before the House Committee on Interstate and Foreign Commerce: Crude Rubber, Coffee etc. (Washington) 1926, pp. 39-40.

67. Ceylon. Administration Report of the Rubber Controller, 1926, p. 92.

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- (2) Prices from 1s. 9d. to 2s. would promote no change until prices had been above 1s. 9d. for nine months, when a 10% rise would be allowed.
- (3) If the average were over 2s. a 10% increase would follow, unless the prevailing quota were 80%, in which case 100% output would be restored.
- (4) A mean price below 1s. 3d. for a quarter would cut production immediately afterwards to 60%.
- (5) An average above 3s. would be followed by restoration to 100%.
- (6) Under no circumstances would the quota exceed 100% or fall below 60%.

The brief boom of 1925-6 was followed by sagging prices throughout the duration of the restriction scheme. The quota was progressively reduced and from 1st May 1927 remained at 60%; but prices did not recover.

The Stevenson Restriction Scheme did not solve rubber problems and was a source of irritation and dissatisfaction. In February 1928 the British Government announced an independent investigation into the operation of the scheme, and consequently in April pronounced its cessation on 1 November 1928. Prices collapsed forthwith, and remained between 8½d. and 9½d. per lb. until the closing date. Mr. Ormsby-Gore, the Under-Secretary of State for the Colonies, in a speech to the Malay Planters' Association on 18 May 1928, attributed the failure of the scheme to:—

Firstly, the increased amount of reclaimed rubber and consequent cheapening; secondly, increased production and export from unrestricted areas outside British control; thirdly, the unwillingness of Ceylon to tighten the restriction scheme still further.⁶⁸

The failure was obvious from the beginning. Restriction is ineffective when major producers like the Netherlands East Indies do not participate. Price control through fixing supply was not enough; it could not combat the industrial depression in the United States of America and Europe. But the greatest blunder was raising the pivot to 1s. 9d. This reduced consumption by setting a high premium on the raw material, and made the development of a reclaimed rubber industry economic.⁶⁹

68. Straits Times, 18 May 1928.

69. Statist, 2 April 1927.
Planters' Association of Ceylon Proceedings 1927, p. 61.

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PRICE AND QUOTA⁷⁰

	<i>1st Quarter</i> (Nov.-Jan.)	<i>2nd Quarter</i>	<i>3rd Quarter</i>	<i>4th Quarter</i>
1922—23: Quota	60	60	60	65
Price	1s. 2.285d.	1s. 4.858d.	1s. 2.242d.	1s. 2.994d.
1923—24: Quota	60	60	60	65
Price	1s. 2.175d.	1s. 0.917d.	0s. 10.974d.	1s. 2.632d.
1924—25: Quota	50	55	65	75
Price	1s. 5.998d.	1s. 7.356d.	3s. 2.469d.	3s. 7.269d.
1925—26: Quota	85	100	100	100
Price	3s. 10.709d.	2s. 4.103d.	1s. 0.017d.	1s. 8.179d.
1926—27: Quota	80	70	60	60
Price	1s. 7.215d.	1s. 7.769d.	1s. 6.165d.	1s. 4.605d.
1927—28: Quota	60	60	60	60
Price	1s. 7.023d.	1s. 0.604d.	0s. 9.154d.	0s. 8.866d.

VIII. *Some Aspects of Rubber Restriction in Ceylon*

In order to implement the rubber restriction the Rubber Restriction Ordinance was passed by the Legislative Council in October 1922, providing the necessary machinery. A rubber controller was appointed to be in general charge of administration, and a board was created to advise and assist him.⁷¹ The cost of the scheme was met by a charge of $\frac{1}{4}$ cent per pound by way of an extra duty. Any surplus was to be used to promote the rubber industry.

Many rubber estates were interplanted with other crops so that there was no standard of productivity. Further, there was a difference in the fertility of various districts, governed by soil and climate. It was thus decided to establish a standard for each estate separately. A preliminary assessment was conducted by the controller of the actual production in 1919-20. Title-deeds and accounts were demanded for this purpose.⁷²

70. Rubber Age: Semi Monthly Statistics.

71. Rubber Restriction Ordinance 24 of 1922.

The Rubber Restriction Board was appointed by the Governor. It included representatives of the Planters' Association, the Ceylon Estate Proprietary Association, the Low Country Products Association, the Chamber of Commerce and the Colombo Rubber Trades Association with two unofficial members of the Legislative Council.

In 1922 the membership of the board was as follows:— Furze Roberts (Rubber Controller), F. Bowes, Sir J. Thomas Broom, T. L. Villiers, N. J. G. Robertson, F. T. Wright, F. R. Senanayake and G. Turnbull.

Ceylon Government Gazette No. 7296 of November 10, 1922.

72. Ceylon Administration Report of the Rubber Controller, 1924, p. Q1.

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In the event of documents not being available, assessment was based on the island averages of 320 lbs. per acre. Revenue officers were responsible for assessing smallholdings below 10 acres.

From the beginning there was considerable dissatisfaction with the findings, both from large and small landholders, and appeals to the Rubber Restriction Board were frequent. The popular grounds for appeal were the consideration of new areas coming into productivity, improvement in output as a result of capital expenditure, and better yields from improved tapping. While individuals pleaded against under-assessment, there was a general feeling in the community that total output had been over-estimated, a complaint supported by Malayan interests.⁷³ At the beginning of 1924 the restriction scheme in Malaya had fixed the maximum standard production for an acre at 400 lbs. And the Secretary of State for the Colonies suggested a similar maximum for Ceylon. This was opposed on the grounds that better equipped estates would be penalised.⁷⁴ However, the controller made re-assessment wherever his investigation proved this justified, a process which caused further complaint resulting in the appointment of a committee of the Legislative Council to report on the whole matter.⁷⁵ The majority report condemned re-assessment as superfluous. In Ceylon assessors were recruited from the visiting agents who worked on tea as well as rubber estates and were in short supply as they were unwilling to abandon their interest in tea. The only change recommended was the reduction of the maximum standard production from 450 pounds per acre to 400 pounds. The minority of the committee, who were native members, condemned the whole apparatus.⁷⁶ In effect, cases of over-assessment remained unaltered. Smallholders also protested against any reduction when reduced output might cut returns below subsistence level; they were given relief on 1 October 1924 by permission to increase exports at minimum duty, to the extent of 33 $\frac{1}{3}$ % above the proportion allowed to others.⁷⁷

The relative success of the restriction scheme in its early stages rallied previous dissenters to its support.⁷⁸ The price rise enabled the planter to recommence cultivation and manuring programmes suspended during the

73. Planters Association of Ceylon Proceedings 1927, p. 55.

74. Ceylon Administration Report of the Rubber Controller, 1924, p. Q1.

75. Ceylon Administration Report of the Rubber Controller, 1925, p. Q1. Sessional Paper XIV of 1925.

76. *Ibid.* "The high assessment is open to comment." Ceylonese members who condemned the entire report: Messrs. D. S. Senanayake and C. W. W. Kannangara.

77. Ceylon Administration Report of the Rubber Controller, 1927, p. Q3.

78. Planters' Association of Ceylon Proceedings 1925, p. 29.

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depression.⁷⁹ But costs of production also increased, partly as a result of the restriction scheme itself, and partly due to the fact that the temporary but rigid economies introduced in 1920 and 1921 could not be continued. The improved prices of 1923 also made possible the employment of a larger labour force, and a recruitment drive in South India. The boom of 1925 was of immense importance to Ceylon planters, but exposed the rigidities of the restriction scheme. With the export quota rising to 100%, producers were unable to achieve the permitted output. This was taken by many as an argument to prove that Ceylon estates had been over-assessed.⁸⁰

RUBBER PRODUCTION IN CEYLON (tons)⁸¹

	Actual Exports	Exportable Maximum	Standard Production
1922—23	37,846	36,774	60,034
1923—24	37,194	35,591	62,282
1924—25	44,092	40,308	65,807
1925—26	56,957	67,833	70,475
1926—27	57,875	49,842	73,839
1927—28	—	—	76,300

The boom of 1925-26 led to fresh opposition to the restriction scheme. While members of the Planters' Association were now in favour of restriction, indigenous producers argued that it was unnecessary in view of price levels. It was urged that high charges limited consumption, and that the Dutch East Indies were expanding their exports at the expense of the British. Local growers regarded the scheme as beneficial to European growers alone since overhead charges and production costs were higher on large estates. Consumers, on the other hand, queried the morality of fixing supplies of a basic raw material in order to raise prices.⁸²

The price fall in the year 1926-27 split the ranks of the scheme's supporters. While the committee of the Planters' Association continued to support it out of loyalty to its connections with the London associations, the rank and file were now beginning to question the efficiency of the plan. Raising the pivotal price to 1*s.* 9*d.* started a landslide against restriction. Many Ceylon planters pointed out that profits from producing 100% of

79. Year Book of the Department of Agriculture 1924, p. 2.

Ceylon Association in London Proceedings 1926, p. 13

Ceylon Administration Report of the Rubber Controller, 1927, p. Q4.

80. Shortage of labour also accounted for the inability of the Industry to produce the maximum—Ceylon Association in London Proceedings 1926, p. 18.

81. Ceylon Administration Report of the Rubber Controller, 1923 to 1927.

Planters' Association of Ceylon Proceedings 1927, p. 55.

82. Whittlesley: Government Control of Crude Rubber, p. 35.

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their total capacity at 1s. 3d. was about equal to the production of 60% at 1s. 9d.⁸³ One major criticism of the entire restriction scheme as a whole was that it increased the cost of production and gave a greater cost advantage to the unrestricted countries. The way in which all-in costs of British rubber companies in restricted and unrestricted areas were affected by restriction appears from the following figures.⁸⁴

RESTRICTED COUNTRIES	1922—23	1923—24
140 Malayan companies	8.68d.	9.68d.
28 Ceylon companies	7.60d.	9.20d.
UNRESTRICTED COUNTRIES		
23 Netherlands East Indies companies	9.22d.	9.13d.
20 Plantation companies elsewhere		

Rubber prices continued to sag; but Ceylon producers now thought not in terms of restriction but of improving the soil and the rubber trees in order to reduce costs. By 1927 there was practically no limitation in Ceylon.⁸⁵ Malaya adopted a new tapping system from 1 November 1927 which in effect meant a reduction of output of about 15%, and suggested the adoption of this method in Ceylon and the Dutch Indies. The British controlled rubber interests in the Dutch territories agreed to this plan, provided Ceylon did the same, a decision which was communicated to the Ceylon Association in London through the Rubber Growers' Association. London controlled companies offered their support, but the Ceylon Estate Proprietary Association objected to the operation of a voluntary scheme side by side with the existing compulsory measures.⁸⁶ The London controlled firms at first decided to carry out the voluntary restriction of 15% from March 1928, but they operated only a small acreage, about 130,000 in all, and their action did not substantially affect Ceylon output. In any case the whole restriction machinery was on the point of being abandoned.

The winding up of the Stevenson Scheme caused an outcry from the Rubber Growers' Association and the Ceylon Association in London, but

83. Planters' Association of Ceylon Proceedings 1927, p. 61; Ceylon Association in London Proceedings 1928, p. 47.

British producers in Malaya had greater advantage than in Ceylon by producing 100% of their capacity. It has been declared that the approximate cost of producing 60% of capacity was one shilling per pound as compared with 8d. per pound for 100% export.

Statist, April 9, 1927.

84. Whittlesey: Government Control of Crude Rubber. p. 79.

85. Ceylon Association in London Proceedings 1928, p. 37.

86. *Ibid*, p. 40.

its continuation was impossible as individual producers had lost faith in it.⁸⁷ All in all, the scheme had little credit balance to show. It created an artificial profitability in growing rubber, and paradoxically promoted the extension of the cultivation of the staple. The limitation by law on its cultivation in Malaya was not paralleled by equally stringent measures in Ceylon or the Netherlands East Indies, where output multiplied.⁸⁸ 100,000 acres were added in Ceylon; while the East Indies took the opportunity to become the most extensive possessor of rubber lands. Equally serious effects of the scheme were that it fostered the use of reclaimed rubber, and antagonised both business and public opinion on grounds of commercial morality. The attitude of the United States government was one of opposition from the very start of the restriction scheme. It was held in certain quarters that British action with regard to rubber would encourage similar action by any other nation which had a monopoly of an important primary produce.⁸⁹ A more serious criticism was that it weighed most heavily on the more efficient proprietors. Inefficient firms would have been squeezed out but for the functioning of the scheme. The unit cost of production was raised by restriction, but did not fall again when the plan was abandoned.⁹⁰ The effect of the restriction on the cost of production can be seen in the following list.

AVERAGE ALL-IN COSTS OF
BRITISH PLANTATION COMPANIES 1922—29⁹¹
(pence per pound)

Date of Publication	Number of Companies	Average All-in Costs
October 1922	307	12.824
December 1922	309	11.531
June 1923	319	10.351
December 1923	335	9.615
June 1924	332	9.988
December 1924	332	10.181
June 1925	335	10.271
December 1925	383	10.203
June 1926	392	10.252
December 1926	396	10.379
June 1927	397	10.605
December 1927	394	10.589
June 1928	389	10.581
December 1928	366	10.694
June 1929	363	9.559

87. *Ibid.*, p. 47; *Statist*, 26 March 1927.

88. The Stevenson restriction in fact encouraged the cultivation of rubber in the Netherlands East Indies. By encouraging a high output, overhead costs per unit of product were reduced without giving rise to extravagance.

Economist, 21 May 1927.

89. Whittlesey: *Government Control of Crude Rubber*, p. 136.

Statist, 2 April 1927.

90. Whittlesey: *Government Control of Crude Rubber*, p. 79.

91. *Ibid.* p. 80.

RUBBER INDUSTRY IN CEYLON

UNITED STATES OF AMERICA: CONSUMPTION OF RUBBER AND AVERAGE PRICES⁹²

	Natural Rubber (Long tons)	Reclaimed Rubber (Long tons)	New York Spot Prices (cents per lb.)
1921	177,772	41,351	16.36
1922	301,499	54,458	17.50
1923	319,422	69,534	29.45
1924	328,769	76,072	26.20
1925	388,481	137,105	72.46
1926	366,149	164,500	48.50
1927	373,000	189,500	37.72
1928	437,012	223,000	22.48
1929	467,408	212,700	22.48
1930	375,735	153,500	11.98
1931	350,000	123,000	6.17
1932	332,000	77,500	3.49

With the removal of the restriction scheme the price of rubber began a rapid descent, and by the end of 1929 the average was again below profit level. There were new suggestions for limitation, and the Rubber Growers' Association proposed a suspension of tapping for one month, preferably May 1930.⁹³ When this was communicated to Ceylon, the Ceylon Estate Proprietary Association rejected the idea on the grounds that May was an unsuitable month.⁹⁴ This was a pretext. Behind this rejection was the

THE PRICE OF CEYLON RUBBER ON THE LONDON MARKET⁹⁵

	Highest	Lowest	London Stocks 31 Dec. (tons)
1920	2s. 10½d	10d	50,752
1921	1s 3½d.	8d.	69,792
1922	1s. 2d.	6¾d.	72,299
1923	1s 6½d.	1s. 1¼d.	60,246
1924	1s. 8d.	9¼d.	29,488
1925	4s. 8d.	1s. 4d.	5,697
1926	3s. 8d.	1s. 5d.	48,918
1927	1s. 8d.	1s. 3¾d.	63,793
1928	1s. 7¾d.	8½d.	19,815
1929	1s. 1d.	7d.	54,304
1930	8d.	3d.	77,966
1931	4½d.	2½d.	69,516

92. Cornell and Glover: Development of American Industries, pp. 557-558.

93. Planters' Association of Ceylon Proceedings 1929, p. 34.

94. *Ibid.*, p. 17. In order to reduce 1930 output to 70% of 1929, the Rubber Growers' Association and the Dutch Rubber Growers' Association agreed to stop tapping in May 1930. About 80% of all producers (estates) in Malaya and the East Indies agreed. But the Ceylon Estate Proprietary Association wanted even native smallholdings into the scheme.

95. Planters' Association of Ceylon Proceedings 1931, p. 17.

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realisation on the part of Ceylon planters that unilateral measures were ineffective; and a determination to wait till such time as conditions deteriorated so far as to compel Dutch estate owners to co-operate in any future plans for limiting rubber output.⁹⁶

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96. Ceylon Association in London Proceedings 1932, p. 12.