

MPRA

Munich Personal RePEc Archive

Food Supply in Java during War and Decolonisation, 1940-1950

van der Eng, Pierre

Australian National University

May 2008

Online at <https://mpra.ub.uni-muenchen.de/8852/>
MPRA Paper No. 8852, posted 25 May 2008 06:34 UTC

**FOOD SUPPLY IN JAVA DURING WAR
AND DECOLONISATION, 1940-1950**



Pierre van der Eng

About the author

Pierre van der Eng was Postdoctoral Fellow with the Economic History of Southeast Asia Project at the Australian National University in 1993 when he wrote this paper. His research interests then included history and development economics with particular emphasis on long-term economic change in Indonesia. He is currently Associate Professor in the School of Management, Marketing & International Business at the Australian National University and can be contacted at pierre.vandereng@anu.edu.au

Cover illustration

Delivery of paddy by farmers in Banyumas in 1944. *Djawa Baroe*, (1944) no.9, p.21.

FOOD SUPPLY IN JAVA DURING WAR AND DECOLONISATION, 1940-1950

Pierre van der Eng

Abstract

It is readily assumed that the average level of living in Indonesia deteriorated during the hectic period 1940-1950. Much of the evidence on economic change during this period is anecdotal. It is difficult to distil a general impression from it. Per capita food consumption is an important indicator of the average standard of living. For that reason this paper monitors the changes in food production, distribution and supply in the densely populated core island of Java in Indonesia.

Food supply was adequate in Indonesia when the Japanese attack on the country started in 1941. During 1944-1948 per capita food supply was at a very low level in Java. In the years 1943-1945 the low level was caused by the restrictions imposed by the Japanese authorities on the domestic trade of food products, and by the coercive system of purchasing rice for distribution. Both created disincentives for farmers to produce a food surplus. Similar reasons explain the situation during the years 1946-1948. Moreover, the controversy between the returning colonial government and the government of the nationalist Republic of Indonesia impeded free shipments of food between the food deficient urban areas and the food producing rural areas. Food supply recovered during 1948-1950, with the economic re-integration of most of Indonesia.

Contents

List of Tables and Figures

Preface to the second edition

Abbreviations

1. Introduction	1
2. Pre-War Food Production and Supply	3
In the Face of War	5
3. Food Production and Supply during the Japanese Occupation, 1942-1945	8
The Japanese Rice Purchase System	9
Japanese Attempts to Increase Food Production	16
Further Reasons for Declining Food Production	20
4. Measuring Food Supply, 1940-1950	25
5. Food Production and Supply during Decolonisation, 1945-1950	39
The Areas under Republican Control, 1945-1946	40
The Areas under Allied Control, 1945-1946	47
Rice for India	49
The Areas under Dutch Control, 1946-1947	51
The Areas under Republican Control, 1947-1948	57
Recovery, 1947-1950	61
6. Conclusion	67
Appendix 1: Food Production	70
Appendix 2: Population	72
Appendix 3: Food Supply in Java	76
Sources	80
Relevant publications since 1994	87

List of Tables and Figures

Tables:

1	Forced Deliveries of Stalk Paddy in Central Java, 1942-1946	14
2	Paddy Milled by Rice Mills, 1943-1945	16
3	Rolling Railway Stock in Java, 1939, 1947, 1951	24
4	Number of Motor Vehicles in Indonesia, 1940-1950	24
5	Irrigated Area under Rice in Java, 1946	46
6	Rice Distribution in Area under Dutch Control, December 1946	54
7	Situation of Rice Mills in Areas under Dutch Control, November 1947	61
A.1	Production and Harvested Area of Food Crops, 1940-1950	71
A.2.1	Population per Residency, 1930-1961	74
A.2.2	Estimated Population Growth Rates per Residency, 1930-1961	75
A.3.1	Net Food Supply, 1940-1950	78
A.3.2	Net Calorie Supply per Residency, 1940-1946	79

Figures:

1	Rice Purchase and Supply System during the Japanese Occupation	11
2	Available Calories in Java, 1940-1950	26
3	Available Protein in Java, 1940-1950	27
4	Available Calories from Six Main Staple Crops in Java, 1941-1946	28
5	Average Heights of Children in Jakarta and Central Java, 1935-1949	37
6	Monthly Urban Retail Rice Prices, 1948-1950	64

Preface to the second edition

The first edition of this paper was published as a book by the Centre for South-East Asian Studies at the University of Hull in 1994 (ISBN 0-85958-832-7). The Centre no longer exists; it was transferred to the Department of East Asian Studies at the University of Leeds in 2003. The book is no longer in print. Some copies are available from second-hand bookshops, but I continually receive requests for copies of the book. For that reason, I decided to publish this second edition on the internet. Apart from some corrected typos and errors in grammar and spelling, the text is identical to the 1994 edition, although the pagination is slightly different. The text has not been updated with findings in relevant academic studies that have been published since 1994. Some relevant recent publications are listed at the end of the list of sources.

Pierre van der Eng, May 2008

Abbreviations

AMACAB	Allied Military Administration, Civil Affairs Branch
BAMA	<i>Yayasan Bahan Makanan</i> (Foundation for Food Stuff)
BOK	<i>Beikoku Orosisyo Kumiai</i> (Corporation of Rice Traders)
BTK	<i>Beikoku Tosei Kai</i> (Rice Marketing Board)
BR	<i>Beisho Renkokai</i> (Federation of Unions of Rice Mills)
BRI	<i>Bank Rakyat Indonesia</i> (People's Bank of Indonesia)
BSDK	<i>Beikoku Sho Dogyo Kumiai</i> (Corporation of Rice Wholesalers), see BOK
BUMA	<i>Badan Urusan Makanan Rakyat</i> (Committee for the Organisation of the People's Food)
IEFC	International Emergency Food Council
JPR	<i>Jawatan Pertanian Rakyat</i> (Agricultural Extension Service)
KPM	<i>Koninklijke Paketvaart Maatschappij</i> (Royal Shipping Company)
LVD	<i>Landbouwvoorlichtingsdienst</i> (Agricultural Extension Service), see JPR
NICA	Netherlands Indies Civil Administration
NIRF	<i>Nederlandsch-Indische Federatie van Rijstpellerijbonden</i> (Federation of Associations of Rice Mills), see BR
PMR	<i>Jawatan Pengawasan Makanan Rakyat</i> (Agency for the Supervision of the People's Food Supply), see PPBM
PPBM	<i>Jawatan Persediaan dan Pembagian Bahan Makanan</i> (Agency for the Supply and Distribution of Food Stuff), see BAMA
RIS	<i>Republik Indonesia Serikat</i> (Federated Indonesian Republic)
RVC	<i>Rijst Verkoop Centrale</i> (Rice Marketing Board), see BTK
SEAC	South East Asia Command
SKZ	<i>Syokuryō Kanri Zimusho</i> (Office for Food Supply), see ZKB
VCW	<i>Volkscredietwezen</i> (Popular Credit Service), see BRI
VFR	<i>Voorlopige Federale Regering</i> (Provisional Federal Government)
VMF	<i>Voedingsmiddelenfonds</i> (Food Stuff Fund), see SKZ, PMR and BAMA
ZKB	<i>Zyūnyō Bushi Kōdan</i> (Syndicate for Important Commodities), see SKZ

1. Introduction

The 1940s formed a hectic decade of change in the history of Indonesia. In March 1942 the Japanese military forces ended Dutch colonial rule. Until August 1945 the country was ruled by the Japanese, who initially tried to incorporate the country in the Japanese war economy. Between September 1945 and December 1949 the Indonesian archipelago was torn by the feud between the returning Dutch colonial government and the nationalist Republic of Indonesia, until full independence was achieved in December 1949.

An increasing number of studies into the many confusing events during these years have enhanced our understanding of political development and social change during this period.¹ But they almost exclusively attended to the political aspects of Japanese occupation and decolonisation. Most of these studies only provide piecemeal information on the material impact of the political events on the lives of ordinary people. There are fragmentary impressions about declining food supply and about the disastrous recruitment of Javanese labourers during the Japanese occupation. For the period of decolonisation most of the studies only hint to the economic situation as far as it concerned the Dutch aspirations to re-establish colonial rule.

Sutter (1959) covered several economic aspects of the 1940s, but left food production undiscussed. Kishi and Nishijima (1963) discussed some economic aspects, including food supply, but their discussion is often vague and confusing, which may be due to the sometimes awkward translations from the Japanese original. Sluimers (1985) tried to assess the supply of rice during the Japanese occupation, but ignored most of the available sources. Scott (1985) attempted to describe the food situation in Southeast Asia under Japanese rule, but his brief study lacks intimate knowledge of the actual situation in Indonesia.² Cribb (1986a) contributed a revealing article about the competency dispute in Jakarta between the colonial and the Republican municipal administration, in which food supply was an important issue.

Kurasawa's doctoral thesis is the most elaborated study of economic aspects in Java during the Japanese occupation. Amongst others, it contains two chapters on agricultural changes and on the Japanese rice delivery system.³ Her description of the rice delivery system and its consequences is very useful, but it does not reveal much about the actual changes in general food supply in Java. Kurasawa implicitly assumes that the Japanese

1. See for political changes during the Japanese occupation *e.g.*: Anderson (1972); Aziz (1955); Kanahale (1967). Political complications during decolonisation have been discussed by *e.g.*: De Jong (1988); Kahin (1952); McMahon (1981); Oey (1981); Yong (1982). Social changes from a local perspective are described by *e.g.*: Cribb (1990a,b); Kahin (1985); Kartodirdjo (1982); Reid (1986).

2. And other countries in the region for that matter such as Malaya and the Philippines: Lee (1981); Kratoska (1988); Kerkvliet (1985) and Danquah (1990).

3. Kurasawa (1988) pp.31-180. Parts of the thesis were published elsewhere. Kurasawa (1981) is a summary of the two chapters in Japanese. Kurasawa (1983) described the contribution of the Japanese rice procurements in Indramayu to anti-Japanese uprisings.

authorities had no choice but to implement 'controls on production', because, '[...] owing to the suspension of foreign trade and the imposition of large-scale Japanese military demands, there was a radical change in the supply-demand balance of materials and commodities, and the government had to induce villagers to adjust their production system [...]' (p.11, compare p.108). This study will explain that the food requirements of the Japanese military were relatively modest. Moreover, there was no overall food shortage in Java in 1942, nor was the disruption of foreign trade so important for the Javanese food economy that public intervention was required. It is therefore not at all self-evident that the Japanese authorities had no choice but to implement a very rigorous rice delivery and distribution system in 1943.

This paper explores the available evidence on the development of a crucial sector in the Indonesian economy: food production. In late colonial Indonesia both production and employment in agriculture still dominated the economy. Despite considerable economic growth during the first three decades of the 20th century, the standard of living in Indonesia was still relatively low. (Van der Eng, 1992a) Food consumption is a good indicator of changes in the standard of living during early phases of economic development. (Van der Eng, 1993) The stage of economic development in late colonial Indonesia implies that changes in food supply reveal to a large extent how the country fared economically. Moreover, the attempts to control food supply, in particular rice, help to analyse the political position which each of the three political forces in Indonesia (Dutch, Japanese, Indonesian) occupied during the years 1940-1950.

The next chapter will argue that the food economy of Indonesia as a whole became increasingly integrated during the 1930s. After 1942 Java became economically separated from the rest of the country. There are indications that food supply in some areas of the rest of Indonesia deteriorated considerably, especially in areas where workers depended previously of wage labour at plantations and mines. But on the whole it seems that there was enough land available in the rest of Indonesia to sustain sections of the population which depended hitherto on imported food. The balance between population and food supply was much more delicate in densely populated Java. The paper therefore concentrates on the situation in Java.

It has to be acknowledged beforehand that the available quantitative and qualitative information is patchy. It is therefore crucial that the paper not only discussed the statistical evidence, but also the reasons which may explain the changes in food supply. The study is based on rather fragmented impressions from available published sources, supplemented with information from a preliminary exploration of archival sources. It does not pretend to be complete. Next to a precursory establishment of the main trends in food supply, it seeks to determine the main topics in this field and the blank spots which may be cleared with further research.

2. Pre-War Food Production and Supply

Before 1930 Indonesia had imported about 10% of its domestic supply of rice. Rice imported into Java was sufficient to supply 2.3 million people a ration of 350 grams per day, which equals the entire urban population. Imports into the rest of Indonesia sufficed to feed 3 million people with the same ration. This figure approaches the total number of workers on plantations and mines, plus the rubber and copra producing smallholders and their families, who depended on imported rice.

The international economic slump of the early 1930s caused a decline in the international demand for commodities. This decline was reflected in a general drop of commodity prices in the international market. The international price of rice fell much faster than that of other commodities, because farmers in Burma, Thailand and Indochina increased their production in order to keep their cash income at level. Indonesia's foreign trade in food products was not subjected to any regulations. The price of rice in Indonesia therefore followed the international price.

Most rice producers in Java had found it difficult to compete with rice farmers in mainland Southeast Asia. Now the rapid fall of domestic food prices and of the barter terms of trade of food discouraged them even further to produce a marketable surplus. At the same time Indonesia experienced a decline in foreign exchange earnings due to the decreasing exports of traditional export crops, especially sugar. Hence, Indonesia was less able to pay for its food imports, especially rice. The Dutch government declined to devalue the Dutch guilder against the gold standard. One of the consequences was that the cash income of those in Indonesia who depended on imported rice decreased to such an extent that many people faced difficulties in purchasing rice, despite the enormous fall in the price of rice.

In March 1933 the colonial government issued the Rice Import Ordinance (*Rijstinvoerordonnantie*) to prevent negative effects for the population.⁴ The ordinance was meant to restrict the import of rice, in order to stabilise the domestic rice prices at an economically viable level, and to achieve an equitable distribution of rice in the archipelago. A special Rice Import Commission monitored the development of rice prices and established so-called 'target' prices. These targets were minimum prices, which had to be maintained through a system of licences for rice imports. If the rice price in an area fell too quickly, the commission would restrict the import licenses for the area concerned.

In July 1933 the government went a step further. It imposed an extra variable tax on rice imports.⁵ The revenue was used to subsidise shipments of rice from Java to the rest of Indonesia. In order to prevent a rapid price increase in the rice deficient areas in the islands outside Java, the colonial government started to defend a ceiling price in these areas with the sale of restricted quantities of imported rice. At the same time it encouraged the rice deficient areas to purchase rice from the rice surplus areas in the archipelago, instead of importing it from abroad. For this purpose it employed a system

4. *Staatsblad* (1933) No.116 and 299-300.

5. *Staatsblad* (1933) No.299 and 300, (1934) No.85.

of subsidies on the freight rates for food products of the State Railways (*Staatsspoorwegen*) and the inter-island shipping company KPM (*Koninklijke Paketvaart Maatschappij*).

Imported rice increasingly replaced domestic rice. Until July 1933 the price of imported rice on rural markets in Java had been about 20% lower than the cheapest kind of domestic rice. But after 1933 the domestic food prices gradually stabilised and the difference between the prices of imported and domestic rice gradually declined. This decrease made domestic rice a viable alternative for consumers.

Although a gradual economic recovery started in 1934, the government extended its involvement in domestic food production. The import of soybeans and soybean products, such as soy sauce, were subjected to the same restrictions as for rice, in an attempt to protect domestic production of soybeans. Some measures were taken to back up the price of maize and in 1938 the Cassava Board (*Cassave Centrale*) was established started to improve the quality of cassava and cassava products.

During the 1930s the measures in support of food production, such as improvement of irrigation and agricultural extension, were expanded.⁶ The area of technically irrigated land in Java increased from 0.8 million ha in 1928 to 1.2 million ha in 1938. The cropping ratio of irrigated land increased subsequently from 125% to 145%, which implied that by 1938 45% of the land yielded two crops per year. It was expected at the time that expansion of the activities of both the Irrigation Service (*Irrigatiedienst*) and the Agricultural Extension Service (*Landbouwvoorlichtingsdienst, LVD*), the extension of technical irrigation works to village level, the cropping ratio would increase to 175% in 1950. The cropping ratio of upland area had increased from 74% to 87%, and was expected to increase to 100% in 1950.⁷ Until 1950 the increase of the cropping ratio was expected to sustain an estimated population growth of 1.5% per year, keeping per capita food consumption at level. After 1950 Java would have to take refuge to other techniques to intensify food production, such as the use of high-yielding seeds and fertiliser.

The increase in rice production was not due to the demise of sugar production. Between 1929 and 1941 the area under sugar cane decreased by 91,000 ha. Total irrigated area increased by 140,000 ha and the area harvested with irrigated rice by 723,000 ha. Even if it is assumed that the area under cane could produce three rice crops against one cane crop, it is clear that the fall of cane area contributed at best 38% to the increase of harvested area. On the supply side the main reasons for the expanding rice production were the substantial increase in the cropping ratio due to public investment in irrigation works, and the slight increase in average rice yield per hectare. A major reason on the demand side was the increasing profitability of rice production due to the protection from foreign competition. Indonesian rice imports fell from an average of 596,000 tons in the years 1926-1930 to 147,000 tons in 1937. For Java they decreased from 225,000 tons to a mere 9,000 tons in 1937.

6. 'Voedselproblemen' (1940, pp.645-647 and 665-672) discusses these policies in detail.

7. This figure was obtained by dividing the area planted with one-year crops by the total upland area, which excluded areas with perennial crops. The actual ratio including perennial crops may have been about 100%.

In the Face of War

When the threat of war and a possible disruption of international trade became unavoidable, the colonial government sought additional ways of improving domestic rice production in order to be prepared for a situation in which rice imports would be obstructed. On 25 April 1939 it established a special section of the Department of Economic Affairs, the Food Stuffs Fund (*Voedingsmiddelenfonds*, VMF).⁸ The VMF was meant to aim at stabilising the price of rice at f2.90 per 100 kg. for stalk paddy of the *cereh* varieties and f3.25 for the *bulu* varieties.⁹ This price would guarantee producers and traders a fair return. Hence, in practice VMF defended a floor price for stalk paddy in Java by purchasing or selling rice. The system worked as follows. Rice mills were obliged to purchase stalk paddy at least the floor price. If they failed to sell their rice stocks on the free market, VMF guaranteed that it would purchase unsold stocks at the floor price plus a milling margin, which differed according to the quality of the rice. At the same time the VMF monopolised rice imports and took control in September 1939 over shipments of rice between the islands with a system of licenses.

A second task of VMF was to accumulate an emergency buffer stock of rice, sufficient to bridge over six months in the areas depending on rice imports. A stock of rice for three months would be kept in these areas; a stock of unmilled rice for another three months would be kept in the harbour towns on the North coast of Java. Six months was expected to be the maximum time which could pass until the next harvest, if the outbreak of the war would coincide with the planting season and the international rice trade would be disrupted. With the accumulated stock of rice, VMF had to prevent substantial price fluctuations in traditionally rice deficient areas in Central and East Java (Pemalang, Grobongan and Bojonegoro) during the dry season. VMF did not hesitate to sell at a loss in these areas, where the purchasing power was insufficient to pay the commercial bottom price of rice, and where cassava was the only alternative for consumers.¹⁰ For the domestic purchase of rice the VMF obtained credits from private banks in Indonesia. For its foreign purchase credits came from the central bank, the *Javasche Bank*. In principle VMF thus became a very important and powerful tool of the colonial government in its endeavour to guarantee an equal distribution and fair prices of rice in the archipelago through procurement and injection. It was effective, although it only purchased 81,500 tons of stalk paddy and 95,000 tons of brown rice, together about 3% of the production in Java, in 1939.¹¹ The cost of controlling the rice market was not very high, because VMF only purchased excess rice and left the main part of rice marketing to private enterprise.

In the late 1930s the profitability of rice milling and marketing in Indonesia had increased. Previously, millers and traders had to face up to the risk caused by

8. *Staatsblad* (1939) No.56.

9. Bennett and Wickezer (1941) p.186.

10. 'Voedingsproblemen' (1940) p.653.

11. 'Netherlands Indies Food Supply Fund' (1939/40) p.124.

unpredictable seasonal price changes, and the impact of imported cheap rice. But due to government interference, the rice prices were stabilised throughout the year. The risk declined and the rice trade shifted from imported rice to domestic rice. Consequently, the number of rice mills in Java increased from 261 in 1930 to 474 in 1939. Due to the instalment of modern electrical equipment, the milling capacity increased almost four times. Most mills were concentrated in a few areas, especially the residencies of Jember (especially in Banyuwangi), Indramayu and Karawang. In these areas a bitter competition for the rice surplus emerged, because the surplus was insufficient to serve all mills. Only 55% of the total milling capacity was actually used in 1939.¹² At that time the mills processed nearly 25% of the produced paddy in Java, which is about 90% of the marketed production. Most of the milled rice was sold to estates and factories in Java and the rest of Indonesia for distribution among their labourers. The rest was used for distribution to rice deficient areas for price stabilisation.

In June 1939 the colonial government started to seek a way to counter the over-capacity in rice milling, and the negative consequences of increasing competition between the mills. It appeared that more farmers sold their crops before the harvest to the mills, which contracted teams of harvesters. Farmers avoided the cost of harvesting. The net cash revenues of farmers indeed increased, but often at the expense of many of the local people who used to earn a wage in kind during the rice harvest. Moreover, it happened that farmers were tempted to sell their entire crop, but were forced to consume the cheaper, but less nutritious cassava products during the dry season. Or they had to buy milled rice for which they had to enter loans. It also appeared that due to the increasing consumption of polished rice beriberi emerged again, because polished rice contained fewer nutrients than pounded brown rice. Lastly, the advance of the rice mills meant a threat to the income of hand-pounders.

An additional reason for the government to tighten its grip on the domestic rice marketing system was the outbreak of World War II late in 1939. During World War I the country had experienced how vulnerable especially the rice deficient areas outside Java were, when trade relations with the rice exporting areas of Southeast Asia were disrupted. Anticipation on the impact of the war meant that the colonial government aimed at furthering rice self-sufficiency in Indonesia. In April 1940 the government issued the Rice Mills Ordinance (*Bedrijfsreglementeringsverordening Rijstpellerijen*). The ordinance licensed the operation and establishment of rice mills with a capacity of more than 2 hp in those parts of the archipelago where an over-capacity in rice milling threatened to occur: Java, Lampung and parts of Palembang and Southeast Kalimantan. At the same time the government compelled rice millers to organise themselves in associations of rice mills. These associations were to be united nationally in the Federation of Associations of Rice Mills (*Nederlandsch-Indische Federatie van Rijstpellerijbonden*, NIFR), which was a private organisation. The NIFR centralised the sales of rice for its members. It agreed to selling rice at a minimum price, on the condition that VMF would buy the unsold rice surplus.

Java had become self-sufficient in rice in 1936. This did not mean that all

12. Moeljono (1971) p.6.

residencies in Java were self-sufficient. About 900,000 tons of milled rice were transported by train, 300,000 tons by truck and 150,000 tons by boat, and distributed in Java in order to guarantee a sufficient supply of rice everywhere.¹³ The remainder was shipped to the rest of the country. In 1940 the import surpluses of Sumatra had been 128,000 tons, of Riau, Bangka and Belitung together 71,000 tons and of Kalimantan 63,000 tons. These quantities were shipped from surplus areas in Java, Lampung, Aceh, South Sulawesi, Sumbawa, Bali and Lombok, or imported.

In 1941 the number of rice mills in Java continued to increase to 646, which milled 1,150,000 tons of rice, or 25% of rice production.¹⁴ The now apparent Japanese menace and the fact that World War II disrupted shipping facilities, made self-sufficiency in food a major goal in the economic policy of the colonial government. Consequently, the government took complete control over the rice milling business. It furthered the establishment in April 1941 of Rice Marketing Boards (*Rijstverkoop Centrales*, RVCs) in each of the three provinces in Java. These RVCs came under the umbrella of the NIFR. Only rice mills which joined the RVCs were allowed to purchase paddy against prices which were guaranteed by the VMF. In turn, only the RVCs were allowed to transport and trade rice.

Although the market for home-pounded rice remained free of government control, it is possible to assume that by 1941 the government indirectly controlled about 90% of the domestic rice trade. Moreover, it now had a network of institutions with which it could monitor the food situation throughout the country. The local civil administrators and the agricultural extension officials supplied monthly reports on the food situation at district level. In case of crop failures, relief measures could be organised immediately. Quantitative information on prices and production was assembled by the Central Bureau of Statistics in monthly reports.

This elaborate system was not only necessitated by the threat of war. It also served to allay concern about popular prosperity in Java, where arable land had run out in the 1920s and the balance between the expansion of food production and population growth could only be maintained through the adoption of land-replacing production techniques. Pending the disturbed international commodity markets, a satisfactory level of food consumption could only be guaranteed through judicious government intervention on the supply side of the rice economy.

In December 1941 there was a substantial stock of about 230,000 tons of rice under control of VMF. Next to that, the colonial government had accepted in September 1939 the Compulsory Cultivation Ordinance (*Teeltdwang Ordonnantie*), which enabled the regional civil servants and the LVD officials to compel anyone, especially estates to grow food crops.¹⁵ This ordinance was only valid in the residencies in the Other Islands which depended on rice imports and in Aceh and Tapanuli, which both were to help alleviate the rice shortage in North Sumatra. In addition, the organisations of estate owners in Sumatra had decided to make 41,500 ha available for dry-land rice cultivation by

13. 'Economische Toestand' (1947) p.123.

14. *Economic Review of Indonesia* (1949) p.27.

15. *Staatsblad* (1939) No.538.

indigenous farmers and estate labourers. They also established an 'iron stock' of rice for three months in anticipation of disruptions in international food trade in a war situation. There were about 350,000 labourers in North Sumatra. Including their families, some one million people, who each consumed on average about 350 grams of rice per day. Hence, the private stock on the estates could have been about 140,000 tons.

In 1941 Indonesia as a whole could afford a small export surplus of rice and was thus self-sufficient in rice, a situation which had not occurred since the years 1885-1887. When the colonial government surrendered to the Japanese army in 1942, the food situation in the entire country was satisfactory. Even in Java, where the balance between food production and population growth was precarious, average food supply was higher than average requirements. There certainly was malnutrition in Indonesia among the poor and in particular regions. But that was not due to a lack of supplies, but to a combination of the lack of income opportunities to purchase food, and transport impediments in remote regions.

3. Food Production and Supply during the Japanese Occupation, 1942-1945

An assessment of the food policy and the food situation during the Japanese occupation should take account of the fact that after the occupation of the country the Japanese authorities divided Indonesia into three executive sections. After a while these sections were compelled to become economically self-sufficient. Java became ruled by the Military Authority of the 16th Army (*Gunseibu*). Sumatra formed an administrative unit with Malaya and became ruled from Singapore, the headquarters of the 25th Army. In April 1943 Sumatra became independent from Singapore, and was henceforth governed from Bukittinggi. Kalimantan, Sulawesi and the rest of East Indonesia became part of the so-called Naval Districts. The naval government (*Minseibu*) was under direct supervision of the Naval Department in Tokyo. Apart from the establishment of three provinces in East Indonesia, there were no striking formal changes in the administrative structure of government, neither at the central level, nor at lower levels. In the main the difference was characterised by a change of names of the government institutions, which were gradually taken over from the Dutch by Japanese superiors and Indonesian subordinates.

During the siege of Java most rice mills were put out of action by Dutch destruction teams. But the main part of the mills was able to resume milling in June 1942, because there were sufficient spare parts available in Java. In April 1942 the Japanese military government recognised the importance of the colonial system of price control. The VMF was continued under the name *Nanyō Kohatsu Kaisha*, the RVCs under the name *Beikoku Tosei Kai* (BKTs). The military government also established the Corporation of Rice Wholesalers (*Beikoku Sho Dogyo Kumiai*, BSDK) to which all milled rice had to be sold. The BSDK then took care of the distribution of rice to retailers in the cities.

On 12 August 1942 the military government established the Office for Food Supply (*Syokuryō Kanri Zimusho*, SKZ) at the Department of Economic Affairs. The SKZ took

over the functions of the colonial VMF and handled all food matters. With the establishment of the SKZ some changes were introduced into the system. The BKTs and the NIFR were centralised into the Federation of Unions of Rice Mills (*Beisho Renkokai*, BR) with three main regional sections. Through the BR the *Gunseibu* took almost complete direct control over the purchase of rice. It financed all purchases by the mills, which henceforth acted as government agents. Only the mills were allowed to transport paddy. In return for this monopoly, they were obliged to deliver their milled rice to the BSDK, which was renamed Corporation of Rice Traders (*Beikoku Orosisyo Kumiai*, BOK). In practice BOK took care of the distribution of rice to:

- the Japanese army, the government officials and for export;
- Indonesian civil servants;
- *romushas*, *heihos* and other auxiliary Indonesian groups;
- the camps where Western civilians and POWs were kept detained;
- the urban centres.

SKZ was later reorganised several times, due to the fact that rice production was lower than the Japanese authorities had expected. In September 1943 SKZ became part of the Syndicate for Important Commodities (*Zyunyō Bushi Koodan*, ZBK), which had two sections: one for food commodities and one for strategic commodities like metals and textiles. In April 1944 the section for food products was separated from ZBK to become the Office for Food Supply (*Syokuryō Kanri Kyoku*) at the Department of Economic Affairs. BR also changed its name frequently. When SKZ became part of ZBK in September 1943, BR became Federation of Unions of Rice Mills (*Seimaigyō Kumiai Renkokai*). In April 1944 it became the Federation of Unions of Rice Producers (*Tosei Kanri Kumiai Renkokai*). For convenience this study will use the abbreviations SKZ, BOK and BR only.

The Japanese Rice Purchase System

During 1942 and 1943 there was no reason for concern about the food situation, because the harvests were good and the stocks substantial. Soon after the Dutch surrender the Japanese army was able to purchase enough paddy itself. For milling it sequestered a few rice mills. But gradually it became more difficult for the Japanese army quartermasters to buy paddy. Until September 1942 they had intended to purchase paddy for 5,000 tons of rice, but they only succeeded in buying paddy for 750 tons of rice. For that reason SKZ was ordered to take care of the supply of rice to the army. This meant that SKZ obliged rice mills to purchase paddy in its name, to mill it and sell it for a fixed price to SKZ.¹⁶

In 1942 the purchase of rice was no major problem for the military government in Java. For the whole of Java the unofficial purchase target was 50,000 tons of rice, but there was no real urge to realise this target, because the production of rice was sufficient throughout the year. But gradually SKZ experienced difficulties. Partly because it had to

16. Tan (1946).

get hold of increasing amounts of rice for distribution to the five groups mentioned above. Partly because the real purchase price of paddy declined and became unattractive for farmers. Especially after the dry season of 1942 it became more difficult for the rice mills to purchase stalk paddy, which they would then sell to SKZ for a fixed price. From April 1943 onward, SKZ started to enforce a more systematic purchase policy. The shipment and trade of staple crops between all residencies was forbidden, except on order of SKZ. The Japanese police and the *keibodan* (Indonesian auxiliary police force) received orders for strict control on all transports. This control had to enable SKZ to carry out a more rigorous purchase and distribution system.

In practice there was no uniform purchase and distribution policy, but its basis was the same throughout Java and can be summarised as follows, see Figure 1.¹⁷ Given the demand for rice by the Japanese army and the military government, SKZ determined how much rice each residency had to surrender, on the basis of the estimated requirements and the expected production in the residencies. At the bottom of the scheme farmers delivered their paddy at fixed prices to the compulsory local cooperative (*kumiai*).¹⁸ The *kumiai* supplied the paddy to the rice mills, from where the milled rice entered the distribution system. Farmers were not allowed to stock a surplus of paddy. They were obliged to sell surpluses to the rice mills, and therefore put it under the control of SKZ. Private rice trade was forbidden and in principle all residencies were expected to become self-sufficient. If rice shortages occurred in a residency, the authorities had to apply for additional supplies from SKZ.

The authorities in the residencies used different methods of assessing the quota at lower levels. Sometimes the quota were fixed according to the land tax assessments. In Madiun every hectare of irrigated land was expected to yield 0.5 to 0.6 ton of which 0.1 ton had to be handed over. But this was insufficient to fulfil the quatum, which meant that the local officials (*pangreh praja*) forced farmers, whose land yielded only 0.1 to 0.2 tons per hectare, to hand over an equal amount. These farmers were left with hardly any rice.¹⁹ In Kediri farmers operating land up to 2 ha were assessed 20%, between 2 and 5 ha 50% and over 5 ha 70% of their production. In 1945 the quota for Bogor were for farmers operating up to 1 ha 40%, between 1 and 3 ha 50%, between 3 and 5 ha 60% and over 5 ha 75%. In Semarang the purchase of paddy was fixed according to the estimated yields per sub-district. Each sub-district was expected to surrender a quantity of rice, according to its size. This procedure did not take account of the fact that landowners did not always live in the sub-district where their fields were. They transported their rice to the sub-

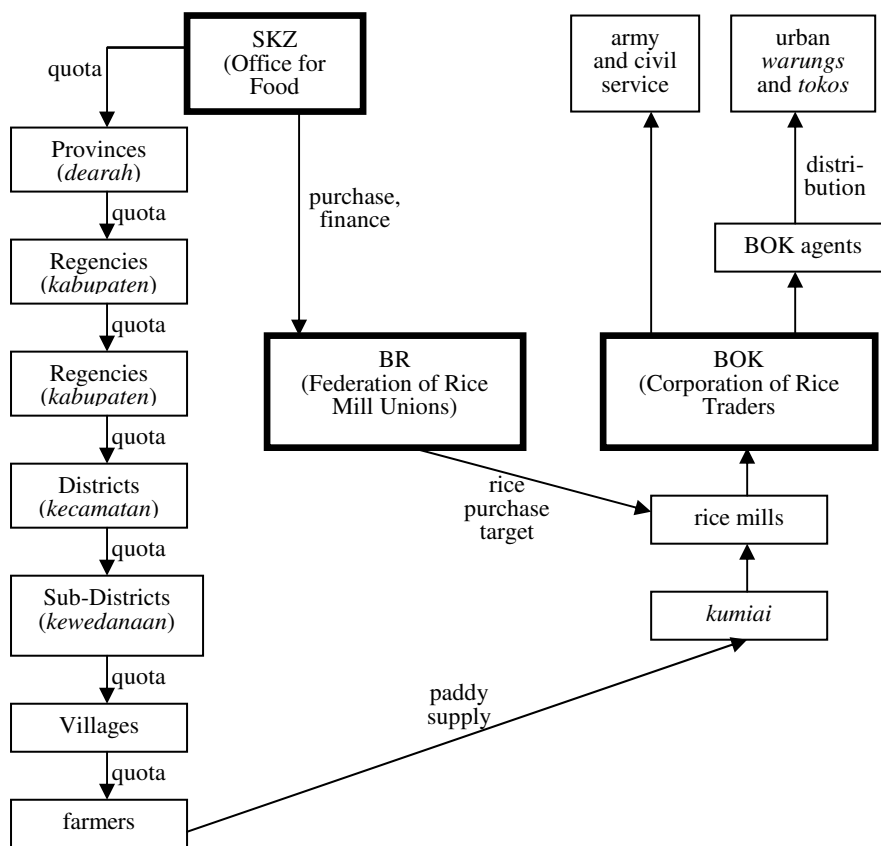
17. 'Landbouwvoorlichting' (1946) pp.187-188; Kurasawa (1983) pp.55 and 118-137; Anderson (1966) p.87. A copy of the original 1945 report by O. Iskandardinata about local rice purchase is held at IA-RIOD, No.036626-036655.

18. Kurasawa (1988, pp.298-316) gives an elaborate discussion of these organisations, which were cooperatives only in name. In reality they were 'a part of a government bureau under supervision of the *pangreh praja*', similar to the present day *Koperasi Unit Desa* in Indonesia. (p.304)

19. IA-RIOD, No.020114.

district where they lived, whereas the sub-district where their fields were had to surrender according to the average yield and size, regardless of transported crops.²⁰ In Soreang (a sub-district near Bandung) it was determined that for each guilder of land tax a farmer had to surrender 0.6 to 0.8 tons of paddy.²¹ In Ciparai (another sub-district near Bandung) the amount was simply put at a fixed amount per land holding.

Figure 1: Rice Purchase and Supply System during the Japanese Occupation



The system left a lot of opportunities for abuse.²² Misuse could start with the

20. IA-RIOD, No.020115.

21. IA-RIOD, No.036620.

22. Anderson (1966) pp.95-99; Lucas (1991) pp.46-49. Hatta (1971) pp.55-58, 65-66, 83, 101-

assessment of quota. In order to ensure that the lower administrative layers would feel the pressure and do their utmost to convince the lower levels, and ultimately the farmers, to surrender paddy, the quota were increased along the way down to the village level. In part this was done in order to be sure that at least part of the imposed quota, and therefore a major part of the original quota would be delivered. Another reason is the development of the black market for rice. The black market price of rice increased rapidly. Hence, more and more members of the *pangreh praja* started to abuse their feudal esteem by increasing the quota as a way of getting hold of rice supplies, with which they supplemented their declining real official incomes.

VMF had paid locally different purchase prices. But SKZ paid fixed prices to the mills for its purchases. The maximum fixed price per 100 kg of stalk paddy was *f*3.25 (*cereh*) and *f*3.50 (*bulu*). In October 1943 the prices were raised to *f*4.00 and *f*4.50 respectively. In October 1944 the price was raised to *f*10.00, regardless of the variety, and in May 1945 to *f*15.00.²³ But these were not the prices which farmers obtained from the mills via the *kumiai*. For several reasons farmers received only about 45% of this price:

- The prices quoted above were prices which the mills received, which meant that the purchase prices of the mills were lower in order to include a milling margin. This milling margin was not fixed.
- Mill owners were allowed to apply subjective deductions for moistness or low quality.
- Mill owners cheated farmers by tampering with the weights.
- The *kumiai* were controlled by the local officials. Cooperation between the mill owners and the underpaid and often corrupt local officials made that the mills could establish a milling margin, or a deduction for poor quality at will, and could get away with cheating.
- There were several possibilities for the *kumiai* officials to cheat farmers. For instance, in assessing the actual quantity of delivered paddy. They also deducted several items from the prices which they were supposed to pay to farmers. At first land tax was deducted from the purchase price. Hence, farmers regarded the quota they delivered to the *kumiai* as a kind of compulsory tax, which they accepted reluctantly.²⁴ In other cases the *kumiai* deducted overhead costs and membership fees at will.
- Farmers were officially allowed to keep 20% of the production after the harvest. The

104.

23. Tan (1946).

24. The Japanese authorities insisted that the land tax itself would be paid in July, immediately after the main harvest. In the colonial days the tax had to be paid before the end of the year. This was done in order not to press farmers to sell their rice in order to obtain cash at the time of the year when the prices were low. The Japanese order therefore disadvantaged farmers. (IA-RIOD, No.060842, p.21)

rest had to be stored at warehouses controlled by the *kumiai* or had to be sold to the rice mills via the *kumiai*. After delivery the paddy was stored at the *kumiai*, until the rice mill owners came to collect it. During that period the farmer remained responsible for the paddy in storage. If anything was missing at the time when the mill owner came to collect it, the farmer was obliged to supplement the quota.

Moreover, the real value of the purchase prices declined rapidly. Soon after March 1942 the Japanese authorities had issued price regulations, which fixed all prices at the level of 1 January 1942. The prices were revised during the occupation, but since late 1943, when the Japanese started to pay for the many defence projects through monetary financing, price control slipped out of their hands. There are suggestions that price controls were only enforced at market places, when Japanese quartermasters were doing their shopping, so that they could pay the low official prices for their purchases.²⁵

The unofficial prices varied very much from throughout Java, despite the distribution system, because transport impediments and controls made it increasingly difficult for the black market to allocate rice supplies from surplus to deficit areas.²⁶ In rough terms the black market retail prices in the cities rose during 1943 to two to three times the rural black market value. Hence, black market trade was very profitable. Private traders offered much higher prices for paddy or home-pounded rice than the farmers received via the *kumiai*. The rural prices of home-pounded rice rose from f6.50 per 100 kg in 1942 to f9.00 in 1943, f27.50 in 1944 and f200.- in 1945.²⁷ Assuming that farmers actually received 45% of the purchase prices paid by the BOK, the rural black market prices were therefore 2 to 15 times higher than what farmers received for officially surrendered paddy.

The systems of price control and control over the rice market were based on the Dutch colonial regulations, but the essential differences were that they were direct rather than indirect, rigorous rather than flexible. The gap between official and unofficial prices increased enormously and induced many local officials to corrupt themselves, possibly with the approval or active cooperation of corrupt Japanese officials.²⁸ In the cities rice fetched even higher prices than in the rural areas. Given these price differentials it is very likely that traders hoarded rice for speculation and for smuggling across the residency borders to the rice deficient areas.

Malversation was also possible at the receiving end, at the various levels of rice distribution. BOK was officially allowed to increase the prices for which it sold the rice

25. IA-RIOD, No.014614-014625.

26. Retail prices per litre (0.79 kg.) in December 1944: Jakarta and Bogor f3.25; Ciamis f2.40; Semarang f1.50; Pati f2.70; Bojonegoro f1.20; Kediri f1.50. (Anderson (1966) p.92). During that month the official distribution price was raised from 8 cents to 10 cents per litre.

27. 'Economische Toestand' (1947) p.126.

28. Reid (1986) p.20.

to its members with a transport margin and the wanted profit. In fact, the transport margin did not matter to BOK, because the profit margin would be set at will. In other words, the transport margin was open to bargaining. Likewise, BOK members were allowed to increase their selling price with a fluctuating transport margin. Like the purchase system, the distribution system was also controlled down to the neighbourhood shops (*warung*).

Although the wholesalers could manipulate their margins, the *warungs* were obliged to sell rice at a fixed price of 12 cents per litre. Their profit margin was only 60 to 80 cents per 100 kg.²⁹ Each shop could at most sell 2 tons of rice per month, which rendered a revenue of f12.- to f16.-, from which the transport costs to the shop still had to be deducted. Hence, retailing rice according to the official guidelines was not very profitable.³⁰ Shopkeepers only continued to sell rice as a service to their customers.

This indicates that distributed rice was available in urban areas at affordable prices as far as supply through the distribution system actually worked. It is unclear to what extent urban supplies of distributed rice were maintained during the Japanese occupation. There appear to have been many deficiencies in the system, due to which distributed quota were often below the targets. With the increasing deficiencies in the transport system, an increasing number of things gradually started to go wrong in the system, before the rice reached the shops. Thefts, rotting of rice, spillage and 'losses' in general seem to have increased. Especially the last category may explain a large part of the deficiencies of the system.

Table 1: Forced Deliveries of Stalk Paddy in Central Java, 1942-1946

	Fixed Quota ———(thousand tons)———	Purchased	Quota as % of Harvest	Purchase as % of Harvest
1942/43 ^a	-	29 ^b	-	1%
1943/44	330	205	12%	8%
1944/45	327	269	15%	12%
1945/46	512	234 ^c	23%	10%

a. In this period purchase concerned free sales.

b. Excluding Yogyakarta, where only a few rice mills existed.

a. April-September 1945.

Note: Central Java includes Surakarta and Yogyakarta.

Source: 'Economische Toestand' (1947) p.124

29. IA-RIOD, No.020117.

30. Compare Frederick (1990) p.102.

Although BOK announced that for the whole of Java the requested amount of rice was about 20% of the surplus production, the stratified method of getting hold of the rice increased the average quota in the wet season harvest of 1945 to between 30% and 50%. But the pressure of the quota differed locally and increased in due time. The most complete data are available for Central Java and shown in Table 1. The table indicates how the quota and the actually purchased quantities differed from one another, and how the required amount increased during the Japanese occupation. However, there are fragmented indications that the actually imposed quota were significantly higher than the overall 20%. In the three regencies of Brebes, Tegal and Pemalang they were 50% of production in many areas.³¹ In Jepara it was 25% to 33% of production.³² In Wonogiri (Surakarta) at least a third of production.³³ In Banten the overall assessment was 67%, in Banyumas 50%.³⁴ The discrepancies between the overall figures and these data most likely reflect the cumulative effect of the 'mark-ups' applied by indigenous officials.

An inspection tour of Soebardjo, an Indonesian adviser to the Japanese military government, in January 1944 indicated that the imposition of quota has been at random, regardless of the productive capacity of certain areas.³⁵ The pressure on the farmers was the cause of several uprisings against the Indonesian civil servants and the Japanese authorities in Indramayu (September 1944), and after the Japanese surrender in the *Tiga Daerah* of Pekalongan.³⁶ In spite of the obviously declining production and the popular discontent, the Japanese authorities did not decrease the quota, as Table 1 indicates for Central Java. But the amount of rice on which they could lay their hands declined.

The mills only operated for the Japanese authorities. Table 2 may therefore provide an indication of the amounts of rice under official control. The shares of processed paddy in Central Java seem to differ only marginally from the shares in Table 1. If the information in both tables is obtained from independent sources, then we may assume that the figures in Table 2 are accurate. It is clear that the burden differed very much between the three major areas in Java. The absolute quantities are much lower than the 2 million tons of paddy handled by rice mills in Java each year during 1937-1941. The average of 15-20% is also considerably lower than the 25% of the paddy harvest which the mills handled during 1937-1941.³⁷ This may to some extent be the result of the destruction of some rice mills during the Dutch retreat in March 1942. But the main differences are that rice production declined by 35% between 1942 and 1945, and that

31. Lucas (1991) pp.31-34.

32. Hüsken (1988) p.104.

33. Kartodirdjo (1982) p.42.

34. Anderson (1966) pp.88, 89 and 104.

35. IA-RIOD, No.020113-020122; Kishi and Nishijima (1963) pp.283-286 and 324-325.

36. Kurasawa (1983); Lucas (1991).

37. Calculated from Van der Eng (1990), *Changing Economy in Indonesia Vol.8: Manufacturing Industry* (1988) p.136 and *Economic Review of Inonesia* (1949) p.27.

mills could only mill for the region where they were situated.

Table 2: Paddy Milled by Rice Mills, 1943-1945 (tons)

	—West Java—	—Central Java—	—East Java—	—Total—
1943	639,880 (22%)	239,865 (9%)	610,801 (23%)	1,490,546 (18%)
1944	396,020 (17%)	269,849 (13%)	678,542 (28%)	1,344,411 (20%)
1945	219,517 (10%)	210,071 (11%)	558,150 (25%)	987,738 (15%)

Note: Between brackets the share of total production.

Sources: IA-RIOD, No.056514; *Geoogste Uitgestrektheden* (1947), production for 1945 estimated with 1942/43 average yield per residency.

Japanese Attempts to Increase Food Production

Already in 1942 Japanese authorities seem to have been convinced that Javanese agriculture had enormous potential, because rice production per hectare was in general about half what it was in Japan. Hence, they were convinced that the introduction of rice production technologies from Japan could turn Java into the rice bowl for the Japanese forces in Southeast Asia.³⁸ They expected for instance that some small changes in rice production could produce an exportable surplus of 150,000-200,000 tons in 1943.³⁹

The relevance of the intention to further Javanese rice production increased with the increasing disruption of interregional trade and the difficulties which were encountered in the purchase of paddy. Japanese experts were brought to Java in 1942 in order to prepare the enforcement of Japanese methods of rice cultivation on Javanese farmers. They expected that rice production could be doubled within three years. The proposed measures were:⁴⁰

- even spreading of the rice plants in the field, by promoting planting in straight parallel lines, rather than planting at random;
- propaganda for composted fertiliser from rice straw and manure;
- introduction of fast maturing rice varieties from Taiwan;
- experiments with these new paddy varieties and the establishment of new test plots for

38. Rodenburg (1946) mentions a Japanese document which suggests that limiting rice production in Java with Japanese techniques to 1.4 million hectares would safeguard food supply and release the rest for the production of cash crops.

39. Kishi and Nishijima (1963) p.264.

40. *Nefis Periodiek*, No.1, p.28(7 February 1946) IA-RIOD, No.056514.

the cultivation of these varieties;

- import of tools and equipment from Japan, such as a rotary weeder;
- combating pests and diseases with chemicals, especially nicotine and copper sulphate;
- establishment of several new agricultural schools;
- improvement of irrigation facilities.

Japanese attempts to improve indigenous agriculture on a larger scale started in 1943. In May 1943 the authorities announced a two-year plan to increase rice production in Java. It would start with the 1943/44 season. In November 1943 they established the 'Principles for the Implementation of the Urgent Counter Measures for Increasing Rice Production', which included a number of measures and the establishment of a Guidance Centre for Urgent Increase of Food Production as a section of the Department of Industry. The centre had chief-engineers in the former three provinces in Java, assistant-engineers in each residency and technical guides and assistant guides in each district.⁴¹ In each district they were to see to it that the following measures were taken to increase rice production:⁴²

- selection and dissemination of superior varieties;
- compulsory use of Japanese production techniques;
- improvement of irrigation works;
- expansion of rice fields through the conversion of estate land for food production and reclamation of land through drainage works;
- instruction and training of farmers.

These were all plans. It is unclear to what extent the measures were actually carried out.⁴³ There is some evidence which suggests that by 1944 an extensive new top-down system of agricultural extension officials was in place, which started a command-style introduction of these improvements.⁴⁴ But judging from the available rice production statistics in Table A.1, it must be clear that the measures failed to achieve the desired results in 1944 and 1945.

Kurasawa (1988) has analysed the failure of the Japanese measures. Most of her

41. Kishi and Nishijima (1963) pp.264-265.

42. Kishi and Nishijima (1963) p.275; Kurasawa (1988) p.36.

43. Kurasawa (1988, p.40) suggests: 'The Japanese way of rice-planting was [...] finally widely accepted by Javanese peasants because they finally understood that it was effective in bringing higher productivity.' But she does not support this statement with references or figures, and even mentions on p.41 several incidents of farmers protesting against the compulsory measures.

44. Kurasawa (1988, pp.48-60) provides an overview of all Japanese measures in the field of agricultural extension and education. See also: 'Landbouwvoorlichting' (1946) pp.177-178; Kartodirdjo (1982) pp.41-42.

explanations refer to external factors, such as climate and adverse weather conditions, manpower shortages, shortage of cattle for ploughing, damages by rats, deteriorating infrastructure and the effects of deforestation. Apart from the severe January-September 1944 drought, these factors are insufficient to explain the fall in rice production, as will be explained below. Kurasawa seems to acknowledge that and appears to stress that Javanese farmers lacked the right 'working spirit', both because they became demoralised and because they did not understand the Japanese measures mentioned above.⁴⁵

Both the Japanese advisers in Java in the 1940s and Kurasawa have been mesmerised by technological arguments when they suggested that Javanese rice agriculture was inefficient.⁴⁶ An important argument against this bold assessment is that technological advance in Japanese rice agriculture had been so extraordinary since the Meiji restoration, because of the very high population pressure on the available arable land reserves. Rice yields were high in Japan because of the shortage of land. But the technology used in Japan to obtain those high rice yields was very labour intensive. Japanese farmers could continue to afford such technologies, because they were to an increasing extent shielded from international competition through protectionist policies. The domestic price of rice in Japan exceeded the international rice price, especially after 1920. Hence, labour intensive rice production continued to be attractive for Japanese farmers, in spite of the high production costs. In the 1940s population pressure in Java was still much lower than in Japan before its 'Green Revolution' at the end of the nineteenth century. Moreover, Javanese farmers did not experience any protection from imports of cheap rice from mainland Southeast Asia until the 1930s. Hence, the opportunity cost in rice production was higher than in Japan. These are more plausible explanations of relatively low land productivity in rice production than the 'lack of working spirit'.

Both Kurasawa and the Japanese authorities in Java seem to have ignored most of the available colonial literature on the agriculture of Java, in particular the available knowledge of the agricultural economy of Java. The measures mentioned above seem to have been almost exclusively based on the Japanese historical experience with command-style extension of technological change in rice agriculture. These measures were hailed in the Japanese propaganda as major novelties. But several of them do not seem to be much

45. Kurasawa (1988) pp.66-68 and 108.

46. Frederick (1990, pp.101 and 126) repeated the argument, saying that Javanese agriculture was 'scandalously inefficient'. Kurasawa's (1988, p.33) simple explanation for low land productivity in Javanese rice agriculture is: '[...] mainly because of lack of technical innovation, fertilisers and funds for the construction of technical irrigation, cultivation methods remained rather primitive in those days [1938/39] and [land] productivity was low.' Such arguments fail to acknowledge that not land productivity, but labour productivity is the crucial factor in agricultural development. Land productivity in rice production was much lower in mainland Southeast Asia, although labour productivity was considerably higher than in Japan. (Van der Eng, 1992b)

different from the advice provided by the colonial agricultural extension service.

The effects of manuring seed beds, straight-line planting of seedlings, organic manures and rotary weeders were already propagated in Java by the LVD before World War II.⁴⁷ But colonial agricultural extension officials were familiar with the reasons why farmers opposed such measures. For instance, Javanese farmers were hardly interested in applying organic manure on rice, because the marginal productivity of fertiliser was too low. Javanese farmers were certainly not ignorant of the effect of fertilisers, because they used on a range of other crops which had a much higher value added than rice.⁴⁸

It seems that Japanese officials ignored the fact that the selection of superior rice varieties which suited the preferences of producers and consumers had its very particular technical problems in colonial Indonesia. It had taken until the late 1920s before a viable extension program had been established. The Japanese seem to have ignored this, by suggesting that the gap in rice yields between Java and Japan could be overcome by importing the very different superior Japanese and Taiwanese rice varieties. Attempts to spread these among the farmers failed, because these varieties produced sticky rice, rather than the firm rice preferred in Indonesia, and they required a lot more care and attention than Javanese farmers were used to giving their crops in the field.⁴⁹

A major difference with the pre-war agricultural policies was the Japanese command-style procedure. Through their Indonesian 'agricultural instructors', the Japanese officials simply prescribed ploughing of land before it would be irrigated, which was very uncommon in Indonesia. They ordered the restriction of the number of rice varieties and the strict regulation of planting time. They forbade mixed cropping of more than two crops and made labour intensive Japanese production techniques compulsory. During the colonial era the decision what to plant and when had been left to the farmers. Planting schemes were only used during the dry season because of the scarcity of irrigation water. Farmers and extension officials knew that uniformity in rice varieties and planting time increased the vulnerability of planted area for diseases and pests.

There was also a remarkable difference in the extension approach between the Japanese and the colonial officials. The Japanese extension method simply came down to giving orders in stead of advice. Moreover, there were by far insufficient people with adequate experience to explain the measures to farmers. Hasty training of Indonesian extension workers at the new agricultural schools was insufficient. Extension officials may not have understood themselves what it was all about. There are indications that farmers resented the top-down command approach.⁵⁰ In conclusion, the Japanese authorities seem to have neglected the wider technical, economic and social factors

47. *Nefis Periodiek*, No.1, p.28(7 February 1946) IA-RIOD, No.056514.

48. Van der Eng (1994).

49. 'Landbouwvoorlichting' (1946) p.185.

50. 'Landbouwvoorlichting' (1946) p.177.

involved in furthering Javanese rice production. Hence, the idea of simply transplanting rice production technologies from Japan to Java was doomed from the start.

Kurasawa fails to come to terms with the overriding explanation for the very different reaction of farmers in Java to the measures which had worked so well in Japan decades earlier. Several other crops than rice had proven that farmers are only interested in labour intensive production techniques if crops are profitable. But unlike in Japan, the Japanese rice delivery system in Java failed to guarantee farmers an adequate compensation for their efforts, as explained above. Real purchase prices were simply too low. It did not really matter that the rice delivery system was a compulsory system, that the quota were high, and that the system was disorganised and loaded with abuse. Farmers may not have cared less, as long as they would have received adequate real prices for their rice.

Another plan to increase production was through extension of the area cultivated with food crops by using estate land for food production. The original plan was to convert 66,000 ha of estate area into irrigated land, which was expected to yield about between 150,000 to 200,000 tons of rice in 1943.⁵¹ In 1943/44 and 1944/45 about 50,000 ha, or half the irrigated land leased by sugar factories from farmers for the production of sugar cane was used by the factories under Japanese management for the production of food crops for the Japanese armed forces. Some 21,000 ha of estate land with perennial crops was also used during those years for that purpose. Even if we assume that these areas yielded a high 2 tons of rice per hectare, it is clear that these measures were insufficient to compensate the massive fall in rice production between 1943 and 1945 of 860,000 tons, as shown in Table A.1.

Further Reasons for Declining Food Production

Apart from the rigorous purchase program and the statistical flaws, there are several other reasons which may explain the fall in food production: (1) the neglect of irrigation works and increasing erosion; (2) the claim by the Japanese authorities on labour; (3) the declining number of cattle and buffaloes available for preparing the land for cultivation; (4) the demise of the transport system.

Deforestation

The effects of deforestation on the hydrological situation in Java were already recognised as a problem in the 1920s, when it appeared that the flow of water during the dry season declined in several rivers. With the trees went the extensive root systems which would

51. 46,000 ha of tea estates and 20,000 ha of coffee estates. (IA-RIOD, No.056514, p.28; Kishi and Nishijima (1963) p.264) 15,000 ha of forest land was also on the list to be changed into *sawah*. The other way around, about 6,500 ha was planted with cotton and *raméh*.

hold rain water and smooth the water flow from the mountainous upland areas to the irrigated lowlands. During the 1930s the colonial authorities had partly solved the problem with the construction of large reservoirs up in the mountains, where water was stored and released during the East monsoon. Colonial forestry officials had started to refuse farmers to permits for clearing waste land, because of the erosion problem. The extension of arable land was practically prohibited.

Local Japanese authorities in Java had to deal with increasing applications by farmers for the cultivation of waste land. Some officials indeed handed out such permits. But most of them postponed a decision until there were central rules. These came 13 March 1943 and only said that the military government had to give permission. But in due time the *Gunseibu* had to leave it up to the authorities in the residencies to decide as they thought best. Hence, there were no general guidelines. Due to arbitrariness and ignorance, the land was handed out with disregard for the hydrological consequences.

Erosion increased also, because large forest areas were cut for ship building, for charcoal production for cooking, and for fire wood for the railways. Before the war 325,000 tons of wood had been supplied annually to the railways, which mainly used coal from Sumatra. But due to the disruption of coal imports, the Japanese authorities demanded an increase of wood production of 500,000 tons in 1942, 700,000 tons in 1943 and 900,000 tons in 1944 and 1945. A lot of hardwood timber was used for this purpose.⁵² The pace at which teak forests were cut down was two to three times higher than the colonial forestry service had allowed in the pre-war years.

It is not known exactly how much of the forest reserves were cut. During the conflict between the Dutch and the Republic in the years 1945-1949, the deforestation continued in the area under control of the Republic, because the Republic could also not import coal to run the trains. This resulted in wood production of 700,000 tons in the years 1946 and 1947. After the first Dutch military action in July 1947 it appeared in West Java that 179,100 hectares, or 21% of the pre-war forest area had been cleared.⁵³ In the densely populated and ecologically vulnerable province of Central Java it appeared later that 18,400 hectares of forest, or up to 24% of the pre-war stock of trees had been cleared.⁵⁴ For the whole of Java it was estimated that 400,000 to 500,000 ha or about 13% to 16% of the pre-war area had been cut. Before the war the forestry service kept the forest reserves at about 17% to 20% of the land surface in Java by replanting an average of 5,300 ha per year during 1926-1936. Practically no reforestation had taken place during 1942-1947.

There were two negative consequences of increased deforestation. Firstly, it

52. 'Kort Overzicht van de Ontwikkeling van de Economische Situatie in de Republiek Indonesia sinds Haar Oprichting', p.7 (6 September 1947) DP, No.5240.

53. *Economisch Weekblad* (1948) p.240.

54. Bryant (1973) p.148.

increased the risk of spates during the wet season, which destroyed indigenous irrigation systems. Secondly, the silt content of irrigation water increased, because of the erosion of the deforested upland soil. Silt deposits blocked ditches and drains of irrigation systems, and may have diminished the capacity of water reservoirs. There is no confirmation about the increasing devastation caused by spates, and the available data on paddy yields are not reliable. The impact on average rice yields of erosion may have been marginal, because the pre and post-war yields of irrigated rice do not differ. But it took until halfway the 1950s, before the cropping ratio of irrigated fields recovered to 1940 levels. Hence, it is likely that silt deposits contributed to the increasing disrepair of irrigation works. But rather than the result of deforestation, this may well have been caused by labour shortages, or the disintegration of systems for the operation and maintenance of irrigation constructions at all organisational levels.

It is possible that maintenance of irrigation works was neglected during the Japanese occupation and during the revolution, because of the increasing shortage of public funds. In June 1944 the Japanese claimed to have finished the Brantas works (East Java). But after the war it appeared that almost all initiated projects had not been finished, because of the shortage of construction materials. The only major completed project was the Popoh irrigation work in South Kediri in July 1944.⁵⁵ This project had been planned by Dutch engineers in the pre-war years. It drained excessive water from about 16,000 ha. Several smaller projects were mentioned in the press, but it is unlikely that there were any major additions to the area under technical irrigation.

Labour Shortage

In June 1942 the Japanese authorities started to attract Indonesian workers, who were needed in the coal mines of Sumatra, the nickel mines of Sulawesi, the tropical hardwood forests in Sulawesi and Kalimantan, and for the construction of air strips in Irian Jaya, the erection of defence works all over the archipelago, or for the construction of the Burma railway in Thailand and the Pakanbaru railway in Sumatra. The Japanese authorities concealed that this was ordinary unskilled labour, by appealing to the patriotic sense of the labourers and by calling them labour soldiers, or economic warriors (*romushas*).⁵⁶

At first workers applied voluntarily, attracted by the promised wages. But rumours about maltreatment of the workers on the projects and the fact that wages did not reach the women and children at home, caused a lower turnout than the Japanese expected. From July 1943 onward, all unemployed Indonesians between 18 and 25 year were compelled to become *romushas*. In October 1943 a special 'Labour Bureau' was

55. *Nefis Periodiek*, No.1, p.28 (7 February 1946) IA-RIOD, No.056514; Kurasawa (1988) p.43-45.

56. Kurasawa (1988, pp.181-174) provides an extensive discussion.

established for conscripting Indonesians.⁵⁷ When the supply of labour was not according to the Japanese needs, the bureau received far-reaching powers in October 1944. It established so-called 'Labour Training Centres'. In practice these centres were concentration camps for unemployed Indonesians, who were rounded up at random at gun point. The Labour Bureau could also impose fixed quota of *romushas* on the local Indonesian civil servants, who had to see to it that the quota were fulfilled. The imposition of the quota was, like the rice quota, largely at random. In 1943 more than 2 million Indonesians were working for the Japanese authorities, of which 1.5 million as *romushas*. Half of the *romushas* were only temporary workers.⁵⁸ All together about 300,000 people were sent to work outside Java, of whom only 76,500 returned.⁵⁹

In the early 1940s total employment in Java was around 19 million people, of which about 14 million in agriculture. Assuming that the temporary *romushas* returned home for the main agricultural season, it appears that the depletion of the agricultural labour force by full-time *romushas* was about 5%. Employment opportunities outside agriculture must have deteriorated, which means that former non-agricultural workers may have been looking for income opportunities in agriculture. It is therefore difficult to see that the recruitment of *romushas* really caused a labour shortage in the rural areas.

Shortage of Cattle

The total stock of cattle in Java declined from 5.5 million heads in 1940 to 4.3 million in 1947.⁶⁰ The Japanese army purchased many for slaughter. The meat was used for food and the leather was urgently needed for the production of shoes and boots. Especially in 1944 farmers preferred to slaughter their cattle themselves, rather than sell them to the Japanese against rapidly depreciating prices. Moreover, the work of the colonial Veterinary Service in preventing the spread of diseases almost came to a standstill, which enhanced contagious diseases. The decline indicates that less land could be ploughed and harrowed and that the preparation of fields became less meticulous. Both contributed to a fall in food production.

Demise of Transport and Communications

Before the war goods in bulk were mainly transported by rail in Java. During the occupation the Japanese military government ordered complete trains, including locomotives and operating personnel, carriages, wagons and rails, to be shipped out of

57. Kishi and Nishijima (1963) p.313.

58. Oki and Reid (1986) p.247.

59. De Jong (1985) pp.522-523; Brugmans (1960) pp.280-281; Kishi and Nishijima (1963) p.316.

60. Metcalf (1952) p.85; 'Kort Overzicht van de Ontwikkeling van de Economische Situatie in de Republiek Indonesia sinds Haar Oprichting', p.7 (6 September 1947) DP, No.5240.

Java to Sumatra, Malaysia, Singapore, Burma and Indochina.⁶¹ There is no exact overview of the decline in railway transport capacity in Indonesia, but Table 3 summarises the pre and post-war situation, and confirms a substantial loss in capacity.

Table 3: Rolling Railway Stock in Java, 1939, 1947, 1951

	Locomotives	Carriages	Wagons
1939	1,202	3,329	25,332
1947	295	1,031	10,422
1951	882	2,470	20,190

Sources: 'Economische Toestand' (1947) p.27; *Statistical Pocketbook* (1953).

Table 4: Number of Motor Vehicles in Indonesia, 1940-1950

		Passenger Cars	Buses	Utility Vans and Trucks
December 1940	Java	40,325	1,639	5,726
	Other Islands	<u>16,027</u>	<u>4,820</u>	<u>5,196</u>
	Indonesia	56,352	6,459	10,922
October 1945	Dutch Indonesia	1,180	-	1,442
June 1947	Dutch Indonesia	6,100	36	9,600
December 1947	Dutch Indonesia	10,281	1,134	10,446
December 1948	Dutch Indonesia	13,549	2,636	11,675
December 1949	Indonesia	31,046	7,643	21,649
December 1950	Indonesia	39,435	8,474	27,085

Note: Dutch Indonesia refers to area under Allied or Dutch colonial control.

Sources: *Statistical Pocketbook* (1941, 1953); *Economisch Weekblad* (1949) p.599.

As far as road vehicles were concerned, all civilians were obliged to register their motor vehicles and petrol stocks in June 1942. The Japanese authorities confiscated large numbers of these vehicles and stocks. Many cars and trucks were shipped out of Java, others fell in disrepair. Moreover, hardly any petrol was shipped to Java, which means that it was difficult to keep the remaining cars and trucks going. There were some

61. *Economic Review of Indonesia* (1947) p.36.

experiments at sugar factories to produce butanol from sugar as a substitute for petrol, but the overall effect was marginal.⁶² As railway transport, there is no exact information available, but Table 4 provides an indication.

On the whole it seems therefore likely that the increasing shortage of means of transportation in Java contributed to difficulties in the rice purchase and distribution system. Apart from the Japanese attempts to control the Javanese rice economy, declining transport must have been a significant additional reason for declining food production.

4. Measuring Food Supply, 1940-1950

The Figures 2 and 3 show that the net supply of calories and proteins increased in 1941 and 1942, although the share of rice in total calorie supply declined slightly. The increase in 1942 was to a large extent caused by the cancellation of cassava-based exports. Before World War II Java was one of the major suppliers of cassava starch and dried cassava chips to the world market, exporting about 10-15% of cassava production. These quantities were available for domestic consumption in 1942. There was a fall in food supply during 1943 and food supply became very critical in 1944 and remained so in 1945 and 1946. The fall in food supply was largely due to a decline in the production of non-rice food crops.

1944 Was a drought year with considerable failures of the main rice crop and a prolonged dry season. In March 1944 the Japanese authorities are said to have claimed the following increases in the production of irrigated rice: 9% in West Java, 20% in Central Java and 21% in East Java, or an average of 17%.⁶³ Given the official data on which Table A.1 is based, and the qualitative information about crop failures, these figures are unrealistic and may only have served propagandistic purposes. The available data do not indicate exactly how much production decreased.⁶⁴ As mentioned above,

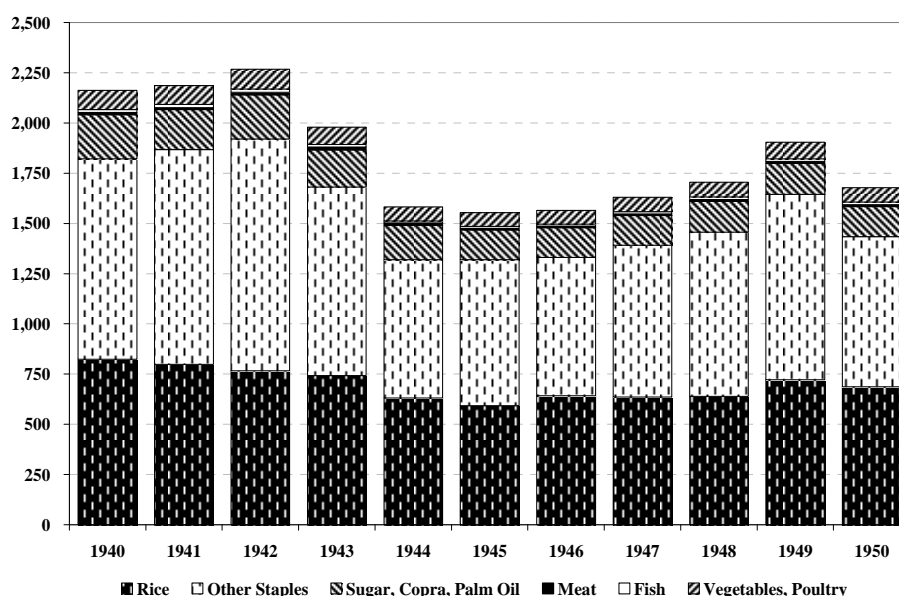
62. Rodenburg (1947) p.25.

63. Kishi and Nishijima (1963, pp.265 and 276), quoting *Jawa Shimbum* (30 March 1944). However, the original source only mentions the *expected* increases in rice production during 1944 due to newly introduced production procedures.

64. Appendix 1 explains that I disagree with suggestions that the available food production statistics are entirely unreliable. I strongly disagree with Frederick's (1990, p.127) assertion 'that *actual* production was higher at the end of the occupation than before it' in East Java. There is no evidence with general validity to support such a suggestion. Frederick based his statement on a Japanese report which suggested that in 1945 60% of the rice crop was used for hoarding. This very crude estimate was based on an approximation of production of 4.5 million ton, of which 0.9 million tons was officially purchased. Farmers were allowed to keep 20% or 0.9 million ton, which left 2.7 million tons, or 60%. (IA-RIOD, No.005374) Without substantiation, Frederick calls this 'a conservative guess'. He fails to see that 0.9 million ton for about 34.4 million farmers and their families (70% of 49.2 million people in Java) makes only 72 grams per capita per day. Apparently

farmers may have started to conceal production from local authorities in order to evade forced deliveries, and local Indonesian officials omitted to report production in order to obtain rice for the black market. But it is very unlikely that rice production increased in 1944.

Figure 2: Available Calories in Java, 1940-1950 (Kcal per Capita per Day)

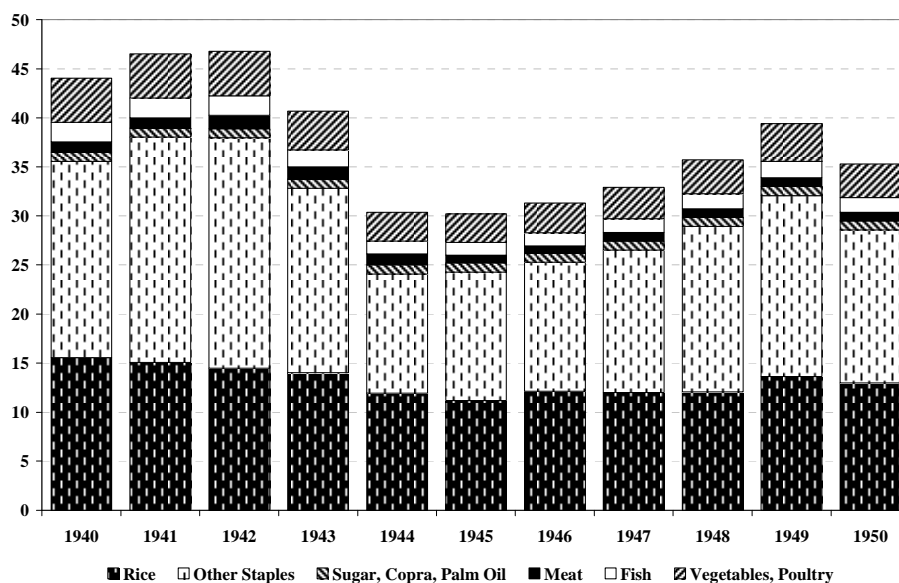


Source: Table A.3.1.

Apart from 1944, 1946 and 1950 are also known to have been years with poor harvests. The official figures reveal incredibly low production levels in 1945 and 1946, due to falls in both yields and harvested areas. This leads to the assumption that during these years a significant part of the actual production was not registered. For those two years production is corrected in the tables A.1 and A.3.2 for the decline in yields in the official figures, on the assumption that the decline in planted and harvested area was real, because both could easily be checked with random rough estimates.

most of the 60% for 'hoarding' was used by farm households for survival.

Figure 3: Available Protein in Java, 1940-1950 (Grams per Capita per Day)



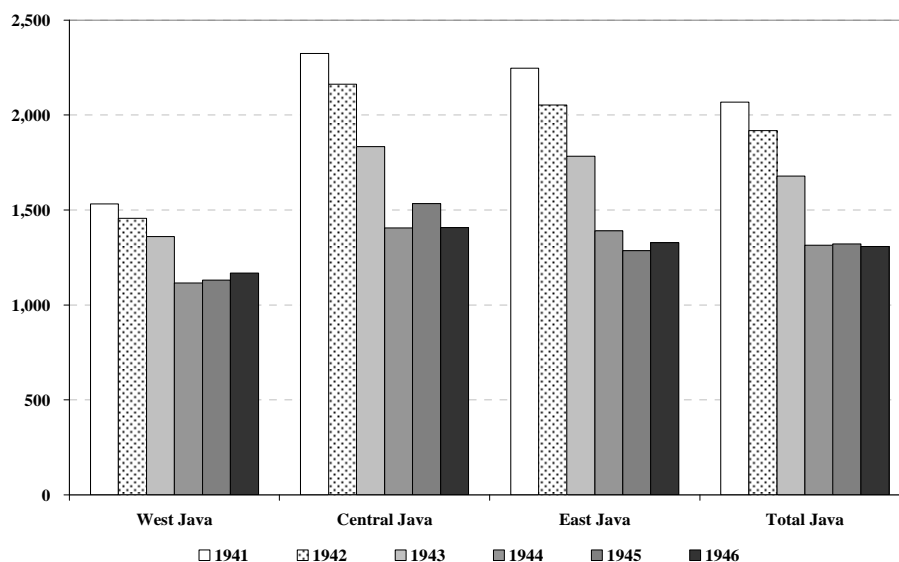
Source: Table A.3.1.

Table A.3.2 and Figure 4 provide an indication of the regional distribution of the net supply of the six main food crops. This suggests that average food supply was sufficient in some residencies throughout the Japanese occupation, especially in the residencies of Semarang, Kedu and Besuki. After 1943 food production in these areas seems to have fallen to a level which may have been sufficient to feed the populations in these residencies, but which may not have left very much for export to other parts of Java. The situation appears to have been especially bad in Bojonegoro and West Java. Food supply was already a problem in pre-war Bojonegoro.⁶⁵ The people in the residency must therefore have suffered considerably. This statement is corroborated by the fact that mortality rates were around 4% in 1944.⁶⁶

65. Penders (1984).

66. De Vries (1947) p.18.

Figure 4: Available Calories from Six Main Staple Crops in Java, 1941-1946 (Kcal per Capita per Day)



Note: In contrast to Figure 2, this chart only includes rice, maize, sweet potatoes, cassava, peanuts and soybeans and does not include calories from sugar, copra, palm oil, meat, fish and vegetables and fruits. The supply of calories from rice and the other staples for Java as a whole is higher than in Figure 2, because it is not corrected for net exports from Java.

Source: Table A.3.2.

The decline of food production in West Java may indicate the extent to which the main urban centres in West Java (Jakarta, Bogor and Bandung) used to rely on an inflow of rice from elsewhere in Java. The first signs of food shortages were not reported until August 1943 in the cities Jakarta and Semarang and in the residencies Madiun, Madura, Kediri and Surabaya. In reaction, the Japanese authorities announced plans for the establishment of a more controlled system of rice distribution in Java in September 1943. It is therefore likely that the rigorous restrictions on food trade and the defective rice purchase system started to inhibit the allocation mechanism of the free market and the spread of food from surplus to the deficit areas at the end of 1943.

Per capita food supply in Java of 1,550-1,580 Kcal/day during 1944-1946 was clearly very low, because average calorie requirements of people in Java in the 1940s can be put at about 1,925 Kcal/day.⁶⁷ However, the shortfall in supply does not automatically

67. Van der Eng (1993) p.28. The average requirement refers to Java and Madura in 1940 and is

imply widespread starvation. The occurrence of starvation depends on two factors:

- the ways in which people adapt their physical activities to their energy intake levels;
- the distribution of available food supplies in society.

Pre-war Indonesia was still at a low average level of living, which implied that most people were not employed full-time throughout the year. Moreover, most income opportunities at such levels depend very much on the amount of physical labour people can perform. In pre-war Indonesia most people were engaged in agriculture, which required considerable inputs of physical labour because mechanisation was virtually non-existent. Besides, agricultural labour is very seasonal. By definition people with their main source of income in agriculture are not employed full-time. Additional off-farm income opportunities were generally unskilled menial jobs for men and jobs in petty trade for women. Both also required physical labour. Hence, income and calorie consumption were closely related.

For instance, the average daily requirement of about 1,925 Kcal/capita assumes that adult men require 2,530 Kcal (20-40 year), which implies a surplus for physical activity beyond the basal metabolic rate (BMR) of 1,080 Kcal. This is sufficient for a man to perform 4.5 hours of moderately heavy work per day.⁶⁸ During 1944-1946 average calorie supply was 19% below the average requirement. Assuming that lower food supply did not affect food allocation in the average household, the man in this example may still have consumed enough calories to meet his BMR requirement, but his energy surplus only allowed him to perform 3.7 hours of moderately heavy work per day. It is very likely that people adapted their work hours during the 1940s to available consumable energy, because most qualitative evidence indicates that off-farm job opportunities diminished in Java during the Japanese occupation and that rural households were pushed into self-sufficiency.

The average supply during 1944-1946 may therefore have been sufficient for the survival of the population in Java as a whole, but that implicitly assumes that food supplies were distributed equally. Engel's Law generalises the experience that poor people tend to consume less calories than rich people. Hence, the effect of a fall in average food supply depends very much on how the lower total supplies are distributed among the different groups of income earners in society. Unfortunately there are no data

corrected for age-sex composition of the population. The average requirement was 1,962 Kcal/day in 1950. The difference was most likely caused by the fall in birth rates in Java during the period 1940-1950, which increased the average age of the population. The average requirement for the whole of Indonesia may have been slightly lower, given the generally higher population growth in the Other Islands. In 1961 average requirement was indeed 1,889 Kcal/day for the whole of Indonesia.

68. Van der Eng (1993) pp.28-29.

on *e.g.* income distribution which allow a clear-cut analysis. We have to make do with an impressionistic interpretation. As mentioned in above, Japanese food policies were meant to enhance a redistribution of food supplies in Indonesia to the following groups.

Japanese Military

The rice requirements of the Japanese army and civil servants depended most of all on the number of Japanese in Java, because transport problems soon ended plans to turn Java into the rice bowl for the Japanese army throughout the region. The number of Japanese in Java varied according to the state of warfare at the Eastern front. For instance, at the end of the war there were more soldiers in East Indonesia than during the preceding years, because of the attacks by the Allied Forces in Irian Jaya and Kalimantan. The available data do not make a clear distinction between civilians and armed forces. The number of Japanese in Indonesia in August 1945 can be put at 74,000 in Java, 75,150 in Sumatra and 170,000 in East Indonesia.⁶⁹ Each of the Japanese was estimated to require 640 grams of rice per day.⁷⁰ Hence, for 1945 17,300 tons of rice were needed for Japanese consumption in Java, 17,550 tons in Sumatra and 39,700 tons in East Indonesia.⁷¹

The Japanese authorities in Java also required rice for direct war purposes. When it appeared in 1944 that the advance of the Japanese forces had been stopped and that the war would perhaps have to be fought in Java, the military requested 17,000 tons for stockpiling. For 1945 the Japanese authorities also had to deal with the request from the 7th Army in Singapore for no less than 100,000 tons of rice in preparations for a prolonged battle of Singapore.⁷² But it is unclear how much rice was actually shipped.

Civil Service and Indonesian Auxiliary Services

Most Dutch civil servants were replaced in 1942 and 1943 by Japanese and Indonesians. In 1943 it appeared that the Japanese authorities were unable to maintain a balanced government budget, although the wages of civil servants had been restricted to certain maximums the year before. In March 1943 wage cuts followed. In order to keep the real salaries of the civil servants at level, the Japanese authorities started to pay part of the

69. Oki and Reid (1986) p.246; Smit (1962) p.29; Dootjes (1946) p.63; Van Mook (1950) p.193. Estimates differ. *E.g.* Kanahale (1967, pp. 65 and 282) gives figures of 45,000-50,000 in March 1942, 10,000 in October/November 1942 and 40,000 to 50,000 in 1945.

70. Oki and Reid (1986) p.246.

71. One source says that in 1944 the Japanese army in Java required 150,000 tons of rice, which was estimated to be 3% of the harvest. (Statement of General Yamamoto, 'Meeting on Board H.M.S. Cumberland' (21 September 1945) Van der Plas, no.122) This is most likely a mistake. Perhaps the estimate concerned stalk paddy purchased in Java for consumption by the Japanese armed forces in Indonesia as a whole.

72. Oki and Reid (1986) p.246.

salaries in the form of rice. During the 1930s there were about 100,000 civil servants. Assuming a similar number during the 1940s and daily rations of 500 grams, results in total requirement of 18,250 tons.

In 1943 about 2.0 million Indonesians served the Japanese as *heihos* (Indonesian auxiliary soldiers), *keibodan* (Indonesian auxiliary police), *giyuguns* (Indonesian volunteer soldiers), *romushas* and temporary workers, in 1944 2.6 million, of whom 0.7 million temporary workers.⁷³ Many of these Indonesians enlisted because of the prospect of guaranteed food rations. Assuming that all but the occasional workers required 250 grams per day, and that the occasional workers required rations for three months per year, the required total would have been 188,600 tons.

Detainment Camps

During the first few months after the Japanese victory in March 1942 European civilians and POWs were detained in many different camps, which were established in a hurry, and in prisons. There were no uniform rules. Hence, both quality and quantity of food supply differed very much. Later that year it appeared that the war was going to last longer than the Japanese had initially expected. Larger camps were established and the supply of food was more or less standardised. The official daily per capita requirements were estimated as follows:⁷⁴

Rice	570 grams	2,050 Kcal
Meat	50 grams	450 Kcal
Vegetables	400 grams	160 Kcal
Cooking Oil	25 grams	225 Kcal
Sugar	20 grams	<u>75 Kcal</u>
Total		2,960 Kcal

Children under 11 years of age were to receive half this ration. The Japanese military government intended to supply the following quantities daily rations per capita from army stocks:⁷⁵

Rice	100 grams	360 Kcal
Starch	200 grams	720 Kcal
Sugar	20 grams	<u>75 Kcal</u>
Total		1,155 Kcal

These rations were to be supplied by the camp management through the camp shop. The

73. Oki and Reid (1986) p.247.

74. Van der Velden (1963) p.343.

75. Van Veen (1946) p.175.

value of the total requirements per day were estimated by the Japanese to be 25 cents. The value of the supplies from army stocks was estimated at 8 cents. Each detainee therefore received 17 cents per day, which could be spent on additional food. This food was either bought by the camp management, or supplied by indigenous and Chinese traders allowed to come into the camps. Or food was purchased collectively outside the camps.

The rations supplied by the camp management were not uniform. At maximum they amounted to an equivalent of 1,600 Kcal, of which 300-350 grams of rice, or rice supplemented with starchy food products to 300-350 grams.⁷⁶ Upon arrival in the camps about 10% to 15% of the promised rations was mostly missing.⁷⁷ The minimum of these rations was about 1,100 Kcal, with occasional declines down to 800 Kcal in 1944.⁷⁸ In June 1944 still about 400 Kcal could be bought with the mentioned 17 cents.⁷⁹ On top of that food was smuggled into the camps and paid for with private money. But the quality of the food deteriorated quickly and some products became impossible to obtain. In January 1945 the purchased extras still amounted to about 160 Kcal, but soon the 17 cents were insufficient to buy anything. At that stage the detainees had to take refuge to emergency measures, such as selling off belongings and smuggling money and food into the camps. The effect of these actions depended on the food situation in the area and the safety measures taken by the camp management.⁸⁰

POWs received a better treatment in the beginning of the occupation than civilian detainees, because there was a standard regulation for them. It took until March 1943, before this regulation was formally also applied to the civilian camps. In the prisons there was no system in concern of the rations, the situation there was generally much worse.⁸¹

In total there were 83,000 civilian detainees in Java, 13,200 in Sumatra and 3,110 in East Indonesia, of whom respectively 13%, 10% and 7% died in captivity.⁸² There were 42,233 POWs in the whole of Indonesia, of whom 19% died in captivity. The Japanese arrested about 15,000 people (Indonesians, Chinese and Europeans) who were kept in prisons. About 5,000 of them were executed and about 7,000 died in captivity.⁸³ Assuming an average ration of 300 grams of rice per day for all these people, the annual rice requirement for detainees and POWs was 17,150 tons in 1942 and 13,600 in 1945.

Distribution to the Indonesian Population

During 1942 and 1943 the general food situation was not alarming, because of the good

76. Van der Velden (1963) pp.267 and 186.

77. Van der Velden (1963) p.268.

78. Van der Velden (1963) pp.346-348.

79. Van Veen (1946) p.175.

80. Van Veen (1946) p.177.

81. Van Veen (1946) p.173.

82. Van der Velden (1963) pp.519-544.

83. Koch (n.d.) p.584.

harvests, the available emergency stocks and the stoppage of cassava exports. Until 1944 the members of the organisation of rice wholesalers, BOK, delivered the rice to the neighbourhood shops at the request of the community councils. The declining rice production did not only induce the Japanese authorities to introduce a more rigorous purchase system in August 1943. Essential to the system was control over all rice supplies, which implied centralised allocation of rice surpluses. At the same time plans for a system to distribute rice to individual Indonesian civilians, rather than to entire neighbourhoods was announced. In essence, the distribution system had to replace the entire free market system through which surplus rice used to reach the deficit areas, in particular the urban centres.

The amount of rice required each month for distribution to the civilian population was estimated with assumptions about the consumed quantity of rice, from which a rough estimate of local production was subtracted. The distribution system was therefore mainly aimed at the urban centres. For instance, the city of Jakarta was supposed to need 200 grams per person per day, whereas small provincial towns received allotments of 100 to 150 grams per person per day. With this system the Japanese authorities estimated the monthly requirements per residency for 1945 as follows:⁸⁴

Banten	1,200	Pekalongan	2,500	Madiun	1,000
Jakarta (residency)	3,000	Semarang	3,200	Bojonegoro	1,200
Jakarta (city)	5,800	Pati	1,500	Surabaya	6,700
Bogor	4,000	Banyumas	1,200	Kediri	3,300
Priangan	5,500	Kedu	1,500	Malang	4,000
Cirebon	1,600	Yogyakarta	1,000	Besuki	2,500
		Surakarta	<u>1,500</u>	Madura	<u>2,050</u>
West Java	21,100	Central Java	12,400	East Java	20,750

For the whole of Java this was 54,250 tons per month, or 651,000 tons per year. With an average ration of 250 grams per capita per day, this implies that at least 7.1 million people, or about 15% of the population in Java, depended on the distribution system. The actual supply of rice depended on the extent to which BOK and its members indeed managed to purchase and transport rice. Given that rations were often smaller than 250 grams per day, the number of people in the distribution system may have been higher.

An individual distribution system was introduced in Bandung in March 1943.⁸⁵ In Jakarta the individual distribution of rice started on 1 January 1944. It was soon followed by the other urban centres. In most areas the system was based on ration cards which were handed out to registered population via a newly established tight network of

84. 'General Food Situation in Java' (9 October 1945) AS-ARA, No.2580.

85. *Indisch Nieuws* (6 April 1946) p.12.

Japanese-style neighbourhood groups.⁸⁶ The distributed rice rations amounted to 200-250 grams per day at first, but they soon became smaller. The rations gradually declined during the lean season of 1944 to 150-200 grams in the major cities and 50-100 grams in country towns. The first major food shortages were reported in April-May 1944, prior to the wet season harvest. Late 1944 the following rations per capita per day applied in some urban areas: Jakarta 120 grams; Garut, adults 120 grams, children under 10 years 60 grams; Pekalongan 230 grams; Kediri 150 grams; Bojonegoro, adults 200 grams and children under 10 years 150 grams.⁸⁷ Sometimes the distribution had to be suspended, because there was no rice available for distribution.

The declining distribution rations meant that people were forced to buy supplementary food on the black market. After the very poor harvest during the 1944 dry season, famines were reported in the traditionally rice deficient areas in Java, such as Bojonegoro.⁸⁸ These famines continued well into 1945, because of the delayed wet season harvest. The Japanese authorities were unable to prevent or alleviate these rural disasters. The purchase of rice was insufficient in many rural areas, because of the low harvest in 1944 and the disrupted transport system. Food stocks ran out and the food situation became disquieting in many urban areas as well, when the food rations had to be cut down.

Summarising, in 1945 the annual rice requirements of the Japanese authorities in Java may have been:

For civilian use	- civil service	18,250 tons
	- Indonesian auxiliary forces	188,600 tons
	- detention camps	13,600 tons
	- distribution	651,000 tons
For military use	- Java	17,300 tons
	- Strategic Stockpiling	17,000 tons
	- Singapore	<u>100,000 tons</u>
Total		1,005,750 tons

This estimate is relatively accurate. Available official estimates suggest that the total

86. Pauer (1985) described the emergence and function of the network of neighbourhood groups in Japan. Kurasawa (1988, pp.275-298) explains their introduction and function in Indonesia.

87. Anderson (1966) p.91; Lucas (1991) p.35. Soebardjo (as cited in Kishi and Nishijima (1963) p.284) reported about the rice distribution system in January 1944 that '[...] in contrast to the rationing system in rural areas, the system in urban areas was well organized and the food situation was good.'

88. Mortality rates increased due to spreading malnutrition, De Vries (1947). Kartodirdjo (1982, p.43) mentions increasing mortality in the poor areas of Surakarta: Wonogiri, Karanganyar and Boyolali. Lucas (1991, p.37) describes the effects of malnutrition during 1944-1945 in Pekalongan, and Williams (1985, p.60) in Banten.

purchase targets for 1945 was 0.7 million tons of milled rice for civilian use and 0.2 million tons for military use.⁸⁹

It is very likely that food supply was adequate for about 70% of the population who worked in agriculture and may have had direct access to food products. The pre-war rice surplus had been about 30% of production, which implies that the majority of the people in agriculture were not very far from subsistence production. Given the rapid depreciation of real official purchase prices, the increasing discrepancy between official and black market prices and the extortion of supplies by corrupt officials, farm households may have chosen to limit food production to subsistence levels, producing enough to meet their own requirements and the official quota.

Table A.3.2 is one indication in this direction. It shows that the fall of per capita calorie supply stopped in 1944 and stabilised during the years 1944-1946 in most residencies. But a simple calculation may also illustrate the assumption that farm households cut production close to subsistence levels. In 1945 about 1 million tons of rice was delivered to the rice mills. Assuming a 100% mark-up because of embezzlement and hoarding, 2 million tons of paddy may have been delivered to the *kumiai*. Production was 6.5 million tons of paddy. If 70% of the population had access to land in 1945, farm households may have produced for food for 34.4 million people. Hence, 665 Kcal per capita may have been available in farm households from rice. It is likely that a much larger percentage of the other food crops was consumed by the agricultural households than their share of 70% in total population suggests, because of the trade restrictions. Supposing that 90% of total calorie supply from other food products listed in Table A.3.1 would have been consumed by agricultural households, total food supply would have been 1,900 Kcal per capita. Average requirements fell most likely due to declining off-farm income opportunities. Hence, it is very well possible that the agricultural population would have been able to sustain a 30% rice delivery quatum despite the considerable decline in food production shown in Table A.1. Farm households had sufficient supplies and delivery quota were met, but there was little food in the markets.

On the basis of the 1930 population census, we may assume that by 1942 about 10% of the population in Java lived in urban areas. These people would partly rely on the distribution system for their food supply, augmenting their rations with what they could purchase on the black market. Although the real wages of employees and civil servants fell, most of them were able to sell belongings such as clothes, textiles, jewellery and furniture in order to purchase supplementary foods. As shown above, the number of people in the government distribution scheme may have been 15% of the population.

This leaves 15% of the population, or about 7.5 million people. It is likely that most of them were the rural landless. In the pre-war years the people in this group relied on income from wage labour, with which they had been able to buy food. But after 1942

89. IA-RIOD, No.005374.

their income opportunities decreased, when exports became impossible and strict regulations prohibited free domestic shipments of products. Many of these people may have enlisted voluntarily as *romushas*. But this alternative to poverty soon became less attractive, when stories seeped through about the harsh treatment of many *romushas*. A large number of these people most likely moved to the cities in an attempt to find work.⁹⁰ In the cities they settled in the poor *kampungs*, where they were beyond control of the community councils and the neighbourhood groups. They were therefore not in the rice distribution system.

The 1944 statistics of the Japanese-style neighbourhood groups and Table A.2.1 make it possible to estimate the actual size of this group of poor people.⁹¹ The survey total of 43.9 million people in Java is most likely too low. With the available population census data for 1930 and 1961, these data would imply implausible annual average growth rates of 0.38% during 1930-1944 and 5.28% during 1944-1961. A comparison per residency of the 1944 survey data and the estimates in Table A.2.1 shows that the differences are concentrated in the residencies with major cities, except Priangan and Yogyakarta. For Jakarta the estimate in Table A.2.1 is 48% higher than the survey, for Cirebon 51%, Semarang 12%, Surabaya 59% and Malang 19%. Otherwise the differences range between -9.6% (Besuki) and 6.4% (Banten). Without the residencies with the major cities, except Priangan and Yogyakarta, the difference between the sub-totals of the survey and the estimates in Table A.2.1 is only 0.5%. Hence, it is likely that the absolute differences between the 1944 survey and the estimates in Table A.2.1 indicate the numbers of people who were not in the distribution system in the residencies with the major cities. If these people resided in the cities and their immediate surroundings, they numbered as follows: Jakarta 1,727,000; Surabaya 1,538,000; Cirebon 1,249,000; Malang 524,000; Semarang 282,000 and Bandung 103,000. All together 5.6 million people.

It is therefore not surprising that the first reports of food shortages in 1943 were from urban centres, such as Jakarta, Surabaya, Madiun, Semarang and Kediri. In the worst case poor people in the rural areas could still eat snails, banana roots and forest plants, but in the cities the only alternative was to beg in the streets for money. There are indeed descriptions of contemporary observers which suggest that where beggars were hardly seen in pre-war years, the number of poorly fed and scantily dressed beggars in the cities increased rapidly during 1944.⁹² Certainly for Jakarta there are descriptions of

90. E.g. the registered population of Bandung doubled from 217,000 in 1940 to 437,000 in 1945. Smail (1964) p.7. The registered population of Jakarta increased from 544,823 in 1941 to 847,483 in June 1945. *Trade, Industrial & Tourism Directory* (1969) p.xi; Twang (1987) p.137.

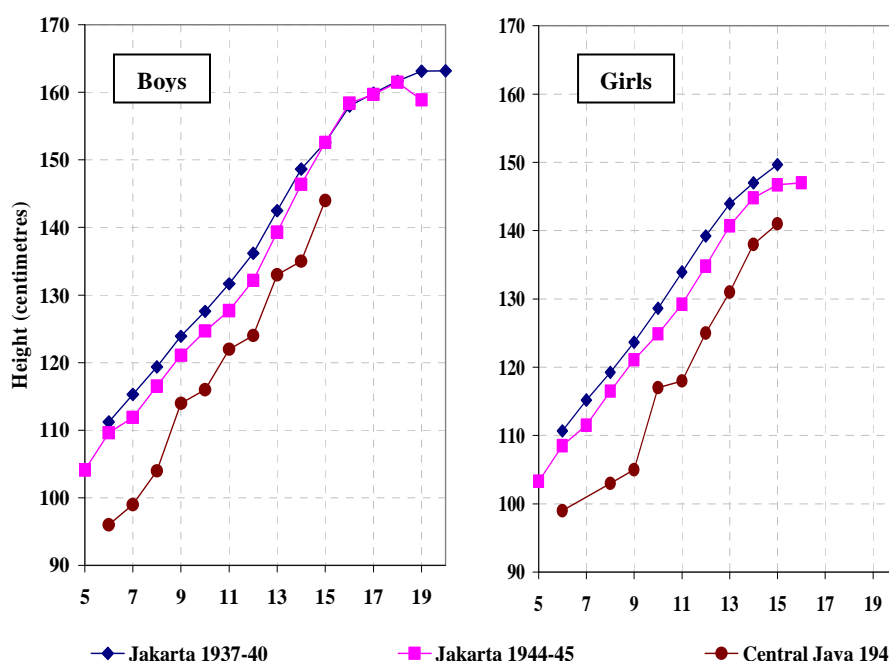
91. Kurasawa (1988, p.285) published the results of this April 1944 population survey.

92. Brugmans (1961) pp.601-602; Luycken (1951) p.134; Kanahale (1967) pp.140-141; Zijlmans (1985) pp.36-37; Abeyasekera (1989) pp.141-142. Frederick (1990, p.101) presented a much more rosy picture of the situation in Surabaya on the basis of his interviews in the *kampungs*.

increased human suffering at the end of 1944.

It is only possible to speculate about the extent of human suffering and the extent to which the food situation changed for this part of the population. The unregistered black market seems to have flourished. Some traders may have made a small fortune. But the reports about famine and malnourishment, in particular in urban areas make it unlikely that the black market compensated the deficiencies in the official distribution system. Bulk transport became increasingly difficult. Some small traders may have managed to avoid controls on the transport of food stuffs, but it is difficult to imagine that small hauls with carts and bicycles could replace bulk transport by truck and railway to deficit areas.

Figure 5: Average Heights of Children in Jakarta and Central Java, 1935-1949



Sources: 1937/40 5-16 year calculated with heights of 13,748 boys and 7,368 girls, Gorter and De Haas (1947). The series of heights of boys was extended with the average heights of 16-20 year old boys in 1929 from a series based on 2,709 boys of 13-20 year at high schools, Klerks (1956) p.27. 1944/45 2,219 boys and 1,607 girls, Zakaria (1956) p.360. 1949 67 boys and 59 girls, Indo-European orphans, Luyken (1951) p.143.

However, this view does not deny the occurrence of malnutrition, because Frederick explicitly excludes 'the lowest-paid coolie labourers and recent immigrants from the countryside' from his picture, without giving any indication of the share of these people in the total number of *kampung* dwellers.

The effect of deteriorating food supply can be illustrated with the heights of children. Human growth during childhood is very sensitive to changes in food supply and the disease environment. Malnutrition and diseases cause growth stunting in children. Figure 5 indicates that young Indonesian children in Jakarta in 1944/45 were significantly smaller than their peers in 1935/40. Male heights at the age of 15-18 hardly differed, which suggests that the causes of the decline of average heights between both periods were of very recent date. The heights of Indo-European orphans evacuated from areas previously under Republican control in Central Java, suggest appalling neglect and hardship during the years of war and revolution. The survey data collected for Jakarta in 1944-45 do not give the impression of rampant starvation. As explained above, on average food supply in Java was adequate for survival. Therefore most people, except the poor, managed to survive. But there certainly was malnutrition in Jakarta. The 1944-45 survey found that only 10.3% of the children between 5-9 years, 26.9% of the 10-14 year olds and 33.5% of the 15-19 year olds were healthy.⁹³ The rest was suffering from various ailments. Given that especially young children are susceptible, these data are indicative of diminishing resistance against common diseases.

It seems that the poor bore the brunt of the diminishing food supply. Cut off from income opportunities and regular food supply, their ultimate fate during the Japanese occupation was to starve along the roadside.⁹⁴ Many of them may indeed have perished this way, because available evidence indicates an overall decline of the population in Java during the years 1944 and 1945. During those years about 2.4 million people died on top of the normal mortality rate.⁹⁵ It seems likely that most of these deaths occurred in the group of 7.5 million who were deprived of a regular supply of food.

On the whole, it is improbable that the volume of the Japanese military demands caused food shortages in Indonesia.⁹⁶ It is also unlikely that Japanese food policies in Java contributed significantly to a redistribution of available food supplies. It is very plausible that the rigorous attempts to control food marketing in order to obtain the required quantities of rice for distribution purposes impeded a flow of food stuffs from areas where farmers could produce a surplus to deficit areas. As explained above, direct government control over food supply was not the only reason for the failure of the distribution mechanism. Low purchase prices, deteriorating production circumstances and increasing transport impediments are additional explanations. Figure 3 has indicated that per capita food supply stabilised during 1944-1946 in each of the three provinces in Java.

93. Zakaria (1956) p.367.

94. Eyewitness report from Madura, 'Three Years of Japanese Occupation in the Netherlands Indies', p.2 (8 March 1945) FO 371/31354/UR1341. Compare: Bailey (1961) p.290; Reid (1980) p.21.

95. De Vries (1946) p.19.

96. Friend (1988, p.157) and Frederick (1989, pp.101 and 126) indicate that this misconception is widespread.

It is therefore likely that many farmers adhered to subsistence production with only a small surplus to serve the local rural economy. Hence, food shortages and human suffering were not caused by the requisitioning of rice by the authorities, but by the impediments imposed on the trade and transport of food stuffs.

The next chapter will indicate that similar reasons help to explain the changes in food supply in Java during the years 1946-1950. The rice purchase system maintained in the areas under Republican control most likely was a disincentive for farmers to step up the production of a food surplus. In the second half of 1947 large parts of Java were brought under Dutch control. The continued hostilities between Republican and Dutch armed forces may have increased insecurity in rural areas, which may have kept some farmers from cultivating their fields. But in general terms it is likely that transport facilities and trade opportunities were gradually restored. In December 1948 the remaining parts of Java were brought under Dutch control, which meant that the Javanese economy was reunited, which no doubt furthered food production even more. It took until 1980 before per capita food supply in Indonesia recovered to levels comparable to Java in 1940.⁹⁷ An important reason for the retarded recovery was the acceleration in population growth, the results of which were very likely already felt in the late 1940s.

5. Food Production and Supply during Decolonisation, 1945-1950

The colonial government in exile prepared its return to Indonesia in Australia. It used the gold and foreign exchange which had been shipped out of Indonesia before the Japanese conquered Java, and loans from the United States, to prepare a relief and rehabilitation program.⁹⁸ In anticipation of the liberation of Indonesia it purchased goods, such as food stuffs, textiles and tools, in Australia and the United States.

The counter attack of the Allied Forces started from West New Guinea on 22 April 1944. But recapturing territory was difficult in the jungle. Attention was therefore focussed on the counter attack in the Pacific in the direction of the Philippines. A year later Australian troops raided and seized the oil island of Tarakan off the coast of East Kalimantan. From then on most of East Indonesia was slowly recaptured by the Allied Forces. Their task became much easier when Japan surrendered unconditionally on 15 August 1945, after the bombing of Hiroshima and Nagasaki. The Japanese troops in Indonesia were ordered to maintain the status quo until the Allied Forces had arrived. The Allied Command decided to transfer the command over Indonesia from the United States to the British-led South-East Asia Command (SEAC) in Singapore.

Before announcing the Japanese surrender in Jakarta on 22 August 1945, the

97. Van der Eng (1993) p.14.

98. Sitsen (1945); 'Allocation of Civil Relief Stores NEI' (9 October 1945) WO 203/4028.

nationalist leaders Sukarno and Hatta to proclaim the independent Republic of Indonesia on 17 August. This was the start of a period of chaos and confusion in Java and Sumatra. The new government could not establish its authority everywhere at the same time. SEAC did not have enough troops ready to enter Indonesia at the end of August. The re-establishment of colonial rule in East Indonesia went relatively smoothly. The Japanese were replaced by Australian troops and later by Dutch military forces. It took until 29 September before the first British troops were landed in Java and Sumatra with orders to disarm and deport the present Japanese, to free prisoners and detainees and establish 'law and order'. But the landed British-Indian Allied Forces met with fierce resistance from the Republican armed forces, which used requisitioned Japanese weapons. The British had insufficient manpower and means to take control of the rural parts of Java. Moreover, the British government did not want to become involved in the budding colonial war between the Indonesian Republic and the Netherlands. For that reason the presence of the British and Indian troops in Java and Sumatra remained restricted to the immediate surroundings of the major cities: Jakarta, Bogor, Bandung, Semarang and Surabaya in Java, and Medan, Padang and Palembang in Sumatra.

The colonial government returned on 4 October 1945 to Jakarta, where the government of the Republic of Indonesia also had its seat, until it moved to Yogyakarta in January 1946. Pending the negotiations about the future of Indonesia, there were two civilian authorities in the areas under Allied control: Dutch and Indonesian. Peace was formally kept during negotiations between the Dutch and the Republicans. Peace was also kept, because it took until March 1946 before the Dutch government received permission to land military troops in Java and Sumatra. The presence of the British troops lasted until December 1946.

The Areas under Republican Control, 1945-1946

In August 1945 the Republican government called for the establishment of a network of National Committees, which had their headquarters *Komite Nasional Indonesia* (KNI) in Jakarta. These committees were meant to take over local authority from the Japanese. Most of them were established in the urban centres. In the rural areas the traditional Indonesian authorities (*pangreh praja*) continued their offices. One of the tasks of the KNI sections was food distribution. Given that communications were defective, many of the KNI sections operated independent of the central government. It is therefore difficult to generalise food policies in the Republic of Indonesia.

Soon after the declaration of independence the government of the Republic established the Agency for the Supervision of the People's Food Supply (*Jawatan Pengawasan Makanan Rakyat*, PMR) of the Ministry of Welfare. Basically, PMR continued the work of the Japanese SKZ. The *kumiai* were still expected to supply paddy to the rice mills, which were to work for PMR. The PMR also planned the distribution of

rice to the armed forces and the civil servants of the Republic, and to the urban areas. According to Japanese information, by 1 September 1945 the stocks at the mills amounted to 323,200 tons of rice, of which 47,000 tons were in the hands of licensed rice traders.⁹⁹ This would not be sufficient until the next harvest, so that additional purchases of paddy were necessary. But the purchase of paddy virtually ceased in September. Purchased stocks of paddy held at the *kumiai* failed to reach the rice mills, and rice stocks held at the rice mills failed to reach the urban areas, mainly because of the confusion among the local authorities and the lack of communication.

In many areas outside Java Allied control paved the way for a restoration of Dutch colonial rule, at first in the form of the Netherlands Indies Civil Administration (NICA) and later the Allied Military Administration Civil Affairs Branch (AMACAB). The situation was very confused in Java in 1945. Most of Jakarta was controlled by the Republican forces until the British SEAC moved in October. All departments and vital services remained under Republican control, including food supply and distribution. The Indonesian population in Jakarta depended for its food supply to a large extent on the Republican municipal administration, the *Balai Agung*, which obtained rice from PMR.¹⁰⁰ SEAC recognised the *Balai Agung* and intended to cooperate with it. Dutchmen were employed as advisers to SEAC in Java, or they worked for the Allied organisation Recovery of Allied Prisoners of War and Internees (RAPWI) or the Red Cross.

The Indonesian government had its seat in Jakarta until January 1946. Until then PMR purchased the food it required for distribution mainly in Jakarta's surrounding districts, especially Kerawang. The account of food supply in the area under Republican control will be concentrated on the situation in Jakarta, because it is hitherto the best documented area.¹⁰¹ It appears that the system of rice purchase and supply did not work very well. The *Balai Agung* itself stated that it was difficult to organise the transports of rice due to the hectic situation east of Jakarta, where many rice mills had been neglected. There was also a chronic shortage of capable personnel and of money to finance the purchase of rice.¹⁰² Moreover, transports of food stuffs were difficult, because of the presence of irregular armed gangs, who tried to seize commodities for black market trade, or who were for political reasons opposed to food transports to areas with SEAC presence. If organised transports were not disrupted, the gangs most likely managed to disrupt private trade of small quantities of food stuffs into Jakarta.¹⁰³ In December 1945

99. 'General Food Situation in Java' (9 October 1945) AS-ARA, No.2580; J.A. Liddell to ALFSEA (15 October 1945) WO 203/2241.

100. Cribb (1986a) discusses the bipartition of local government in Jakarta under formal British supervision.

101. Thanks to the work of Overdijkink (1948), in particular pp.146-150, and Cribb (1986a, 1990a).

102. Cribb (1986a) p.137.

103. Cribb (1990a) pp.77-78.

the Committee for the Organisation of the People's Food (*Badan Urusan Makanan Rakyat*, BUMA), a local organisation, took over the purchase of rice for Jakarta from PMR. But the situation did not change very much. The Republican organisations regularly had to 'borrow' imported rice from the Allied Food Control Board.¹⁰⁴

After the government of the Republic had left for Yogyakarta, the work of the Republican organisation for food supply in Jakarta became increasingly defective. Republican troops surrounding Jakarta imposed a food blockade. The *Balai Agung* left the organisation of food supply to cooperatives, various small companies and private traders, which were given permits to purchase and transport rice. But the *Balai Agung* soon lost control over the situation, because supervision became almost impossible. Consequently, private rice traders, especially Chinese, who paid more than the official purchase prices, took over the supply of rice to the Indonesian population in Jakarta, although this was officially not allowed. The supply of rice improved, but only at the black market, where the prices were high.

The food blockade of the Republican forces on Jakarta started to cause serious problems after August 1946. The *Balai Agung* announced several changes in the food supply system. On 1 September 1946 rice imports were monopolised by the Section for Rice Imports (*Bagian Impor Makanan*) of the Department of Economic Affairs of the *Balai Agung*, but results were not noticed. On 3 November 1946 the *Balai Agung* established yet another body for the organisation of the rice supply to Jakarta. Representatives of the Department of Prosperity, the banks, local administration, the regular army and the irregular 'combat groups' were represented in this organisation. It would purchase and transport rice to Jakarta and supply it to the municipal government. Next to that, the Central Organisation of Cooperatives (*Pusat Usaha Kooperasi*) in Jakarta was allowed to purchase rice. Both organisations would purchase the rice and transport it to Jakarta, after which it would be supplied to the Republican authorities in the city, who would distribute it in the city.

In September the new organisation purchased not more than 141.5 ton rice, 113 ton paddy and 20 ton stalk paddy, which was obviously much too low to set up any fair distribution in Jakarta.¹⁰⁵ Consequently, the Republican authorities in Jakarta could only organise a supply of 200 grams of rice per person once every three to four months. People who were supposed to benefit from the distribution system relied heavily on the black market. An additional reason for the declining supply of food for distribution could have been the increasing corruption of Republican civil servants. In November 1946 it appeared that they had supplied their meagre income by taking bribes and embezzling

104. *Indonesian Problem* (1947) p.44; Van Delden (1989) p.144. The Republican authorities could only 'borrow', because the Allied forces could officially only supply to Allied forces and to European civilians.

105. Overdijkink (1948) p.148.

supplies and selling them on the black market.¹⁰⁶ In order to relieve the situation, the Dutch municipal council gradually incorporated distribution of food to part of the Indonesian population in the city, aiming at a daily supply of about 200 grams of rice per capita at a price of 12 cents per litre. The *Balai Agung* continued to exist, but in the end the colonial authorities took over responsibility for food supply to the Indonesian population in the areas under its control.

The task of securing food supply in Yogyakarta became increasingly difficult, because the population in the city expanded quickly with the inflow of refugees, troops and government officials. Moreover, the 1946 harvest was hardly better than the 1945 harvest. Firstly, because the planting for the wet season of 1945/46 was delayed for two months due to the insecure situation in many areas. Secondly, there was a shortage of labour, due to the fact that young people joined the fight against the Dutch. Consequently, not much could be done about the state of disrepair of the irrigation facilities, or about the problem of rats, boars and birds ruining the crops in the field. Transport restrictions were formally lifted, but major problems remained. For instance, 40% of the railway locomotives had been lost and 50% damaged, 70% of the pre-war number of trucks and cars had disappeared and 25% had been damaged.¹⁰⁷ Thirdly, many farmers did not dare to cultivate all their fields, because the rural areas were unsafe.

Rural unsafety was not so much caused by the hostilities between Republican and Allied forces, but mainly by the fact that many of the deprived rural poor had joined irregular armed gangs, which roamed the countryside. They held up official food transports and requisitioned food at will from farmers. The gangs often paid lip-service to the Indonesian revolution by calling themselves *laskar rakyat*. Farmers may indeed have handed over food as their contribution to the struggle for independence in many cases. But generally the gangs had to use a range of ways to persuade them to hand over supplies, which made farmers reluctant to cultivate more food than for their own needs.

PMR did not function on the basis of voluntary purchase of rice via the rice mills, like the pre-war VMF. It simply followed the procedures of its Japanese predecessor. It relied entirely on the local *pangreh praja*. Farmers were obliged to hand over 20% of the rice harvest, of which half was considered to be a special 'war tax'. For the other half the farmers were supposed to be paid. The purchased paddy had to be supplied to the rice mills which were controlled by PMR. The *Bank Rakyat Indonesia* lent money for the purchase of rice to PMR, which passed it on to the heads of each residency. They in turn had to pass it on to the lower administrative levels.

There are several indications which suggest that the system did not work properly and that there was resentment among farmers. Firstly, the real value of the compensation

106. Overdijkink (1948) p.148; Cribb (1986a) p.139.

107. 'Preliminary Report on War Losses and Recovery in the Netherlands Indies', p.3 (3 September 1946) FO 371/54074/F12800.

which the local officials had to pay was soon eroded by inflation. Secondly, the underpaid *pangreh praja* often embezzled money.¹⁰⁸ In several areas there was therefore insufficient money to compensate farmers according to the official guidelines. Hence, some officials resorted to pressure in order to convince farmers to deliver part of their harvest. It appears that the requisitioning of rice was entirely arbitrary.¹⁰⁹ Combined with tactless behaviour of the local officials, the appropriation of rice incited widespread dissatisfaction among farmers in East Java.¹¹⁰

The original intention was to feed the regular Republican army with rice from the 20% of the harvest purchased by the PMR. It turn, farmers were to expect some protection against the *laskar rakyat*. But the army failed to provide the security which farmers needed to cultivate and market their crops. This added to the dissatisfaction of the farmers.¹¹¹

The system of purchasing rice did not work as expected. In the second half of 1946 the regular Republican army was also allowed to requisition food from farmers. But it paid with rapidly devaluating Republican paper money. In October 1946 the regular military forces of the republic were estimated to be 200,000.¹¹² The number of civil servants may be put at 100,000.¹¹³ It is difficult to estimate the size of all unofficial army groups, but during the Japanese occupation there were at least about 1.7 million people in different militarised groups.¹¹⁴ If each of them required 500 grams of rice per day, all groups together required about 10% of total paddy production in Java in 1946. Hence, it is very likely that most Javanese farmers were affected by the purchase of rice by officials or armed forces. It is also likely that the armed forces in the Republican areas were not supported cordially by the rural population with food donations.¹¹⁵

It is difficult to provide indications of the actual food situation in the areas under Republican control, because not much information has been preserved. In 1945 Dutch reports on the food situation were based on secret intelligence information. The reports

108. 'Notulen Vergadering op 15 Juli 1946' (29 July 1946) AS-ARA, No.2580.

109. *Indonesian Problem* (1947) pp.36-37.

110. The PMR was nicknamed *Perampok Makanan Rakyat* (Robbers of People's Food) in this area. 'Officieel Economisch Overzicht der Repoeblik nopens Oost-Java' (November 1947) AS-ARA, No.2569.

111. Overdijkink (1946) p.76.

112. Squire (1979) p.276. There is no certainty about the actual number of Republican forces. After the agreement about the independence of Indonesia had been signed, the Dutch estimated the number of regular Republican soldiers on the basis of Republican statements in order to feed them and make arrangements for their payments or their demobilisation. According to these statements the maximum number of soldiers was around 239,900, of which 169,000 in Java. (OA, No.4570)

113. The Republican government put their number at 130,000 in November 1949. (OA, No.4570)

114. Notosusanto (1970) pp.63, 66, 80, 91.

115. Compare: Van Doorn and Hendrix (1987) p.67.

anticipated famines prior to the main harvest of 1946.¹¹⁶ Some opportunism may be expected in these reports, because they served as a basis for the claims by the Dutch in the Combined Food Board (CFB, later the International Emergency Food Council, IEFC) in Washington, which allocated the available food supplies in the world during the years 1945-1950.¹¹⁷ But on the other hand, it is unlikely that the Dutch officials would risk the limited international goodwill which the Netherlands had as far as the situation in Indonesia was concerned, by exaggerating the bad food situation.

In September 1945 the first British report on the situation in Java stated that all areas in Java received 'adequate food supply' and that there were only some problems in concern of transport and seasonal shortages.¹¹⁸ Further reports in October 1945 asserted that the food position in Java was fairly good in the East, a bit worse in the Centre and poor in the West.¹¹⁹ These notices were most likely based on information obtained from Japanese and Indonesian officials, who may not have been familiar with the actual situation in various regions.¹²⁰ In December 1945 the British also anticipated famines in Java.¹²¹ During the lean season prior to the main harvest of 1946 famines were reported in several parts of Priangan and throughout Sumatra, while rice stocks in Besuki were immobilised because of transport problems.¹²² On the other hand, Western officials travelling to Yogyakarta for negotiations stated that the crops in the field looked well and that food supply in Yogyakarta was 'bounteous'.¹²³ It is possible that fields close to the roads had been cultivated, but that distant fields remained fallow. Moreover, if rice was purchased, it was bound to be distributed in Yogyakarta, the seat of the Republican government.

There are two Republican reports on the economic situation in Central and East Java. Both stated that the general food situation in 1946 was satisfactory and that there

116. *E.g.* 'Care of RAPWI in Java' (1945) Van der Plas, No.122.

117. Roll (1956).

118. Commander 5th Cruiser Squadron to ALFSEA (21 September 1945) WO 203/2241.

119. J.A. Liddell to ALFSEA Headquarters (15 October 1945) WO 203/2241; 23rd Indian Division to 15th Indian Corps (22 October 1945) WO 203/2241.

120. 'Landbouwvoorlichting' (1946, p.190) states that in East Java signs of a start of famine were already visible in Bojonegoro and Madura, and parts of Surabaya, Malang and Kediri in September 1945.

121. Van Delden (1989, pp.125 and 144) cites the newspaper *De Nieuwsgier* (12 November 1945, p.3) which mentions that Dutch food officials predict that the food stock were sufficient in August 1945 to last until the 1946 main harvest, assuming that additional imports would be possible. The officials did not anticipate the rural insecurity in November and December, which kept farmers from cultivating their land. *De Nieuwsgier* (8 December 1945) mentions that the British authorities anticipated famines in Java in 1946. They pointed out the situation to the Republican authorities and requested permission to transport rice to the famine areas.

122. H.J. van Mook to J.H.A. Logemann (27 February 1946) OBNIB Vol.3, p.457.

123. For instance, the journeys of the British representatives at SEAC, A. Clark Kerr in January 1946 and Lord Killern in August 1946. (FO 371/53907/F12706)

were no reasons for alarm.¹²⁴ But both reports cited, without any special remarks, the available official production estimates for 1946. These figures showed no less than a 62% decline of production relative to 1941. Reported harvested area can be cross-checked with an estimate for 1946 based on a photographic survey into the irrigated area under rice by the SEAC intelligence office in May 1946. The survey covered samples of districts in Java, altogether 8.5% of the irrigated land in Java. The surprising outcome of the comparison in Table 5 is that the survey rendered lower estimates than the official figures. It thus seems that the survey figures can be taken as a minimum, and that the official figures on harvested area are plausible.¹²⁵ However, the yields reported in the official figures are most likely much too low, for the same reasons as prevalent during the Japanese occupation. The survey used 1936/40 average yields, but, given the many impediments to food production, this average may be too high. Production is re-estimated in Table A.1 with the 1942/43 average yields.

Table 5: *Irrigated Area under Rice in Java, 1946 (thousand hectares)*

	Official	Survey
West Java	1,090	1,028
Central Java	979	909
East Java	947	803
Total	3,016	2,740

Sources: *Geoogste Uitgestrektheden* (1947); 'Photographic Survey of the Rice Producing Areas of Java and Madura' (14 June 1946) FO 371/53889/F9802.

Figure 2 has shown that per capita food supply in 1946 was not much higher than in 1944 and 1945. The discussion in Chapter 4 has indicated that this supply would have been sufficient for survival, if available food would have been distributed equally over all regions and all groups in society. But for an even geographical spread about one million tons of rice would have had to be transported in bulk. Given the state of disrepair of the transport system and the difficulties which PMR encountered in purchasing paddy, it is difficult to assume that this indeed happened. Given the fact that serious economic recovery was not possible until 1949, there still were insufficient labour opportunities for the rural landless and the urban poor. Joining local combat groups and persuading

124. 'Officieel Economisch Overzicht der Repoeblik nopens Oost-Java' and 'Officieel Economisch Overzicht der Repoeblik nopens Midden-Java' (November 1947) AS-ARA, No.2569.

125. As suggested in Chapter 4 and Appendix 1.

farmers to support them with food was one way of survival. But for most of Indonesia's poor the situation may not have changed very much compared to the Japanese period. The food situation in Yogyakarta may have been satisfactory, but out of sight people may well have suffered from malnutrition.

The Areas under Allied Control, 1945-1946

After the Japanese surrender the prime obligation of the returning colonial government was to alleviate the urgent need for food in the areas under its control, East Indonesia and the urban foot-holds in Java and Sumatra. The colonial government had no control over the rural areas, which meant that it could not purchase food in the surroundings of the cities. It therefore depended on rice imports. Rice was very difficult to obtain on the world market. Before the war Burma, Thailand and Indochina exported some 7 million tons of rice. But during 1945-1947 the available quantities for export were up to 1.4 million tons only, at a time when world demand for imported rice was much higher. For that reason the Combined Food Board in Washington determined the allocations of food products on the world market.

In 1945 all countries represented in the board assumed that after the Japanese surrender Dutch colonial government would be restored in Indonesia. For that reason the Dutch representative could claim amounts of rice for the whole of Indonesia. The original claim was 153,200 tons for 1945, of which 102,000 tons for Java. Whatever the allocations by the Combined Food Board for Indonesia, soon after the Japanese surrender supplies entirely depended on whether SEAC would be able to actually purchase rice. By August 1945 the British had only advanced as far as Burma. Until September 1945 nothing was known about the availability of rice for export in Thailand and Indochina, let alone about the possibilities of organising such exports at short notice.¹²⁶ Moreover, the foreign purchases the colonial government could not finance itself, had to be purchased by the British War Office. Unfortunately the War Office was not as generous with financial assistance as the Americans, which was one reason for the stagnation in the purchase of supplies.¹²⁷ But the main reason was that expected stocks in mainland Southeast Asia turned out to be much smaller.¹²⁸ In addition, at the end of October 1945 the total allocation of 307,000 tons for the entire SEAC area had to be cut back to 197,000 tons, because of the sudden emergency situation in India, where crop failures

126. It took until February 1946 before Lord Killearn was appointed as special British commissioner to SACSEA. In his position he had to deal with matters concerning the foreign affairs in Southeast Asia and in particular non-military matters. In this last category food supply had first priority. (Oey (1981) p.86)

127. *Enquêtecommissie Vol.8C* (1956) p.1483.

128. Kratoska (1988) pp.32-33.

caused serious famines and rice was more urgently needed.¹²⁹ The Indonesian allocation was reduced to 56,000 tons, of which 37,000 tons for Java.

It took until November 1945, before the first loads of rice arrived in Java. Until then the colonial government could only take care of the distribution of rice and supplies in East Indonesia. Gradually British troops occupied larger parts of Jakarta in order to bring security in an area where Europeans became concentrated. By November 1945 there were still about 80,000 Europeans in detainment camps in areas under Republican control. These detainees were formally supervised by the RAPWI, which brought them in stages to safe areas for passage to Europe.¹³⁰ The British troops and later the troops of the KNIL, the colonial army, brought large parts of Jakarta and its surroundings and parts of Bogor and Bandung under their control. The Dutch were allowed to establish local sections of civilian administration in the main cities under Allied control. These sections were meant to be confined to taking care of the Europeans in the cities. They were also responsible for the distribution of largely imported food supplies to Europeans and poor Indonesians via RAPWI and the Red Cross. For instance, in Jakarta, where most Europeans were concentrated in Java, the local Dutch Office for Municipal Affairs (*Kantoor voor Gemeentezaken*) attended to the distribution of food.

For several reasons the Dutch authorities required a more systematic purchase and distribution system. Firstly, because the possibilities to import supplies were still very much restricted. Secondly, because the demand for food increased. Rice was required as an incentive to encourage farmers in the Other Islands to produce cash crops for export and earn badly needed foreign exchange. Secondly, the population in the areas under Allied control continued to increase rapidly. Next to the Europeans from the detainment camps, there was an inflow of Indonesians who tried to escape poverty and violence. Moreover, in many of the areas which were taken over from the Republican forces, there was a considerable shortage of supplies of all kinds.¹³¹ In several cases the Republican forces used a 'scorched earth' tactic and often the food and health situation in these areas required emergency food aid.

Most of rural Java remained inaccessible for the Dutch civil authorities. Hence, the urban population under the responsibility of the Allies was to a large extent dependent on the inflow of food supplies from the areas under Republican control. It not possible to give an indication of the extent to which these people managed to purchase unregistered supplies from the rural areas, but it is likely that only the people with assets were able to barter. Most of the ex-detainees and many of the people working for the British and AMACAB may not have had that opportunity. For them the civil authorities were

129. F.G.L. Weijerman to SACSEA (26 October 1945) WO 203/4028; H.J. van Mook to Ch. Christison (3 November 1945) AS-ARA, No.2580; Roll (1953) p.269.

130. *Enquêtecommissie Vol.8A* (1956) p.717.

131. Zijlmans (1985) pp.42-43.

constantly negotiating with the Republican authorities for deliveries to be organised by PMR.

Rice for India, 1946

On 12 April 1946 Sjahrir, the Republican Minister of Foreign Affairs, announced that the rice harvest in Java would be bountiful enough for the Republic to be able to offer no less than 500,000 tons of rice to India, where millions of people were living on the edge of starvation. The minister offered a barter trade deal to the Indian government and suggested that India would supply textiles and some other commodities, which were badly needed in Indonesia. The Indonesian offer upset the colonial government, which was struggling at the time to obtain rice allocations from the IEFEC for sufficient rice from Thailand and the United States in order to feed people in the areas under its control.¹³² Republican spokesmen stressed that the 1945/46 wet season harvest of 5 to 7 million tons (compared to 4.7 tons in 1941) would be sufficient to deliver the offered quantity to India. The British government was sceptical about the existence of a rice surplus in Java. But it remained aloof, because it preferred to serve the plight of India to that of the Dutch colonial government.¹³³

Dutch authorities were dismayed at the prospect of vast supplies leaving Indonesia, while the food situation in the areas under Allied control remained precarious. But they were in no position to obstruct the transaction. Firstly, because SEAC was still formally in charge of Java and Sumatra. Most of all, because the Dutch were entirely dependent on the presence of British troops.¹³⁴ Moreover, at that stage the Dutch did not want to risk any major controversy with the government of the young independent state of India, pending the issue of decolonisation of Indonesia in the United Nations. Nor did they want to risk the very real threat of a formal complete food boycott by the Republic, which could have serious negative effects on the precarious food supply. The colonial government agreed to the plan, but only after the Indian government had assured that the treaty did not imply any formal recognition of the Republic, and that rice would not be traded for arms. The 500,000 tons were formally not subject to the IEFEC allocation scheme, because the Republic of Indonesia was not a member of IEFEC. The Indian government could therefore even hold out the prospect of supporting the request of the Dutch colonial government to IEFEC for an extra allocation of rice.

The limited transport facilities in the Republic appeared to be a problem. The

132. The initial IEFEC allocation for Indonesia was 264,000 tons. But total rice requirements of all deficit countries amounted to 4,823,000 tons in 1946, whereas total supply was expected to be only 2,554,000 tons. (Angladette 1966, p.813) Hence, IEFEC had to revise the allocations during 1946.

133. 'Details about the Offer of Rice from Indonesia' (n.d.) FO 371/53870/F7509. See also: FO 371/53871/F7705; Cribb (1990b) pp.111-112.

134. J.H. van Mook to J.H.A. Logemann (7 June 1946) OBNIB Vol.4, pp.420-421.

Indian government supplied gunny bags, ships and other transport equipment. It delivered 200 trucks, including petrol, and 34 lighters to the Republic for the transport of the rice. The Dutch government reluctantly agreed, although it feared that these trucks would be used for military purposes, which, as later became clear, indeed happened.¹³⁵ SEAC agreed to the delivery of rice to India, although it endorsed the Dutch condition that the Republican government had to deliver rice from Republican territory to the areas in Java and Sumatra under Allied control in the same quantities as exported to India, in return for imported commodities. On 28 July 1946 an agreement was signed between India and the Republic.

The rice would be delivered at a rate of 11,000 tons per month. Until October 1946 25,000 tons of rice with a value of *f*3 million were indeed shipped to India, in return for commodities valued at *f*9 million.¹³⁶ Shipments of rice stagnated and Indian ships remained berthed in Republican harbours for weeks without being loaded. In October 1946 Sjahrir maintained that the colonial government was causing the delays in transport, because it did not hand over railway carriages for transporting paddy. The argument was not quite justified, because 92% of the working stock of locomotives, 87% of the carriages and 76% of the wagons were in Republican hands.¹³⁷ After an Indian appeal to the Republican government, another 5,000 tons of rice were shipped in December. But in total the equivalent of only 54,461 tons of paddy arrived in India from Indonesia during 1946.¹³⁸

In January 1947 Republican spokesmen could indeed blame the Dutch economic blockade for delays, although the colonial government repeatedly stated that it had agreed to the fulfilment of the contract.¹³⁹ By then it became obvious that the Republican representatives had exaggerated the expected harvest results and that the main point of the whole affair had been to get *de-jure* international recognition. The Indian government urged the Republic to fulfil the agreement. Republican spokesmen maintained that some 120,000 tons of paddy were ready for transport. But there were no shipments of rice. By May 1947 it appeared that at most 45,000 tons of rice had been shipped and the Indian government suspended the agreement late May 1947.¹⁴⁰ On a visit to India in November 1947 Sjahrir still maintained that 300,000 tons of rice had been ready for shipment, but

135. 'Notulen Vergadering op 15 Juli 1946' (27 July 1946) AS-ARA, No.2580. (Note: these are the proceedings of a meeting by Republican officials about the delivery of rice to India)

136. The shipped goods were 11,000 bales of gunny, 5.5 million yards of textiles, 10,000 bicycle tyres, 6,620 gallons of motor and machine oils, 566 tarpaulins and 3,000 tons of coal. (J.E. van Hoogstraten to H.J. van Mook (2 December 1946), *idem* (7 December 1947) AS-AN, No.845)

137. S.H. Spoor to H.J. van Mook (4 October 1946) AS-ARA, No.2580.

138. Knight (1954) p.261.

139. Knight (1954, p.261) notes that deliveries were impeded because of Dutch unwillingness to allow the use of the larger harbours in the areas under Dutch control for loading the Indian ships.

140. Note from DIRVO (27 May 1947) AS-AN No.845.

that the stocks had been seized by Dutch troops.¹⁴¹ He urged the Indian government to protest against the obstruction by the colonial government.¹⁴²

In fact, the Indonesian government faced enormous difficulties in its attempts to purchase the paddy for India. The *Panitia Beras India* of the Department of Agriculture and Supplies dealt with the whole matter. The organisation had its main seat in Jakarta and had local offices in Cirebon and Jember. It imposed obligatory fixed quota according to the top-down approach used during the Japanese occupation. These quota were imposed on top of the PMR quota discussed above. Farmers were paid with government bonds, which entitled them to special rations of the goods from India, especially textiles. But whatever enthusiasm farmers had for the plan to supply rice to India, it may have disappeared rapidly, when it appeared that they could not obtain the goods imported from India. These goods were used for other purposes.¹⁴³

The Areas under Dutch Control, 1946-1947

During 1946 the area under Allied control gradually increased and with it the system of food purchase and distribution. However, as far as estimates exist, only about 3% of the area harvested with the main food crops in Java was controlled by the Dutch.¹⁴⁴ Hence, food requirements had to be met with rice imported from abroad, or with food stuffs imported from areas under Republican control. Hence, food supply in the areas under Allied control was very vulnerable. Based on rations of 200 grams per capita per day the colonial government estimated that it would need the following imports per month from abroad to guarantee a minimum food supply in the areas under its control during 1946:¹⁴⁵

January-March	21,400 tons
April-June	18,350 tons
July-August	10,000 tons
September-October	15,000 tons
November-December	<u>20,000 tons</u>
Total	209,250 tons

Total rice imports into Java were around 100,000 tons in 1946, which may indicate the rice shortage and the dependency on supplies from Republican territory.

Prior to the main 1946 rice harvest the VMF was re-established in April 1946. It

141. A.H. Lamping to C.G.W.H. van Boetzelaer (1 December 1947) AS-AN No.845.

142. A.H. Lamping to DIRVO (5 December 1947) OBNIB Vol.8, p.102.

143. Overdijkink (1948) p.149.

144. *Indonesia Information (London)* (11 August 1948). This situation refers to 1947 before the first Dutch military action.

145. AS-AN, no.845.

operated in East Indonesia, where it purchased rice in South Sulawesi and Kalimantan. The rice was largely distributed in East Indonesia to the army, navy, police and civil service, but also to labourers employed by the colonial government and to oil companies, factories and estates. The remainder of its purchases was distributed to the neighbourhood shops and to the areas under Allied control in Java and Sumatra. The VMF purchases were insufficient to supply these areas according to their requirements. They therefore remained dependent on rice imported from the Republican areas.

In the beginning of 1946 representatives from both sides discussed the possibility of colonial authorities purchasing rice in the area under control of the Republic through PMR. There were some deliveries, but a formal agreement was not reached. The Dutch offered organisational support, but the Indonesians denied them any involvement in PMR. The Indonesians promised supplies totalling 22,000 tons of rice between mid-May and mid-July in exchange for 39,000 yards of textiles, for which the Dutch authorities supplied 75 trucks and 2,000 tons of coal to enable transport of these rice supplies by road and rail. In fact, deliveries did not exceed 200 tons per day.¹⁴⁶

As part of the Dutch agreement to the supply of rice to India, the Republican authorities agreed to regular deliveries of rice to the Dutch controlled areas, equal to the amount delivered to India.¹⁴⁷ In total only 537 tons actually arrived in the areas under Allied control under this agreement.¹⁴⁸ Lt.Governor General H.J. van Mook complained to the British authorities about the unreliability of the Republican promises. He even suggested that a limited military action in order to bring the rice fields in Kerawang West of Jakarta under Allied control, which would largely solve the problem of rice supply to Jakarta.¹⁴⁹ The British government chose not respond to this suggestion, most likely because it did not want to endanger the promised supply of rice to famine-struck India.

For the second half of 1946 the colonial government estimated total rice requirements at 138,000 tons, of which it expected to import 30,000 from South Sulawesi and Lombok and to receive some 18,000 tons unregistered import from areas under Republican control. This left 90,000 tons to be imported. But it received an allocation of only 50,000 tons from IEFEC for the second half of 1946. IEFEC argued that 58,000 tons could be supplied from areas under Republican control on the basis of the agreement discussed above to supply 22,000 tons during 2 months. New negotiations followed between Dutch and Republican representatives in September and October about the monthly supply 2,000 tons of rice, 3,000 tons of paddy, 2,000 tons of maize, 500 tons of

146. H.J. van Mook to the AFNEI Commander (4 June 1946) FO 371/53876/F8376.

147. H.J. van Mook to J.H.A. Logemann (8 June 1946) OBNIB Vol.4, pp.427-428; *idem* (20 July 1946) OBNIB Vol.4, p.493.

148. *Indonesian Problem* (1947) p.44.

149. H.J. van Mook to commander AFNEI (4 June 1946) FO 271/53876/F8376; H.J. van Mook to J.H.A. Logemann (7 June 1946) OBNIB Vol.4, pp.420-421.

soybeans and green beans and 500 tons of tapioca.¹⁵⁰ They led to a Republican promise to supply 22,000 tons of rice agreement after 1 November 1946. Only 40 tons of rice, 300 tons of paddy and 50 tons of stalk paddy were actually delivered during November and nothing since. There were several reminders and new requests. There were some promises by Republican authorities, but there are no indications that significant food supplies were delivered regularly.

Republican spokesmen stated that officially that the supplies were available, but that they could not be delivered, because of transport difficulties. Unofficially, Republican officials assured that the population was unwilling to supply rice for shipment to areas under Dutch control. They said that only after a political solution had been settled, a supply of up to 20,000 tons of rice per month would be possible in exchange for textiles. On the basis of such statements colonial officials concluded that PMR was simply not up to the task of raising enough supplies and delivering it via BUMA to the people of Jakarta.¹⁵¹ They considered it unlikely that PMR would be able to raise the requested amounts.

Given the situation in the rural areas described above, this is very likely. Another explanation for the fact that less than the agreed quantities were delivered is that the irregular and regular Republican armed forces arbitrarily obstructed food transports to areas under Dutch control.¹⁵² They either delayed the transports and levied tolls in kind for own consumption, or they requisitioned trucks supplied by the Allied forces for the transport of rice to the areas under Allied control. The problem was that there was little uniform action on the side of the Republic. In some places the armed forces even revived regulations from the Japanese period, which forbade people to carry more than five litres of rice per person.

In the meantime the food situation in cities such as Jakarta, Surabaya, Semarang and Bandung deteriorated rapidly due to the inflow of large numbers of refugees. Many people fled from the unsafe rural areas to the cities.¹⁵³ On 9 October 1946 the distributed amounts in the cities under Dutch control were fixed at 200 grams per person per day, and 100 grams for richer people, depending on the supply VMF managed to organise. In practical terms this meant a supply of 150 to 160 grams per capita for the numbers of people shown in Table 6.¹⁵⁴ Other people and other areas depended largely on the unregistered trade of rice from the area under Republican control.

150. A. Luytjes to H.J. van Mook (16 September 1946), *idem* (7 October 1946) AS-AN No.845.

151. *Indonesian Problem* (1947) p.43.

152. Cribb (1981) p.134.

153. The population of Jakarta rose for instance from 847,483 in June 1945 to 1,127,318 in August 1948 and later to 1,432,052 in 1950. Twang (1987) p.137; *Trade, Industrial & Tourism Directory* (1969) p.xi.

154. 'Overzicht van de Wijze van Verdeling van de ten Behoeve van de Bevrijde Gebieden op Java Beschikbare Rijst' (5 February 1947) AS-AN No.845.

Table 6: Rice Distribution in the Area under Dutch Control, December 1946

	Number of People in Distribution	Percentage of Population
Jakarta	422,000	45%
Surabaya	217,000	100%
Bandung/Cianjur	157,000	25%
Semarang	109,000	75%

Source: 'Rapport betreffende den Voedingstoestand van de Indonesische Bevolking in het Bezette Deel van Java', S.G. Nootboom to H.J. van Mook (7 February 1947) AS-AN, No.845.

When the British had formally almost left the areas under Dutch control at the end of November 1946 and the Dutch were about to land their '7 December Division', the Republican government sanctioned a complete economic boycott of the areas under Dutch control. Smuggling rice across the dividing lines into territory controlled by the Dutch became very remunerative, because only in the Dutch areas were the scarce imported commodities available. But the smuggled amounts can only have been small, because smuggling had to be done with carts and bicycles. The cities under Dutch control needed supplies which would have had to be transported in bulk.

A food production drive in South Sulawesi, Sumbawa, Bali and Lombok failed to render immediate success, because of crop failures due to drought during the 1946 dry season. The crop failures added to the shortages in the urban areas in Java and Sumatra. The colonial government appealed to the IEFC to increase the rice allocation to 90,000 tons, when it appeared that the supply of rice to India was a void promise, but the allocations were not changed.

Consequently, the food situation in the areas under Dutch control started to deteriorate during November 1946. In January 1947 the situation was especially bad in Surabaya, where hardly any food seeped through from Republican territory. The average diet in Surabaya was estimated to be only 600 Kcal per person.¹⁵⁵ The population suffered from a lack of proteins and the resistance of the population to diseases like malaria, tuberculosis and dysentery, diseases which had been banned in the pre-war years, declined. The mortality rate increased to an estimated 3% to 6% per month. In Semarang the average diet amounted to 900 Kcal. Malaria was becoming a serious problem, because the sanitation system did not function. The death rate was estimated to be about

155. 'Rapport betreffende den Voedingstoestand van de Indonesische Bevolking in het Bezette Deel van Java', S.G. Nootboom to H.J. van Mook (7 February 1947) AS-AN, No.845.

5.2% per month among the 150,000 inhabitants. In Jakarta the food situation in the outskirts of the city was reasonable, but the population in the *kampung*s in the other parts of the city suffered from malnutrition and lack of resistance against diseases. In Bandung and Bogor only a small part of the population was malnourished, because enough food trickled through from Republican territory.

In an attempt to prepare for a budding emergency situation in the beginning of 1947, VMF was made the single-buyer of milled rice in September 1946, in order to prevent that the army, navy, local governments and factories and estates would start purchasing rice themselves and pushing up the price of rice. VMF organised the rice trade together with Chinese trading companies, which controlled about 90% of the trade in domestic rice at that moment. The main company with which VMF went into business was the *Tjong Pek Som Kongsj*.¹⁵⁶ VMF supplied the company with working capital and guaranteed it 10% of the purchase price as profit, of which 5% would be paid in cash and 5% in coupons for textiles, which soon vanished on the black market. The main part of the domestic rice was purchased in East Indonesia, but the bulk of the VMF stocks was obtained from imports. Rice imports were monopolised by VMF, which appointed the Indo-Chinese *Handel-Maatschappij Kian Goan* (part of the *Oei Tjong Ham* concern) as sole import agency. The quality of the rice, the country of origin and the shipment schedule were fixed by VMF, after which *Kian Goan* contacted exporters and organised transport and imports.¹⁵⁷

VMF attempted to safeguard food supply and prevent black market racketeering in the areas under Dutch control by distributing food. But in the beginning the main part of its purchase was used for distribution to the civil service, army, navy and police and to private enterprise. The major oil companies, estates and factories had to apply for rice allocations for supply to their labourers at the Bureau for Commodity Supplies (*Bureau Goederenvoorziening*) of the Department of Economic Affairs. Until August 1947 registration of inter-island shipments of food with VMF were compulsory. Soon after private traders were again allowed to operate on their own accounts, taking responsibility of the trade and supply of home-pounded and milled rice.

For November and December 1946 the colonial authorities had estimated the required quantity of rice to be 20,000 tons. Only respectively 7,000 and 15,000 tons were actually imported. The colonial officials continued to claim 20,000 tons per month.¹⁵⁸ But the IEFC allocations were still lower, although they were raised to 17,000 tons for the months January, February and March 1947. Still, the imports in January were only 10,000 tons, and during the first half of February only 3,800 tons. The situation was complicated by the fact that the colonial government imposed a naval blockade on the

156. Overdijkink (1948) pp.147-148.

157. Moeljono (1971) p.16.

158. Various notes. AS-AN, No.845.

Republic in January 1947, in an attempt to get hold of stocks of estate products and food products, which were smuggled to Singapore. The blockade was answered by the Republican government with a food blockade, which was only a formalisation of the situation which in practice already existed.

The anxiety about the food situation in the areas under Dutch control increased late February 1947, because it was still three months until the main harvest, which would start mid-April in West Java and mid-May in East Java. It could be expected that less food would seep through the demarcation lines. The reserve stocks were minimal in the area under Dutch control and the colonial government believed that there were hardly any stocks in Republican territory.

Still, talks about cooperation and the way to independence were resumed and during the talks preceding the signing of the treaty of Linggarjati in May 1947, the Republican representatives proposed a Joint Food Committee (*Gemeenschappelijke Voedingscommissie*) with five Republican and five Dutch representatives. It was to coordinate the shipments of food from surplus to deficit areas and would recommend prices to separate other organisations, which would carry out the actual purchase and distribution.¹⁵⁹ But the Dutch refused to accept. They wanted more power for this central body, instead of just coordination without any obligations. They also wanted the joint committee to decide with unanimous votes, instead of just a majority, on issues concerning prices and distribution. Because of their refusal, the Dutch remained deprived of the so badly needed food shipments from Republican territory.

In June 1947 the Dutch argued that the IEFEC would be unaware of the Republican food blockade and would consider Java soon to be self-sufficient in rice again now that the treaty of Linggarjati had been signed. They feared that the IEFEC would cut the requested quantities of rice for the second half of 1947. The colonial authorities estimated that they needed 131,000 tons of rice for distribution during the months July 1947-May 1948. They expected to purchase 15,000 domestically and 40,000 abroad, which left a deficit of 76,000 tons.

At that time reports came through about deteriorating food situations in many parts of Java, especially Madura and the surroundings of Jakarta, Bogor and Surabaya, but also in Medan.¹⁶⁰ Intelligence operations indicated that there were substantial stocks of rice in the Republican harbours of Probolinggo and Banyuwangi in East Java. A large part of this rice was still earmarked for India, but the colonial authorities argued that the main harvest had just been gathered in India, which meant that the need for rice was temporarily relieved in India. Hence, shipments could be delayed. The Republican food blockade, the bleak prospects for food supply in the areas under colonial control and the

159. Yong (1982) pp.121-122.

160. E.N. van Kleffens to C.G.W.H. van Boetzelaer van Oosterhout (11 August 1947) OBNIB Vol.10, p.359.

possibility of capturing stocks of rice in the territory under Republican control contributed significantly to the decision of the Dutch government to start the first military action at the end of July 1947. The action aimed especially at the granaries West of Jakarta and in East Java.

The Dutch action was successful from a military point of view, but the Republican forces employed the scorched earth method strategy during their retreat. 40% Of the rice mills and their rice stocks went up in flames. From the captured administrations, it appeared that under Republican rule the production of paddy for several reasons had been much lower than expected.¹⁶¹ The rice mills had hardly worked and most of the surplus production of paddy appeared to have been hand-pounded. The captured visible stocks at the mills amounted to only 2,500 tons in West Java and 40,000 tons in East Java. The invisible stocks of hand-pounded rice were estimated to be 80,000 tons in West Java and 60,000 tons in East Java.¹⁶² But the colonial authorities considered it to be difficult for VMF to get hold of hand-pounded paddy for distribution. Supplies had to reach urban areas through the free market.

The Areas under Republican Control, 1947-1948

Colonial officials took the defective way in which the Republican authorities had handled their commitment to India as evidence that the food situation in the areas under Republican control was not as good as the Indonesians made it appear. The problems of the Republican municipal government in Jakarta seemed to confirm this also. But in March 1947 the supply to the city improved considerably. Each day 30 tons of rice arrived, of which 20 tons was used for civil servants and Indonesians working for the Republican authorities. They received one kilogram of rice per day at Rp1.10/kg. Another 15 tons were used for distribution, which was insufficient for the registered 770,000 inhabitants, who received 200 grams of rice twice a month for Rp2.50 per litre. The remaining five tons was supplied to institutions, such as hospitals.¹⁶³

During talks about economic cooperation between the Republic and the colonial government in May 1947 the Indonesians assured the Director of Economic Affairs of the colonial government that the food situation in Republican territory was good, although

161. The reasons are similar to the impediments during 1944-1946: (1) dry weather of 1946; (2) free play of rats, boars, birds etc. due to the shortage of labour; (3) shortage of good paddy seeds; (4) shortage of cattle for proper soil preparation; (5) state of disrepair of irrigation works; (6) shortage of means of transport. 'Officieel Economisch Overzicht der Repoeblik nopens Oost-Java' and 'Officieel Economisch Overzicht der Repoeblik nopens Midden-Java' (November 1947) AS-ARA, No.2569

162. 'Eerste Overzicht van de Economische Situatie in de sinds 21 Juli 1947 Nieuw-Bezette Gebieden', p.5, J.E. van Hoogstraten to H.J. van Mook (30 August 1947) AS-AN, No.763.

163. Overdijkink (1948) p.149.

they did not produce any figures or elaborated analysis of the situation.¹⁶⁴ From his own observations in Yogyakarta the director had to agree.¹⁶⁵ But he could not believe that the food situation in the entire area was adequate, because of the poor state of the transport facilities. These were certainly insufficient to transport the one million tons of rice required to guarantee food supply everywhere in Java, like during the pre-war years.

An indication for the assumption that the supply of rice in the Republic was not as well as the authorities claimed, was that fact that in January 1947 PMR was transformed from a semi-private organisation into an agency of the new Ministry of Agriculture and Supply. It was expected that closer supervision of the central government would improve matters. The routine expenses of PMR were paid for by public means. Purchases were still financed with credits from BRI through the district heads, who paid farmers for delivering rice to the mills controlled by PMR.

There are no quantitative data available about the activities of PMR, but it is likely that its activities were not successful, because already in February 1947 the Republican government decided to intensify the control over food supply through the establishment of a special State Minister for Food Affairs, who took charge of PMR. PMR changed its name to Agency for the Supply and Distribution of Food Stuffs (*Jawatan Persediaan dan Pembagian Bahan Makanan*, PPBM), which started its work in March 1947. Its tasks were:¹⁶⁶

- supply of food stuffs, especially rice, to storehouses designated by the Republican government;
- distribution of rice to the general public;
- rice exports, which meant that PPBM took over the task of purchasing rice for India from the *Panitia Beras India*.

PPBM had offices in Cirebon, Magelang and Malang, from where its officials set up a network which was supposed to reach into the village level.

The main difference between PMR and PPBM was that the new organisation did not work through the *pangreh praja*. But it is unlikely that the administrative change made much difference. The real value of PPBM's purchase prices continued to be eroded by inflation. Purchased rice failed to reach the designated destiny, because of incompetence and emulation of the involved authorities. Local government officials obstructed shipments because they wanted to fulfil regional needs first, before allowing rice to be shipped elsewhere.

164. J.E. van Hoogstraten, 'Indrukken van Mijn Bezoek aan Jogjakarta in Mei 1947', pp.5-6 (n.d.) Van Mook, No.168.

165. The same observations by J. de Visser, 'Enkele Notities naar Aanleiding van Mijn Reis naar Djocja van 2 tot 7 April 1947' (9 April 1947) Van Mook, No.168.

166. Overdijkink (1948) p.127.

After the first military action in July 1947, it appeared from captured administration that the distribution system had hardly worked due to inefficiency, bureaucratic red tape, emulation and deficient transport facilities.¹⁶⁷ During June 1947 only 20% of the rice mills seemed to have worked, which may be indicative of the control by PPBM on food supplies.¹⁶⁸ At the receiving end it is likely that the PPBM distribution policies were deficient. Supplies in the capital Yogyakarta may have been sufficient, but after the first Dutch military action in July 1947 Dutch military forces encountered appalling scenes of famine in areas such as Mojokerto and Madura.¹⁶⁹

The Dutch military action had a considerable impact on the food situation. Now the Dutch controlled the pre-war surplus areas in North and East Java, and the Republican government controlled areas in Central and the far end of West Java. Several of the densely populated areas of Central Java were dependent on rice shipments. Food supply in Central Java indeed seems to have deteriorated in the course of 1948, because of the flow of refugees into Surakarta and the because of the increased pressure of the *laskar rakyat* to obtain food.

The situation in Republican territory became especially urgent after June 1948. Food prices increased rapidly in July 1948. In part this was a consequence of the fact that the measures of the Republican authorities had discouraged farmers from producing a rice surplus. During the 1948 main harvest farmers had been obliged to hand over about 30% of their paddy harvest against fixed but rapidly depreciating prices.¹⁷⁰ Although the Dutch negotiators about economic cooperation between the Republic and the colonial government opposed the idea of imposing fixed quota on farmers, the Republican authorities had no choice but to use this procedure, because of the Republican policy of monetary financing of the budget deficit. They suggested that purchasing rice against fixed prices was supposed to be a way of controlling the price of rice and of controlling inflation.

The other reason for the deteriorating food supply in the Republic was that a very dry monsoon during the second half of 1948 prevented a good dry season harvest. Moreover, the tilling of the land and the planting of paddy for the wet monsoon had to be postponed in most areas for at least a month. In July 1948 the colonial authorities already received reports about emergency situations in Asahan and Batur in North Sumatra, in the Northern part of Wonosobo, parts of Bojonegoro and Blora, and especially in Wonogiri, Ponorogo and Tulungagung in East Java. The colonial government twice offered rice and

167. See e.g. for the food situation in Madura, Ch.O. van der Plas to H.J. van Mook (28 November 1947) OBNIB Vol.11, p.421; and for the food situation in Probolinggo, Ch.O. van der Plas to H.J. van Mook (24 November 1947) OBNIB Vol.11, p.708.

168. Overdijkink (1948) p.131.

169. *Indonesian Problem* (1947) p.44.

170. 'Verslag Besprekingen met de Republikeinen inzake Voedselvoorziening' (26 April 1948) OA, No.4423.

textiles to the Republican government, which were finally accepted in November 1948 for North Sumatra only.¹⁷¹

Prices continued a steep ascent in the areas under Republican control, both because of the shortage of food supplies, and because of the policy of monetary financing of the Republican government. Consequently, the real salaries of Republican civil servants declined. Several corrupted themselves and even joined the *laskar rakyat* in extorting rice from farmers, which were then smuggled to the territories under Dutch control.¹⁷² The Republican government tried to prevent hoarding of rice. On 3 September 1948 it issued a regulation which prescribed maximum quantities of paddy, rice, rice flour, maize and other food items which people were allowed to store for their own consumption. Larger quantities had to be registered with the PMR and had to be licensed.¹⁷³ The government also repeated the ban on exports of food and cattle to the areas under Dutch control. The regular Republican army was ordered to control transports of goods into the areas under Dutch authority. On 1 November 1948 the Republican government issued a regulation which prescribed maximum prices for rice, maize, tapioca, peanuts, sugar, salt and clothing. The maximum prices were determined for each individual region, because the supply of goods and the supply of money in each region differed widely.¹⁷⁴

There are indications of considerable hardship in several areas under Republican control, especially the urban areas including Yogyakarta at the end of 1948.¹⁷⁵ But Republican officials denied that food supplies in general were deficient. Their explanation for the hardship in several regions was that hoarding and smuggling of supplies to the areas under Dutch control caused shortages and increasing prices.

The situation in the Republic came to an end late December 1948, when the Dutch army launched a second major military assault on the Republic and managed to bring most of the remaining Republican territory under nominal colonial control. Republican guerrilla warfare continued, and with it the requisitioning of food supplies by the Republican forces in rural areas.¹⁷⁶ Although the Dutch were obliged to restore the

171. 'Aan de Regering van de Republiek Indonesia' (20 October 1948) and A.G. Pringgödigo to P.J. Koets (22 November 1948) AS-ARA, No.3378. See also OBNIB Vol.15, pp.203-304.

172. P.H. Angenent, 'Politiek Verslag Recomba Midden Java over Aug.1948', OBNIB Vol.14, pp.715-719.

173. Moeljono (1971) p.14.

174. 'Economisch Overzicht over de Maand November 1948', pp.2-4 (29 November 1948) AS-ARA, No.3432.

175. J.M. Somer to G.P. Kiès (22 December 1948) OBNIB Vol.15, p.278; Ch.O. van der Plas to L.J.M. Beel (27 December 1948) OBNIB Vol.15, pp.356-357; 'Verslag van de Besprekingen te Djokjakarta [...]' (5 January 1949) OBNIB Vol.16, pp.515-516.

176. Nasution (1964, pp.266-268) gives an idealistic description of how Republican guerrillas lived harmoniously among the rural population during the Revolution. This description suggests that farmers surrendered food without demur. But there are several reports in the colonial archives of rice having been requisitioning at gun point and of looting of supplies by soldiers of the regular

Republic of Indonesia after international negotiations in May 1949, it seems likely that the military success of the Dutch government enhanced security and furthered a normalisation of economic life in Java, which may have contributed to an increase in food supplies during 1949.

Recovery, 1947-1950

After first Dutch military action in July 1947, the colonial authorities introduced several official services in the areas brought under Dutch control. VMF extended its work to these areas. It purchased paddy and rice where possible, with variable purchase prices. The LVD also resumed its work in the countryside in order to further rice production. It distributed that year 6,000 tons of fertiliser and 8 tons of seeds.

The main problem in organising food purchase and distribution was the milling capacity. During the occupation the Japanese had dismantled 66 mills and in August 1945 157 mills with a capacity of 315,000 tons per year had been ready for milling. The rehabilitation of the other mills had been difficult, due to the lack of spare parts. Many were destroyed by Republican forces during the Dutch advance, especially in Kerawang and Indramayu. During the action the Dutch troops captured 380 mills, and the situation by November 1947 is shown in Table 7. The mills were often in a deplorable condition. Many required repairs, but spare parts were not available. VMF intended to work through the rice mills. But because of the poor condition of many mills, it was not possible to organise rice purchases immediately.

Table 7: Situation of Rice Mills in Areas under Dutch Control, November 1947

	Total Number of Mills	Destroyed Before Mili- tary Action	Destroyed During and After Military Action	Unknown Situation	In Working Order
West Java	238	38	102	33	65
Central Java	80	9	29	18	24
East Java	126	12	46	38	30
Total	444	59	177	89	119

Source: 'Economische Toestand' (1947/48) p.20.

The colonial authorities established a rice distribution system in the areas brought

Republican army, not just by the *laskar rakyat*.

under its control, which existed next to PPMB. PPMB was allowed to continue its work, if necessary under supervision of VMF. But its impact was reported to have been marginal. Hence, the military action brought no immediate relief in the food situation in the areas under colonial control. In August the colonial government officially postponed all rice exports. This regulation was implicitly meant to prevent shipments of token quantities of rice from the Republic to India, with which the Republic may have wanted to gain international goodwill and prove that it was still in control. In September all exports of rice, maize and soybeans were forbidden, and rice stocks of over 5,000 tons had to be registered with VMF. In November 1947 VMF started to purchase dry season rice in East Java, especially in Jember and Banyuwangi. Its purchase prices were not fixed, but adapted to current local price levels.¹⁷⁷ Getting hold of rice supplies was considered more important than maintaining a price level.¹⁷⁸ In contrast to the Republican government, the colonial government did not impose price regulations, because it could never have established an effective control system. It only controlled the prices of most imported and industrially manufactured products.

During the months August-December 1947 VMF purchased 60,010 tons of rice, which was less than expected.¹⁷⁹ During 1947 a total of about 50,000 tons of maize and 20,000 tons of paddy was shipped from Sulawesi to the areas under Dutch control in Sumatra and Java. That year about 116,644 tons of rice were imported by the colonial government. All together this may have been just enough for distribution in 1947, but it seemed insufficient for the lean season up to the 1948 main harvest.

The colonial government had requested 225,000 tons from the IEFEC for the first half of 1948, but it received an allocation of only 140,000 tons.¹⁸⁰ But there was some reason for optimism, because in March it became clear that the main harvest of 1948 would be better than that of 1947. There were also even some transports of rice from Dutch controlled territory into Republican territory, under the condition that the Republican authorities would allow Indonesians to work in the areas under Dutch control, where they were paid in kind with textiles and rice. This happened especially in East Java.

In spite of these encouraging signs, there was no end to human suffering. In 1946 the re-established colonial Nutrition Research Institute (*Instituut voor Volksvoeding*) had carried out a range of surveys among groups at risk, such as school children, in the areas controlled by the colonial government.¹⁸¹ At the end of 1948 it had to conclude that mal-

177. A Luytjes to H.J. van Mook (22 October 1947) AS-AN No.845.

178. E.g. in January 1948 the VMF purchase prices were f35.-/100 kg. rice and f17.-/100 kg. stalk paddy. But real prices varied very much, because purchase occurred partially with the supply of inducement goods, such as textiles.

179. Various notes, AS-AN, No.845.

180. 'Economische Toestand' (1948) p.21.

181. 'Annual Report' (1950). Surveys had already started in 1945, see: *Netherlands Red Cross*

nutrition was still widespread in many rural areas, especially among groups of poor tramps and beggars who arrived at rehabilitation camps from the areas under Republican control. Cases of malnutrition continued to be registered in many areas in Java well into 1949.

In order to improve the system of rice purchase, VMF negotiated an agreement with the re-established associations of rice mills in the areas under colonial control in Java in April 1948. The mills were free to join these associations, although they were obliged to sell their produce to VMF via the associations. The mills which joined the associations agreed to work for VMF only and not to trade paddy or rice on their own account.¹⁸² Hence, their purchase of paddy would be regulated and financed entirely by VMF. Rice mills would purchase paddy with VMF money, mill it at the order of VMF and deliver the rice at the request of VMF. This put VMF in a position with more control than it had before the Japanese occupation. Rather than working through the market, VMF now sought to control rice milling and the marketing of milled rice. But the system did not resemble the Japanese and Republican systems. Rice mills were still free to join. They could purchase paddy and mill rice on their own account although they had to supply their produce to VMF. The Japanese and Republican systems aimed at controlling all rice supplies and operated through the different layers of the civil service, which had to see to it that purchase targets were met. VMF did not operate along such lines.

Until August 1948 74 mills were reconstructed with the help of VMF, with a capacity of 148,000 tons. Another 19 were destroyed by guerrilla attacks. Three new mills were built in Tangerang, Bekasi and Bandung. That meant that by August 1948 177 were operating in the areas of Java under the control of the colonial government. Most rice mills cooperated with VMF. The whole purchase plan was to cover 600,000 tons of rice between 1 April 1948 and 31 March 1949.¹⁸³

In 1948 about 55% of the land with irrigated rice was harvested in areas controlled by the colonial government.¹⁸⁴ Hence, the food situation in the colonial area was expected to improve considerably with the access of VMF to the rural areas. But the purchase system was not as effective as planned. Actual purchases during April-June 1948

(1948); Luyken (1951).

182. *Economisch Weekblad* (1948) p.350.

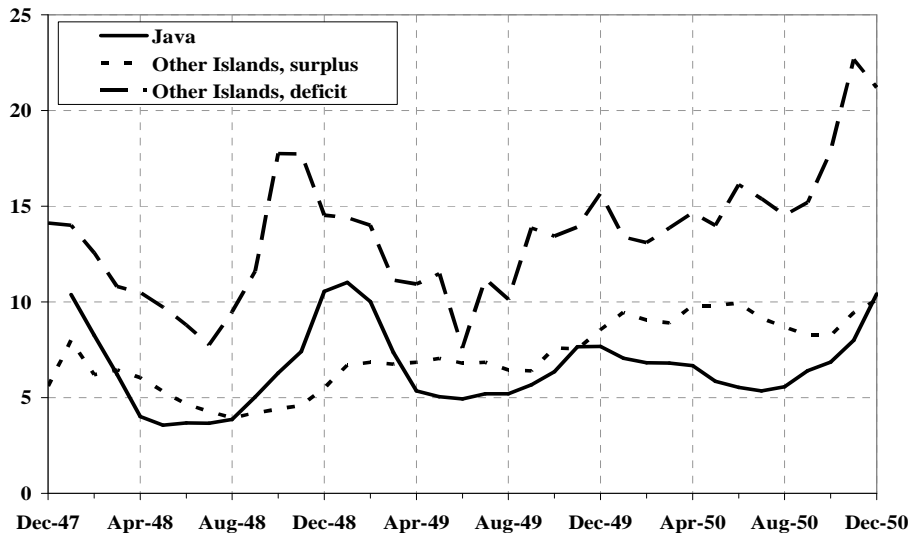
183. H.H. Crevels to H.J. van Mook (20 July 1948) AS-AN, No.816.

184. This is an estimate based on data on harvested area in areas under colonial control published in *Economisch Weekblad*. Expressed as percentages of 1942 and 1946 harvested areas from *Geogste Uitgestrektheden* (1947), these data given an indication of the rice areas to which VMF had access:

	1942	1946
West Java	78.1	97.6
Central Java	35.5	51.7
East Java	29.3	39.3
Total Java	48.5	65.3

amounted to 245,000 tons of rice. The main problem was that the free market price of rice in Java increased rapidly at the end of 1948, as Figure 6 shows. The VMF purchase price was often simply too low. The hike in rice prices was partly caused by the reaction of private traders hoarding large quantities of rice in reaction to rumours about a monetary purge. They used commodity stocks for speculation or for smuggling abroad, where prices were much higher than inside Indonesia. There were several additional problems. For instance, the attacks by Republican groups against rice mills working for the colonial VMF. Reprisals of Republicans against Indonesian people who accepted colonial currency made farmers reluctant to sell rice. Many transports were still unsafe.

Figure 6: Urban Rice Prices, 1948-1950 (Guilders per 10 Litres)



Note: The prices are calculated as arithmetic averages, for Java from Jakarta, Bandung, Semarang and Surabaya, for the deficit areas in the Other Islands from Medan, Pangkalpinang and Pontianak, and for the surplus areas in the Other Islands from Ujung Pandang and Den Pasar.

Sources: *Economisch Weekblad*; *Ichtisar Bulanan Statistik*.

During the second half of 1948 a very dry monsoon prevented a good dry season harvest. Especially the area under Republican control suffered the effects. The Republican areas seemed to absorb food supplies from the areas under colonial control in Central

Java, putting additional pressure on prices.¹⁸⁵ Moreover, the tilling of the land and the planting of paddy for the 1948/49 wet monsoon had to be postponed in most areas for at least a month. Total rice imports during 1948 amounted to 139,865 tons, only slightly higher than they had been in 1947. Anticipating a prolonged lean season in 1949, the colonial government implemented the Rice Ordinance (*Rijstordonnantie*) on 7 October 1948.¹⁸⁶ The ordinance had to prevent the creation of rice stocks by speculators. It prohibited the possession and transport of rice stocks larger than 1,000 kg. (or stocks of stalk paddy larger than 2,000 kg.) between 1 October 1948 and 1 April 1949, unless the stocks were registered with VMF and approved by VMF.¹⁸⁷ The controls were most likely not completely effective, but they did contribute to a re-distribution of available supplies from surplus to deficit areas.

The allocation of the IEFEC for the first half of 1949 was sufficient. The IEFEC even maintained an allotment for the Republic of 20,000 tons, although the new government in Indonesia, the Provisional Federal Government (*Voorlopige Federale Regering*, VFR), did not want the Republic to import this amount.¹⁸⁸ Imports by the Republic would imply an oversupply of rice in the Republic compared to the rest of Indonesia, while the bill would go to VFR, because the Republic had no foreign exchange. On the other hand, the Republic wanted to receive the allocated rice, in order to strengthen its foreign exchange situation through barter trade.

After the second military action late December 1948 it became much easier for VMF to control rice milling and marketing market in Indonesia. During the entire 1948/49 season VMF purchased the following quantities of rice:¹⁸⁹

Domestic, Java	235,400
Other Islands	<u>38,200</u>
Sub-Total	273,600
Abroad	237,400
Carry-over of Old Stock	<u>12,000</u>
Total Supply	523,000

VMF estimated that it required about 42,000 tons per month for Java and 17,500 tons for the Other Islands until April. In January and February it used 106,286 tons of a stock of 206,825 tons, and it expected that the remaining 100,000 tons would be sufficient for the months March and April. But bad weather delayed the harvest, which meant a prolonged

185. P.H. Angenent, 'Politiek Verslag van Midden Java [...] over de Maand Sep. 1948' (4 November 1948) OBNIB Vol.14, p.277; *Idem*, 'Politiek Verslag Midden Java [...] over Okt. 1948' (7 December 1948) OBNIB Vol.14, pp.553-554.

186. *Staatsblad* (1948) No.253.

187. *Economisch Weekblad* (1948) pp.199-203.

188. J. Mertens to H.A. Lovink (2 August 1949) AS-AN No.841.

189. Calculated from several notes, OA No.4423.

lean season. The situation could not be relieved with imports, because further deliveries under the Marshall Aid scheme had been halted after the second Dutch military action.

In spite of these negative points, the food situation was not really alarming and was considered to be much better than in previous years.¹⁹⁰ After September 1949 the Rice Ordinance came in force again in order to help overcome the period until the main harvest in 1950, but the food situation was less urgent than it had been before. The main rice harvest in 1950 was not as good as 1949, but rice imports of 334,374 tons, or about 5% of total rice supply in Indonesia, prevented a drastic fall in food supply.

Despite recovering national and international rice production, the government of the Federated Republic of Indonesia (*Republik Indonesia Serikat*, RIS) chose to continue VMF after 1949. The authorities argued that the free market would not be able to function to the extent that the demand for food in all regions would be met. The transport system was still in disrepair in many areas. But the government had new arguments for continuing VMF. One was that control over rice supply helped to guarantee price stability, because rice determined the overall price level to a considerable extent. In addition, part of the rice stock was by then distributed to what were called 'essential services and institutions', such as foreign exchange earning plantations and mining companies. Another increasing part of the rice stock were used as payment in kind of the salaries of civil servants and the armed forces.

With the formation of the unitary Indonesian Republic on 17 August 1950 VMF and PPBM of the Republic of Indonesia in Yogyakarta were amalgamated into the Foundation for Food Stuffs (*Yayasan Bahan Makanan*, BAMA), a division of the Department of Agriculture. The tasks of BAMA and its successors were later expanded. The government rice purchase programs soon became a controversial issue, because the food logistics agencies had to take a range of measures and enforce an increasing grip on the domestic rice economy in order to meet the set purchase targets.¹⁹¹ Next to accelerated population growth during the 1950s and 1960s, this increasing hold on the rice economy is another explanation for the fact that per capita calorie supply in Indonesia did not recover to pre-war levels until the 1970s.¹⁹² Especially when the rate of inflation accelerated at the end of the 1950s purchase prices became very unattractive to farmers. VMF had been a semi-private institution, but with the establishment of BAMA, public officials down to the village level had again become responsible for the purchase of rice in their areas. The system was therefore similar to that during the Japanese

190. 'Rijstpositie in Indonesië Januari 1949' (17 January 1949) AS-AN No.846. See also various regional reports comparing the 1949 situation with 1948: AS-ARA No.3433.

191. Heemstra (1952/53); Sadli (1961); Mears (1961). On the basis of experience with intervention in the rice market during 1950s and 1951, Heemstra (1952/53, p.47) called further market intervention a 'dangerous experiment', because too low purchase prices immobilised the rice surplus and enhanced the import of rice.

192. Van der Eng (1993) p.14.

occupation and in the Republic of Indonesia. The officials again came under increasing pressure to realise the quota imposed on their areas. Hence, several of them appear to have resorted to ways of persuading farmers to deliver rice akin to those used during the 1940s.

6. Conclusion

This paper provides an overview of food production, supply policies and actual supply in order to understand changes in a significant part of the Indonesian economy during 1940-1950. It did not pretend to be complete and unequivocal. In fact, the paper establishes gaps in the general knowledge about food supply during this hectic period in Indonesia's history. Due to the fragmentation of the Indonesian economy during the 1940s it is necessary that further studies will be conducted into the economic circumstances in particular areas during these years. Another blank in the available data is the organisation of rice purchase and distribution in the areas under control of the Republic of Indonesia during 1945-1948. There are ample opportunities for further research. Many sources in the archives mentioned among the references below have not been studied yet, and there are other archives waiting to be explored.

Despite the deficiencies, the paper has indicated that the involvement of the authorities with rice supply has been a continuous process since the 1930s. The colonial government inaugurated food policies for pragmatic reasons. The Japanese authorities turned it into a far more rigorous delivery system and added a rigid distribution system, which was aimed at replacing the free market entirely. The Indonesian Republic took this institutional framework over from the Japanese. The available evidence suggests that the political confusion and insecurity caused insufficient supervision and rampant logistical problems after the Japanese surrender. In reality local *ad-hoc* policies to meet the demand for rice replaced the in principle integrated delivery and distribution system. The returning colonial government re-established its own pre-war procedures and gradually obtained wider access to food surpluses for distribution. After the full independence in December 1949 the food purchase and distribution systems of the Republican and colonial governments were amalgamated. In 1950 Indonesia had a system of government control over food supply with roots in the colonial, the Japanese and the Republican experience.

The food situation became critical in Java, where the balance between food production and population growth had been delicate before World War II. There was endemic malnutrition, but no sign of prevalent famine. During the Japanese occupation the precarious balance was disturbed and food supply declined rapidly. External circumstances, such as the termination of foreign trade, the Japanese attempts to include Indonesia in the Japanese war economy, and the disruption caused by the Indonesian

revolution are in themselves insufficient arguments to untangle the demise of food production. Specific supply side problems also fail to explain the fall in production. The most important reasons for declining food supply in Java were found in the allocation mechanism on the demand side, in the form of the rigorous measures to control food production and food supply introduced by the Japanese authorities and continued by the government of the Republic of Indonesia.

In itself strict control over the food economy is not a sufficient explanation. Many other countries, including Asian countries such as India and Japan, introduced delivery and distribution systems for the most important food products.¹⁹³ In most cases these systems contributed significantly to an even distribution of scarce supplies. However, there are two essential differences between these systems in these other countries and in Java. Firstly, on the distribution side they were based on elaborated population administrations. There was nothing of the kind in Indonesia. The Japanese authorities introduced a pyramid-shaped system of neighbourhood groups. But the system was not in place until 1944 and even then it excluded a large number of the landless and unemployed poor. Moreover, unlike Indonesia, in Western countries the percentage of the people in urban areas was much higher. These people depended on the distribution systems and had a vested interest in the efficient organisation of such systems.

Secondly, about 70% of the population in Java had direct access to food supplies, because they produced it themselves. In Western countries the share of people in agriculture was much lower and farm enterprise was more capital intensive. Hence, in order to maintain their standard of living and also meet the depreciation costs of their capital stocks, farmers in Western countries had virtually no choice but to largely comply with the delivery systems, despite the controlled prices they received for their products. In rural Java most farmers were not under any obligation to meet fixed costs. They therefore found it easier to cut back production when the official purchase prices depreciated rapidly. They produced enough to meet their own requirements and the official quota as far as absolutely necessary. On top of that they may have produced a surplus which was much smaller than before the Japanese occupation. Firstly, because a smaller quantity was easier to transport and hide from the authorities. Secondly, the real value of a smaller quantity may have been the same, or even more, than the real value of the pre-war surplus.

This interpretation of the delivery and distribution system allows two conclusions. Firstly, the non-agricultural people who had no direct access to food and who were not adequately serviced through the distribution system, must have suffered the consequences of declining food supplies. Secondly, lower supplies for distribution triggered more stringent control measures on trade. Transport facilities deteriorated rapidly as a result of neglect and the Japanese plunder of railway stocks and motorised road vehicles. Both

193. Martin and Milward (1985); Johnston (1953).

immobilised food supplies even further.

To a large extent these are also the reasons which impeded the recovery of food production during the years 1946-1950, albeit that some of the available supplies also failed to reach the deficit areas due to politically motivated obstruction during 1946-1947. The Dutch military advance during 1947-1949 brought a delivery system to the rice producing areas that provided farmers some protection from the arbitrariness during previous years, and that guaranteed a more realistic compensation for the paddy deliveries. This and the gradual improvement of security and transport facilities explain the steady recovery of rice production.

Appendix 1: Food Production

Geoogste Uitgestrektheden (1947) is used to estimate food crop production for Java during 1940-1946. For the years 1942-1946 this source contains official data collected during the Japanese occupation and during the rule of the Republic of Indonesia over Java. The system for estimating the production of the main food crops in Java was very meticulous. (Van der Eng, 1990, pp.32-33) Certainly compared with systems used in many other countries it was very accurate. The system of monthly reporting on planted and harvested areas and on average yields involved officials down to the village levels. There is no reason to assume that the system of reporting as such deteriorated after the Japanese occupation. Reporting and the processing of the reports was largely done by Indonesian officials who remained in function. It is possible to assume that especially village officials tampered with the results. There were not many possibilities for lowering the estimates of harvested area, because the system was such that statistical controllers could check the records with random rough estimates. Average yields were determined with regional crop cuttings on farmers' fields. It is possible that these were manipulated. Farmers may have neglected fields designated for crop cuttings on their own initiative, or on the instruction of village officials. Local officials of the land tax service and the agricultural extension service may also knowingly have miscalculated the results of these crop cuttings. It is unlikely that all data in *Geoogste Uitgestrektheden* (1947) have to be discarded. 1944 Was a very poor cropping year, which may explain the falls in both average yields and harvested area (planted area less 'failed' area, which is areas on which less than 10% of the planted crop was still standing) that year. But there is no reason to accept the extraordinary low yields of 1945 and 1946. For that reason this study uses the harvested areas and the average 1942/43 yields per residency to estimate crop production for 1945 and 1946.

There are several different estimates for the years 1947 and 1948. The main problem during these years was that the system for collecting the data was seriously disturbed due to the Dutch military advances and the guerrilla warfare. The most complete estimate for 1947 seems to be from Republican sources, which distinguishes between production in areas controlled by the Republic and by the Dutch. (*Indonesia Information* (London), 22 August 1948) Republican authorities were in a position to gather reports on the main season harvest and on the area planted with 1947 dry season crops, before the start of the first Dutch military action. The estimate for 1948 is from Dutch sources and is perhaps the most arbitrary one, because the Dutch authorities could only adequately measure production in the areas under colonial control. They had to rely on rough estimates of production in the areas under Republican control. The production data for 1949 and 1950 are most likely more adequate, because of the extension of colonial control throughout Java after December 1948 which unified the system used to estimate production.

Table A.1: Production of Food Crops in Java, 1940-1950

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Production (1,000 tons)												
Stalk Paddy	8,361	8,969	8,993	8,302	8,122	6,870	6,470	6,741	6,840	6,925	7,788	7,528
Maize	1,985	1,900	2,433	2,165	1,604	1,177	1,399	1,096	1,328	1,600	1,850	1,600
Cassava	8,311	8,415	8,736	8,735	7,521	5,263	4,623	5,249	5,776	6,067	7,070	5,760
Sweet Potatoes	1,268	1,418	1,475	1,312	1,084	1,486	2,288	1,486	1,294	1,140	1,170	942
Soybeans	318	294	338	352	273	108	102	180	188	256	250	245
Peanuts	181	197	210	206	211	108	78	111	134	165	190	171
Harvested Area (1,000 ha)												
Paddy	4,028	4,089	4,101	4,026	4,132	3,572	3,203	3,349	3,568	3,600	3,644	3,640
Maize	2,030	1,983	2,229	2,214	1,812	1,399	1,488	1,150	1,614	2,002	2,224	1,800
Cassava	992	1,040	1,003	976	950	829	551	626	786	896	998	712
Sweet Potatoes	197	209	205	189	180	259	350	227	307	240	189	155
Soybeans	415	418	440	481	384	185	141	246	290	347	334	323
Peanuts	241	251	259	253	291	175	100	144	192	233	259	225
Total	7,903	7,991	8,237	8,138	7,749	6,419	5,833	5,742	6,758	7,317	7,648	6,855
Yield (tons/hectare)												
Stalk Paddy	2.08	2.19	2.19	2.06	1.97	1.92	2.02	2.01	1.92	1.92	2.14	2.07
Maize	0.98	0.96	1.09	0.98	0.88	0.84	0.94	0.95	0.82	0.80	0.83	0.89
Cassava	8.37	8.09	8.71	8.95	7.92	6.35	8.39	8.38	7.35	6.77	7.08	8.09
Sweet Potatoes	6.42	6.79	7.18	6.95	6.01	5.73	6.54	6.55	4.21	4.75	6.20	6.07
Soybeans	0.77	0.70	0.77	0.73	0.71	0.58	0.72	0.73	0.65	0.74	0.75	0.76
Peanuts	0.75	0.78	0.81	0.82	0.73	0.62	0.78	0.77	0.70	0.71	0.73	0.76
Sources:	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(3)	(4)	(4)	(5)

(1) *Geoogste Uitgestrektheden* (1947).

(2) *Idem*, production estimated with corrected yield per residency.

(3) Indonesian Information (London) (22 Augustus 1948).

(4) *Report Java Bank* (1948/49) p.74.

(5) Metcalf (1952) p.38.

Appendix 2: Population

There are no official population data for the period 1940-1950. (Nitisastro, 1970) The last population census before the period was held in 1930, and the next one in 1961. The Central Bureau of Statistics organised a count on the basis of village population registers in 1955. (Mears, 1961, pp.176-182) There is no guarantee that the count was accurate. In fact, annual average growth rates calculated from these data and the results of the 1961 census seem to be very high, suggesting that the results of the 1955 count were too low. For that reason this study uses the results of the 1930 and 1961 population censuses at residency level.

An interpolation of both benchmark years with birth and death rates is not possible, because a more or less accurate registration of births was not introduced in Java until 1934 and published data are not available for all years. It is likely that population growth rates decreased during the years 1943-1946 and increased again during the years 1947-1950. Evidence published by De Vries (1947) suggests that population growth was in fact negative in Java during the years 1944 and 1945. De Meel (1951) and Keyfitz (1953) suggest similar patterns.

For Java this study applies the following arbitrary procedure. It uses the absolute data on deaths and births per residency in 1939 from De Vries (1947). Net population increase per residency is related to the 1930 population data, in order to obtain a key with which to distribute the assumed growth for Java as a whole of 1.5% over all the residencies for the years 1931-1942. These growth rates are rounded, due to which the total growth rate becomes 1.45% for the years 1931-1942. The indicated average for 1930-1940 is 1.43%, because the total is a compounded growth rate.

1943 And 1944 are estimated with the 1942 estimates and the absolute data on deaths and births from De Vries (1947). The growth rates for the years 1945-1949 are estimated by trial-and-error, trying to meet two conditions:

- the growth rates for Java as a whole are to be around -1.0% in 1945, 0.0% in 1946, 0.75% in 1947, 1.0% in 1948, 1.5% in 1949. (De Meel, 1951);
- the population data for 1950 are obtained by interpolating the obtained population estimates for 1949 and the 1961 census data. Hence, the estimated growth rates for 1949 had to be lower than the growth rate for 1950 (which equals the annual average growth rates for 1950-1961). The growth rates for residencies with the major cities in Java are assumed to have been higher after 1945 than before 1942, because of the growth of the major cities in Java. This concerns Jakarta, Bandung and Surabaya.

An accurate correction for inter-residential, inter-island and international migration is impossible. The overall impact of international migration was most likely marginal, although many Europeans and several Indonesians may have managed to leave Indonesia before the surrender to the Japanese in 1942. Inter-regional migration was significant before the Japanese occupation. (Wander, 1965) It may have been significant throughout

the period under consideration. The most relevant movement may have been that of poor people from the deprived rural areas. It is likely that many of them migrated to the cities. That can be regarded as a major reason why the Jakarta growth rates are high. On the other hand, the growth rates for Madura are very low, which can be interpreted as the result of the continuous migration of people from Madura to East Java.

The study implicitly assumes that in 1943 and 1944 inter-regional movements did not occur. Hence, the growth rates for 1943 and 1944 range widely. It is possible to interpret the wide variation as follows. In a situation in which a free flow of people is possible, one would expect available food supplies to disperse via the market and population densities to adjust via migration in order to achieve a most optimum allocation of supplies. However, the available food surplus was not allocated through the free market after 1942, but through a distribution system. There may therefore have been no reason for deprived people to follow the distributed food surplus, apart perhaps from the most desperately deprived people. Moreover, in 1943 the Japanese authorities decreed that residencies had to aim at general economic self-sufficiency. Transports of goods, including black market food supplies, were restricted drastically. A consequence of these measures may have been that food supplies equalled out within the residencies, but at very different average supply levels. Poor food supplies in particular residencies may have affected the poor, which may have had a significant impact on the rates of net natural increase.

Table A.2.1: Population per Residency, 1930-1961 (thousands)

	1930	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1961
Banten	1,029	1,194	1,212	1,230	1,239	1,241	1,237	1,241	1,250	1,265	1,288	1,310	1,588
Jakarta	2,637	3,376	3,460	3,546	3,574	3,575	3,628	3,719	3,831	3,946	4,084	4,241	6,436
Bogor	2,213	2,568	2,607	2,646	2,664	2,659	2,653	2,666	2,693	2,726	2,767	2,816	3,413
Priangan	3,449	4,163	4,242	4,323	4,358	4,360	4,349	4,371	4,404	4,459	4,559	4,668	6,053
Cirebon	2,070	2,379	2,412	2,446	2,464	2,459	2,439	2,439	2,455	2,476	2,513	2,557	3,097
Pekalongan	2,640	2,916	2,945	2,975	3,009	2,972	2,940	2,940	2,954	2,974	2,996	3,028	3,401
Semarang	2,021	2,277	2,304	2,332	2,340	2,284	2,278	2,278	2,295	2,318	2,347	2,383	2,822
Pati	1,876	2,072	2,093	2,114	2,121	2,083	2,057	2,057	2,065	2,076	2,091	2,113	2,366
Bojonegoro	1,713	1,819	1,830	1,840	1,835	1,795	1,764	1,764	1,773	1,786	1,808	1,832	2,119
Banyumas	2,068	2,424	2,463	2,502	2,550	2,566	2,522	2,522	2,528	2,535	2,547	2,571	2,851
Kedu	2,536	2,733	2,753	2,774	2,810	2,796	2,748	2,748	2,755	2,769	2,783	2,801	3,009
Yogyakarta	1,559	1,809	1,836	1,864	1,892	1,888	1,857	1,867	1,881	1,895	1,916	1,941	2,241
Surakarta	2,565	3,021	3,071	3,122	3,156	3,124	3,080	3,080	3,096	3,127	3,166	3,225	3,958
Madiun	1,969	2,263	2,294	2,326	2,354	2,352	2,324	2,324	2,341	2,365	2,391	2,425	2,844
Surabaya	2,176	2,525	2,563	2,602	2,608	2,587	2,582	2,582	2,608	2,640	2,693	2,749	3,448
Kediri	2,411	2,868	2,918	2,969	3,018	3,015	2,963	2,963	2,985	3,015	3,060	3,114	3,770
Malang	2,741	3,150	3,194	3,239	3,249	3,233	3,213	3,229	3,254	3,278	3,324	3,375	3,991
Besuki	2,083	2,478	2,521	2,565	2,579	2,579	2,563	2,583	2,615	2,654	2,710	2,768	3,501
Madura	1,962	2,062	2,073	2,083	2,093	2,084	2,053	2,053	2,057	2,063	2,070	2,076	2,150
Total Java	41,718	48,097	48,792	49,498	49,915	49,652	49,251	49,425	49,839	50,365	51,111	51,995	63,058

Table A.2.2: Estimated Annual Population Growth Rates per Residency, 1930-1961

	1930-40	1940-41	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-61	1930-61
Banten	1.50%	1.50%	1.50%	0.68%	0.15%	-0.25%	0.25%	0.75%	1.25%	1.75%	1.76%	1.76%	1.41%
Jakarta	2.50%	2.50%	2.50%	0.79%	0.01%	1.50%	2.50%	3.00%	3.00%	3.50%	3.86%	3.86%	2.92%
Bogor	1.50%	1.50%	1.50%	0.70%	-0.19%	-0.25%	0.50%	1.00%	1.25%	1.50%	1.76%	1.76%	1.41%
Priangan	1.90%	1.90%	1.90%	0.81%	0.05%	-0.25%	0.50%	0.75%	1.25%	2.25%	2.39%	2.39%	1.83%
Cirebon	1.40%	1.40%	1.40%	0.76%	-0.21%	-0.80%	0.00%	0.65%	0.85%	1.50%	1.76%	1.76%	1.31%
Pekalongan	1.00%	1.00%	1.00%	1.16%	-1.23%	-1.10%	0.00%	0.50%	0.65%	0.75%	1.06%	1.06%	0.82%
Semarang	1.20%	1.20%	1.20%	0.34%	-2.38%	-0.30%	0.00%	0.75%	1.00%	1.25%	1.55%	1.55%	1.08%
Pati	1.00%	1.00%	1.00%	0.34%	-1.79%	-1.25%	0.00%	0.40%	0.50%	0.75%	1.03%	1.03%	0.75%
Bojonegoro	0.60%	0.60%	0.60%	-0.29%	-2.18%	-1.75%	0.00%	0.50%	0.75%	1.25%	1.33%	1.33%	0.69%
Banyumas	1.60%	1.60%	1.60%	1.92%	0.61%	-1.70%	0.00%	0.25%	0.25%	0.50%	0.94%	0.94%	1.04%
Kedu	0.75%	0.75%	0.75%	0.75%	-0.50%	-1.70%	0.00%	0.25%	0.50%	0.50%	0.65%	0.65%	0.55%
Yogyakarta	1.50%	1.50%	1.50%	1.48%	-0.22%	-1.60%	0.50%	0.75%	0.75%	1.10%	1.32%	1.32%	1.18%
Surakarta	1.65%	1.65%	1.65%	1.12%	-1.02%	-1.40%	0.00%	0.50%	1.00%	1.25%	1.88%	1.88%	1.41%
Madiun	1.40%	1.40%	1.40%	1.18%	-0.09%	-1.20%	0.00%	0.75%	1.00%	1.10%	1.46%	1.46%	1.19%
Surabaya	1.50%	1.50%	1.50%	0.23%	-0.80%	-0.20%	0.00%	1.00%	1.25%	2.00%	2.08%	2.08%	1.50%
Kediri	1.75%	1.75%	1.75%	1.65%	-0.08%	-1.75%	0.00%	0.75%	1.00%	1.50%	1.75%	1.75%	1.45%
Malang	1.40%	1.40%	1.40%	0.33%	-0.52%	-0.60%	0.50%	0.75%	0.75%	1.40%	1.54%	1.54%	1.22%
Besuki	1.75%	1.75%	1.75%	0.54%	0.00%	-0.60%	0.75%	1.25%	1.50%	2.10%	2.16%	2.16%	1.69%
Madura	0.50%	0.50%	0.50%	0.50%	-0.43%	-1.50%	0.00%	0.20%	0.30%	0.30%	0.32%	0.32%	0.30%
Total Java	1.43%	1.45%	1.45%	0.84%	-0.53%	-0.81%	0.35%	0.84%	1.06%	1.48%	1.73%	1.77%	1.34%

Appendix 3: Food Supply in Java

Average food supplies are calculated as food balances, taking account of imports and exports and the use of crops for seed, feed and losses. No data are available on the carry-over of stocks.

Population is from Table A.2.1. Food crop production is from Table A.1 for Java as a whole and from *Geogste Uitgestrektheden* (1947) for the residencies in Table A.3.2, corrected for 1945 and 1946 with 1942/43 average yields. Foreign and inter-island trade is from *Report Java Bank* (various years) and 1942-1945 from Kishi and Nishijima (1963) *passim*. Rates of seed and feed use and losses are elaborated in Van der Eng (1990, pp.79-81). The following rates are deducted from gross production:

	Seed	Feed	Losses
Irrigated Paddy	55 kg/ha	2%	7%
Upland Paddy	52 kg/ha	2%	7%
Maize	25 kg/ha	5%	5%
Cassava	-	2%	13%
Sweet Potatoes	9% of production	2%	10%
Peanuts	80 kg/ha	-	5%
Soybeans	50 kg/ha	-	5%

Table A.3.2 refers to the six main food crops only. Table A.3.1 includes the following products: meat, sugar, copra, palm oil, fish, poultry products and fruit and vegetables.

Slaughtered livestock is from Van der Eng (1990, p.68-71). For the calculation of meat supply the following rates have been used:

	Carcass Weight	Offal Share
Buffaloes	156.4 kg.	25%
Cows	160.0 kg.	25%
Horses	125.0 kg.	20%
Sheep and Goats	10.0 kg.	25%
Pigs	55.0 kg.	10%

Per capita palm oil supply is calculated from available production and export data. (Van der Eng, 1990, p.49). The consumption of sugar and copra is assumed to have been roughly as follows (kg. per capita per year):

	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Palm Oil	0.9	0.0	1.7	1.1	0.9	0.0	0.0	0.0	0.2	0.2	0.1
Sugar	10	8	8	6	5	5	5	5	5	5	5
Copra	10	10	10	10	10	10	10	10	10	10	10

The conversion factor 0.52 to convert stalk paddy into rice. For conversion into calories and protein I used the following conversion factors per kilogram from *Daftar Komposisi* (1967) and *Neraca Bahan Makanan di Indonesia* (1985):

	Kcal	Protein (grams)
Rice	3,600	68
Maize	3,610	87
Cassava	1,460	12
Sweet Potatoes	1,230	18
Peanuts	4,520	253
Soybeans	3,310	349
Palm Oil	9,020	0
Sugar	3,640	0
Copra	3,590	34
Buffalo Meat	2,070	188
Beef	840	187
Horse Meat	1,180	181
Mutton and Goat Meat	1,700	168
Pork	4,170	130

For 1940-1942 rough estimates of the following per capita daily consumption of fish, fruit and vegetables and poultry were added (Van der Eng, 1993, p.25):

	Kcal	Protein (grams)
Fresh Fish	15	2.0
Vegetables	35	2.0
Fruits	20	0.5
Poultry Products	40	2.0

For 1943-1950 the supply of these three products is linked to the sub-total supply of Kcal and proteins from the products mentioned above.

Table A.3.1: Net Food Supply in Java, 1940-1950

	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Net Import/Export (1,000 tons)												
Rice -abroad	21	-58	-109	40	20	10	-30	100	58	70	138	140
-inter island	-188	-74	-100	-31	-8							
Maize	-59	-33	-25					0	0	-15	0	-38
Cassava	-1402	-1131	-1733					-1	0	-3	-3	-89
Soybeans	-5	-10	-10					0	0	0	0	0
Peanuts	-66	-45	-40					0	0	-9	-12	-23
Population (mln.)	47.4	48.1	48.8	49.5	49.9	49.6	49.2	49.4	49.8	50.3	51.1	51.9
Total Supply Per Person Per Day:												
● Kcal., Total	2,071	2,162	2,187	2,267	1,979	1,582	1,553	1,565	1,630	1,705	1,904	1,678
Rice	769	824	798	766	742	632	593	641	636	639	722	687
Other Food Crops	979	997	1,069	1,155	939	688	727	690	755	817	923	747
Sugar, Copra, Palm Oil	202	220	198	219	185	171	148	148	148	154	154	150
Meat	11	11	11	14	13	12	8	7	9	9	9	9
Fish	15	15	15	16	14	11	11	11	11	12	13	12
Vegetables, Fruit, Poultry	95	95	95	98	86	69	67	68	71	74	83	73
● Proteins (gr.), Total	43.2	44.1	46.5	46.8	40.7	30.4	30.2	31.3	32.9	35.7	39.4	35.3
Rice	14.5	15.6	15.1	14.5	14.0	11.9	11.2	12.1	12.0	12.1	13.6	13.0
Other Food Crops	20.2	20.0	22.9	23.5	18.8	12.1	13.1	13.2	14.5	16.8	18.4	15.6
Sugar, Copra, Palm Oil	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Meat	1.1	1.0	1.1	1.4	1.2	1.1	0.8	0.7	0.9	0.9	0.9	0.9
Fish	2.0	2.0	2.0	2.0	1.7	1.3	1.3	1.3	1.4	1.5	1.7	1.5
Vegetables, Fruit, Poultry	4.5	4.5	4.5	4.5	3.9	2.9	2.9	3.0	3.2	3.5	3.8	3.4

Table A.3.2: Net Calorie Supply per Residency, 1940-1946

	Total, Kcal per Capita per Day							% Calories from Rice						
	1940	1941	1942	1943	1944	1945	1946	1940	1941	1942	1943	1944	1945	1946
Banten	1,647	1,642	1,505	1,538	1,363	1,139	1,217	68.5%	68.0%	70.7%	73.3%	63.4%	63.3%	75.3%
Jakarta	1,327	1,409	1,349	1,175	991	896	1,148	82.8%	80.1%	76.7%	83.6%	83.4%	80.0%	77.2%
Bogor	1,436	1,341	1,413	1,295	1,007	973	976	70.2%	62.2%	63.5%	66.2%	64.5%	71.4%	74.0%
Priangan	1,626	1,565	1,416	1,408	1,161	1,288	1,263	52.8%	51.7%	55.1%	59.5%	54.9%	46.9%	51.4%
Cirebon	1,917	1,804	1,700	1,526	1,205	1,367	1,216	71.6%	72.8%	67.7%	69.0%	80.1%	73.0%	75.5%
West Java	1,569	1,532	1,455	1,360	1,115	1,131	1,168	67.5%	65.7%	65.6%	69.1%	68.4%	64.3%	67.8%
Pekalongan	1,758	1,920	1,824	1,498	1,049	1,024	1,132	47.7%	42.9%	41.3%	47.0%	56.7%	49.6%	52.0%
Semarang	2,373	2,624	2,344	2,015	1,997	1,869	1,592	36.5%	32.7%	28.8%	33.7%	30.9%	32.3%	36.7%
Pati	2,217	2,439	2,118	1,944	1,242	1,473	1,337	35.6%	35.2%	31.8%	33.8%	37.7%	38.4%	42.1%
Banyumas	2,440	2,668	2,295	2,059	1,478	1,577	1,449	46.9%	44.8%	49.1%	49.4%	45.1%	38.2%	45.7%
Kedu	2,375	2,705	2,468	2,017	1,568	1,690	1,511	38.9%	34.3%	35.9%	38.9%	40.4%	36.3%	34.5%
Principalities	1,944	2,036	2,093	1,720	1,298	1,621	1,450	33.7%	32.1%	28.9%	32.9%	36.0%	28.3%	31.7%
Central Java	2,128	2,323	2,163	1,833	1,405	1,534	1,407	39.1%	36.3%	34.8%	38.3%	39.8%	35.3%	38.8%
Madiun	1,839	1,980	1,868	1,560	835	975	1,295	29.1%	26.5%	28.7%	28.4%	50.9%	39.4%	34.7%
Bojonegoro	1,664	1,748	1,394	1,199	899	690	735	37.1%	37.1%	27.7%	35.5%	55.2%	41.0%	44.4%
Surabaya	1,493	1,561	1,430	1,465	1,231	1,053	1,027	55.0%	53.2%	46.5%	47.7%	56.0%	60.0%	54.4%
Kediri	2,093	2,370	2,172	1,748	1,167	1,224	1,399	31.5%	27.8%	29.1%	34.9%	44.6%	41.9%	38.4%
Malang	2,250	2,603	2,377	1,866	1,405	1,237	1,227	35.4%	30.2%	32.1%	38.2%	38.1%	45.1%	48.6%
Besuki	3,354	3,245	2,971	2,762	2,502	2,386	2,228	38.3%	39.7%	38.5%	43.8%	50.0%	52.8%	51.8%
Madura	2,049	2,105	2,033	1,893	1,892	1,508	1,359	9.7%	9.3%	7.9%	9.6%	9.1%	9.1%	10.6%
East Java	2,108	2,247	2,052	1,784	1,389	1,285	1,329	33.8%	31.8%	30.7%	35.0%	42.3%	42.7%	41.5%
Total Java	1,961	2,068	1,918	1,679	1,316	1,322	1,308	43.4%	40.7%	39.8%	44.1%	47.8%	45.2%	47.4%

Note: Calculations did not account for trade across Residency borders and - unlike Table A.3.1 - imports and exports of rice to/from Java.

Sources

Archival Sources

Arsip Nasional Republik Indonesia in Jakarta:

- AS-AN Algemene Secretarie en het Kabinet van de Gouverneur Generaal (1944-1950)
 DP Djogya Papers (1948)

Algemeen Rijksarchief in The Hague:

- AS-ARA Algemene Secretarie en het Kabinet van de Gouverneur Generaal te Batavia (1944-1950)
 OA Uit Indonesië Overgekomen Archieven (1942-1950)
 IA-ARA Koloniën na 1900, Indisch/Indonesisch Archief
 Van Mook Papers of H.J. van Mook
 Van der Plas Papers of Ch.O. van der Plas
 Koets Papers of P.J. Koets

Public Record Office in Kew (London):

- FO Foreign Office
 WO War Office

Rijksinstituut voor Oorlogsdocumentatie in Amsterdam:

- IA-RIOD Indische Afdeling

OBNIB

Van der Wal, S.L. (ed.), *Officiële Bescheiden betreffende de Nederlands-Indonesische Betrekkingen 1945-1950*. The Hague: Nijhoff, 1971-1991 (16 vols.).

Series

Economisch-Statistisch Kwartaalbericht (1947-1949).

Economische Voorlichting (1946-1947).

Economisch Weekblad voor Nederlandsch-Indië (1940-1942, 1946), continued as *Economisch Weekblad voor Indonesië* (1947-1950).

Ichtisar Bulanan Statistik (1949-1950).

Report of the President of the Java Bank (De Javasche Bank) (1941/46-1948/49), continued as *The Java Bank (De Javasche Bank) Report for the Financial Year* (1949/50-1950/51).

Articles and Books

- Abeyasekere, S. (1989) *Jakarta A History*. Singapore: Oxford University Press.
- Alers, H.J.H. (1956) *Om een Rode of een Groene Merdeka. 10 Jaren Binnenlandse Politiek in Indonesië 1943-1953*. Eindhoven: De Pelgrim.
- Anderson, B.R. O'G. (1961) *Some Aspects of Indonesian Politics under the Japanese Occupation: 1944-1945*. Ithaca: Cornell Modern Indonesia Project.
- (1966) 'The Problem of Rice. Stenographic Notes on the Fourth Section of the Sanyo Kaigi (January 8, 2605)', *Indonesia*, 1, No.2, pp.77-123.
- (1972) *Java in a Time of Revolution. Occupation and Resistance, 1944-1946*. Ithaca: Cornell University Press.
- Angladette, A. (1966) *Le Riz*. Paris: Maisonneuve & Larose.
- 'Annual Report' (1950) 'Annual Report 1948 of the Nutrition Research Institute of the Department of Health.' *Organization for Scientific Research Publication No.11*. Bandung: Vorkink.
- Aziz, M.A. (1955) *Japan's Colonialism and Indonesia*. The Hague: Nijhoff.
- Bailey, K.V. (1961) 'Rural Nutrition Studies in Indonesia. III Epidemiology of Hunger Oedema in the Cassava Areas', *Tropical and Geographical Medicine*, 13, pp.289-302.
- Bank, J. (1983) *Katholieken en de Indonesische Revolutie*. Baarn: Ambo.
- Bennett, M.K. and V.D. Wickezer (1941) *The Rice Economy of Monsoon Asia*. Stanford: Stanford University Press.
- Brugmans, I.J. et al. (1960) (eds.) *Nederlandsch-Indië onder Japanse Bezetting. Gegevens en Documenten over de Jaren 1942-1945*. Franeker: Wever.
- Bryant, N.A. 'Population Pressure and Agricultural Resources in Central Java: The Dynamics of Change.' Unpublished PhD-thesis, University of Michigan, Ann Arbor, 1973.
- Chauvel, R. (1985) 'The Rising Sun in the Spice Islands: A History of Ambon During the Japanese Occupation.' *Centre of Southeast Asian Studies Working Paper No. 37*. Melbourne: Monash University.
- Cribb, R. (1981) 'Political Dimensions of the Currency Question, 1945-1947', *Indonesia*, 16, No.31, pp.113-136.
- (1986a) 'Administrative Competition in the Indonesian Revolution: the Dual Government in Jakarta, 1945-1947', *Utrechtse Historische Cahiers*, 7, No.2/3, pp. 129-145.
- (1986b) 'A Revolution Delayed: The Indonesian Republic and the Netherlands Indies, August-November 1945', *Australian Journal of Politics and History*, 32 (1986) pp.72-85.
- (1990a) *Gangsters and Revolutionaries. The Jakarta People's Militia and the Indonesian Revolution 1945-1949*. Sydney: Allen and Unwin.

- (1990b) *Gelajak Revolusi di Jakarta 1945-1949. Pergulatan antara Otonomi dan Hegemoni*. Jakarta: Grafiti.
- Daftar Komposisi* (1967) *Daftar Komposisi Bahan Makanan*. Jakarta: Penerbit Bhrataria.
- Danquah, F.K. (1990) 'Japan's Food Farming Policies in Wartime Southeast Asia: The Philippine Example, 1942-1944', *Agricultural History*, 64, No.3, pp.60-80.
- De Jong, J.J.P. (1988) *Diplomatie of Strijd. Het Nederlands Beleid tegenover de Indonesische Revolutie 1945-1947*. Meppel: Boom.
- De Jong, L. (1984-86) *Het Koninkrijk der Nederlanden in de Tweede Wereldoorlog. Deel II Nederlands-Indië*. The Hague: Staatsuitgeverij (5 vols.).
- De Meel, H. (1951) 'Demographic Dilemma in Indonesia', *Pacific Affairs*, 24, pp.266-283.
- (1952) 'Het Verloop van de Bevolking in West-Borneo 1920-1948', *Tijdschrift van het Koninklijk Nederlandsch Aardrijkskundig Genootschap*, 69, pp.178-198.
- De Vries, E. (1947) 'Vital Statistics under the Japanese Occupation', *Economic Review of Indonesia*, 1, pp.18-19.
- Dootjes, F.J. (1948) 'Kroniek 1941-1946.' *Mededeling van het Oostkust van Sumatra Instituut No.32*. Amsterdam: Oostkust van Sumatra Instituut.
- 'Economische Toestand' (1947) 'De Economische Toestand van Nederlandsch-Indië tijdens de Japanse Bezetting', *Statistische en Econometrische Onderzoekingen*, 2, pp.118-127.
- 'Economische Toestand' (1947/48) 'De Economische Toestand in Indonesië', *Bijlagen bij de Handelingen van de Staten Generaal* (1947/48) A 600 XIII, pp.19-35.
- 'Economische Toestand' (1948/49) 'De Economische Toestand in Indonesië in 1948', *Bijlagen bij de Handelingen van de Staten Generaal* (1948/49) A 1000 XIII-13, pp.1-16.
- Enquêtecommissie* (1949-56) *Enquêtecommissie Regeringsbeleid 1940-1945*. The Hague: Staatsuitgeverij (8 volumes in 21 parts).
- 'Food Supply Fund' (1939/40) 'The Netherlands Indies Food Supply Fund', *Bulletin of the Colonial Institute in Amsterdam*, 3, pp.124-128.
- Frederick, W.H. (1989) *Visions and Heat: The Making of the Indonesian Revolution*. Athens: Ohio University Press.
- Friend, T. (1988) *The Blue-Eyed Enemy. Japan against the West in Java and Luzon, 1942-1945*. Princeton: Princeton University Press.
- Geoogste Uitgestrektheden* (1947) *Geoogste Uitgestrektheden en Productie van de Voornaamste Voedinggewassen op Java en Madoera 1937-1946*. Batavia: Centraal Kantoor voor de Statistiek.
- Gorter, F.J. and J.H. de Haas (1947) 'Gewicht en Lengte van 30.000 Schoolkinderen the Batavia', *Maandschrift voor Kindergeneeskunde*, 15, pp.154-202.
- Hatta, M. (1971) 'The Putera Reports: Problems in Indonesian Japanese Wartime Cooperation.' *Cornell Modern Indonesia Project Publications No. 51*. Ithaca:

- Cornell University.
- Heemstra, J. (1952/53) 'De Rijstpolitiek; Een Gevaarlijk Experiment?', *Indonesië*, 6, pp.28-47.
- Indonesian Problem* (1947) *The Indonesian Problem: Facts and Factors. What Happened since the End of the Pacific War*. Jakarta: Netherlands Indies Government Information Service.
- Johnston, B.F. et al. (1953) *Japanese Food Management in World War II*. Stanford: Stanford University Press.
- Kahin, A. (1979) 'Struggle for Independence: West Sumatra in the Indonesian National Revolution: 1945-1950.' Unpublished PhD-thesis, Cornell University, Ithaca.
- (ed.) (1985) *Regional Dynamics of the Indonesian Revolution: Unity from Diversity*. Honolulu, University of Hawaii Press.
- (1974) 'Some Preliminary Observations on West Sumatra during the Revolution', *Indonesia*, 9, pp.77-117.
- Kahin, J. Mc.T. (1952) *Nationalism and Revolution in Indonesia*. Ithaca: Cornell University Press.
- Kanahele, G.S. (1967) 'The Japanese Occupation of Indonesia: Prelude to Independence.' Unpublished PhD-thesis, Cornell University, Ithaca.
- Kartodirdjo, S. (1982) 'Revolution in Surakarta 1945-50: A Case Study of City and Village in the Indonesian Revolution.' Unpublished PhD-thesis, Australian National University, Canberra.
- Kerkvliet, B.J.T. (1985) 'Withdrawal and Resistance: The Political Significance of Food, Agriculture and how People Lived During the Japanese Occupation of the Philippines' in Martin and Milward (1985) pp.297-316.
- Keyfitz, N. (1953) 'The Population of Indonesia', *Ekonomi dan Keuangan Indonesia*, 6, pp.641-655.
- Kishi, K. and Nishijima, S. (eds.) (1963) *Japanese Military Administration in Indonesia*. Washington DC: US Department of Commerce - Joint Publication Research Service.
- Klerks, J.V. (1956) 'The Assessment of the Nutritional Status of Indonesian School Children', *Berita Kementerian Kesehatan Indonesia*, 5, No.4, pp.11-51.
- Knight, H. (1954) *Food Administration in India 1939-47*. Stanford: Stanford University Press.
- Koch, D.M.G. (n.d.) 'De Japanse Bezetting van Indonesië' in *Onderdrukking en Verzet. Nederland in Oorlogstijd. Deel 4*. (Arnhem/Amsterdam: Van Loghum Slaterus/Meulenhof) pp.535-587.
- Kratoska, P.H. (1988) 'The Post-1945 Food Shortage in British Malaya', *Journal of Southeast Asian Studies*, 29, pp.27-47.
- Kurasawa, A. (1981) 'Social Changes in Javanese Villages, 1942-45: The Forced Delivery System and Its Impact' (in Japanese), *Southeast Asian Studies*, 19, pp.77-

- 105.
- (1983) 'Forced Delivery of Paddy and Peasant Uprisings in Indramayu, Indonesia. Japanese Occupation and Social Change', *The Developing Economies*, 21, pp.52-72.
- (1988) 'Mobilization and Control. A Study of Social Change in Rural Java, 1942-1945.' Unpublished PhD-thesis, Cornell University, Ithaca.
- 'Landbouwvoorlichting' (1946) 'Landbouwvoorlichting in Oost-Java tijdens de Japansche Bezetting', *Landbouw*, 19, pp.174-190.
- Lee Say Lee (1981) 'A Study of the Rice Trade in Kedah before and during the Japanese Occupation', *Malaysia in History*, 24, pp.109-116.
- Lucas, A. (1991) *One Soul One Struggle. Region and Revolution in Indonesia*. Sydney: Allen and Unwin.
- Luyken, R. (1951) 'Problems of Nutrition in Java and Surrounding Islands 1946-1950', *Documenta Neerlandica et Indonesica de Morbis Tropicis*, 2, pp.126-146.
- Martin B. and A.S. Milward (eds.) (1985) *Agriculture and Food Supply in the Second World War*. Ostfildern: Scripta Mercaturae.
- McMahon, R.J. (1981) *Colonialism and Cold War. The United States and the Struggle for Indonesian Independence, 1945-1949*. Ithaca: Cornell University Press.
- Mears, L.A. (1961) *Rice marketing in the Republic of Indonesia*. Jakarta: PT Pembangunan.
- Metcalf, J.E. (1952) *The Agricultural Economy of Indonesia*. Washington DC: U.S. Department of Agriculture.
- Moeljono, S. (1971) *Seperempat Abad Bergulat dengan Butir Butir Beras*. Jakarta: Badan Urusan Logistik.
- Nasution, A.H. (1964) *Pokok² Gerilja dan Pertahanan Republik Indonesia Dimasa Jang Lalu dan Jang Akan Datang*. Jakarta: Angkasa.
- Netherlands Red Cross* (1948) *The Netherlands Red Cross Feeding Team, Report on Nutritional Survey in The Netherlands East Indies Conducted during October 1945 till June 1946*. The Hague: Netherlands Red Cross Society.
- Nish, I. (ed.) (1979) *Indonesian Experience: The Role of Japan and Britain, 1943-1948*. London: International Centre for Economics and Related Disciplines, London School of Economics.
- Nitisastro, W. (1970) *Population Trends in Indonesia*. Ithaca: Cornell University Press.
- Notosusanto, N. (1979) *The Peta Army During the Japanese Occupation of Indonesia*. Tokyo: Waseda University Press.
- Oey Hong Lee (1981) 'War and Diplomacy in Indonesia 1945-1950.' *South-East Asian Monograph Series No.10*. Townsville: Committee of South-East Asian Studies, James Cook University of North Queensland.
- Oki, A. and A. Reid (1986) *The Japanese Experience in Indonesia. Selected Memoirs of 1942-1945*. Athens: Ohio University Centre for International Studies.

- Onghokham (1987) *Runtuhnya Hindia Belanda*. Jakarta: Penerbit PT Gramedia.
- Overdijkink, G.W. (1946) *Het Indonesische Probleem: De Feiten*. The Hague: Nijhoff.
- (1948) *Het Indonesische Probleem: Nieuwe Feiten*. Amsterdam: Keizerskroon.
- Pauer, E. (1985) 'Neighbourhood Associations and Food Distribution in Japanese Cities in World War II' in Martin and Milward (1985) pp.219-241.
- Penders, C.L.M. (1984) *Bojonegoro 1900-1942. A Story of Endemic Poverty in North-East Java - Indonesia*. Singapore: Gunung Agung.
- Reid, A. (1986) 'The Revolution in Regional Perspective', *Utrechtse Historische Cahiers*, 7, No.2/3, pp.183-199.
- 'Rijstpositie' (1946) 'De Rijstpositie van Nederlandsch-Indië', *Economisch Weekblad*, 12, pp.81-82.
- Rodenburg, G. (1946) 'Een Japansch Oordeel over de Java Rijstcultuur' *Economisch Weekblad*, 12, p.310.
- Roll, E. (1956) *The Combined Food Board. A Study in Wartime International Planning*. Stanford: Stanford University Press.
- Sadli, M. (1961) 'Kesimpulan² Mengenai Sistem Pembelian Padi untuk Pemerintah yang Ditjepat', *Warta Research*, 2, pp.33-44.
- Scott, J.C. (1985) 'An Approach to the Problems of Food Supply in Southeast Asia during World War II' in Martin and Milward (1985) pp.269-282.
- Sitsen, P.H.W. (1945) *Relief, Rehabilitation and Economic Reconstruction in the Netherlands Indies*. New York: Netherlands and Netherlands Indies Council.
- Sluimers, L. (1985) 'The Rice Situation in Java and Madura During the Japanese Era, 1942-1945' in Martin and Milward (1985) pp.283-295.
- Smail, J.W.R. (1964) *Bandung in the Early Revolution, 1945-1946*. Ithaca: Cornell University Press.
- Soejatno (1974) 'Revolution and Social Tensions in Surakarta, 1945-1950', *Indonesia*, 9, No.17, pp.99-111.
- Squire, C.W. (1979) 'Britain and the Transfer of Power in Indonesia 1945-1946.' Unpublished PhD thesis, School of Oriental and African Studies, University of London.
- Sutter, J.O. (1959) 'Indonesianisasi. A Historical Survey of the Role of Politics in a Changing Economy, 1940-1955.' *Cornell Southeast Asia Program Data Paper No.36*. Ithaca: Cornell University Modern Indonesia Project (4 vols.).
- Tan Tjong Yan (1946) 'De Rijstpellerijen in Midden Java gedurende de Japanse Bezetting', *Economisch Weekblad*, 12, pp.161-163.
- Tergast, G.C.W.Chr. (1946) 'De Inheemse Landbouw', *Landbouw*, 19, pp.8-16.
- Trade, Industrial & Tourism Directory of Djakarta Today, 1969/70*. (1969) Jakarta: Government of Djakarta.
- Twang Peck Yang (1987) 'Indonesian Chinese Business Communities in Transformation, 1940-50.' Unpublished PhD thesis, Australian National University.

- Van Delden, M.C. (1989) *Bersiap in Bandoeng. Een Onderzoek naar geweld in de Periode van 17 Augustus 1945 tot 24 Maart 1946*. Kockengen: Van Delden.
- Van der Eng, P. (1990) 'Growth and Productivity Change in Indonesian Agriculture, 1880-1985.' *Institute of Economic Research Memorandum No.348*. Groningen: Institute of Economic Research.
- (1992a) 'The Real Domestic Product of Indonesia, 1880-1989', *Explorations in Economic History*, 28 (1992) pp.343-373.
- (1992b) 'Production and Trade of Rice in Southeast Asia, 1850-1990.' Paper presented at the conference 'The Malay Archipelago and the World Economy, 1790s - 1990s', Canberra, 24-26 November 1992. Published as 'Productivity and Comparative Advantage in Rice Agriculture in Southeast Asia since 1870', *Asian Economic Journal*, 18, No.4 (2004) pp.345-370.
- (1993) 'Food Consumption and Standard of Living in Indonesia, 1880-1990.' *Research School of Pacific Studies, Economics Division Working Paper, Southeast Asia No.93/1*. Canberra: Australian National University.
- (1994) 'Development of Seed-Fertiliser Technology in Indonesian Rice Agriculture', *Agricultural History*, 68, No.1, pp.20-53.
- Van der Velden, D. (1963) *De Japanse Interneringskampen voor Burgers gedurende de Tweede Wereldoorlog*. Groningen: Wolters.
- Van Doorn, J.A.A. and W.J. Hendrix (1987) 'De Planters Belegerd. De Positie van de Europese Planters tussen Nederlandse Steun en Indonesisch Verzet' in M.P.H. Groen and G. Teitler (eds.), *De Politionele Acties*. (Amsterdam: De Bataafsche Leeuw) pp.44-72.
- Van Mook, H.J. (1950) *The Stakes of Democracy in Southeast Asia*. London: Allen and Unwin.
- Van Veen, A. (1947) 'De Voeding in de Japansche Interneringskampen in Nederlandsch-Indië', *Voeding*, 7, pp.173-186.
- Visman, F.H. (ed.) (1942) *Verslag van de Commissie ter Bestudeering van Staatsrechtelijke Hervormingen*. Jakarta: Landdrukkerij (2 Vols.).
- 'Voedingsproblemen' (1940) 'Voedingsproblemen en Overheidspolitiek op Java en Madoera', *Koloniaal Tijdschrift*, 29, pp.641-715.
- Wander, H. (1965) *Die Beziehungen zwischen Bevölkerungs- und Wirtschaftsentwicklung, dargestellt am Beispiel Indonesiens*. Tübingen: Mohr.
- Williams, M.C. 'Banten: Rice Debts will be Repaid with Rice, Blood Debts with Blood' in Kahin (1985) pp.55-81.
- Yong Mun Cheong (1982) *H.J. van Mook and Indonesian Independence: A Study of His Role in Dutch-Indonesian Relations, 1945-48*. The Hague: Nijhoff.
- Zakaria (1956) 'Tinggi dan Berat Pemuda Indonesia', *Madjalah Kedokteran Indonesia*, 6, pp.353-379.
- Zijlmans, G.C. (1985) *Eindstrijd en Ondergang van de Indische Bestuursdienst. Het*

Corps Binnenlands Bestuur op Java, 1945-1950. Amsterdam: De Bataafsche Leeuw.

Zorab, A.A. (1954) *De Japanse Bezetting van Indonesië en Haar Volkenrechtelijke Zijde*. Leiden: Universitaire Pers Leiden.

Relevant publications since 1994:

- Kurasawa, A. (1994) *Mobilisasi dan Kontrol: Studi Tentang Perubahan Sosial di Pedesaan Jawa 1942-1945*. Jakarta: Gramedia.
- Kurasawa-Inomata, A. (1996) 'Rice shortage and transportation' in P. Post and E. Touwen-Bouwsma (eds.) *Japan, Indonesia and the War: Myths and Realities*. (Leiden: KITLV Press) pp.111-133.
- Kurasawa, A. (1998) 'Transportation and Rice Distribution in South-East Asia during the Second World War' in P.H. Kratoska (ed.) *Food Supplies and the Japanese Occupation in Southeast Asia*. (London: Macmillan) pp.32-66.
- Nawiyanto, S. (2005) *The Rising Sun in A Javanese Rice Granary: Change and the Impact of Japanese Occupation on the Agricultural Economy of Besuki Residency, 1941-1945*. Yogyakarta: Galang Press.
- Sato, S. (1994) *War, Nationalism and Peasants: Java under the Japanese Occupation, 1942-1945*. Sydney: Allen & Unwin.
- Sato, S. (1998) 'Oppression and Romanticism: The Food Supply of Java during the Japanese Occupation' in P.H. Kratoska (ed.) *Food Supplies and the Japanese Occupation in Southeast Asia*. (London: Macmillan) pp.167-207.
- Sato, S. (2006) 'Indonesia 1939-1942: Prelude to the Japanese Occupation', *Journal of Southeast Asian Studies*, 37(2), pp.225-248.
- Twang Peck Yang (1998) *The Chinese Business Elite in Indonesia and the Transition to Independence 1940-1950*. Kuala Lumpur: Oxford University Press.
- van der Eng, P. (1998) 'Regulation and Control: Explaining the Decline of Food Production in Java, 1940-46' in P.H. Kratoska (ed.) *Food Supplies and the Japanese Occupation in Southeast Asia*. (London: Macmillan) pp.187-207.
- van der Eng, P. (2000) 'Food for Growth: Trends in Indonesia's Food Supply, 1880-1995', *Journal of Interdisciplinary History*, 30(4), pp.591-616.
- van der Eng, P. (2002) 'Bridging a Gap: A Reconstruction of Population Patterns in Indonesia, 1930-1961', *Asian Studies Review*, 26(3), pp.487-509.
- Yoshimasa, S. (1996) 'The Monetary Policy in the Netherlands East Indies under the Japanese Administration' in P. Post and E. Touwen-Bouwsma (eds.) *Japan, Indonesia and the War: Myths and Realities*. (Leiden: KITLV Press) pp.177-202.