

*Indian Labour, Labour Standards, and
Workers' Health in Burma and Malaya,
1900–1940*

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Indian labour migration to Burma and Malaya in the late nineteenth century was an important dimension of British colonial rule in Southeast Asia and coincided with the region's greater integration into the international economy. Compared to the Chinese, Indians formed an important minority only in these states where they filled a critical need in the urban manufacturing sector (Burma) and the plantation sector (Malaya). Their importance declined after World War Two, both in absolute and comparative terms. There were fewer millionaires and traders among them and their emigration to these territories was largely regulated by law. Moreover, the specific political and economic relationship between the Colonial Office in London and these territories determined recruitment patterns and influenced employment relations and working conditions. In turn, these impacted on the living conditions and mortality suffered by workers and shaped the structure of health services.

This paper examines the role of Indian migrant labour and labour standards in the two territories, and compares workers' health in urban and rural environments. Central to the analysis is the interplay between colonial labour policy and the role of regulatory institutions and intermediaries in the labour market. It also aims to highlight some aspects of the epidemiology of Indian labour migration to Southeast Asia.

The paper is divided into three sections. Section one focuses on labour recruitment policies and methods; the role of intermediaries; the magnitudes of migration and settlement patterns. The second section reviews labour rights—workers' wages and working and living

I am grateful to the University of New England, Armidale, and the Wellcome Trust for funding my fieldwork in Kuala Lumpur and London.

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conditions. The final section examines mortality rates, the disease history of factory and plantation workers and the provision of health services in Burma and Malaya.

Introduction: Political and Economic Change in Southeast Asia, 1870–1940

World trade underwent major changes in both qualitative and quantitative terms over the period 1870 to 1914. The principal driving force was industrialisation in the West, coupled with western political and economic advances. This had two major consequences for the Southeast Asian states. First, Europe began to turn to these states as sources of raw materials and as markets for its manufactured goods. Southeast Asian states were thus integrated more fully into the world economy by being obliged to open up their markets and resources to western enterprise. Second, the imperial drive was also driven by an agenda of competitive state-building overseas and, consequently, Southeast Asian states became colonies, protectorates, or part of the informal empire of European powers. This process, which began around 1850, climaxed between 1870 and 1914. Britain annexed Lower Burma in 1852 and by the 1880s had taken over all of Burma. In the Melaka Strait, Britain (which had acquired the Straits Settlements between 1786 and 1824), brought the Malay States under formal protectorate status between 1874 and 1914. Though termed ‘protectorates’ and still nominally under their own rulers, these states were in effect governed as colonies.

The creation of these and other new states in Southeast Asia represented new departures within the region. These new states had precisely delineated boundaries; an internal dynamic which possessed a ‘permanency’ that indigenous states had lacked; a new style of administration and institutional structures to oversee the various aspects of government; and an intensity in governance not hitherto experienced in these states. Capital also flowed to those states where there were natural resources to be exploited, not necessarily where labour was cheap, and the full economic potential of some tropical products was only realised when the new technologies in industrial Europe created a demand for them.

Burma and Malaya’s integration into world commodity and capital markets engendered an accelerated demand for their products and coincided with the rapid expansion of agricultural and mineral

production in the region. The particular way in which the export industries developed was determined by local conditions in these countries: the availability of natural resources and vast tracts of land; sparse and unevenly populated regions; and the responses of various indigenous groups to the possibilities of export production. However, there were limits to the willingness or ability of the peasants to respond to the opportunities opened by the growing market for tropical export commodities. The colonial administrations in Burma and Malaya consequently turned to India for their labour recruitment needs. Chinese labour, which was unregulated, also moved into the region, and was initially absorbed into the mining sector.

The fact that this migration owed its origins to the labour systems under which migrants travelled allows it to be distinguished from other previous movements of people. Late nineteenth-century labour migration was consistent with the international division of labour and laid the framework for migrant labour diasporas in the region. It involved mass migrations, both short and long-distance journeys; the organisation of travel arrangements and employment in the receiving countries; and an empire-wide sourcing of labour. It also involved two other groups in the migration process apart from the migrants. These were the private labour brokers and other intermediaries who organised travel arrangements and employment, and state officials. Particular labour regimes that relied on the use of sanctions to enforce wage labour agreements, or coercion through intermediaries, were also developed. In Malaya moreover, the colonial state relied on specific instruments, namely regulations, immigration controls and recruitment mechanisms, to control and manage the Indian migrant labour stream.

The recruitment of Indian workers for Burma and Malaya was also consistent with a rather elastic use of labour. The workers had many characteristics in common. They were young, predominantly unskilled adult males who emigrated as individuals and thus had low dependency ratios. They also primarily comprised illiterate peasants who had spent hardly any time away from their villages. They were mainly engaged in the production and processing of commodities, in factories, in the construction and maintenance of transport systems and in the ports. They remitted capital in the form of money to their places of birth. After periods of employment, they usually, but not always, returned to their countries of origin. Colonial authorities viewed them as sojourners, to be repatriated when the demand for their services no longer existed.

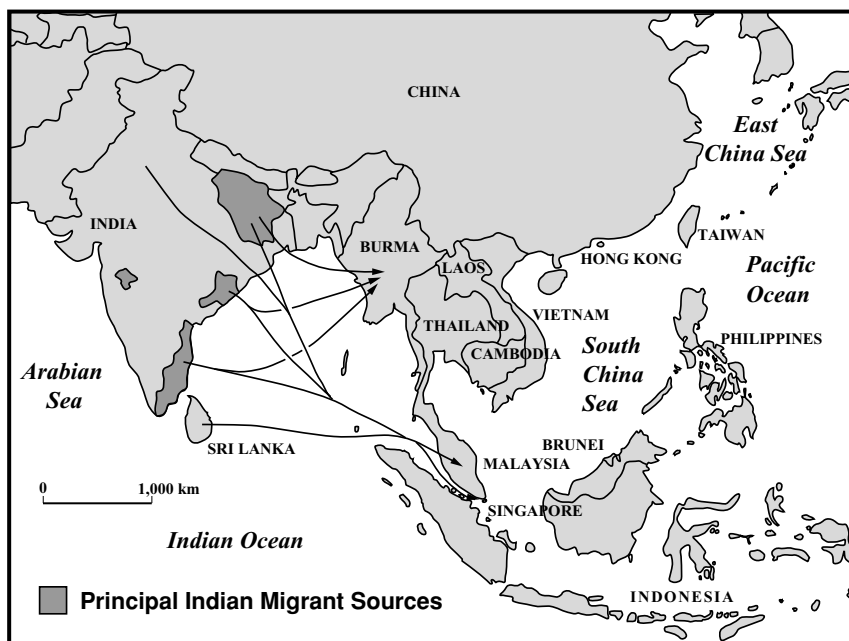
The State, Indian Labour Migration to Burma and Malaya and the Role of Intermediaries

Labour recruitment in Burma and Malaya has to be viewed in the context of these territories' administrative relationship with Britain and their political and economic role in the wider colonial empire. In both territories the most profitable lines of development were the extraction of commodities that were already accessible, and the expansion or cultivation of tropical crops that were in demand in the industrialised West.

The acquisition of Burma enabled Britain to secure the eastern defences of India and the territory was administratively and politically governed as part of India. The export demand for Burma's rice and the rapid expansion of its rice industry coincided with the disruption of rice supplies from Carolina during the American Civil War; and the growth in steam navigation and the opening of the Suez Canal, which led to falling transport costs. Burma became the world's largest rice producer; rice cultivation took on an 'industrial' character; and increased production was facilitated by labour migration from India. Subsequently, Indian labour was also recruited for a myriad of factory and other urban and port occupations, and Burma's great reliance on Indian migrant labour thus shaped its economic and communal structures. Labour migration from India to Burma was viewed largely as an internal movement from one region to another.

Malaya, on the other hand, was regarded as a strategic gateway to the Pacific: it was administered from Britain and the British preserved the myth that they governed the Malay States on behalf of the Malay rulers. Malaya emerged as the world's largest exporter of tin and rubber and migrant Chinese and Indian labour played a major role in the production of these commodities. While Chinese dominated the mining labour force, the large-scale entry of Indian labour was consistent with the development of the rubber plantation sector. This recruitment of Indian labour involved two separate political entities and necessitated a certain degree of control and regulation by the Indian colonial government (India Office). Nevertheless, there were similarities between Malaya and Burma as well, namely, in the origins of the Indian migrants, methods of recruitment, and duration of contracts.

Three principles governed colonial labour policy: the acquisition of a plentiful, diversified, and cheap supply of labour for colonial and capitalist enterprise; the (limited) assurance of the labourer's freedom



Map 1: Indian Migration Flows.

of movement; and the provision of a limited amount of protection for workers. Crucially, a diversified recruitment policy meant that migrant labour could be manipulated easily and ensured that workers were not easily assimilated or readily accepted by the local inhabitants.

Other factors also shaped employment relations structures during this period. These included the often temporary nature of migrant labour's residence overseas; the geographic and social isolation of migrant workers on plantations, padi fields or in urban areas; and the physical, linguistic, cultural and religious differences between migrant workers and indigenous populations. These factors also enabled colonial governments and employers to use economic and extra-economic instruments to maintain low wage bills; sustain occupational differentiation based on ethnicity, resulting in vertical cleavages of ethnicity, kinship and religion, and facilitating the substitution of one worker group by another (Kaur 2004:chs 3-4).

Migration Flows and Magnitudes

The principal Indian migration flows by sea to Burma and Malaya are shown in Map 1.

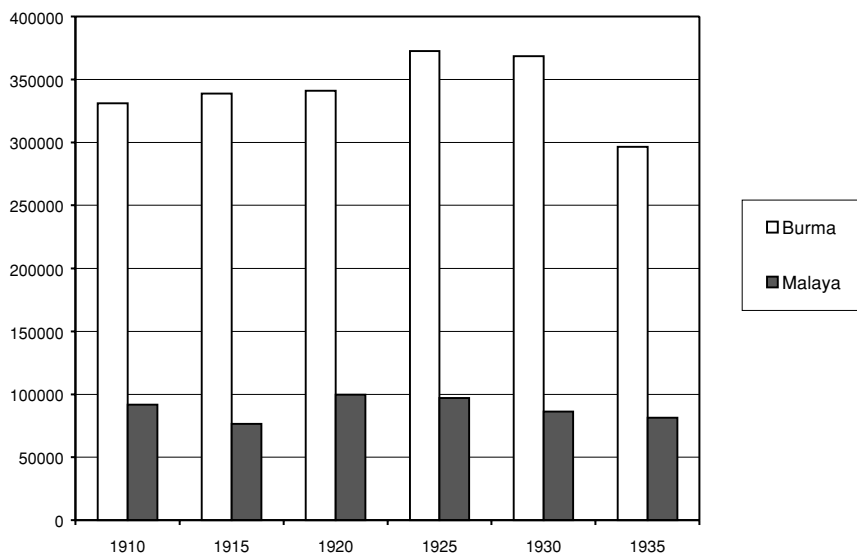


Figure 1. Burma and Malaya: Comparative Flows of Indian Immigrants, 1910–35 (selected years).

Source: K. S. Sandhu, *Indians in Malaya* (Cambridge: Cambridge University Press, 1969), p. 157.

There was also overland migration from India to Burma, especially from Bengal to Arakan. The circumstances and the reasons for Indian labour migration need not detain us here. Suffice it to say that the majority of migrants from India were impoverished, and pushed into migration due to agrarian overpopulation and pressure on land, exactions by the state, natural calamities and landlord exploitation. In both countries Tamil and Telegu unskilled labourers from South India dominated the migrant labour flows.

The comparative flows of Indian immigrants to Burma and Malaya for the period 1910–35 are shown in Figure 1. Indian immigration flows to Burma greatly exceeded flows to Malaya. Burma's proximity to India and the fact that it was governed as part of India has been cited as a contributory factor to the greater number of Indians migrating to Burma. Nevertheless, Indians as a percentage of the total population provides a more accurate picture of their presence in, and impact on, these territories.

Turning to the Indian percentage of the total population, Indians in Burma comprised between 4.9 and 6.9 percent of Burma's population in the period 1872–1931 as shown in Table 1. However, the Indians

TABLE 1
The Indian Population in Burma, 1872-1931

Census Year	Total Population	Indian Population	Indian % of Population
1872	2 747 148	136 504	4.9
1881	3 736 771	243 123	6.5
1891	8 098 014	420 830	5.1
1901	10 490 624	568 263	5.4
1911	12 115 217	743 288	6.1
1921	13 212 192	887 077	6.7
1931	14 667 146	1 017 825	6.9

Source: James Baxter, *Report on Indian Immigration* (Rangoon: Government Printer, 1941), p. 5.

TABLE 2
The Indian Population in Lower Burma, 1872-1931

Census Year	Total Population	Lower Burma		Upper Burma	
		Indian Population	Indian % of Population	Indian Population	Indian % of Population
1872	2 747 148	136 504	4.9	n.a.	n.a.
1881	3 736 771	243 123	6.5	n.a.	n.a.
1891	4 658 627	355 454	7.6	62 658	2.0
1901	5 405 967	497 981	9.0	61 645	1.6
1911	6 212 412	651 459	10.4	82 087	1.8
1921	6 862 106	763 043	11.1	106 800	2.2
1931	7 765 614	849 381	10.9	134 157	2.5

Note: n.a. = not available.

Source: James Baxter, *Report on Indian Immigration* (Rangoon: Government Printer, 1941), p. 6.

were largely concentrated in Lower Burma where they comprised around 11 percent of the population in 1921 and 1931, as shown in Table 2. This percentage, which is comparable to the Indian percentage in Malaya (see below), is a more reliable indicator, particularly since the Indian labouring population was concentrated in the urban areas of Lower Burma.

In Malaya, Indians comprised between 10 to 14 percent of the population between 1911 and 1947, as shown in Table 3, and together with the Chinese, had outnumbered the 'Malaysians' by 1940. Nevertheless, Indians had a lesser impact on economic and communal structures in Malaya. About 90 percent of them were unskilled workers and a very large number lived in isolated plantation communities. With the plantation as the boundary of their existence, they had fewer contacts with the indigenous Malays.

TABLE 3
Malaya: Population by Racial Group, 1911-1947 (Numbers in Thousands, Percentages as a Proportion of Total Population)

Year	Malaysians ¹		Chinese		Indians ²	
	No.	%	No.	%	No.	%
1911	1 438	54	917	34	267	10
1921	1 651	49	1 175	35	472	14
1931	1 962	45	1 709	39	624	14
1947	2 544	43	2 615	45	600	10

Notes: ¹ 'Malaysians' include Malays and Indonesians.

² Includes Pakistanis after 1947.

The Table excludes 'other' races.

Source: Malaya: Census Reports 1911-1947.

Recruitment Processes, Contexts and Intermediaries

The growth of rice production and exports in Burma was a product of both political and economic factors. Politically, as the country was opened up to international trade, previous prohibitions on rice exports were lifted, and the colonial authorities introduced measures to encourage rice cultivation and exports, partly as a revenue-raising measure. Equally significant was the fact that the imposition and more efficient collection of a variety of taxes that were levied in cash required peasants to seek cash incomes.

Demand for rice tended to rise rapidly as the nineteenth century progressed and the export demand for Burmese rice came from India, Europe, and then increasingly from other Southeast Asian markets. The area under rice cultivation in Burma recorded a steady increase compared with the other two major rice producers in Southeast Asia, Thailand and Cochin-China, as shown in Table 4. Burma continued to maintain its position as the leading rice exporter and India remained its main market.

Three phases characterised the Burmese rice industry: the open frontier, 1870-1900; maturity and change, 1900-29; and depression and social problems, 1930-40. These phases were consistent with the fluctuating fortunes of the industry and Burma's increased dependence on world markets (Adas 1974). British land policy and the transformation of rice production into 'industrial agriculture' (Furnivall 1948:116), also led to a clear division between cultivation and processing activities and further specialisation in the cultivation, financing, processing and exporting of rice. Three main groups were involved: Burmese cultivators, who also processed some of the rice;

TABLE 4
*Lower Burma, Thailand and Cochin-China: Land under Rice Cultivation,
 1860-1920 ('000 hectares)*

Year	Lower Burma	Thailand	Cochin-China
1860	539	813	n.a.
1870	702	907	274 ¹
1880	1 255	995	753
1890	1 780	1 192	854
1900	2 662	1 293	1 528
1910	3 160	1 755	1 528
1920	3 476	2 295 ²	1 752

Notes: ¹ 1873.

² 1916-20.

Sources: Cheng Siok-Hwa, *The Rice Industry of Burma, 1852-1940* (Kuala Lumpur: University of Malaya Press, 1968), pp. 241-2; Sompop Manarungsan, *Economic Development of Thailand, 1850-1950: Response to the Challenge of the World Economy* (Bangkok: Chulalongkorn University Press, 1989), p. 51; Martin J. Murray, *The Development of Capitalism in Colonial Indochina 1870-1940* (Berkeley: University of California Press, 1980), p. 417.

Indian financiers, field workers and rice mill workers; and European firms, which dominated the processing of rice and its export.

In cultivation, as Burmese labour became scarce, Burmese cultivators turned to Indian labour to carry out such tasks as the construction and repair of bunds, ploughing, transplanting of seedlings, harvesting and threshing. They also increasingly turned to either Burmese or Indian Chettiar moneylenders to finance their activities. Indian rice field workers' employment was seasonal and determined by the different phases of the rice season. The workers arrived in Burma between September and March to carry out a range of tasks associated with the cultivation and harvesting of rice. Between March and the following September, the workers either departed for India, or sought casual work in the towns in the rice mills or on the docks. The rice production cycle thus determined the seasonal character of most Indians' employment, but not wholly. Although some of these workers made a return trip to India annually, they normally worked for a minimum of three years in Burma (Pillai 1947:101).

European intervention in the Burmese rice trade dates from the 1830s and Rangoon's first steam operated mill was opened in 1861 (Cheng 1968:77-8; Spate 1941:79). According to Cheng, overseas exports of rice began in the mid-1860s, utilising the ports of Rangoon, Bassein, Akyab and Moulmein. (Adas states that overseas exports were already established by 1855-6 [1974:30]). Rangoon soon dominated the export trade in rice and rice mills were mainly located at

this port until the end of the nineteenth century (Spate 1941:79). Subsequently, in the decade prior to World War One, rice mills were increasingly established elsewhere near water and rail transport lines (Spate 1941:79). While a portion of the padi was processed locally for internal use, Indian brokers and contractors bought large quantities which they transported to the rice mills. The manufacture of the finished product was dominated by Europeans while the mill labour force comprised mainly Indian workers, who were hired out to the European- and Indian-owned mills by labour contractors (Cheng 1968:89, 132–3). These workers formed the backbone of the rice mill labour force in Burmese towns and are the focus of this study.

Turning now to Indian immigration, the colonial government had encouraged Indians to migrate as colonists to Burma soon after the annexation of Pegu in 1852. In the mid 1870s, consistent with the growing demand for Burmese rice, Indians were encouraged to migrate both as agriculturalists and as labourers. Subsequently, in 1876 the Indian Government enacted a Labour Act which provided for the appointment of an Emigration Agent and a Medical Inspector of Emigrants to ‘regulate the methods of recruitment, transport and employment and to safeguard the welfare’ of emigrants destined for Burma (Cheng 1961:119). Migration under this scheme proved to be unsuccessful principally because mill owners found the conditions of the Labour Act onerous and preferred to obtain their labour force through the agency of the labour contractors which enabled them to both manage and control workers. Consequently, Indian labour migration was ‘entirely uncontrolled’ and there was no one ‘responsible for the welfare or protection of the immigrants after they had actually landed in Burma (Burma Office Police & Judiciary 1067/38). Ostensibly, migrants were ‘free’ men who landed in Burma without any debt. The reality was quite different.

The labour migrants, comprising mainly Tamils and Telegus, were from the poverty-stricken areas of South India and did not have the means to move to Burma. They thus had to rely on two groups of intermediaries: the recruiting agent (who acted on behalf of the labour contractor); and the labour contractor, known as *maistry* in the Telegu districts of South India. The recruiting agents went to the villages to recruit the workers who were then handed over to the labour contractors. The latter transported them to the emigration depot where they underwent official migration procedures (including basic health checks) and attested that they were migrating of their

own free will. They were then taken to their place of employment in Burma, and remained under the charge of the *maistry*.

From these simple origins the *maistry* system gradually evolved into a multi-tiered recruitment mechanism and authority system, and abuse and exploitation were enshrined at every level. According to Kondapi, the *maistry* system comprised several levels of intermediary contractors, namely the labour contractor; the head *maistry*; the charge *maistry* and the gang *maistry*. The labour contractor, who had substantial funds at his disposal, contracted with a company or mill owner to supply and maintain the required labour force agreed to in a contract. Below him was the head *maistry*, who was responsible for the entire labour organisation of a particular firm or company. Under him came the charge *maistry* who controlled several gangs of labour, while the gang *maistry* was in charge of a gang of labourers whose numbers ranged from 10 to 20 (Kondapi 1951:46). The gang *maistry* organised the labour gangs that moved through the rice districts, contracting and completing jobs before moving on to a new rice district. At all levels the *maistry* exercised strong control over the Indian workers and his earnings came principally from three sources: the interest which he charged on his advances to his labour gangs; the commission paid by the recruiting firms to which he supplied labour; and from his manipulation of bulk purchases of steamship tickets. According to Adapa, the relationship was of 'mutual but unequal interdependence' and relied on patronage networks (Adapa 2002:101).

Apart from the *maistry* recruitment system, shipping companies such as, for example, the British Indian Steam Navigation Company (BISN), also acted as labour recruiters, deploying a network of middlemen/intermediaries stationed at port towns in South India. A big percentage of these men were either free or voluntary workers who paid their own passages or borrowed from village moneylenders or recruiting agents. Nevertheless, these workers could only obtain employment at their destination through the *maistry*. Though technically free workers, they became indebted to the *maistry*, and the *maistry* system 'both curtailed and restricted' the workers' ability to negotiate better working and living conditions (Adapa 2002:102).

Although the *maistry* system closely resembled the *kangani* system in Malaya (see below), there were major differences between the two. The *maistry* was to all intents and purposes the *de facto* employer of Indian (factory) labour. In the early decades of the twentieth century he contracted out for the 'entire care' of a commodity. He

arranged migration, was responsible for accommodation and travel arrangements and paid the workers. Thompson states that there was often no indication of the number of workers required and the *maistry's* contract with a firm consisted of an agreement to supply 'those needed'. He had to pay a deposit as security to the firm with whom he had contracted to supply workers, and relied on the gang *maistries* to both supply and manage the workers (1947:43). This enlarged function of the *maistry* in Burma can be attributed to the seasonal nature of employment in most occupations, unlike the 'permanent' employment of Indians on Malayan plantations.

Indian workers were preferred for three main reasons. First, they were seen as a 'fluid' labour supply; they were cheaper to hire and manage compared to Burmese workers; and their accommodation costs were also cheaper since they could be housed in sub-standard tenement housing (see below). By comparison, Burmese workers were relatively immobile: they preferred employment in or near their home districts, and required individual housing units. Second, the Burmese were primarily agriculturalists and were not prepared to work the long hours in the mills with very few rest days and holidays. Third, the European firms in particular preferred to deal with head *maistries* to hire and manage the workers, rather than hire Burmese workers on individual contracts. Moreover, there were no Burmese head *maistries* with capital who were in a position to make contracts with European firms or finance their own labour gangs (Thompson 1947:43).

The preference for male migrants, the varied occupations of the Indians, and seasonality of employment impacted on Indian sex ratios in Burma. According to Kondapi, the sex ratio varied from 8.2 males to 1 female to as high as 250 males to 1 female (1951:92). This wide divergence was due to occupational and caste (or class) differentiation. High caste/class men left their families behind in India since they travelled frequently between the two countries. Workers (principally Chittagonians and Oriyas) employed on ships as engine room and deck crew also left their families behind due to the nature of their occupation. Moreover, the living conditions of urban factory workers—cramped quarters and a lack of privacy—discouraged workers on short-term contracts from bringing their spouses. Indian birth rates in Burma were thus low, prostitution was rife, and sexually transmitted diseases among Indian workers were commonplace (Kondapi 1951:92).

Unregulated labour migration also meant that there was a general lack of supervision of Indian labour immigration into Burma. There is mention of a port health officer being appointed at Rangoon in 1867–8 to 'guard against the importation of disease' by Indian *coolies* (Cheng 1961:120). The Indian government also made a contribution to the salary of the Labour Commissioner in Burma, for his services as Protector of Indian immigrants and emigrants. An Assistant Protector from India was also stationed in Burma, and he represented the Labour Statistics Officer. Although he was required to 'attend to' the ships transporting Indian migrants, inspections were seldom carried out (Kondapi 1951: 64–5).

The Whitley Commission, which was appointed to investigate conditions in India, visited Burma in late 1930, and subsequently dealt with the issue of Indian labour immigration into Burma. In its report the Commission noted that labour immigration (which comprised nearly half a million immigrants annually) was 'entirely uncontrolled', and recommended the appointment of a full-time Protector of Indian Immigrants, who would work with the Government of Burma, but be responsible to the Government of India. The Commission also recommended that this officer be granted 'access' to the official responsible for Labour Affairs in Burma and be given powers to enter industrial establishments where Indians were employed. Unfortunately, depressed economic conditions during this period meant that these recommendations were not implemented. The Indian government continued with its salary contribution to the Labour Commissioner in Burma.

As economic conditions worsened, the Indian government stopped its salary contribution and the task of 'protection' was 'entrusted' to the Nautical Surveyor and the Engineer and Ship's surveyor at Rangoon on payment of a contribution to their salaries. These arrangements lasted until Burma was politically separated from India in 1937. Subsequently, the 'protection duties' were handed over to the Nautical Adviser. Under the Separation Agreement provision was made for the appointment of an Agent of the Government of India to act as Protector of Indian labour in Burma. However, there was no indication that his powers included the Whitley Commission's recommendations (Burma Office 1067/38). At any event, the appointment came too late for Indian workers. When the Agent finally took office in 1939, Europe was in turmoil, and in 1942 the Japanese invaded Burma. Thus during the period under study, Indian factory workers in Burma

had no recourse to protection and this impacted on their working and living conditions.

How different was the situation for Indian labour recruited for the plantation sector in Malaya?

Like rice in Burma, the spread of plantation agriculture in Malaya was consistent with economic penetration accompanying the diversification of economic activity; changing production technologies; and the emergence of new markets for tropical products in the industrialising West. Plantations were primarily established in areas of sparse population in Western Malaya and the most important crop grown in the early twentieth century was rubber. Rubber was produced solely for export and the industry was dominated by western (particularly British) capital interests. The manufacture of rubber products was in the hands of American and European manufacturers in the United States and Europe. Unlike rice, therefore, workers' fortunes were tied more firmly to the international economy.

Until the 1890s Malayan planters had showed little commercial interest in rubber. As rubber prices rose in the early 1900s the crop was readily accepted by the Malayan government and planters as an ideal commodity for export expansion. Initially, the proprietary estate typified western planting interests, but most planters lacked the capital necessary to open larger units or properties. The driving force behind the expansion of the industry was the European trading agencies or agency houses, which floated limited liability companies on the stock market, usually in London, to mobilise a considerable amount of funds for the rubber industry. In Britain alone, 260 rubber companies were floated between 1903 and 1912 to acquire plantations in Malaya. By the end of the first decade of the twentieth century, the proprietary estates had mostly disappeared, their owners having taken up fully-paid up shares in the new companies as part of the sale price (Kaur 2004:ch.4).

It was usual for the agency houses to be appointed managing agents and/or secretaries to the Board of Directors of the new plantation enterprises, while the original proprietors were appointed managers. Some of the prominent agency houses were Guthrie and Company, Adamson Gilfillian, Paterson Simons, Harrisons & Crosfield, Barlow and Company, Sime Darby and the Borneo Company. These firms earned agency management fees; received commissions on the sale of rubber and tin and supplies to both mines and plantations; and were also involved in labour recruitment (Drabble 1973). Moreover, since rubber occupied a key position in Malaya's economy, Heussler

TABLE 5
*Distribution of Natural Rubber Production of Principal Rubber Producing Countries, 1910-40 (%)*¹

Country	1910	1920	1930	1940
Malaya ²	6.7	51.0	53.6	38.7
Indonesia	2.9	22.1	29.2	38.4
Indochina	0.2	0.9	1.2	4.5
Sarawak	0.001	0.5	1.2	2.5
Thailand	0.001	0.1	0.5	3.1
North Borneo	0.03	1.2	0.9	1.2
Ceylon	1.7	8.6	9.2	6.4
India	0.2	1.9	0.2	1.2
Brazil	40.3	6.8	1.4	1.3
Africa	21.4	1.6	0.6	1.1
Others	26.0	1.2	2.0	1.6

Notes: ¹ Percentages have been rounded to the nearest figure.

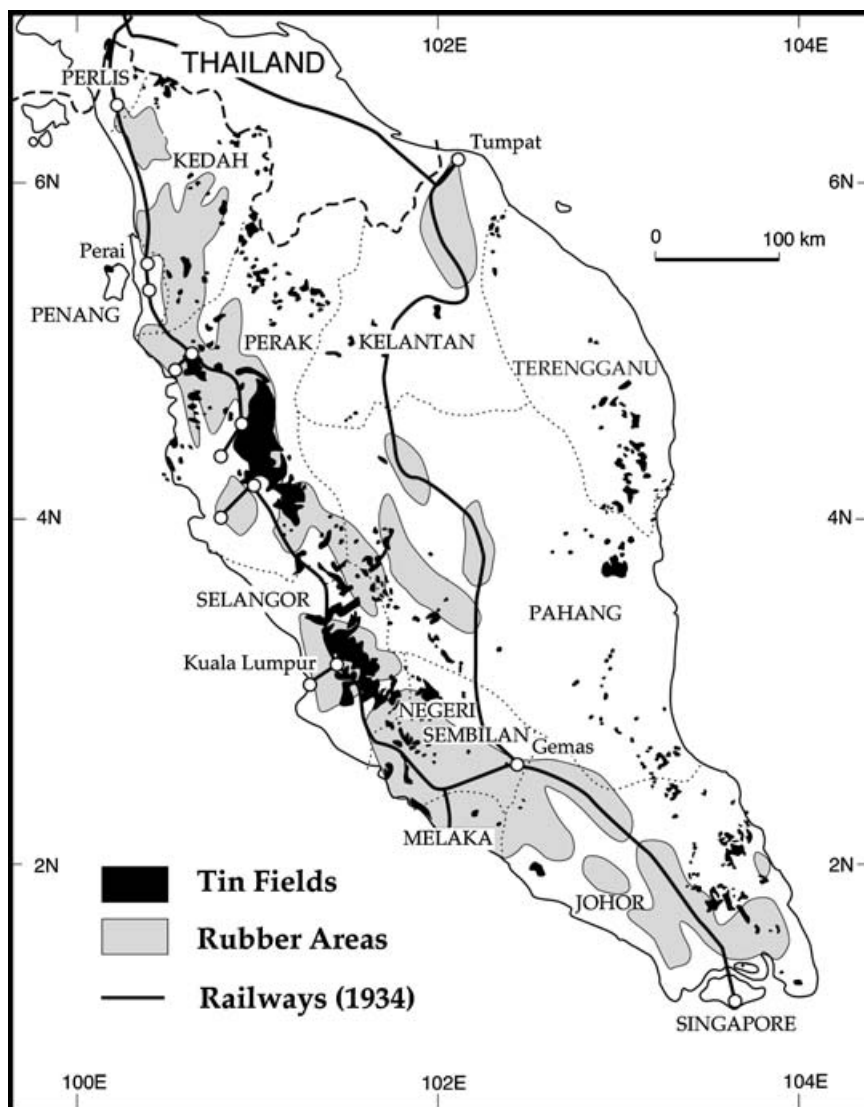
² Malaya includes Singapore, though Singapore's rubber production throughout was very small.

Source: Lim Chong Yah, *Economic Development of Modern Malaya* (Kuala Lumpur: Oxford University Press, 1967), p. 94.

asserts that the organised rubber interests—the Planters' Association of Malaya (PAM) and the Rubber Growers' Association (RGA)—'occupied positions not unlike those of similar ones in Britain and America, powerful combines that dealt with the government on equal terms or better' (Heussler 1981:176).

By the second decade of the twentieth century Malaya emerged as the world's largest producer, as shown in Table 5. Much of the development was concentrated in the western half of Malaya (see Map 2) in areas already well provided with roads and railways, (Kaur 1985:ch.3). Between 1906 and 1929, the area under rubber increased from 129 809 to 2 971 000 acres, while rubber exports rose from 6 000 tons in 1910 to 456 000 tons in 1929 (Drabble 1973:215; Lim 1967:328-9).

Turning to the question of labour mobilisation for the rubber industry (and other sectors), government policy centred on the recruitment of a regulated migrant labour supply and the avoidance of over-dependence on one foreign racial group. The European planting community also favoured a diversified workforce recruitment policy. Thus plantation workers were to be mainly recruited from three racial groups: Indian, Chinese and Javanese. Of the three, Indians were the preferred workforce (see below). Although Chinese were hardworking and available in large numbers, they were not as 'cheap' as Indians. The British also feared that a greater influx of Chinese



Map 2: Transport Networks and the Distribution of Rubber in Malaya.

(who dominated the tin mining sector), might lead to a potential social and political threat in Malaya. Moreover, they could only be hired through contractors who organised the Chinese labour gangs. Chinese also had a long tradition of group solidarity and social organisation and were constantly bargaining for higher wages. Javanese labour recruitment entailed fairly complex negotiations with the Dutch

colonial government in Indonesia, and Javanese were also required for the Sumatran rubber plantations. According to Sandhu, the South Indian labourer was preferred because he was

... malleable, worked well under supervision, and was easily manageable. He was not as ambitious as most of his northern Indian compatriots and certainly nothing like the Chinese ... he was the most amenable to the comparatively lowly paid and rather regimented life of estates and government departments. He had fewer qualms or religious susceptibilities, such as aversion to crossing the dreaded *kala pane* and food taboos... and cost less in feeding and maintenance (1969:56).

It was also easier to recruit South Indians because India was under the same imperial government, and its proximity to Malaya was an additional bonus. Crucially, South Indian docility fitted well into the dependent relationship between management and employee. The dominant motive of the European planters was to retain the greatest degree of control possible over the work force. One major drawback was that South Indians lacked the funds for spontaneous mass migration, and consequently, from the start the recruitment of Indian plantation labour was both regulated and sponsored by the Malayan administration.

In contrast to Burma, the 'administrative machinery' for Indian labour recruitment to Malaya is usually portrayed in glowing terms in both the official and planting literature. Until 1923, Indian immigration to Malaya was regulated first by the Indian government, and then by the Straits Settlement (SS) and the Federated Malay States governments. In 1923, following the passage of the Indian Emigration Act of 1922, the Indian government took over the regulation of Indian emigration to Malaya. A set of rules was framed which defined hours of work, working conditions and welfare provisions for Indian workers. More significantly, an Agent of the Government of India was appointed in Malaya to ensure that the rules were adhered to in the workplace. Thus Malaya's 'independent' political status vis-à-vis India enabled the Indian government to station an Agent who was granted access to investigate workers' conditions on estates and other places of employment in Malaya. The Agent also made recommendations to the Malayan government where there were perceived deficiencies. Moreover, Indian leaders visited Malaya to inspect workers' living and working conditions. In 1938, following publication of the Sastri Report on Indian labour in Malaya (1937), the Indian government banned all assisted labour emigration to Malaya

(Sastri 1937:22–3; Sandhu 1969:102–3). Overall, the ‘protection’ afforded to workers was variable, as outlined below.

Recruitment Procedures and Methods

In the second half of the nineteenth century SS sugar planters had recruited Indian labour under the indenture mechanism. The workers were normally indentured for two or three years (600 days actual labour) but they were required to pay back the cost of their sea passages out of their wages. These emigrants ‘merely moved from one part of the Indian Empire to another’ (Tinker 1974:111). In 1867 the SS came under the Colonial Office in London; emigration to the SS thus became illegal; and emigration came to a temporary halt. The ban was only lifted in 1872 on condition the SS government coordinated the movement of Indian labour emigration to Malaya. Subsequently, the magistrate at Negapatam was designated Protector of Indian labour and Indian emigration to the SS was permitted under a modified version of Act XIII of 1864. This Act made provision for a Protector; laid down rules for depots; and prescribed the treatment for emigrants. Interestingly, it also prescribed a sex ratio of 25 women to every 100 men in all labour shipments. Subsequently, the SS government compiled its own labour code in 1876 – the *Straits Settlements Ordinance No. 1* (also known as the *Indian Immigrants Protection Ordinance* of 1876, or the *Indian Act No. 5* of 1877) – to regulate indentured labour migration to Malaya. The ordinance set out the principal terms of the labour contract and labour conditions. Indian labour recruits arriving at Penang (the port of disembarkation in Malaya) were burdened with a debt of \$17 to cover their passage charge and advance of pay, later recoverable from their wages (Tinker 1974:112).

With the development of coffee plantations, demand for labour rose; SS officials and planters found the Ordinance too restrictive; and the Indian government repealed its legislation in 1881, effectively removing all restrictions on emigration to Malaya. In 1884 a new law, the *Indian Immigration Ordinance*, was passed in the SS to replace the previous legislation. Under the new legislation, an Indian indentured labourer was not required to sign a contract until his arrival in the SS. Subsequently, in 1887 the SS and several Malay States governments agreed to provide a steamship subsidy to transport Indian labour migrants to Malaya. The Indian government was also persuaded to implement measures to encourage emigration to Malaya. At the same

time recruitment regulations were modified to break the monopoly of the Indian recruiting agents. Another measure designed to facilitate emigration was the establishment of labour depots for receiving and processing Indian emigrants in southeast India (Jackson 1961:62–9).

Moreover, coffee planters developed an alternate recruitment system in the last two decades of the nineteenth century that relied on an intermediary, the *kangani*, to recruit Indian labour.

Rubber planters thus had a choice of two mechanisms for Indian labour recruitment: indenture and *kangani*. In the case of the former they engaged the services of one of the labour recruitment firms in Negapatnam or Madras (in South India), or sent agents to South India to recruit labourers directly. The agents advanced money to persons wanting to emigrate to Malaya, the advance being conditional on the intending migrants signing a contract on arrival in the country. They were then deemed to be under indenture to their employer for a fixed period, varying from three to five years. (The indenture was reduced to three years after the 1904 Labour Ordinance came into force [Tinker 1974:179]). When their period of indenture was completed, they could be re-indentured for a further period or released from indenture, providing they had paid off the expenses incurred in their recruitment. Wages were fixed at the time of recruitment and were not negotiable. The employer was responsible for all recruitment charges; the expenses involved in the transportation of workers; and workers' wages were calculated after deducting this outlay (Kondapi 1951:8–29). Most importantly, workers were unfree and 'bound' to employers who used sanctions to enforce labour contracts. Breaches of these contracts were regarded as criminal, not civil offences.

The *kangani* system was essentially one of personal recruitment and it became the main recruitment system after 1910. The word *kangani* means overseer or foreman in Tamil, and under this system, the *kangani*, usually a labourer already employed on the plantation, was sent by his employer to recruit workers from his village. This system was preferred by most planters because of the lower costs involved in sending a *kangani* to recruit labour, compared with the cost of indentured labour recruitment through recruiting agencies. Moreover, the monopoly of Indian recruiting firms, which were believed to be responsible for restricting labour supply, was broken. The *kangani* system also appealed to the planters because the prospect of workers absconding was less likely, especially since the *kangani* usually had a vested interest in ensuring that the labourers did not abscond. The *kangani* was not only a powerful intermediary, but also

received 'head money' for every day worked by each worker, which he stood to forfeit if the worker absconded (Sandhu 1969:101).

The *kangani* related to the labourer as shopkeeper and moneylender, and the labourer was frequently indebted to him, often unable to repay his debt. Arudsothy argues that the *kangani* system was a 'variant of the indenture system, as in effect, the debt-bondage relationship between servant and master still remained, although indirectly' (Arudsothy 1968:75). The Malayan government, however, considered it a major improvement on the indenture system because theoretically, labourers were no longer required to have written contracts, were 'free' workers, and had greater mobility. Nevertheless, the isolation of plantations, timidity of the workers, and their absorption into the plantation borders reduced this mobility. *Kangani*-assisted recruitment began to decline in the late 1920s, was suspended during the Great Depression, and was formally abolished in 1938.

A notable development in labour policy was the establishment in 1907 of a centralised semi-official body, the Indian Immigration Committee (IIC), to facilitate and supervise South Indian labour recruitment. The IIC's activities were strengthened in 1908 when, with the backing of employers, a Tamil Immigration Fund (the name was changed to the Indian Immigration Fund in 1910) was started to provide free passages for labourers to Malaya. All employers of Indian labour were charged a quarterly levy to cover the travel and related costs of free Indian labour migration to Malaya. This recruitment of voluntary workers was cheaper than the *kangani* system since intermediaries were bypassed, and additionally, the hold of the *kangani* over workers declined. *Kangani*-assisted recruitment gave way to free wage labour recruitment in the 1930s. The permanent settlement of Indians in Malaya also coincided with the emergence of 'freer' wage labour and the increased recruitment of women workers.

During the 1930s government assistance for labour recruitment was regarded inappropriate and the Tamil Immigration Fund was utilised to repatriate unemployed workers. After the Great Depression there was less pressure from planters for a centrally-managed labour recruitment system since government-assisted migration was well-publicised and most repatriated workers could finance their own return trips.

Thousands of Indian migrants arrived annually in Malaya under the two recruitment systems. Between 1844 and 1910, about 250,000 indentured labourers came to Malaya (Sandhu 1969:81). The peak of *kangani*-assisted recruitment occurred in the 1910s, when about

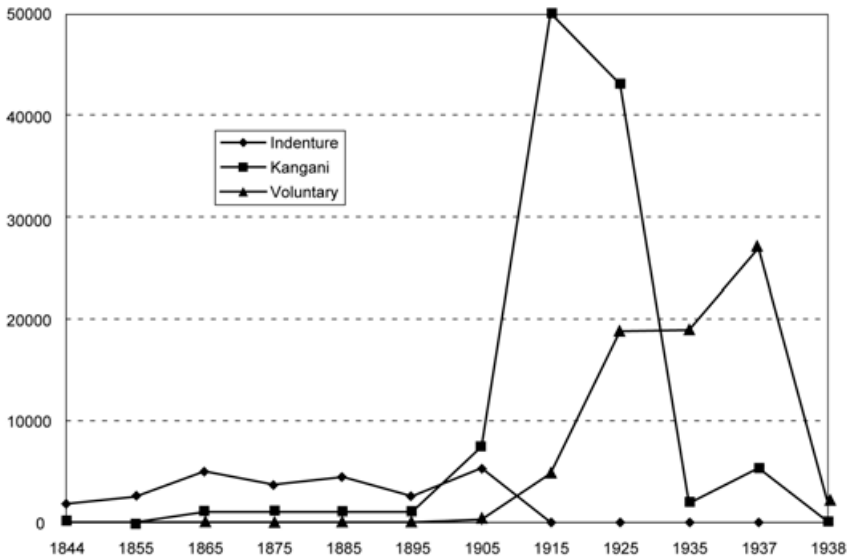


Figure 2. Malaya: Assisted and Voluntary Indian Immigration, 1844–1938 (numbers).
 Source: After K. S. Sandhu, *Indians in Malaya* (Cambridge: Cambridge University Press, 1969), Appendix 2, pp. 306–9.

50,000 to 80,000 Indian workers arrived per annum. During the period 1844–1938, *kangani*-assisted migration accounted for 62.2 percent of total Indian labour migration compared with 13.0 percent of indentured labour migration. Moreover, whereas in 1920, only 12 percent of Indian workers had not been recruited, this proportion had increased to over 91 percent by the 1930s (Thompson 1943:123).

The changing recruitment patterns and the breakdown of Indian immigrants by recruitment system are shown in Figures 2 and 3.

As noted previously, the Indian plantation labour force comprised predominantly single adult males. Married men were discouraged from emigrating because they could not afford to bring their families since wages were low; the norm of payment was a single person wage; working conditions were harsh; and accommodation was available for single men only. In its 1864 legislation (Act XIII), the Indian government had prescribed that women recruits had to be included in all labour shipments in the proportion 25 women to 100 men (see above). However, Malaya was repeatedly exempted from this gender ratio provision. Nevertheless, a striking feature of the *kangani*-assisted recruitment system was the emigration of families. Indeed, female emigration, aimed at improving the sex ratio, was encouraged

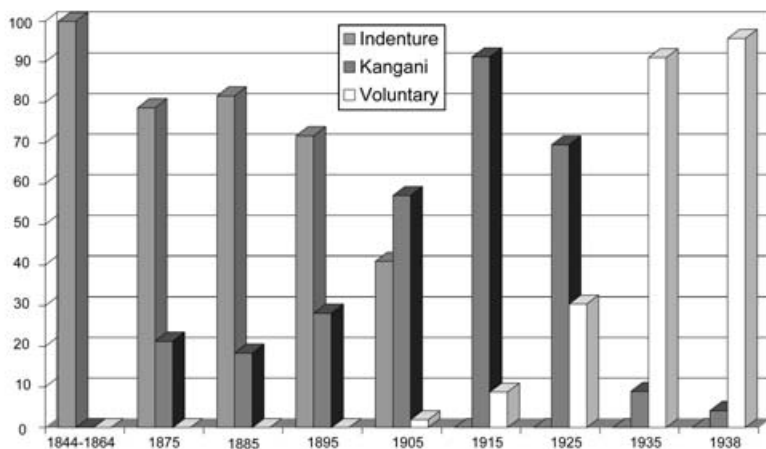


Figure 3. Malaya: Indian Labour Immigration by Recruitment System, 1844–1938 (%).

Source: After K. S. Sandhu, *Indians in Malaya* (Cambridge: Cambridge University Press, 1969), Appendix 2, pp. 306–9.

through the reduction on the assessment paid on women workers. The *kangani* also earned a higher commission for women migrant workers as well as for married couples. In late 1908 employers of new adult labour recruits were paid an allowance of 7s each for males and 8s 2d each for females recruited through a *kangani* and 4s 8d per adult recruited under the aegis of the Tamil Immigration Fund (Voon 1976:244–5). Moreover, with the passage of the Indian Emigration Act (Act VII of 1922), Rule 23 of the Act stipulated that unaccompanied males were not to exceed one in five of the emigrants: thus two out of every three male emigrants had to be accompanied by their spouses. Subsequent amendments to the Labour Code in Malaya further stipulated the provision of rooms for married couples as well as childcare and educational facilities on plantations.

Increased female recruitment and the migration of families are reflected in the census figures for 1901, 1911, 1921, 1931 and 1947. The proportion of Indian women in these census years for every 1,000 Indian men was: 171 in 1901; 308 in 1911; 406 in 1921; 482 in 1931 and 637 in 1947 (Ramachandran 1994:32). These statistics also explain the increasing trend towards permanent settlement by Indian labour by the 1930s. With increased female migration, more children also arrived in Malaya, and by the 1920s women accounted for 30 percent of all arrivals from India. More children were also born

in Malaya and raised locally, contributing to the transition towards permanent settlement, and the availability of a pool of workers. Hence, job possibilities for women on plantations and elsewhere, the provisions of the 1922 *Emigration Act*, the *Emigration Rules 1923* and the establishment and reconstitution of families, led to greater permanent Indian settlement in Malaya.

Briefly, therefore, two distinguishing features characterised Indian labour recruitment and migration to Burma and Malaya during the period under study. The first was that the conditions under which labour was exported showed little variation. Second, it was the intermediaries, especially the *maistry* and the *kangani*, who provided the vital connections between poverty-stricken rural South India and the frontier regions of Burma and Malaya, and who enabled the mechanism of migration to take place.

Labour Rights—Wages, Hours of Work and Working and Living Conditions

In both countries labour was in a weak position and workers were not included in wage and working conditions deliberations, and were thus unable to influence wage structures. Wages were generally based on the monthly subsistence requirements of workers, their ethnicity, the export price of commodities, job classification and the physical location of the workplace.

Rangoon boasted the largest mills in Burma: in 1936, for instance, 80 percent of Rangoon's rice factory workers were employed in mills of 200 hands or more (Spate 1941:83). Rangoon's larger mills were owned by Europeans and one of these (owned by Steel Brothers) was possibly the largest in the world in the mid-1930s, at least in terms of daily output capacity (Andrus 1957:144). European-owned factories were predominantly located in the seaport of Rangoon, and these large firms exercised almost exclusive control over Burmese rice exports, which by 1940 accounted for about 40 percent of export commodities (Spate 1941:83; Thompson 1945:10; Baxter 1941:51, 65). As noted previously, Indian workers had accounted for a considerable proportion of the labour forces of the larger, urban factories, particularly in Rangoon. Writing in 1940, Baxter noted that 'Rangoon is largely an Indian town' (by this point over 73 percent of Rangoon's male workforce was Indian) (Baxter 1941:36, 95). In smaller mills throughout the rest of the country, however,

Burmese and Indians were 'employed in roughly equal numbers' (Baxter 1941:68).

Three factors shaped working conditions and wage structures of Indian factory labour in Burma. These were: the fact that Burma was governed from India; the seasonal nature of employment; and the *maistry* recruitment system. Since Burma was governed as a province of India, some of the legislation enacted in India was extended to Burma. This legislation included the *Workmen's Compensation Act 1923*, the *Factories Act 1911* and *1934* and the *Payment of Wages Act 1935*. The legislation did not apply to all the Burmese provinces, nor was it applicable to all establishments. The (Indian) *Factories Act 1934* applied to factories where electric power was used in the manufacturing process and where 20 or more workers (less for rice mills) were employed. It thus applied to most rice factories (apart from smaller, mostly up-county rice mills). In fact, rice factories employed about 80 percent of the entire mill labour force subject to this legislation (Thompson 1945:22). Some rice workers in larger factories were also eligible for personal injury compensation under the *Workmen's Compensation Act 1923* (Thompson 1945:17).

Working Hours

Under the *Factories Act*, the maximum hours of work in seasonal industries was limited to 60 per week (Thompson 1945:22). However, rice mills were not included under this heading, and adults generally worked a statutory 54-hour week, taking one day off per week. In peak-production periods mills usually worked continuous 12-hour shifts. However, holiday and rest period provisions (the latter amounted to 3 hours per shift) for rice mill machine operators were often ignored, as they could not be effectively policed (Thompson 1945:22; Pillai 1947:104-5). Safety provisions in the *Factories Act*, such as the enclosure of power-driven machinery, were often not complied with, and sanitary conditions were often dilapidated (Pillai 1947:105-6). Finally, Supervision of the Act by the Labour Inspectorate was often ineffective in the 1930s, in part owing to the scattered location of smaller rice mills (Thompson 1945:22). The *Payment of Wages Act 1935*, introduced in India in 1935, was only extended to Burma in 1938, and then in designated areas only. This meant that labour legislation extended to Burma was normally adapted to local conditions (Thompson 1945:20). The endurance of the *maistry* system

TABLE 6
Wages in Urban Occupations in Burma

Occupation	Rs.	An.	P.
Stevedore/Dockyard Coolie	1	12	0
Burma oil company Coolie general	0	15	0
Oil fields General labour	1	0	8
Rice mill unloading/storing coolie	0	15	0

Note: 1 Rupee = 16 annas; 1 Anna = 12 paise.

Source: Adapa, Satyanarayana, "Birds of Passage": Migration of South Indian Laborers to Southeast Asia', *Critical Asian Studies*, 34, 1 (2002), p. 106.

also meant that the Indian workers, who came under the category of indirectly paid workers, were subject to other forms of exploitation. This included less than the full complement of workers in a gang; late payment; illegal deductions and 'compulsory contribution of free services'. Sometimes no distinction was made between day and night shift workers (Kondapi 1957:29-31).

Wages

Pillai notes that reliable wage data for rice factory workers prior to World War Two are scarce. However, wage rates were definitely higher than those in India. Prior to the onset of depression in 1930 labourers employed on a regular basis in manual work in factories (*viz.* establishments using power-driven machinery and employing more than 20 workers) earned about Rs. 25 a month. In smaller rice mills the pay of mill-hands varied from Rs. 18 to Rs. 40 per month, the most usual pay of a mill-hand being about Rs. 25 a month (Pillai 1947:103).

According to Adapa, workers in rice mills were paid the lowest wages compared to other urban workers as shown in Table 6. On the whole, the average monthly earnings of unskilled Indian labour ranged between Rs. 20-25, compared to comparable earnings in India, which were between Rs. 6.25-9.50 (Adapa 2002:105).

In the early-to-mid 1930s wages in rice factories fell markedly, as shown in Table 7. Many smaller factories were forced to close during the peak depression years (Cheng 1961:84). Pillai also suggests that wages remained little changed from depression levels until the Japanese invasion of Burma in 1942 (Pillai 1947:104).

Baxter also provides evidence of (average) wages for Indian workers employed in Burmese rice mills in 1940. Noting 'their ability to live

TABLE 7
*Minimum Monthly Earnings of Rice Mill Workers, 1932
and 1933*

Occupation	1932	1933
	Rs. An.	Rs. An.
Engine Drivers	24 0	21 0
Fire and Oilmen	18 0	14 0
Beltmen	19 0	17 0
Stone-dressers	20 0	14 8
Millhands	15 0	15 0
Coolies	13 8	9 0

Source: P.P. Pillai, *Labour in South East Asia* (New Delhi: Indian Council of World Affairs, 1947), p. 104.

TABLE 8
Employment Status of Workers in Burmese Rice Mills (February 1939)

Total employees	Indians		Burmese		Total establishments
	Skilled	Unskilled	Skilled	Unskilled	
0-49	1 267	3 889	1 395	2 589	402
50-99	1 281	4 862	711	3 591	164
100-199	699	4 056	204	2 098	53
200-299	584	3 133	208	743	19
300-399	298	2 820	175	367	11
400-499	451	3 424	53	160	9
Over 500	1 584	17 354	538	1 643	20
Total	6 164	39 538	3 284	11 191	678

Source: James Baxter, *Report on Indian Immigration* (Rangoon: Government Printer, 1941), p. 67.

on exceedingly small sums', he found that a considerable portion of rice mill wages were remitted to India:

Two Indian rice mill owners, for example, agree that the Oriya labourer earns in their mills about Rs. 25 per month out of which he 'spends only Rs. 5 to Rs. 7 a month, and saves something like Rs. 15 to Rs. 20'. An Indian contractor reports that his unskilled workers received from Rs. 14 to Rs. 22 per month as against a monthly expenditure of from Rs. 10 to Rs. 12 and remitted the balance to India by post (1941:91).

Working Conditions

Unskilled labour predominated in rice mill workforces, although the incidence of skilled and unskilled Indian and Burmese labour ratios needs to be differentiated. As might be expected, smaller factories had higher ratios of skilled to unskilled workers as shown in Table 8.

TABLE 9
Seasonal Variation in the Employment of Workers in Burmese Rice Mills, 1938-39

	Average Number of Workers	Employment compared with average	Percentage variation from average
Skilled Workers			
2 November 1938		-1,365	-16.4
2 February 1939	8,344	+1,500	+18.0
2 May 1939		+813	+9.7
2 July 1939		-949	-11.4
Unskilled Workers			
2 November 1938		-11,850	-31.5
2 February 1939		+13,187	+35.1
2 May 1939	37,591	+4,934	+13.1
2 July 1939		-6,272	-16.7

Source: James Baxter, *Report on Indian Immigration* (Rangoon: Government Printer, 1941), p. 76.

Although employment in some of the larger mills was fairly continuous, most of the smaller mills operated on a seasonal basis. Burmese rice mills, for example, reached peak operation after the harvest, and operated at considerably reduced capacities in the monsoon season (Andrus 1957:143). Table 9, taken from Baxter's 1940 enquiry, outlines percentage variations in seasonal employment in rice mills. As shown in the table there was a considerably greater turnover among unskilled workers. Baxter pointed out that 80 percent of the excess labour force in slack periods was Indian. Most of these men did not appear to return to India whilst the rice mills were operating at reduced capacities, but usually obtained manual work in the Burmese agricultural, transport and maritime industries (Baxter 1941:75, 79-81).

Living Conditions

As noted earlier, Burmese male labourers baulked at the wages and living conditions of Indian labourers in Rangoon, and in any case the Burmese were practically excluded from obtaining labour in large factories, where the Indian *maistry* recruitment system prevailed. Serious race riots occurred in 1930 and 1938, leading to a decline in Indian immigration and an increase in Indian emigration from Burma (Cheng 1961:136).

The living conditions of Indian factory workers were abysmal. Steel Brothers and the larger European firms provided rather basic

accommodation consisting of 'zinc or iron sheet-covered barracks' with some of them having partitions to provide some privacy. The barracks were for male employees only. The majority of Indian factory workers were forced to rely on squalid rented tenement accommodation provided by the *maistry*.

[T]he great majority of the workers . . . were miserably housed, the housing problem being particularly acute in Rangoon with its considerable floating population and steady influx of immigrants. Most of Rangoon's large industrial population lived in buildings listed in the municipal registers as lodging houses. In these it was not unusual to find tenements 12 ½ by 40 occupied by as many as 40 or 50 people. Families often lived in these lodgings with only a partition made of gunnybags to ensure privacy, while enterprising contractor [*sic*] often hired rooms at a fixed rent and crammed into each of these two sets of tenants, one set occupying it during the day and the other at night (Pillai 1947:109).

Kondapi states that in 1930, 42 000 workers lived in these dark and unventilated houses, and the gunny-cloth families, where married couples slept in hammock-style beds, slung above bedding used by single men, were most degrading for women (1951:83). Moreover, during dry weather many factory workers slept in the open (Thompson 1945:24). Although the Rangoon Development Trust initiated various schemes for slum clearance, the housing problem 'always seemed to grow beyond the capacity' of the Trust (Andrus 1957:277). Not surprisingly, Indian factory workers were the first to succumb to epidemic and other diseases that were prevalent in Burma during this period (see below).

Initially, labour standards for Indians in Malaya were only marginally better. However, conditions improved in the 1920s in response to changing legislation. If Rangoon was an 'Indian town', the western rubber plantations were 'Indian settlements'. In the first four decades of the twentieth century, Indians accounted for between 70 and 80 per cent of the Federated Malay States (FMS) plantation labour force, as shown in Table 10.

Indeed, it is justifiable to state that the rubber plantation sector would not have developed without the contribution of Indian labour. But the plantation was organised and operated for the benefit of the rubber companies, and workers were costed, not valued, in the equation. Moreover, since the Malayan government was itself a major employer of Indian labour, it suited the government's purpose to keep workers 'bound' and wage levels down.

TABLE 10
Malaya: Racial composition of FMS Estate Labour Force, 1907-38

Year	Indians	Chinese	Japanese	Others	Total	Indians as % of labour	No. of Estates
1907	43 824	5 348	6 029	2 872	58 073	75.5	287
1911	109 633	31 460	12 795	12 127	166 015	66.0	711
1915	126 347	27 446	8 356	8 592	170 741	74.0	719
1920	160 966	40 866	8 918	5 808	216 588	74.3	1105
1925	137 761	37 879	4 165	4 549	184 354	74.7	1206
1930	132 745	30 860	3 665	2 411	169 681	78.2	1757
1935	118 591	29 950	1 941	2 658	153 140	77.4	2345
1938	137 353	28 925	1 762	2 892	170 932	80.4	2388

Source: J. N. Parmer, *Colonial Labour Policy and Administration: A History of Labour in the Rubber Plantation Industry in Malaya* (Locust Valley: New York, J. J. Augustin for the Association for Asian Studies, 1960), p. 273.

Wages, working hours and conditions, and living conditions of Indian labour were prescribed by the various Indian Emigration Acts discussed in section one above. The supervision of Indian labour came under the Labour Department, which was under the jurisdiction of the Controller of Labour based in Kuala Lumpur. (By contrast, Chinese labour came under the Chinese Protectorate, which was under the jurisdiction of the Secretary for Chinese Affairs based in Singapore). This dualism in labour supervision arose from the fact that Indian labour recruitment was regulated by government while that of the Chinese was not. Central to this dualism was the ability of government to modify some of the provisions of the Emigration Acts and compile its own labour codes. Thus both indentured and free (as in 'assisted') Indian labour migrants remained bound to contracts with penal provisions until 1921 and 1923. In 1915, for example, 1257 workers were convicted of breaches of contract and 1062 sentenced to gaol terms (Majoribanks and Morakkayar 1917). All penal provisions against workers were only abolished in the Malayan Labour Codes of 1921 and 1923, pending the imminent implementation of the *Indian Emigration Act 1922* (Orde Browne 1943).

Working Hours

In the late nineteenth century, the daily working hours of indentured workers varied, with some estates stipulating nine hours whilst others stipulated ten hours. The norm was eight hours (Jackson 1960:104-5). Conditions improved slightly in the twentieth century, when the working day was limited to six consecutive hours and could not exceed

more than nine hours a day. The labourer had to work six days a week, and if he worked for the full six days, he was eligible for a paid day off on the seventh. Overtime was paid at double the hourly rate. These conditions governing hours of work were retained in all subsequent statutes, including the Labour Code of 1923 (Orde Browne 1923).

Wages

The *Straits Settlements Ordinance 1884* stipulated the following rates for Indian labourers on three year contracts: 12 cents a day for the first year and 14 cents a day for subsequent years for adult males; 8 cents a day for the first year and 10 cents a day for subsequent years for females and males under 21 years of age. The higher rate, however, was not to be paid until the worker had paid off his/her debt to the employer (transport and other costs incurred on the journey to Malaya). Employers were also required to supply the workers with food and groceries at wholesale prices since the sugar and coffee plantations were located in remote areas (*Straits Settlements Ordinance 1884*).

When indentured labour recruitment was abolished in 1910 (the final contracts ended in 1913), wages were freed of Indian government control. Nevertheless, as discussed earlier, the Malayan government aimed at ensuring a cheap and abundant labour supply and was frequently under pressure from the powerful planting interests to keep wages low. The practice of calculating wages on the basis of individual subsistence thus continued. The provision of compound accommodation was also used to justify the retention of low wage rates.

The impending passage of the *Indian Emigration Act 1922* was also propitious for future wage deliberations. In their negotiations on the terms under which Indian emigration to Malaya would be allowed, the Indian government recommended, and the Malayan government agreed to, the principle of a standard wage (as opposed to a minimum wage) and that this would be fixed in law. From 1922 a committee was set up to determine standard wage rates for Indian labour. 'Broadly stated, the Indian immigration machinery was designed to keep wages from rising higher than the employers wished while the standard wage inquiries aimed to keep wages from falling lower than the government of India thought desirable' (Parmer 1960:256). With the principle of a standard wage established, factors such as the locality of estates and the health conditions there became part of the wage determination equation.

The country was divided into two geographical regions: key areas and non-key areas: key areas, mainly the SS and FMS, included 'well'-located districts on the western half of the peninsula (See Map 2). These were relatively 'healthy' areas where the cost of living was comparatively low. Non-key areas included, for the most part, inaccessible areas in the interior, such as in the state of Pahang, and other districts on the eastern part of Malaya where the cost of living was higher. Wages were calculated on a daily basis and on the basis of a standard budget that took into account the costs of foodstuffs, clothing, festival preparations and household equipment (Kaur 2004: ch. 4).

In the key areas, recommended wage rates were 35 cents per day for males and 27 cents for females at the 1924 hearing. In the 1925 hearing, these amounts were raised to 40 cents and 30 cents respectively, and increased to 50 cents and 40 cents respectively in 1927. In 1927, the first inquiry for a non-key area or inaccessible district in Pahang was held and recommended wages were 58 cents for males and 46 cents for females (*Annual Report FMS 1924:9*; *Annual Report FMS 1925:9*; *Annual Report FMS 1927:9*). Despite the differential wage rates based on geographical location, labour mobility remained limited for reasons outlined previously.

Before these wage rates could be fully implemented and extended to other areas, the Depression set in and the price of rubber fell. Planters lobbied for a reduction of the standard wage, and following an enquiry in July 1930, the Malayan administration decided to reduce the wage rates in key areas to 40 cents for men and 32 cents for women; and to 47 cents for men and 37 cents for women in non-key areas (*Annual Report FMS 1930:10*). As the Depression worsened and rubber prices dropped even further, employers resorted to a reduction in production and wage cuts as well. It has been estimated that wages in 1930 were about 40 cents. They dropped to between 25 and 30 cents at the end of 1931 and were lowered to 20–25 cents in mid-1932. At the end of 1932, they stood at between 25 and 28 cents (Bauer 1948:225–6). Workers were also repatriated if employers did not wish to pay them what was considered a subsistence wage by the Indian Immigration Committee. Employers further depressed wages by paying a proportion of the standard wage—known as morning work wages—for reduced working hours (Arasaratnam 1970:59–60). During this period, therefore, the wage-fixing machinery existed in name only; in practice, wages were freed of formal control.

When the price of rubber began to recover, the Government of India and the Labour Department attempted to apply pressure on employers to increase wages. In fact, the Indian Government bound the demand for a wage increase to the granting of permission for further labour recruitment. After initially resisting attempts to raise wages, planters in 1936 'reluctantly' agreed to daily wages of 40 cents for men and 32 cents for women, which were still lower than the wages paid before the Depression. As rubber prices rose, wages were returned to the pre-Depression levels of 50 cents and 40 cents, coinciding with the ban on assisted Indian labour emigration to Malaya in 1938.

According to Adapa, the average daily wage of an adult Indian male (42 cents) worked out to 10.5 annas per day in South India. Moreover, agricultural work in South India was not available on a continuous basis (compared to 25 days per month in Malaya). Nevertheless, the cost of living was about 40 percent higher in Malaya and thus the average monthly income of a plantation worker ranged between 12 and 15 rupees (2002:105–6).

There were also differentials based on gender, age and job classification. Plantation workers were generally categorised into three groups based on their job/skills classification, namely, factory workers, rubber tappers, and field workers. Of the three categories, tapping was regarded as skilled work while field work was considered unskilled work. Thus rubber tappers received higher wages compared to field workers (Kaur 1999). With regard to gender, Indian women workers earned less than male workers, normally between 70 to 80 percent of the male wage. There was also differentiation on the basis of age, with Indian child labourers earning between 30 to 40 percent of an adult male worker's wage.

In summary, wage rates were just sufficient to induce migrants to emigrate, despite claims by the Malayan government that conditions were better than conditions in India. Moreover, the absence of official cost of living and wage indexes 'prevented any exact appraisal of real wages' (Thompson 1947:91).

Living Conditions

Two considerations influenced housing policy on plantations and these impacted on the living conditions of workers. First, plantations were established in isolated frontier areas, far from the towns and mining settlements. There were thus often no other settlements or signs

of habitation nearby. Second, the plantation was the 'boundary of existence' for workers. The estate settlement consisted of a number of buildings comprising the following units: compound accommodation for the workers; residences of the manager and other subordinate administrative and technical staff; a factory; office; a shop; a dispensary; and a toddy (liquor) shop. Later additions included a crèche and a school. In larger estates, there was a hospital and recreational (sporting) facilities (Sandhu 1969:226; personal visits to estates). In the early years, moreover, workers were not provided with 'modern' sanitation facilities or even bucket latrines. Nor was there any piped water. Drinking water had to be brought from the nearby rivers.

Subsequently, the provision of accommodation for indentured labourers was prescribed by the 1884 Ordinance. Initially, this accommodation consisted of temporary *attap* (thatched roof) open barrack structures with mud walls and verandahs. Later, in some estates the barrack structure was divided into a number of rooms about 10 feet square and it was the usual practice to have three adults 'huddled' in one room. Jackson cites a European planter's views on compound accommodation in the 1890s:

Coolie lines, each room 12 by 12 with *jelutong* plank walls, door and sleeping platform 12 by 6 and *attap* roof, can be built for \$25 to \$30 a room . . . No more than six coolies should be put into each room, but the planter need have no apprehensions on the subject of mixing the sexes, as the Tamil cooly is most philosophical in this respect, a young unmarried woman not objecting in the least to reside with a family or even to sharing her quarters, if necessary, with quite a number of the opposite sex (1961:104).

The abolition of indentured labour brought some changes to the daily existence of workers when the FMS government introduced the first systematic 'welfare' code in 1912 (in the SS it came into force in 1920). These were subsequently revised in 1923. One of the first improvements was in barrack construction. The new back-to-back labour lines were raised from the ground, supported on brick pillars and had corrugated tin or iron roofs. They were also divided into separate sections. The 1916 Labour Code made it obligatory for a separate room to be provided for each married couple, and laid down that not more than three adults were to be accommodated in a room less than 100 square feet of floor (Jackson 1961:163). These modifications stemmed from two important developments: the increasing number of families recruited under the *kangani* system, and

growing concerns amongst some medical officials for the welfare of workers in view of the high death rates on estates (see below).

As mentioned previously, both the Labour Codes were revised following negotiations between the Malayan and Indian governments. By the 1920s the standard accommodation consisted of raised accommodation (sometimes with a verandah), with a room provided underneath the main building for a kitchen and storage. However, Orde Browne states that the 1923 Ordinance 'did not specify the exact accommodation to be provided', only the standard (Orde Browne 1943:para. 92). The Labour Code of 1923 also stipulated that estates were required to provide a sufficient supply of 'wholesome' water and proper sanitary arrangements. The latter varied according to the size of the estates. On larger estates, there were communal toilet and shower facilities, and a common cooking area (Sastri 1937; personal interviews). Thus both legislation and the changing attitude of the Malayan government resulted in improvements in the working and living conditions of Indian plantation workers.

Briefly, therefore, improvements in workers' living and working conditions in both territories depended on the general economic conditions, government policy and the goodwill of employers and intermediaries. The specific political relationship between the India office, the Colonial Office in London, and government in Burma and Malaya was equally significant. As Tinker reminds us, the conditions of Indian factory workers in Burma were 'infinitely worse' and on 'the doorstep of India, Indian labourers were treated as harshly as in the most distant colony' (Tinker 1974: 373).

Workers' Health and the Provision of Health Services—Missed Opportunities?

Urban Rangoon and the rural plantation settlements of Malaya were very unhealthy places for Indian workers in the first four decades of the twentieth century. As Curtin states, 'migration normally, but not always, exacts a cost from the migrants in the form of increased morbidity and mortality . . .' (2002:116) and the high mortality rates suffered by Indian workers in the two countries supports this statement (Table 11 and 16). A large percentage of the population was exposed to almost all the major tropical diseases, with the exception of yellow fever and sleeping sickness. But most of the diseases were preventable.

TABLE 11
Death and Death Rates in Rangoon 1917-22

Year	No. of Deaths	Death-Rate on Census Population per 1000
1917	9 885	33.70
1918	15 411	52.54
1919	15 554	53.03
1920	12 140	41.39
1921 ¹	12 066	35.28
1922	12 323	36.04

Note: ¹ Census year.

Source: Annual Report Health Department (ARHD) 1922, in Annual Sanitary Report (Rangoon: 1922), p. 2.

At the turn of the century, urban areas in Burma had a 'pioneer' fringe while the rural plantations were 'frontier' locations. The absence of clean water supplies and sanitation facilities; and the clearing of jungle, associated with large pools of stagnant water and the spread of malaria, resulted in high death rates among workers. Deaths were usually attributed to malaria, debility, anaemia, diarrhoea, tuberculosis, cholera and dysentery. Dysentery was a chronic intestinal complaint resulting mainly from drinking polluted or impure drinking water and was spread by flies. There were virtually no garbage disposal facilities on the plantations, while in the towns, these services were still in their infancy. Another intestinal complaint was ankylostomiasis (a form of hookworm) and there were in addition various other worm infections known collectively as filariasis and the deficiency diseases, among which yaws and beri-beri were the most important.

The effect of these intestinal infections and malaria was a slow and steady deterioration in the general health of the infected, exacerbated by poverty, poor diets, and abysmal working and living conditions. There was also a general consensus that the high mortality rates from tuberculosis, particularly in Burma, were due to the crowded and insanitary living conditions of factory workers in slum tenements. Nevertheless, the common perception among government and health officials was that cultural factors and poor hygiene among workers were major contributory causes, and that little better could be expected from the Indians. This section compares death rate patterns and the disease profiles of Indian workers in the urban and rural environments of Burma and Malaya. It then outlines the public health programmes that were introduced in Rangoon and the Malayan

estate sector to control the spread of disease and improve health. An important point to note is that by the second decade, the germ theory of disease had been broadly accepted by European medicine and was subsequently incorporated into the public health programmes in both countries.

Death and Disease in Burma and Malaya

Comparable data on mortality rates and disease profiles are not available for exactly the same years in Burma and Malaya. Consequently, the statistical data presented below are used here to provide a comparative view of the death rates and disease profiles in the first four decades of the twentieth century. Six broad patterns may be observed in both countries. First, death rates were highest among new recruits, and government measures at the ports of entry included the weeding out of 'sick and unfit' workers. In Burma, incoming passengers were subject to perfunctory medical examination only, while in Malaya workers were first disinfected and then quarantined for a set period before being allowed to depart for their workplace. Most of the immigrants were reported to be carriers of diseases such as plague and smallpox, and succumbed to these diseases within a relatively short period of arrival at their destinations. In Malaya, malaria was the major cause of death among new recruits and this was attributed to the 'relatively low endemicity of malaria in southern India' (Shlomowitz and Brennan 1992). Additionally, high mortality rates among new recruits were common for both indentured and 'free' workers as attested by the fact that 'new' workers on newly-opened up estates were also more prone to death from malaria because measures to control its spread had not yet been implemented on these new estates.

Second, there was a long-run decline in the death rates from the major diseases in both countries, which coincided with the implementation of sanitary and other public health measures; the provision of health services; and the acquisition of immunities either through vaccination or to the disease environment. Third, the poor working and living conditions of both groups of workers impacted on their health in two main ways: the cramped and unsanitary living conditions enabled diseases to spread rapidly; and susceptibility to disease and high morbidity rates were consistent with poverty and poor diets. Fourth, impure water supplies and poor sanitation were the major

TABLE 12
Death and Death-rates by Race, 1921

Racial Group	No. of Deaths	Death Rates Per 1000
Anglo-Indians	136	16.30
Europeans	89	24.08
Burmese	3 930	38.18
Other Classes	403	24.62
Mohammedans & Malays	1 855	29.94
Hindus	4 927	39.42
Chinese and Panthays	983	41.54

Source: Annual Report, Health Department (ARHD) 1922, in Annual Sanitary Report (Rangoon: 1922), p. 3.

reasons for the spread of cholera and dysentery. Fifth, the introduction of refined foods (for example, finely milled rice) contributed to the incidence of beri-beri among workers. Finally, infant mortality rates were very high among migrant Indians in both countries, and these may be attributed to some or all of the factors cited above.

At this stage it is important to note two points. First, legislative and administrative measures played an important role in facilitating improvements in health, limiting disease, and the provision of better housing and sanitation services. Second, mortality rates refer to hospital deaths, where records of deaths were kept. Indeed, people with diseases only went to hospitals when they were about to die, and hospitals were popularly viewed as 'death houses'.

The annual death rate in Rangoon during the period 1917 to 1922 ranged from 33.70 to 36.04 per 100 as shown in Table 11. The peak in the death rates in 1918-19 was consistent with the global influenza epidemic. Generally, poor health and the intensity and incidence of certain diseases were largely responsible for the high death rates during this period.

While the data given in Table 11 above do not give the breakdown by racial/religious group, this breakdown is provided in Table 12 for the census year 1921. Curiously, Indians were classified on the basis of their religious affiliation, reflecting the emphasis placed upon caste and class. Thus Indians comprised both Hindus and Mohammedans. As shown in Table 12, therefore, Indians suffered very high death rates. Moreover, these urban Indians had the worst health standards of any racial group and this fact was reported in practically every report of the Public Health department.

As noted earlier, some health officials invariably saw a correlation between their susceptibility to diseases such as tuberculosis and their wages/living conditions:

‘[T]uberculosis is the offspring of poverty, overcrowding, inanition and bad or no sanitation. The rise in rents in recent years has increased overcrowding . . . The remedy is . . . better houses, more and better food, up-to-date sanitation . . .’ (ARHD 1923: para 33, p. 21).

Migrant workers’ wives were also in the high risk category. As one official noted, the ‘huge death rate [from tuberculosis] among the female inhabitants . . . is a direct result of those customs which confine women strictly within doors. The men escape into the open air in the daytime, the women stay at home in ill-lighted, ill-ventilated rooms, and pay the penalty’ (ARHD 1925: p. 19, para 29).

Almost every annual health report also singled out the disease profile of one or another of the Indian ethnic or religious groups. Thus Bengalis (predominantly Muslim) were ‘particularly susceptible’ to beri-beri (ARHD 1935: p. 20); while Hindus ‘suffered most from plague’, with ‘most of the casualties . . . in the age bracket 20–30 years’ (ARHD 1927: p. 19, para 22). Indians were also the main victims of smallpox (and cholera) in Rangoon. Consequently, in 1909, all persons arriving in Burma by sea were required to be vaccinated against smallpox and, by 1928, revaccination had been made compulsory for all Indians (ARHD 1927: p. 19, para 22).

Data on the number of reported (hospital) cases for the main diseases and death rates for the period 1921 to 1938 are provided in Table 13. As shown in the table, plague, smallpox and cholera epidemics occurred with frightening regularity, while tuberculosis and other diseases of the respiratory system also headed the list with large numbers of deaths. Tuberculosis continued to account for the very high death rates among the Indian workers in Rangoon in the first four decades, and in 1937 the Public Health officer for Rangoon noted that the town had the ‘second highest death rate from tuberculosis in the world’. There were more than 10 000 people in the town afflicted with the disease, and two special tuberculosis clinics had been established in Rangoon (Christian 1942:152). Economic growth obviously had a higher priority than the welfare of the Indians.

Deaths from tuberculosis for the period 1920 to 1938 for Burma as a whole are shown in Table 14. The very high death rates in Rangoon in 1937 obviously impacted on the rates for Burma as a whole for that year.

TABLE 13
Recorded Cases of Major Life-Threatening Diseases (and Deaths) in Rangoon, 1921-38

Year	Tuberculosis		Cholera		Smallpox		Plague		Malaria		Respiratory		Beri-Beri		Diarrhoea Dysentery	
	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases
1921	644	n.a.	n.a.	n.a.	18	96	n.a.	1229	387	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1922	1046	n.a.	264	373	72	286	1402	1522	406	n.a.	2198	n.a.	123	n.a.	939	n.a.
1923	939	n.a.	48	65	363	888	1159	1285	350	n.a.	2131	n.a.	116	n.a.	838	n.a.
1924	1035	n.a.	132	167	99	n.a.	505	554	279	n.a.	2287	n.a.	90	n.a.	1014	n.a.
1925	1250	n.a.	60	82	630	1956	620	724	224	n.a.	2344	n.a.	60	n.a.	1249	n.a.
1926	1152	n.a.	149	226	42	149	257	286	n.a.	n.a.	2585	n.a.	46	n.a.	1696	n.a.
1927	964	n.a.	84	118	203	771	168	178	n.a.	n.a.	2476	n.a.	107	n.a.	1040	n.a.
1928	796	n.a.	83	126	378	1277	257	287	236	n.a.	2642	n.a.	n.a.	n.a.	866	n.a.
1929	n.a.	n.a.	61	90	13	51	94	104	172	n.a.	2329	n.a.	96	n.a.	915	n.a.
1930	761	n.a.	22	34	15	52	38	43	132	n.a.	1967	n.a.	n.a.	n.a.	727	n.a.
1931	2928*	n.a.	10	16	20	82	14	16	129	n.a.	2928**	n.a.	n.a.	n.a.	644	n.a.
1932	834	n.a.	3	7	493	1719	27	36	122	n.a.	2206**	n.a.	n.a.	n.a.	537	n.a.
1933	817	n.a.	5	6	14	94	9	n.a.	116	n.a.	2036	n.a.	n.a.	n.a.	458	n.a.
1934	831	n.a.	45	75	75	235	27	28	99	n.a.	2276	n.a.	157	n.a.	508	n.a.
1935	952	n.a.	69	95	172	530	17	21	80	n.a.	n.a.	n.a.	610	n.a.	444	n.a.
1936	1115	n.a.	14	22	21	100	14	16	84	n.a.	n.a.	n.a.	199	n.a.	669	n.a.
1937	1188	n.a.	17	34	13	58	18	20	n.a.	n.a.	n.a.	n.a.	174	n.a.	600	n.a.
1938	958	n.a.	7	8	79	257	13	20	174	n.a.	n.a.	n.a.	n.a.	n.a.	720	n.a.

* Tuberculosis and Respiratory diseases.

** Tuberculosis and Respiratory diseases.

Note: The principal epidemic diseases were cholera, plague and smallpox.

Source: *Annual Sanitary Report, Rangoon, 1922; Report of the Municipal Administration of the City of Rangoon, 1922-23* (thereafter the Municipal Corporation of Rangoon [The Corporation]), 1922-40 (Rangoon, 1922-40).

TABLE 14
Burma – Deaths from Tuberculosis 1920–1938

Year	Death-rate per 1000
1920	1.13
1927	1.64
1937	2.05
1938	1.95

Source: Notes and Statistics on Hospitals and Dispensaries in Burma 1938 (Rangoon: 1938), p. 28.

TABLE 15
*Rangoon: Infant Mortality Rates,
1923–1939 (selected years)*

Year	Infant Mortality Rate (deaths per 1000)
1923	341.61
1925	351.85
1927	293.88
1929	317.36
1931	278.12
1933	257.00
1935	251.35
1937	247.98
1939	270.52

Source: Compiled from *ARHD 1923–39*.

A major indicator of poor health was the high infant mortality rate throughout the four decades. Infant mortality rates for Rangoon for the period 1923–39 are shown in Table 15. As a matter of fact, Burma had the second highest infant mortality rate of all Indian provinces in 1935. The urban infant mortality rate was also much higher than the rural infant mortality rate (Christian 1942: 152).

Not surprisingly, early public health measures were directed at containing the spread of disease. Yet the expenditure on public health was small. Walinsky notes that, for Burma as a whole, the pre-World War Two (1938–39) expenditures on police and jails were ‘double the outlays for education and four times that for health’ (1962:52). The Rangoon Public Health Department (a division of the Rangoon Corporation) had a budget of Rs. 11, 22, 100 in 1934/35 (out of the total expenditure of Rs. 86, 93, 900) and Rs. 9, 88, 400 (out of Rs. 94, 36, 300) in 1939/40 (*ARHD 1934/35* and *1939/40*). It also had a wide range of responsibilities. It maintained the Register of Births and Deaths; controlled the spread of disease through better sanitation; imposed controls on housing; and directed the provision

of water supply and drainage facilities. Much of the work of the Public Health Department involved vaccination programmes; the popularisation of bored-hole latrines; the promotion of mosquito net usage; and the expansion of maternal and child health work (the department employed midwives and 'lady' health visitors to attend to pregnant women). It also operated maternity homes and supplied milk to infants at municipal depots (free or at cost) (ARHD).

The Public Health Department also had its own municipal laboratory; operated outpatient clinics; made house-to-house inspections; directed anti-mosquito campaigns; carried out inspections of licensed premises; and administered garbage removal and disposal (using bullock [oxen] carts) in the city. Its other responsibilities included overseeing the removal and disposal of 'night soil'; supervision of the 'wet' markets and control of the piggeries, cattle-sheds and dairies. The Department also carried out various educational programmes on hygiene, sanitation and disease prevention. (In 1937 it opened a Health Museum to promote these activities) (ARHD).

Apart from these public health measures aimed at containing the spread of disease and education to promote better health activities, the Public Health Department administered the Plague Hospital (later converted to an Observation Hospital where incoming sick immigrants were taken), and the Contagious Diseases Hospitals where diseases such as plague, cholera and smallpox were treated. As noted, special Municipal Tuberculosis Clinics were also established to treat patients suffering from tuberculosis. Apart from the public hospitals, there were hospitals run by Christian and other missions. The Sri Ramakrishna Mission Hospital in particular looked after the 'destitute and the incurables', mainly Indians. It also catered for patients suffering from venereal disease, which was fairly common among Indian workers (ARHD). It was estimated that '50 percent' of Indian men in Rangoon had venereal disease in the late 1930s (Christian 1942:156, f.n. 22).

Briefly therefore, the rapid expansion of the seaport of Rangoon in the first half of the twentieth century accompanied the growth of commerce and manufacturing activity. It was also a city of migrants. While the business and port areas housed the European department stores, banks, factories and offices of the shipping companies, the lower parts of Rangoon contained the tenement districts that were crowded with sweating labourers from India. It was in these parts where lack of adequate housing, clean water supplies and sanitation facilities brought death and disease to the Indian residents.

Even more so than in Burma, the Indian migrant worker headed for Malaya was first and foremost regarded as a commodity by government and planters. All the arrangements for his sojourn abroad—recruitment, shipment and employment—were made by four parties: the Indian Government (or India Office); the Colonial Office in London; the Malayan (SS and FMS) Government; and the employers. To ensure that no loss incurred, the SS Indian Immigration Department opened a depot in Negapatnam in 1890 under the supervision of a Medical Superintendent. This enabled the SS government to ‘weed out’ medically unfit workers prior to departure. Moreover, the pre-embarkation medical examination preceded the quarantining of workers at specially constructed quarantine camps located at Pulau Jerajak in Penang and later at Port Swettenham as well. The workers were quarantined for about five days and during this period they and their clothing were disinfected. They also had to be ‘readied’ for employment. Indeed, the ‘feeding at the quarantine camps and the Immigration depots... had to be such as would rejuvenate the labourers after their unwonted and often congested steamer journeys...’ (*Annual Report of the Agent of the Government of India in British Malaya [ARAGIBM]*, 1926:8, para 11). They were then taken to the Immigration Depots where they were processed and ‘distributed to the several places of employment’ (ARAGIBM 1926:8, para 11).

Death rates suffered by indentured workers were high both at the quarantine camps and at the estates. As the Labour Research Department commented: ‘the wastage was too rapid; it was not worthwhile to bring coolies over from India, however strictly they were bound to fulfil their term of contract if, in fact, they died before the term was up’ (1926: 36–7). The pre- and post-embarkation procedures, and especially the period of quarantine were thus regarded as essential to the containment of plague and cholera. In the early twentieth century too workers were also vaccinated against smallpox upon arrival in Malaya.

It is evident from the above discussion that Indian migrant workers in Burma and Malaya, who originated from the same poverty-stricken areas, succumbed to the same diseases. But in equatorial Malaya, a new danger lurked—malaria. Indeed, a submission to a 1924 Commission on Indian plantation workers’ health in Malaya stated that ‘over 90 percent’ of deaths among these adult Indian workers were due to ‘five or six diseases’: malaria, dysentery, pneumonia, phthisis (pulmonary tuberculosis) and anaemia, which was ‘due mostly to malaria or ankylostomiasis’ (*Estates Health Commission Report*,

TABLE 16
FMS: Estate Mortality Rates 1911-1923

Year	Total number of Estate labourers	Deaths	Death-rate per 1000
1911	143 614	9 040	62.90
1912	171 968	7 054	41.02
1913	182 937	5 592	29.60
1914	176 226	4 635	26.30
1915	169 100	2 839	16.78
1916	187 030	3 299	17.61
1917	214 972	3 906	18.71
1918*	213 425	9 081	42.55
1919	216 573	3 384	15.16
1920	235 156	4 367	18.57
1921	175 649	3 195	18.19
1922	159 279	2 556	16.05
1923	147 276	1 924	13.06

Note: * There was an influenza epidemic in 1918.

Source: *Estates Health Commission Report 1924*, Appendix 3, p. A56.

1924:B11). Of these, malaria was the most devastating. Prior to 1910, plantation managers 'did not dare to report all deaths'. On one estate, the Midlands estate, the mortality rate was 23.3 percent in 1910, 10 percent in 1911, and 10 percent in 1912. '[I]n three years nearly half the average population died'. Moreover, '[n]o child was born and lived for more than seven years on Midlands Estate' (Highlands and Lowlands 1956:5).

Mortality rates on the plantations for the period 1911 to 1923 are given in Table 16. For comparison purposes, the Commission also provided figures on the deaths and death rates for the total population of the FMS for the period 1914 to 1923, as shown in Table 17. Statistical information on the deaths and death rates from the principal diseases in the FMS for the period 1911 to 1923 is provided in Table 18. The data are indicative of the situation on the plantations.

Malaria was the greatest scourge on the estates for two reasons: its widespread distribution, especially in the lower hill country, and the fact that the recurrent attacks of fever steadily reduced and weakened the patient's capacity to resist other more deadly diseases. In 1829 a third of all deaths in Penang had been attributed to malaria (Hodder 1959:117). Almost eighty years later, in 1908, the death rate due to malaria on 21 estates in the FMS was over 200 per 1000 persons (Mills 1942:300). The high death rates suffered by plantation workers and the abolition of indentured labour in 1910 made planters and the Malayan government fearful that the labour

TABLE 17
FMS: Deaths and Death rates,¹ 1914-1923

Year	Population	Deaths	Rate per 1000
1914	1 136 500	39 000	34.31
1915	1 172 336	33 899	28.92
1916	1 208 177	36 985	30.60
1917	1 244 018	42 514	34.17
1918 ²	1 279 859	67 639	52.85
1919	1 315 700	38 645	29.37
1920	1 351 541	43 705	32.34
1921	1 304 825	38 077	29.18
1922	1 360 876	35 028	25.74
1923	1 389 667	33 914	24.40

Notes: ¹ For a similar distribution of age and sex the death-rate on estates would equal the general death-rate if all deaths due to illness incurred on estates were attributed to estates, but it is difficult to do this especially in the case of small estates and contractors' labourers.

² There was an influenza epidemic in 1918.

Source: Estates Health Commission Report 1924, Appendix 3, p. A56.

TABLE 18
FMS: Principal Diseases, Deaths and Death rate, 1911-23

Year	Malaria		Dysentery and Diarrhœa		Pulmonary Tuberculosis		Beri-beri	
	Deaths	Rate	Deaths	Rate	Deaths	Rate	Deaths	Rate
1911	17 440	17.47	7 659	7.31	2 300	2.20	1 469	1.40
1912	17 870	16.52	5 885	5.44	1 353	1.25	1 212	1.12
1913	16 414	14.69	5 317	4.75	1 623	1.45	1 190	1.06
1914	13 634	11.99	5 235	4.60	1 655	1.45	1 223	1.07
1915	15 208	12.97	3 148	2.68	1 995	1.70	871	.74
1916	17 627	14.58	3 197	2.64	2 193	1.81	757	.62
1917	18 750	15.07	4 942	3.97	2 446	1.96	1 207	.97
1918	31 515	24.62	4 280	3.34	3 184	2.48	1 277	.98
1919	16 975	12.90	3 712	2.82	2 445	1.86	939	.71
1920	20 595	15.24	3 804	2.81	2 634	1.95	431	.32
1921	17 168	13.16	2 999	2.30	2 255	1.73	422	.32
1922	15 570	11.44	2 419	1.78	2 393	1.76	443	.33
1923	15 516	11.17	2 142	1.55	1 934	1.39	378	.27

Note: These figures are for the general population, not for estates only.

Source: Estates Health Commission Report 1924, p. A57.

supply would be cut off by the Indian government. Consequently, in 1910 a special enactment, the Estate Labour (Protection of Health) Enactment, was legislated and then incorporated into the Labour Code. The subsequent establishment of the Labour Department in 1911 was also a consequence of both the high incidence of deaths

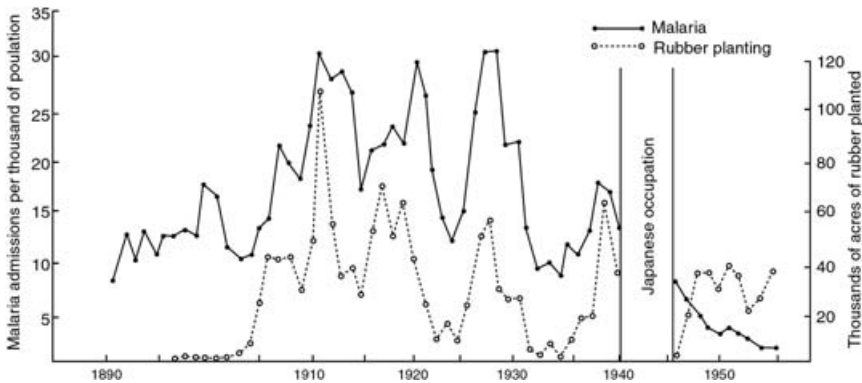


Figure 4. Rubber Planting and Replanting in the FMS and Admissions to Government Hospitals, 1890–1950.

Source: Donal R. O'Holohan, *Plantation Medicine* (Kuala Lumpur: The Incorporated Society of Planters, 1994), p. 9.

from malaria on estates and the need to ensure a continuing supply of labour from India. In 1911 too, the FMS government established a Malaria Advisory Board to direct an anti-malaria campaign in the FMS. Additionally, planters were required to report all deaths from malaria on their estates. By 1920 Malaria Destruction Boards had been established all over the country to contain the spread of the disease.

There was a distinct correlation between the population movement of new labour recruits (who were non-immune), the mixing of the new recruits with the older 'immune' workers, the new felling and opening of new estate lands and the recurring peaks of malaria on the plantations in 1907, 1911, 1920, 1928 and 1938 (Institute of Medical Research 1951:148). This correlation is illustrated in Figure 4.

Ankylostomiasis or hookworm was the second most serious of the parasites after malaria to afflict plantation workers. Hookworm infection was consistent with poor insanitary conditions on estates, the absence of latrines with washing facilities, 'uncontrolled' defecation on the estate grounds, and the practice of workers going about barefoot. According to Parmer, the Indian workers were infected on arrival in Malaya and the incidence increased rapidly after a period of residence on the estates (Parmer 1990:182). Parmer also notes that in 1919, 'an estimated 70 percent of persons dying from malaria in Perak also had hookworm (Parmer 1990:181). Tuberculosis was rife among plantation workers (*Estate Health Commission Report 1924*:B11) and even in 1930 was reported to be the fourth most important cause of

death in the FMS (Parmer 1990:183). This was principally attributed to overcrowding in the 'cubicle' accommodation; poor insanitary conditions on the estates; and poverty among the workers who lived in a state of semi-starvation. Deaths from dysentery and diarrhoea also contributed to high mortality rates as did deaths from beri-beri. Planters and officials often laid the blame on the incidence of malaria and ankylostomiasis (and other diseases) among the workers without emphasising the poverty, insanitary conditions, lack of good water and the absence of good medical services (see, for example, *Estates Health Commission Report 1924*: B15).

As noted, another indicator of poor health was the high infant mortality rates. On one estate, there were 50 women on average between 1892 and 1898, but no living child was born on the estate although women became pregnant (Watson 1921: 96). Infant mortality rates averaged 195.62 per 1000 annually in the second decade of the twentieth century. In the 1920s, infant mortality remained at nearly one in five (Parmer 1990:183) and several Infant Welfare Centres were set up in the towns. On the estates though, these services were minimal. Not surprisingly, the Agent of the Government of India observed in 1928 that 'high infant mortality on estates is a matter of grave concern to the Indian community' (ARAGIBM 1928:17). On the whole, financial and administrative factors constrained the development of sanitary and public health services on estates. Moreover, planters complained that larger estates were being forced to provide these services while smaller estates and smallholdings were exempted from these rules.

The nature, and delivery, of health services in the rural plantation sector was based on these broad principles. First, individual plantations were located in large isolated areas where the labour/land ratio was low. Second, and as a consequence, plantation workers were widely dispersed in rural settlements and required focussed health services that were equally dispersed across the sector, and yet particular to each plantation to be effective. Third, and most important, it was necessary for the industry to 'keep and maintain' the workforce and its expatriate managerial staff in good health in order for the plantation to be economically successful. As O'Holohan states, the owners and investors 'were not moved by a spirit of altruism, but the very practical stimulus of keeping shareholders happy, and reaping a profit for themselves' (1994:8). To this we may add that it was not only the death rates that were of concern, but also morbidity rates since estates relied on a full complement of 'active' staff to carry out the various tasks.

The distinguishing feature in the provision of medical and health services was that government policy privileged Europeans, and hence most facilities were located in urban centres. Nevertheless, Public Health Services in both countries were essentially seen as contributing to economic efficiency and the advancement of colonial rule. On the plantations, therefore, government devolved much of the responsibility for health and sanitation to European planting interests. The reluctance of the latter to allocate funds towards these services meant that many of the earlier recommendations approved by government on plantation hospitals since the 1890s were only enforced in the 1920s.

The Estates Health Commission was intended to provide the basis for improved health care on the plantations. The details of the Commission's full enquiries need not detain us here. Suffice it to state that the Commission found that most estates were without hospitals and that planters 'sent' workers to government district hospitals, although workers preferred to stay on the estates. The Commission also recommended the continuance of the Visiting Medical Practitioners (VMP) system. This system also had its shortcomings. Visits were often too short to deal with medical problems or infrequent. The Commission also noted that much depended on the attitude and goodwill of plantation managers. The Commission's most important recommendation, the establishment of a wide-ranging health and medical scheme, necessitated the establishment of health boards with legal powers to provide oversight on all estates of more than 25 acres (10 ha) (*Estates Health Commission Report 1924*). Both PAM and the RGA were critical of the Health Boards scheme because of the cost involved and viewed this measure as increasing the power of government over estates. Although a few local boards had been set up, there was continuing opposition to the scheme by planters who criticised the exclusion of smaller planting units. At any rate, the start of the Great Depression, which resulted in reduced demand for Malaya's primary commodities, and the subsequent repatriation of plantation workers, led to the termination of the Health Board's Scheme (Parmer 1990:190). Thus although planters were dependent on imported labour, they were not prepared to increase their costs above the bare minimum.

FMS Government expenditure on health was greater than that expended on education as shown in Table 19. But in the case of education, government developed a distinctive segregated mode of education, where responsibility was largely devolved to the different

TABLE 19
*FMS Government Expenditure on Education, Health,
 and Police, 1924 and 1931 (\$ million Straits dollars)*

Item	1924	1931
Education	1.8	3.3
Health	3.4	5.2
Police	2.8	3.4

Source: Adapted from Lim Chong Yah, *Economic Development of Modern Malaya* (Kuala Lumpur: Oxford University Press, 1969), p. 304.

communities and missionaries. And, as noted above, the mode of health care was also devolved. Thus the nature and type of health care services developed to meet the needs of the plantation sector may be viewed from three perspectives: the establishment of estate hospitals; the enactment of legislation to provide oversight; and the application of medical research findings to direct campaigns against diseases, especially malaria.

The establishment of estate hospitals in the SS and FMS was first legislated under the *Indian Immigrants Protection Enactment 1884*. Subsequently, the *Indian Immigration Enactment 1904* obliged all plantation owners to provide medical attention and hospital accommodation for their workers. Compliance with this legislation varied and even in 1907 planters were still asking government to establish and maintain hospitals for workers. Subsequently, following the establishment of a health branch in the FMS government medical department in 1910 (coinciding with the abolition of indenture), enforcement of the estate hospital rules became more imperative. Establishment of 'hospitals' was one thing, staffing them with qualified personnel, another. The hospital assistants or 'dressers' who were in charge of the essentially 'garden dispensaries' were unqualified and untrained.

High death rates among Indian workers in 1915 and 1916 again led to complaints by the Indian government and in 1917 there was talk of the FMS government taking over the running of the Estate hospitals. But nothing transpired (*Estates Health Commission 1924:A4*). Again too, it was not until the Indian government had assumed control over Indian emigration that measures were taken to provide 'better' health services. But, as noted above, attempts to improve workers' health through devolving responsibility to plantations was shelved. The local health boards functioned only for a short while.

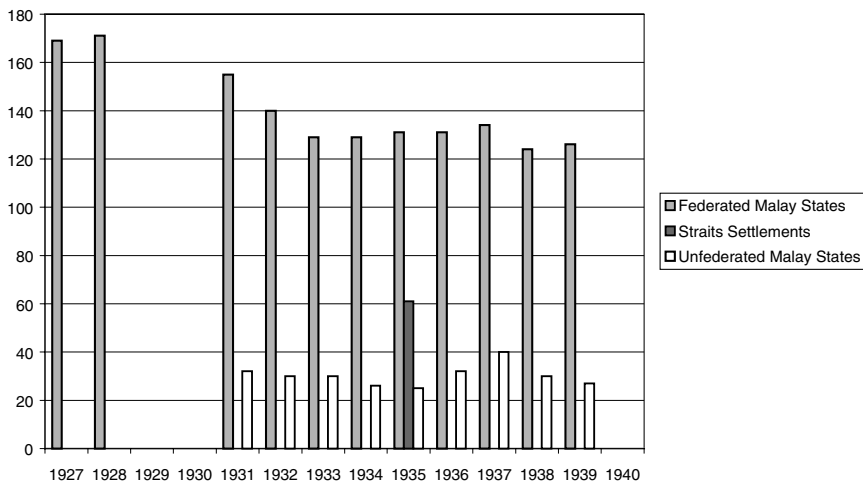


Figure 5. Estate Hospitals: Federated Malay States, Straits Settlements, and Unfederated Malay States, 1927–39.

Source: Compiled from the *Annual Reports of the Agent of the Government of India in British Malaya, 1927–1940*.

By 1940, there were in place two types of hospitals, namely, estate hospitals and group hospitals. The estate hospitals were administered by dressers ('hospital assistants') who were under the charge of visiting medical practitioners. Group hospitals were larger and better-equipped and each served several estates. Some of these were under the charge of resident medical practitioners, while others were served by visiting medical practitioners who visited on a regular basis but did not reside on the estates. On a daily basis therefore the resident dressers looked after the needs of the workers. In 1924 there were 167 plantation hospitals in the FMS (estate and group) (*AR FMS 1924:9*). Therefore numbers declined as shown in Figure 5. But the number had fallen to less than 125 in 1939 (see Figure 5). Briefly, therefore, legislative and administrative measures were only useful to a point, in the face of opposition from PAM and the RGA. More significantly, economic conditions too mattered.

In summary, the working and living conditions of Indian workers impacted upon their death rates and disease profiles. From the perspective of disease profiles, urban workers in Burma were more susceptible to tuberculosis, while plantation workers succumbed to malaria under the pioneering conditions of the estates. And the nature of the relationship between the two territories and India was also important. Since Malaya was not a province of India, the Indian

government insisted on the provision of health services to reduce mortality rates on plantations. Although some of the measures were not fully implemented, nevertheless, the situation in Malaya was better than in Rangoon. Additionally, medical intervention in the form of quinine prophylaxis against malaria on the estates contributed to a reduction of mortality and morbidity rates among Indian workers in Malaya. Notwithstanding this, the stoppage of new planting (and the opening of new estates) was also responsible for this reduction in mortality.

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