Chapter 7

Regional Differences in Agriculture in Burma during the Japanese Occupation Period

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Introduction

Burma's agro-based economy fell into unprecedented crisis during the Japanese occupation period. GDP in 1949/50 was 41 per cent less than the prewar level. As far as rice was concerned, the sown acreage decreased by one quarter, production dropped by one-third and exports lessened by no less than two-thirds[1]. GDP recovered to prewar levels in 1958/59, but the sown acreage of rice still remained at 88 per cent and production at 91 per cent of prewar levels even in 1961/62[2].

The reason why I take up rice as well as GDP in discussing the economic crisis faced by Burma is that Burma was the world's largest exporter of rice and her domestic economy had developed with rice cultivation. Therefore, it is natural that conventional studies about the agricultural economy in Burma during the Japanese occupation period have been focused on the problems surrounding paddy production and/or rice marketing[3]. I also emphasize the importance of rice but broaden the perspective to consider other crops such as pulses, sesame, groundnuts, cotton, etc., because those crops are as important as rice in some regions. The structural change of agriculture during that period can be depicted only by this method.

Conventional studies have also tended to deal with Burma as a whole or to divide it into two parts, Lower Burma and Upper Burma. I adhere fundamentally to this approach but utilize more detailed data for the analysis and refer to data about division and/or district according to need. This is the necessary procedure to handle other crops than rice as well as to describe regional change of agriculture.

For the purpose of such analysis, I mainly make free use of the *Season and Crop Reports* of the Japanese occupation period[4] which I found in the National Archives Department (NAD) in Yangon, and connect the data in the report to those of the *Season and Crop Reports* of prewar and postwar periods[5]. Using those data[6], it is possible to make a time series analysis to highlight the extremity of the situation during the war.

The main points of this paper are summarized as follows. First, the production of main crops in Burma as well as rice are taken into account to depict the structural change that occurred in agriculture as a whole. Second, district level data are examined to illustrate the regional changes of agricultural structures. Third, a consistent time series analysis is attempted to compare the wartime economy with those in the prewar and the postwar periods.

Through the analysis, I would like to plot the course of the agricultural crisis during the Japanese occupation period statistically and furthermore to approach the peasants' mode of response to the crisis.

I. An overview of agricultural change

Table 1 shows the land use structures of prewar (1938/38-40/41), wartime (1942/43-43/44) and postwar (1945/46-46/47) periods in Divisional Burma. The net sown area in wartime decreased by 19 per cent from the prewar level and that of the postwar is 32 per cent less than the prewar level. Inversely proportionate to the decline of net sown acreage, fallow land increased. Only 4.5 per cent of the land was fallowed before the war, but the percentages increased to 10 per cent during the war. This means that acres of cultivated land were abandoned during the war. If the decreases of areas included in the report are taken into account, it is possible that percentages of fallowed land might be even more.

Table 1. Land use

(Thousand acres)

Land use		1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Forest		18,430	18,572	18,562	18,562	18,847	18,524	18,564
	(%)	(21.6)	(21.8)	(22.4)	(22.4)	(22.7)	(23.0)	(23.0)
Not available		33,113	32,963	30,474	30,474	30,226	28,123	28,085
for cultivation	(%)	(38.8)	(38.6)	(36.7)	(36.7)	(36.4)	(34.9)	(34.9)
Cultivable		13,643	13,613	13,575	13,705	13,934	14,016	13,908
waste	(%)	(16.0)	(15.9)	(16.4)	(16.5)	(16.8)	(17.4)	(17.3)
Net Sown		16,439	16,439	16,597	14,920	11,748	10,489	11,798
Area	(%)	(19.3)	(19.3)	(20.0)	(18.0)	(14.2)	(13.0)	(14.6)
Fallow		3,755	3,792	3,747	5,293	8,199	9,428	8,225
	(%)	(4.4)	(4.4)	(4.5)	(6.4)	(9.9)	(11.7)	(10.2)
Area included		85,379	85,379	82,955	82,955	82,955	80,580	80,580
in the report	(%)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)	(100.0)

Note: Akyab and Arakan-Hill Tracts districts in Arakan division, Salween district in Tenasserim division, Bhamo and Myitkyina districts in Sagaing division are excluded.

Source: Season and Crop Report of Burma, 1939/40, 40/41, 42/43, 43/44, 45/46 and 46/47.

Breakdowns of the net sown areas in Divisional Burma are stated in Table 2. Areas sown with rice marked a 34 per cent decrease in 1943/44 and nearly halved in 1945/46, compared with 1940/41 figures. Composition ratios of rice in total sown areas also changed. Rice occupied 65 per cent of the gross sown area before the war, but declined to 55 per cent after the war. Not only did the rice planted acreage decline drastically but the sown acreages of sesame and groundnut also decreased. As oilseed is a very important crop for the diet and nutrition of Burmese next to rice, their abatement had a serious impact upon their livelihoods. As opposed to rice, however, composition ratios of both sesame and groundnut in the gross sown areas increased. This may reflect the difference in supply-demand balance between rice and oilseed before the war, as mentioned later. Pulses, which were an important crop next to oilseed, shrunk in terms of composition ratio as well as sown acreage during and after the war. In the opposite direction of the downward trend of rice, oilseed and pulses, the sown acreage of millet increased slightly and composition ratio was almost doubled after the war. This is the only rise among the sown acreages of the main crops. These trends will be considered in more detail later.

Table 2. Area sown with main crops

(Thousand acres)

Lower Burma(a)	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Paddy	8,915	8,874	8,897	8,046	5,815	4,251	5,595
Millet							
Pulses	156	169	171	92	98	95	93
Sesame	21	19	20	25	43	39	40
Groundnut	15	14	17	16	24	40	46
Cotton	3	2	2	3	4	9	3
Gross sown area	10,208	10,195	10,247	9,276	7,074	5,520	6,883
Upper Burma(b)							
Paddy	1,645	1,779	1,771	1,683	1,134	1,276	1,233
Millet	457	442	450	540	504	543	603
Pulses	1,190	1,297	1,270	820	518	661	758
Sesame	1,328	1,417	1,332	997	980	1,179	1,206
Groundnut	824	747	764	739	700	582	525
Cotton	404	344	415	290	274	254	164
Gross sown area	7,397	7,555	7,600	6,408	5,258	5,735	5,703
Burma Total							
Paddy	10,560	10,653	10,668	9,729	6,948	5,527	6,829
Millet	457	442	450	540	504	543	603
Pulses	1,346	1,465	1,441	912	616	756	852
Sesame	1,349	1,436	1,352	1,022	1,023	1,218	1,246
Groundnut	839	760	781	755	724	622	572
Cotton	407	346	417	293	278	263	167
Gross sown area	17,605	17,749	17,847	15,684	12,332	11,255	12,586
Net sown area	16,439	16,439	16,597	14,920	11,748	10,489	11,798

Notes: (a): Akyab, Arakan-Hill Tracts and Salween District are excluded.
(b): Bhamo and Myitkyina District are excluded
Source: Same as Table 1.

Note: Same as Table 1.

Source: Same as Table 1.

As Burma did not have a dense rural population, use of plough cattle was almost requisite. Ox bulls and bullocks, buffalo cows, bulls and bullocks fall within the drought cattle in Burma and those numbers in the prewar, wartime and postwar periods are indicated in italics in Table 3. The number of drought cattle in 1943/44 shrank by 22 per cent from 1940/41 figures and an additional 3 per cent by 1945/46. The reason for the decrease was outbreaks of rinderpest and other diseases and Japanese requisition for slaughter as food[7]. It is said that the cattle population during the war was just over two-thirds of normal levels[8], but the Season and Crop Reports do not indicate such a steep decline. The decline of cattle, however, undoubtedly had an adverse

effect on agricultural production.

Table 3. Cattle and Carts

(Thousand numbers)

		1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Oxen	Bulls	619	624	642	545	448	438	444
	Bullocks	1,999	1,982	2,021	1,829	1,722	1,671	1,721
	Cows	1,322	1,306	1,319	1,119	979	1,011	994
	Calves	860	862	864	677	627	713	739
Buffaloes	Bulls & Bullock	273	268	277	224	171	168	181
	Cows	306	309	320	256	214	205	217
	Calves	195	194	202	148	125	132	136
Drought Cattle		*3,198*	*3,184*	*3,260*	*2,854*	*2,556*	*2,482*	*2,563*
	Ploughs	815	824	849	784	768	675	764
	Carts	750	753	769	706	669	680	683

Note: Same as Table 1.

Source: Same as Table 1.

Cultivation in pluvial Lower Burma does not necessarily require irrigation systems in the rainy season, but such systems are important for rice cultivation in Upper Burma. Table 4 tells us that the area under irrigation in Upper Burma in 1943/44 was 70 per cent of the prewar (1940/41) acreage, and that in the postwar period slightly it recovered but was three quarters of the prewar level. The Simla government reported that "most of the irrigation systems are working satisfactorily[9]", but the Season and Crop Reports suggest that the systems were damaged considerably. The destruction of irrigation systems in thirsty Upper Burma might have caused rice production to plummet.

Table 4. Irrigation area

(Thousand acres)

	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Lower Burma	205	189	197	155	123	105	127
Upper Burma	1,252	1,301	1,334	1,239	928	1,002	1,001
Total Burma	1,457	1,491	1,532	1,394	1,051	1,107	1,128

Note: Same as Table 1.

Source: Same as Table 1.

II. Regional Differences in Crop Production

1. Rice

The rice planted area in Lower Burma, where the Pegu and Irrawaddy Divisions were the core rice area, accounted for 80 per cent of the whole of Divisional Burma, and the remaining 20 per cent were areas planted in Upper Burma before the war. As shown in Table 5, the planted areas decreased by 37 per cent in Pegu Division and 35 per cent in Irrawaddy Division and, as a whole, 35 per cent in Lower Burma from 1940/41 to 1943/44. In the same period, the rates of declines in Magwe, Mandalay and Sagaing Division were 39, 32 and 40 per cent respectively, and that of the whole of Upper Burma was 36 per cent. These figures means that the percentage decreases from the prewar to the wartime in Lower and Upper Burma were almost same. However, the situation in 1945/46, the last year or immediate aftermath of the war was different. The sown acreage of rice in Pegu and Irrawaddy Division dropped to 46 and 43 per cent of the prewar acreages respectively, and that in the whole of Lower Burma dropped by half. Conversely, the sown acreage recovered slightly in Upper Burma. The rice planted areas in Magwe, Mandalay and Sagaing Division in 1945/46 were 72, 70 and 75 per cent of the prewar acreages respectively, and that in the whole of Upper Burma was 72 of the prewar level. This difference implies that the farmers in Upper Burma endeavored to hamper the decline of rice planed areas but farmers in Lower Burma made no such efforts. This reflects the difference of rice economy in the both regions. Rice was redundant and exportable in Lower Burma but a fragile commodity in the stringent growing environment in Upper Burma. Consequently, the relative position of Upper Burma rose while the planted area of rice plunged in Burma as a whole.

Table 5. Area sown with paddy

(Thousand acres)

Division	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Arakan (a)	282	284	288	284	253	236	233
Pegu (b)	3,395	3,382	3,387	3,034	2,119	1,543	2,090
Irrawaddy (c)	3,650	3,626	3,626	3,187	2,361	1,566	2,064
Tenasserim (d)	1,866	1,863	1,881	1,823	1,332	1,140	1,440
Magwe (e)	428	504	522	496	320	375	363
Mandalay (f)	708	782	779	732	533	546	573
Sagaing (g)	509	493	470	454	281	355	297
Lower Burma (h)	8,915	8,874	8,897	8,046	5,815	4,251	5,595
Upper Burma (i)	1,645	1,779	1,771	1,683	1,134	1,276	1,233
Burma Total (j)	10,560	10,653	10,668	9,729	6,948	5,527	6,829

Note: (a): Akyab and Arakan-Hill Tracts District are excluded.

(d): Salween District is excluded.

(g): Bhamo and Myitkyina District are excluded.

(h)=(a)+(b)+(c)+(d)

(i)=(e)+(f)+(g)

(j)=(h)+(i)

Source: Same as Table 1.

Rice production also decreased with declines in sown acreages as per Table 6. In Lower Burma, rice production in 1943/44 was 43 per cent of the normal year and dropped to 29 per cent in 1945/46. In Upper Burma, production recovered to 61 per cent of the normal level in 1945/46, whereas it had plunged to 40 per cent in 1943/44. Comparing Table 5 with 6, it becomes evident that the fall of production was larger than that of sown acreage. This prompts us to consider the causes of the production plunge.

Table 6. Paddy Production in Divisional Burma

(Paddy in thousand tons)

District	Normal Production	Productions and percentages of the normal production by year									
		38/39-40/41		1942/43		1943/44		1945/46		1946/47	
		Production	%	Production	%	Production	%	Production	%	Production	%
Akyab	467	455	97	n.a.		n.a.		254	54	269	58
Arakan-Hill Tracts	6	6	97	n.a.		n.a.		3	58	5	77
Kyaukpyu	88	97	110	72	82	49	55	69	78	88	100
Sandoway	63	59	93	57	90	44	69	51	80	48	76
Arakan totals (a)	**151**	**155**	**103**	**129**	**85**	**92**	**61**	**120**	**79**	**136**	**90**
Rangoon	3	2	61	1	30	1	35	1	24	1	34
Pegu	703	732	104	450	64	187	27	101	14	315	45
Tharrawaddy	406	392	97	363	89	212	52	122	30	272	67
Hanthawaddy	628	575	92	280	45	235	37	132	21	296	47
Insein	339	296	87	182	54	101	30	80	24	109	32
Prome	229	251	110	197	86	99	43	101	44	121	53
Pegu totals (b)	**2,308**	**2,248**	**97**	**1,473**	**64**	**836**	**36**	**537**	**23**	**1,115**	**48**
Bassein	525	603	115	516	98	271	52	169	32	245	47
Henzada	388	399	103	392	101	200	52	203	52	196	51
Myaungmya	706	657	93	483	68	300	43	110	16	254	36
Maubin	321	284	88	210	66	106	33	87	27	107	33
Pyapon	574	549	96	387	67	336	59	112	20	202	35
Irrawaddy totals (c)	**2,514**	**2,491**	**99**	**1,989**	**79**	**1,213**	**48**	**681**	**27**	**1,003**	**40**
Salween(Papun)	14	12	84	n.a.		6	44	4	30	11	77
Thaton	369	382	103	341	92	147	40	127	34	220	60
Amharst(Moulmein)	273	262	96	302	111	123	45	125	46	212	78
Tavoy	72	65	91	70	97	53	73	40	56	49	69
Mergui	56	44	79	52	93	37	65	12	21	34	60
Toungoo	257	273	106	224	87	86	33	83	32	134	52
Tenasserim totals (d)	**1,027**	**1,026**	**100**	**989**	**96**	**444**	**43**	**387**	**38**	**649**	**63**
Thayetmyo	57	52	92	35	62	3	6	28	49	15	26
Minbu	85	98	115	108	127	66	78	75	89	83	98
Magwe(Yenangyaung)	24	23	95	26	109	3	12	23	98	15	61
Pakokku	31	28	89	35	112	10	33	17	54	15	47
Magwe totals (e)	**197**	**200**	**102**	**205**	**104**	**83**	**42**	**143**	**73**	**127**	**64**
Mandalay	76	71	93	64	84	48	63	50	65	58	76
Kyaukse	78	83	107	75	97	59	76	47	61	64	82
Meiktila	36	41	113	69	192	5	13	27	75	22	62
Myingyan	12	15	129	21	175	7	57	14	113	3	23
Yamethin(Pinmana)	110	131	119	115	105	43	39	64	58	76	69
Mandalay totals (f)	**312**	**341**	**109**	**344**	**110**	**161**	**52**	**201**	**64**	**222**	**71**
Bhamo	21	19	88	n.a.		n.a.		3	16	4	21
Myitkyina	63	61	97	37	59	n.a.		15	24	27	43
Shwebo	290	279	96	267	92	104	36	175	60	116	40
Sagaing	11	9	86	21	195	3	28	12	111	14	124
Katha	130	116	89	109	84	30	23	50	39	39	30
Upper-Chindwin (Mawlaik	69	53	77	46	67	19	27	21	31	25	36
Lower-Chindwin (Monywa	20	22	110	39	196	7	36	21	107	11	57
Sagaing totals (g)	**520**	**480**	**92**	**483**	**93**	**163**	**31**	**280**	**54**	**205**	**39**
Lower Burma (h)	*6,000*	*5,921*	*99*	*4,580*	*76*	*2,586*	*43*	*1,725*	*29*	*2,903*	*48*
Upper-Burma (i)	*1,029*	*1,021*	*99*	*1,032*	*100*	*407*	*40*	*625*	*61*	*554*	*54*
Grand Totals (j)	*7,029*	*6,942*	*99*	*5,612*	*80*	*2,993*	*43*	*2,350*	*33*	*3,456*	*49*

Note: Same as Table 5. District names in round brackets are appellations under the Ba Maw government.

Source: [Normal productions] Indian Office Records, "Statement Showing Rough Estimation of Normal Production and Exports and of the Probable Position in 1943-44" In Report of the Expert Advisory Committee of the Rehabilitation of the Rice Industry on Burma, Appendix IX,

Table 7 shows the changes in drought cattle populations, irrigation areas, sown acreages with rice and rice productions during the prewar, wartime and postwar periods by indices which are 100 in 1939/40. While the number of drought cattle in Lower Burma in 1943/44 was 80 per cent and the area planted with rice was 65 per cent of those in 1939/40, paddy production dropped to 42 per cent. Correspondingly in Upper Burma, the number of drought cattle, the irrigation acreage and the area planted with rice in 1943/44 were 79 per cent, 74 per cent and 69 per cent of those in 1939/40 respectively, but paddy production plunged to 39 per cent. These gaps indicate that other conditions, such as weather, pests, markets, and labor supply affected the production descents as well as irrigation and cattle.

Table 7. Changes in drought cattle, irrigation and rice productions.

Lower Burma(a)	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Drought cattle	100	99	102	90	80	73	77
Irrigation	100	92	96	76	60	51	62
Area sown with paddy	100	100	100	90	65	48	63
Paddy production	100	85	101	74	42	28	47
Upper Burma(b)							
Drought cattle	100	100	102	88	79	82	83
Irrigation	100	104	107	99	74	80	80
Area sown with paddy	100	108	108	102	69	78	75
Paddy production	100	90	102	98	39	60	53

Note: (a): Akyab, Arakan-Hill Tracts and Salween District are excluded.
(b): Bhamo and Myitkyina District are excluded.
Source: Same as Table 1.

The primary cause of the fall in rice-sown acreage in Lower Burma was poor prices. Lower Burma had enjoyed vent-for-surplus development before the war but the war closed the vent. Overflowing rice in the domestic markets triggered steep plunges in rice prices. As shown in Table 8, paddy prices in Irrawaddy and Pegu Division dropped to Rs. 45 per 100 baskets[10] in the 1942/43 harvest season, while prices were Rs. 80-130 per 100 baskets before the war. In 1943, the military government issued the paddy-purchase scheme and attempted to support the market by buying paddy for Rs. 80 per 100 baskets. Owing to the scheme, prices of paddy seem to have rebounded to 100-110 Rs. per 100 baskets in 1943/44. However, these prices were inflated by paddy bonds and/or military notes with no backing and no regard to the effect on the price level. It is believed that real prices of paddy were slumping during the war. Fewer commodity supplies and prevailing inflation raised the cost of cultivation and the cost of living of cultivators and laborers. The low price of grain and the high cost of cultivation compelled them to resort to trading, manual labor or occupations connected with the war[11]. In addition to these, unfavorable weather and insecurity in working fields led to a more substantial decline of

production than that of sown acreage. As these situations continued into the postwar period and particularly given the unreliable rains in 1945/46, sown acreage and production lessened further.

Table 8. Paddy Prices at Harvest Time

(Rupees per 100bsk)

District	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Akyab	92	123	135	n.a	n.a		258
Northen Arakan	70	70	70	no sale	n.a	100	
Kyaukpyu	124	111	132	n.a	n.a	160	278
Sandoway	77	83	97	60	195		220
Arakan averages	**91**	**97**	**109**	**60**	**195**	**130**	**252**
Rangoon	78	97	129	82			
Pegu	77	105	119	33	90	125	279
Tharrawaddy	83	113	136	22	80	140	291
Hanthawady	90	118	128	35	90	153	232
Insein	81	103	121	no sale	no sale	no sale	no sale
Prome	78	97	114	45	183	131	296
Pegu averages	**81**	**106**	**125**	**43**	**111**	**137**	**275**
Bassein	88	105	132	75	135	187	292
Henzada	87	109	128	33	140	159	293
Myaungmya	88	120	130	30	52	139	262
Maubin	89	112	128	no sale	no sale	204	292
Pyapon	96	118	137	36	70	129	300
Irrawaddy averages	**90**	**113**	**131**	**44**	**99**	**164**	**288**
Salween	58	73	73	n.a	175	n.a	n.a
Thaton	82	101	113	38	159	173	281
Amherst	95	115	113	105	235	213	317
Tavoy	82	88	107	59	363	308	279
Mergui	75	93	108	83	300	333	325
Toungoo	62	88	100	n.a	119	175	207
Tenasserim averages	**76**	**93**	**102**	**71**	**225**	**240**	**282**
Thayetmyo	72	95	114	66	433		288
Minbu	74	124	111	85	600	246	227
Magwe	63	80	80	88	625	300	228
Pakkoku	no sale	no sale	no sale	no sale	no sale	no sale	no sale
Magwe averages	**70**	**100**	**102**	**80**	**553**	**273**	**248**
Mandalay	75	113	127	116	1,004		301
Kyaukse	63	88	111	113	1,633	305	250
Meiktila	50	no sale	no sale	no sale	no sale	no sale	no sale
Myingyan	79	no sale	no sale	no sale	no sale	no sale	no sale
Yamethin	65	87	90	70	363	208	197
Mandalay averages	**66**	**96**	**109**	**100**	**1,000**	**257**	**249**
Bhamo	50	70	74	n.a	n.a	n.a	n.a
Myitkyina	65	80	100	n.a	n.a	n.a	182
Shwebo	53	89	101	83	1,363	329	250
Sagaing	no sale	112	118	no sale	n.a	333	no sale
Katha	51	74	81	21	221	150	n.a
Upper Chindwin	45	92	94	101	225	467	n.a
Lower Chindwin	65	109	115	166	no sale	no sale	283
Sagaing averages	**55**	**89**	**98**	**93**	**603**	**320**	**238**
S.D.	*16.0*	*15.8*	*19.1*	*35.2*	*404.3*	*90.1*	*37.0*
C.V.	*0.21*	*0.16*	*0.17*	*0.51*	*1.10*	*0.42*	*0.14*

Note: Same as Table 1.

S.D.: Standard Deviation, not weighted with volumes of marked rice.

C.V: Coefficient of Variation, not weighted with volumes of marked rice.

Source: Same as Table 1.

Table 9. Paddy Surpluses in Divisional Burma

(Paddy in thousand tons)

District	Normal Production	Normal requirements (Food & Seed)	Normal Surplus + Deficit -	Paddy surplus or deficit by year				
				38/39-40/41	1942/43	1943/44	1945/46	1946/47
Akyab	467	209	258	246			45	60
Arakan-Hill Tracts	6	9	-3	-3			-6	-4
Kyaukpyu	88	67	21	30	5	-18	2	21
Sandoway	63	37	26	22	20	7	14	11
Arakan totals	**624**	**322**	**302**	**294**	**25**	**-12**	**55**	**87**
Rangoon	3	126	-123	-124	-125	-125	-125	-125
Pegu	703	172	531	560	278	15	-71	143
Tharrawaddy	406	165	241	227	198	47	-43	107
Hanthawaddy	628	137	491	438	143	98	-5	159
Insein	339	112	227	184	70	-11	-32	-3
Prome	229	120	109	131	77	-21	-19	1
Pegu totals	**2,308**	**832**	**1,476**	**1,416**	**641**	**4**	**-295**	**283**
Bassein	525	190	335	413	326	81	-21	55
Henzada	388	189	199	210	203	11	14	7
Myaungmya	706	146	560	511	337	154	-36	108
Maubin	321	120	201	164	90	-14	-33	-13
Pyapon	574	115	459	434	272	221	-3	87
Irrawaddy totals	**2,514**	**760**	**1,754**	**1,731**	**1,229**	**453**	**-79**	**243**
Salween	14	15	-1	-3		-9	-11	-4
Thaton	369	168	201	214	173	-21	-41	52
Amharst	273	163	110	99	139	-40	-38	49
Tavoy	72	55	17	10	15	-2	-15	-6
Mergui	56	46	10	-2	6	-9	-34	-12
Toungoo	257	131	126	142	93	-45	-48	3
Tenasserim totals	**1,041**	**578**	**463**	**460**	**426**	**-128**	**-187**	**82**
Thayetmyo	57	59	-2	-7	-24	-56	-31	-44
Minbu	85	72	13	26	36	-6	3	11
Magwe	24	86	-62	-63	-60	-83	-63	-71
Pakokku	31	44	-13	-16	-9	-34	-27	-29
Magwe totals	**197**	**261**	**-64**	**-61**	**-56**	**-178**	**-118**	**-134**
Mandalay	76	95	-19	-24	-31	-47	-46	-37
Kyaukse	78	44	34	39	31	15	3	20
Meiktila	36	41	-5	20	48	-16	6	1
Myingyan	12	43	-30	-26	-20	-34	-27	-38
Yamethin	110	128	-18	3	-13	-85	-64	-52
Mandalay totals	**312**	**351**	**-38**	**12**	**15**	**-167**	**-127**	**-107**
Bhamo	21	25	-4	-6			-22	-21
Myitkyina	63	59	4	2	-22		-44	-32
Shwebo	290	147	143	132	120	-43	28	-31
Sagaing	11	61	-50	-52	-40	-58	-49	-47
Katha	130	82	48	34	27	-52	-32	-43
Upper-Chindwin	69	69	0	-16	-23	-50	-48	-44
Lower-Chindwin	20	34	-14	-12	5	-27	-13	-23
Sagaing totals	**604**	**477**	**127**	**82**	**68**	**-230**	**-178**	**-240**
Lower Burma	*6,487*	*2,492*	*3,995*	*3,901*	*2,321*	*318*	*-506*	*695*
Upper Burma	*1,092*	*1,088*	*25*	*34*	*27*	*-575*	*-423*	*-481*
Grand Totals	*7,579*	*3,580*	*3,999*	*3,914*	*2,327*	*-279*	*-950*	*193*

Notes: Same as Table 6.
Ration of Rice: Lower Burma: 1.75 Nosibus (1lb.) per head per day
Upper Burma : 1.5 Nasibus
Maiktila: 0.75 Nasibus
Myingyan, Pakokku and Lower Chindwin: 0.5 Nosibus
Source: Same as Table 6.

The reason for the decline in sown acreage and production of paddy in Upper Burma is a little different. Prices in 1942/43 dropped a little but rocketed ahead in 1943/44 because of serious rice shortages in this area as indicated in Table 9. Even if monetary inflation is taken into account, this surge is extraordinary. In this case price is not a cause of production decline but a result of it. It seems that damage to irrigation systems[11] and lack of drought cattle decreased the area planted with rice proportionately as shown in Table 7, and unseasonable weather led to much further production decline. Rice cultivation was immediately restored in 1945/46 in contrast to the case in Lower Burma. High prices may have been a primary factor of this recovery.

The plunge in paddy production in Upper Burma induced acute rice shortages there. As indicated in Table 9, although Upper Burma as a whole attained self-sufficiency in rice production before the war, rice sufficient districts such as Mibu, Meiktila, and Shwebo fell into rice deficit during the war. Conventional studies have said that the main cause of rice shortage in Upper Burma was the serious deterioration of transportation including waterways, roads and railways from Lower Burma[12], but this is secondary. The main cause is the destruction of self-sufficiency of rice in Upper Burma.

Of course it is certain that the lack of transport from rice surplus districts in Lower Burma to rice deficit Upper Burma worsened the situation. Increase in coefficients of variation in Table 8 gives evidence of the plight of the internal market, which was broken into a number of slightly connected fragments because of the lack of transport.

2. Millet

Almost all kinds of millet, including pyaung, lu, bajra, saksan etc., have been sown in Upper Burma for fodder, but the people there did not cease to eat millet as a supplement to their staple food, rice. The main producers were farmers in Pakkoku, Myingyan and Lower Chindwin District. Table 10 denotes that total sown acreages of millet increased by 20 per cent from 1940/41 to 1942/43. The acreage dropped slightly in 1943/44 but was still larger than that of the prewar level. After the war, sown area with millet increased again to 34 per cent more than the prewar acreage in 1946/47. As indicated in Table 7, the numbers of cattle, the main consumers of millet, during and after the war were around 20 per cent below prewar levels. The surplus millet with the deduction of the cattle and newly produced millet were undoubtedly produced for human consumption. This signifies farmers in Upper Burma endeavored to grow more millet in response to the severe rice shortage. Their efforts could not cool the soaring rice prices, but

seem to have alleviated the risk of famine.

Table 10. Area sown with millet

(Thousand acres)

District	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Magwe	15	15	16	14	14	14	15
Pakkoku	126	122	126	139	123	126	156
Meiktila	39	33	32	32	31	39	42
Myingyan	113	107	109	128	137	146	157
Yamethin	1	1	1	1	1	0	1
Shwebo	0	0	0	1	1	0	1
Sagaing	38	41	40	64	57	67	65
Lower Chindwin	118	118	120	153	136	144	159
Total(a)	457	442	450	540	504	543	603
Total(b)	457	443	450	540	504	543	603

Notes: (a) Total productions in Divisional Burma except Akyab, N.Arakan, Salween, Bhamo and Myitkyina District
(b) Total productions in Divisional Burma

Source: Same as Table 1.

3. Pulses

Pulses such as gram, lablab bean, rice bean, and butter bean were mainly sown as the second crop of the rainy season in Upper Burma and nearly 90 per cent of pulses were sown there, while some grams were planted in Lower Burma as well. As shown in Table 11, the sown acreage of pulses in (Divisional) Burma dropped to 64 per cent in 1942/43 and 44 per cent in 1943/44 compared to the average of 1938/39-40/41, according to the decline in Upper Burma. The shrinkage in the acreage of pulses was most drastic among the main crops. As cultivation of pulses is not as difficult as rice and oilseed in terms of water control and soil preparation, the reason for the drop may not have been destruction of irrigation or decrease of drought cattle. Pulses are not fertilizer hungry or sensitive to unusual weather, either. Therefore, the shrinkage in the acreage of pulses may have been due to farmers having to make strong efforts to assure their staple food, leaving them unable to produce pulses in spite of favorable prices for pulses[13].

Table 11. Area sown with pulses

(Thousand acres)

Division	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Arakan	0	0	0	0	0	0	0
Pegu	52	59	58	35	33	29	29
Irrawaddy	88	90	93	44	46	52	51
Tenasserim	15	20	20	13	18	13	13
Magwe	224	296	270	164	115	150	159
Mandalay	451	466	455	284	178	240	254
Sagaing	515	535	546	373	225	271	346
Lower Burma	156	169	171	92	98	95	93
Upper-Burma	1,190	1,297	1,270	820	518	661	758
Grand Totals Burm	1,346	1,465	1,441	912	616	756	852

Note: Same as Table 5.
Source: Same as Table 1.

4. Sesame and Groundnut

Sown area with sesame in 1943/44 dropped by 24 per cent from that in 1940/41 but recovered to 90 per cent of the prewar level in 1945/46. On the contrary, groundnut planted acreage declined by only 3 per cent in 1943/44 but by 20 per cent in 1945/46 from the prewar level.

Sesame and groundnut are grown for cooking oil, which is an essential dietary component in Burma. Both crops were almost exclusively cultivated in Upper Burma and the surpluses were exported to Lower Burma. Nevertheless, 15-20 per cent of cooking oil consumed in Burma had to be imported from abroad before the war. Table 12 and 13 indicate that sown acreages of sesame and groundnut during the war were 25 per cent and 2-5 per cent less than the average of 1938/39-40/41 respectively. The sown acreages of both did not decrease as much as those of pulses because oilseeds were more crucial than pulses for diet. However, a cutoff of imports and a decline in the production of oilseed induced price surges so drastic even in the core production areas in Upper Burma that the Ba Maw government had to issue price control ordinances on those products several times[14].

Table 12. Area sown with sesame

(Thousand acres)

Division	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Arakan	1	1	1	1	1	1	1
Pegu	6	5	5	6	10	11	11
Irrawaddy	2	2	2	4	5	6	4
Tenasserim	11	11	11	14	27	21	24
Magwe	480	513	469	358	331	376	380
Mandalay	478	525	491	344	336	433	468
Sagaing	370	379	372	296	313	371	359
Lower Burma	21	19	20	25	43	39	40
Upper-Burma	1,328	1,417	1,332	997	980	1,179	1,206
Grand Totals Burma	1,349	1,436	1,352	1,022	1,023	1,218	1,246

Note: Same as Table 5.
Source: Same as Table 1.

Table 13. Area sown with groundnut

(Thousand acres)

Division	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Arakan	0	0	0	0	0	0	0
Pegu	3	3	3	4	6	8	10
Irrawaddy	10	8	9	9	14	24	27
Tenasserim	2	2	4	2	5	8	10
Magwe	412	366	380	360	318	229	202
Mandalay	308	281	278	258	262	218	200
Sagaing	104	100	106	121	120	135	123
Lower Burma	15	14	17	16	24	40	46
Upper-Burma	824	747	764	739	700	582	525
Grand Totals Burma	839	760	781	755	724	622	572

Note: Same as Table 5.
Source: Same as Table 1.

5. Cotton

The military government repeatedly announced a plan to increase the cotton crop and granted a monopsony to a Japanese company[16]. Although the purchasing price was Rs. 100 per basket against Rs. 22 which was the average price for ten years before the war[17], the sown acreage of cotton decreased as shown in Table 14. The reasons seemed to be that the real purchasing price fell off in the general inflationary conditions and farmers preferred to grow essential crops for their diet such as millet, sesame and groundnut, prices for which soared more substantially than cotton.

Table 14. Area sown with cotton

(Thousand acres)

Division	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Arakan	0	0	0	0	0	5	0
Pegu	2	2	2	3	3	3	3
Irrawaddy	0	0	0	0	0	1	0
Tenasserim	0	0	0	0	0	1	0
Magwe	74	66	64	47	69	65	49
Mandalay	145	116	136	103	100	96	68
Sagaing	185	162	215	139	104	92	47
Lower Burma	3	2	2	3	4	9	3
Upper-Burma	404	344	415	290	274	254	164
Grand Totals Burma	407	346	417	293	278	263	167

Note: Same as Table 5.
Source: Same as Table 1.

6. Jute

The Japanese military administration and subsequently the Ba Maw Government introduced jute cultivation in Lower Burma. Jute was expected to provide an alternative crop to rice and help to relieve the situation arising from acute shortage of containers which were imported from British India before the war. In 1943/44, jute was planted mainly in Mubin and Henzada districts. The sown areas were 2,312 acres and 622 acres respectively, but were 0.6 per cent and 0.1 per cent of the gross sown area of each district. Although jute was not a favorable crop for farmers during the wartime, it has grown to become one of the main crops in the Irrawaddy Delta since the 1960s.

III. Changing Patterns of Regional Specialization

The last analysis is to examine the change in regional structures of agricultural production. For this purpose, the location quotient (LQ) is employed. While LQ is applied for various economic and social data, sown acreages of crops, which are most complete in the *Season and Crop Report*, are used in this analysis. LQ is formulated as follows:

$$LQ = \frac{Aij}{\sum_i Aij} \Big/ \frac{\sum_j Aij}{\sum_i \sum_j Aij}$$

where Aij is the sown acreage of crop i in j district. The numerator of the equation is the ratio of sown acreage of crop i in j district to the gross sown area in j district, and the denominator is the ratio of sown acreage of crop i in the whole of (Divisional) Burma to the gross sown area of the whole of (Divisional) Burma. Therefore, if LQ>1, this indicates a relative concentration of crop i in j district, compared to (Divisional) Burma as a whole. If LQ =1, j district has a share of the sown acreage of crop i in accordance with its share of Divisional Burma. If LQ<1, j district has less of a share of the sown acreage of crop i than is more generally found. While LQ has been calculated on each district, Table 15 lists aggregate LQs on each division, Lower Burma and Upper Burma.

It is clear from the table that all Divisions in Lower Burma specialized in rice production while those in Upper Burma diversified into crops other than rice. This situation was unchanged from the prewar period to the postwar period. However, we can find some changes of LQs in some districts and in some crops.

The table indicates that LQ of cotton in Magwe division increased toward the end of the war in contrast to the decline of millet, sesame and groundnut. The same tendency is also observed on LQs of pulse and sesame in Mandalay division. These trends signify that the cotton promotion program by the government prevented farmers from planting necessary and marketable crops on their upland fields. On the contrary, LQs of millet, sesame and groundnut in Sagaing division increased, whereas that of cotton diminished. It seems that the cotton program did not work in this district. As a result of interference of the above antipodal trends, LQs in Upper Burma were unchanged during the war.

Although there was a drop of sown acreage as shown in Table 2, LQs of rice increased in Lower Burma after the war, which means specialization of rice cropping deepened. The reason is that the gross sown acreage decreased to a large extent compared with that in Upper Burma. On the contrary, all LQs except rice decreased in Upper Burma because of a relative increase in gross sown acreages to those in Lower Burma. Unchanged LQs of rice in Upper Burma implies that rice production in Upper Burma became relatively important in Divisional Burma through the war.

A rise in groundnut acreage is an exception in the downward trend in sown areas among the main crops in Lower Burma as shown in Table 2, and its LQs increased appreciably after the war. Farmers responded to the shortage and price surge of oilseed, and increased the sown area of groundnut from the end of the war. This seems to be part of a prevailing momentum toward groundnut cultivation in Lower Burma.

Table 15. Location Quotients by Division

Division	Crops	1938/39	1939/40	1940/41	1942/43	1943/44	1945/46	1946/47
Arakan	Paddy	1.38	1.39	1.39	1.34	1.45	1.58	1.52
	Millet							
	Pulses	0.01	0.01	0.01	0.02	0.02	0.01	0.01
	Sesame	0.05	0.05	0.04	0.04	0.04	0.04	0.04
	Groundnut	0.00	0.01	0.01	0.01	0.01	0.02	0.01
	Cotton	0.01	0.01	0.01	0.02	0.06	0.06	0.06
	Other crops	0.94	0.92	0.89	0.91	0.78	0.72	0.71
Pegu	Paddy	1.43	1.43	1.42	1.37	1.46	1.57	1.51
	Millet							
	Pulses	0.19	0.19	0.20	0.18	0.28	0.24	0.18
	Sesame	0.02	0.02	0.02	0.03	0.05	0.06	0.05
	Groundnut	0.02	0.02	0.02	0.03	0.04	0.08	0.09
	Cotton	0.03	0.03	0.03	0.04	0.07	0.07	0.09
	Other crops	0.51	0.53	0.54	0.57	0.61	0.71	0.62
Irrawaddy	Paddy	1.39	1.40	1.39	1.35	1.42	1.47	1.44
	Millet							
	Pulses	0.29	0.27	0.29	0.22	0.34	0.40	0.31
	Sesame	0.01	0.00	0.01	0.02	0.02	0.03	0.02
	Groundnut	0.05	0.05	0.05	0.06	0.09	0.22	0.24
	Cotton	0.00	0.00	0.00	0.00	0.00	0.02	0.00
	Other crops	0.67	0.67	0.67	0.73	0.78	1.00	0.84
Tenasserim	Paddy	1.28	1.28	1.27	1.23	1.24	1.35	1.32
	Millet							
	Pulses	0.09	0.11	0.11	0.10	0.21	0.13	0.10
	Sesame	0.06	0.06	0.07	0.10	0.19	0.13	0.13
	Groundnut	0.02	0.03	0.04	0.02	0.05	0.09	0.12
	Cotton	0.00	0.00	0.00	0.00	0.01	0.02	0.01
	Other crops	1.57	1.57	1.57	1.57	1.61	1.55	1.41
Magwe	Paddy	0.30	0.33	0.35	0.38	0.31	0.40	0.36
	Millet	2.52	2.42	2.50	2.36	2.06	1.71	2.09
	Pulses	1.34	1.55	1.47	1.48	1.40	1.31	1.36
	Sesame	2.87	2.74	2.73	2.88	2.43	2.03	2.23
	Groundnut	3.96	3.69	3.83	3.93	3.29	2.42	2.59
	Cotton	1.47	1.46	1.21	1.33	1.86	1.63	2.13
	Other crops	1.99	1.88	1.86	1.73	1.69	1.49	1.67
Mandalay	Paddy	0.42	0.45	0.45	0.50	0.47	0.49	0.47
	Millet	2.33	2.13	2.16	2.19	2.26	1.93	2.02
	Pulses	2.28	2.11	2.12	2.24	1.93	1.78	1.79
	Sesame	2.42	2.42	2.44	2.42	2.19	1.98	2.26
	Groundnut	2.50	2.45	2.39	2.46	2.41	1.96	2.10
	Cotton	2.43	2.22	2.18	2.54	2.42	2.04	2.47
	Other crops	1.34	1.38	1.41	1.36	1.14	1.00	1.12
Sagaing	Paddy	0.68	0.66	0.65	0.67	0.64	0.72	0.58
	Millet	2.31	2.52	2.40	2.76	2.70	2.21	2.51
	Sesame	2.56	2.52	2.53	2.76	2.55	2.01	2.70
	Groundnut	1.83	1.83	1.83	1.95	2.13	1.70	1.91
	Groundnut	0.83	0.91	0.91	1.08	1.15	1.21	1.43
	Cotton	3.05	3.24	3.44	3.22	2.62	1.97	1.86
	Other crops	0.54	0.50	0.52	0.54	0.51	0.46	0.57
Lower Burma	Paddy	1.38	1.38	1.38	1.33	1.39	1.48	1.44
	Millet							
	Pulses	0.20	0.20	0.21	0.17	0.28	0.26	0.20
	Sesame	0.03	0.02	0.03	0.04	0.07	0.07	0.06
	Groundnut	0.03	0.03	0.04	0.04	0.06	0.13	0.15
	Cotton	0.01	0.01	0.01	0.02	0.03	0.07	0.04
	Other crops	0.82	0.83	0.83	0.88	0.93	1.04	0.91
Upper Burma	Paddy	0.48	0.49	0.49	0.53	0.48	0.54	0.47
	Millet	2.38	2.35	2.35	2.45	2.35	1.96	2.21
	Pulses	2.10	2.08	2.07	2.20	1.97	1.72	1.96
	Sesame	2.34	2.32	2.31	2.39	2.25	1.90	2.14
	Groundnut	2.34	2.31	2.30	2.40	2.27	1.84	2.03
	Cotton	2.37	2.33	2.33	2.43	2.31	1.89	2.16
	Other crops	1.25	1.24	1.23	1.17	1.10	0.96	1.10

Conclusions

This paper discussed the structural change of agriculture in Burma during the Japanese occupation period from the viewpoints of crop diversification and regional differences, and ultimately depicted the peasant mode of response to the crisis through analyzing the official statistics.

At the start, rice production was examined along the line of conventional studies. Much has been made of the causes of the plunge in rice production in Lower Burma, such as labor exodus, especially of Indian laborers, cattle shortage, price declines, pests, unfavorable weather, lack of millers and traders, etc. Provided that we adhere to economic causality, the cause of the plunge in rice production in Lower Burma should have be a rapid decline of paddy prices following the close of the vent-for-surplus. Labor exodus from the rice industry was a result of it. Furthermore, it is said that there was more than sufficient rice consistently in Lower Burma during the wartime, but this analysis has indicated that the rice balance became tighter towards the end of the war and fell into deficit after the war.

The character of rice shortage in Upper Burma differed from that in Lower Burma. It is said that the main cause of rice shortage in Upper Burma was the serious deterioration of transportation from rice-surplus Lower Burma. However, the demand and supply of rice in Upper Burma almost balanced. Therefore, the primary cause of rice shortage there was the destruction of self-sufficiency of rice. Damage to transport networks worsened the plight.

A perspective of this paper is not limited to rice but takes a broader look at other crops, for focusing on rice is insufficient to consider the peasant mode of response to the crisis.

Millet is a supplemental food for rice in Upper Burma. The farmers there increased the production of millet, responding to rice shortages. This behavior did some good for famine alleviation, but the diet of the people deteriorated.

Sesame and groundnut are produced for cooking oil, which is an essential dietary component in Burma. The farmers in Upper Burma also tried to expand the cultivation of oilseed in response to the shortage and price surge, but the cotton promotion program by the government prevented the expansion in several districts.

There was almost no production of oilseed in Lower Burma before the war. Edible oil was

imported from Upper Burma and abroad. In response to the shrinkage in imports and shortages, farmers in Lower Burma tried to increase the production of groundnut. This trend continued after the war.

Peasants' responses to the crisis of agricultural production during wartime and immediate aftermath of war many have alleviated the crisis a little but not eliminated it at all. It is certain that the plunge of production of rice and other crops had a catastrophic effect on the economy of the whole of Burma. However, small changes, such as a production rise of groundnut and the introduction of jute cultivation in Lower Burma, continued after the war and spread there. It might be possible to say that the paddy-purchase scheme had some influence on the paddy procurement policy after independence.

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[1] *Biruma no Keizai Kaihatsu* (『ビルマの経済開発』)[Economic Development of Burma], (Tokyo: Institute of Developing Economies[アジア経済研究所], 1961), p.44.

[2] Akio Takahashi(高橋昭雄), "Myanmar: Konnan na Shijou Keizai heno Iko (困難な市場経済への移行)[Myanmar: A Tough Transition from Socialist to Market Economy]," in Yonosuke Hara (ed), *Ajia Keizai ron*(『アジア経済論』) [Asian Economy] (Tokyo: NTT Publishing [NTT 出版], 1999), pp.300-301

[3] For examples, Paul H. Kratoska, "The Impact of the Second World War on Commercial Rice Production in Mainland South-East Asia," in Paul H. Kratoska (ed), *Food Supplies and the Japanese Occupation in South-East Asia* (London: Macmillan Press, New York: St. Martin's Press, 1998) pp.9-31, and Yoshinari Takeshima(武島良成), "Nihon Senryouki no Chubu Biruma to Shan Shu no Komebusoku (日本占領期の中部ビルマとシャン州の米不足) [Rice Shortage in Central Burma and Shan State during the Japanese Occupation Period].", in *Rekishigakukenkyu*(歴史学研究), 721 (March 1999).

[4] *The Season and Crop Report* for the year ending the 30th June 1943 (1942/43) was published in Burmese by the Land Records Department under the Ba Maw Government, and that of the year ending the 30th June 1944 (1943/44) was compiled by the same department in Burmese manuscript form. Both were published in 1946 in English. The report for the 1941/42 (the year ending the 30th June 1942) and 1944/45 were not compiled, while we can confirm by the documents in the NAD that regional data were collected in many districts.

[5] *The Season and Crop Report 1938/39, 1939/40, 1940/41, 1945/46 and 1946/47.*

[6] Any Season and Crop Reports covered only Divisional Burma and excluded peripheral areas such as Shan, Kachin, Chin areas before independence in 1948. Moreover, the Report during the Japanese occupation era lacked the data of Akyab and Arakan-Hill Tracts districts in Arakan division, Salween district in Tenasserim division, Bhamo and Myitkyina districts in Sagaing division. Therefore, the prewar and post war data of the above districts has been omitted from the analysis for consistency, and the aggregated amounts of the rest of 33 districts is regarded as data of the whole of (Divisional) Burma.

[7] *Burma during the Japanese Occupation, vol. 2* (Simla: Government of India press, 1944), p. 191.

[8] *ibid.*

[9] *op.cit.* p. 63.

[10] One basket is equivalent to nine imperial gallons.

[11] *The Season and Crop Report 1943/44*, p.2.

[12] It was reported that the Kabo irrigation head work and other weirs of Shwebo district and Mon irrigation works in Minbu district were damaged during the war. *The Season and Crop Report*

1943/44, p.3.

[13] Akiko Kurasawa, "Transportation and Rice Distribution in South-East Asia during the Second World War," in Paul H. Kratoska (ed), *Food Supplies and the Japanese Occupation in South-East Asia*, p.59. Kurasawa also says, in the same page, that " there were large (rice) surpluses in Lower Burma,", but Table 9 indicates that the rice balance in Lower Burma was headed from surplus to deficit toward the end of the war.

[14] According to *The Season and Crop Report*, the prices of gram jumped up from Rs. 425 per 100 baskets to Rs. 3,700 in Minbu District, from Rs. 133 to Rs. 17,600 in Sagaing District from 1942/43 to 1943/44. The prices of lablab bean also rocketed ahead from Rs. 425 to Rs. 4,300, from Rs. 400 to Rs.220,000 in both districts during the same period.

[15] *bama nainngandaw asoya amain pyandan* [Burma Gazette], No.31, 17 April 1943; No.41, 16 June 1943.

[16] *Burma during the Japanese Occupation, vol. 2*, pp.187-188.

[17] *The Season and Crop Report 1943/44*, p.44.