

# Regional Discrepancy in Agricultural Development in Indonesia

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## *Abstract*

*Agriculture in Indonesia is still an important sector in the economy, while for several outer provinces it constitutes the most important economic activity. However, there exists a wide discrepant in agricultural development between in particular Java/Ball and the eastern part of Indonesia. This is the very central issue which the author intends to capture the attention of policy makers in the field of agricultural development. The most advanced region for agricultural cultivation is highly concentrated on the island of Java, while in many parts of eastern Indonesia agricultural cultivation is still underdeveloped in terms of number of plant varieties, product quality and productivity. And these backward farmers belong to the poor group in the population. This wide discrepant in agricultural development is being demonstrated through a number of tables and personal observations by the author. Soil condition, climate and inputs do of course determine the volume, quality and kind of output, but know-how about agricultural technologies is no less important, and this is lacking in the Eastern regions. Unfortunately, thus far the central as well as the local governments do not put much attention to regional agricultural development. Therefore the government should change this attitude or rather its negligence about the problem, because through education in agricultural technologies and extension services the farmers in the outer regions could improve their agricultural technical know-how, contribute to regional development and hence their income.*

**Keywords:** Regional Discrepancy, Indonesia, Agricultural Development

**JEL classification:** R11,Q10

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## **I. REGIONAL DISCREPANCY IN AGRICULTURAL DEVELOPMENT IN INDONESIA**

Indonesia is an agricultural country, but agricultural development is lagging behind in many aspects as compared to some other developing countries. Though Indonesia possesses a wide variety of cash crops, fruits, flowers and vegetables, only few products are being exported, and even some are losing their market share abroad to other developing countries. On the other hand, imports of fruits and vegetables increased rapidly from other developing Asian countries like Thailand, China, and Pakistan, and developed countries as well like Australia and the U.S.A.

Looking at the regional development in agriculture, the situation is also of much concern. Agriculture in this article is confined to include only staple food, fruit, vegetables and medicinal herbs. Cash crops are excluded from the analysis, because their planting depends very much on predetermined climatic and soil conditions. Observations show that there is a wide discrepancy in agricultural development between certain regions in Indonesia. Certain islands as Java and Bali are relatively very advanced in agricultural cultivation and production in terms of variety of products and technological know-how. And agricultural production concentrates to a high degree on Java island. On the contrary the Eastern part of Indonesia in particular is lagging far behind, partly because the soil is infertile and partly because agricultural know-how is still underdeveloped. Regional agricultural development could be enhanced if there is attention from the central government. Of course, climatic conditions like rainfall, altitude, temperature and availability of water, contribute to regional differences in agricultural production. Nonetheless the percentage of farmers' population in the Eastern part of Indonesia is relatively high, much higher than on Java, and this is a good reason for the central government to put more attention to agricultural development in these regions through e.g. agricultural extension services, since these can improve their knowledge and increase productivity and efficiency and the variety of products, besides reducing poverty in these regions.

The article will analyze the regional structure of farmers and the

This article is a revised and updated version of an earlier paper with the same title presented at the 6<sup>th</sup> Indonesian Regional Science Association (IRSA) International Conference, Yogyakarta, August 13-14, 2004. The analysis in this article is drawn from personal observations and experiences during the many visits by the author to all the old provinces in Indonesia, except for Aceh.

regional discrepancies in agricultural production in Indonesia. The government has so far failed to develop agricultural cultivation and production in many backward regions. The article will also analyze regional agricultural policies undertaken by the central government and closes with some policy recommendations.

## II. AGRICULTURAL EMPLOYMENT BY REGION

The number of people working in the agricultural sector in Indonesia reached a total of 40.6 million in 2004, or 43.3% of all working population. But the distribution of farm workers between regions is unequal following approximately the distribution of the population, where outer Java has a slightly higher number than Java, 21.8 million (53.6%) versus 19.3 million (47.5%). Next to Java, Sumatra with 10.7 million (26.4%) had the second largest number of population in the agricultural sector, and the smallest region was the Moluccas and Papua with only 1.4 million (3.4%). According to province, East Java with 7.7 million people working in the agricultural sector was the largest province, followed closely by Central Java with 6.2 million. Provinces, aside from Jakarta and Yogyakarta, with a small number of workers in the agricultural sectors were Gorontalo (155,000), Bangka Belitung (172,000), North Moluccas (219,000), Moluccas (275,000), and North Sulawesi (429,000). (Table 1). As can be seen, concentration of agricultural workers is relatively high on Java.

The share of agricultural workers to total working population in 2004 was still relatively high, 43.3% out of a total of 93.7 million, and this also differs between regions. Outer Java had by far a much larger share of 57.7% as compared to Java with 34.5%. By province, the highest share was found in Papua (76.3%), followed closely by East Nusa Tenggara (73.7%), then Bengkulu (68.3%), Lampung (67.0%), West Kalimantan (66.9%), South Sumatra (65.8%), Jambi (65.4%), Southeast Sulawesi (65.1%), North Moluccas (62.4%) and the Moluccas (61.7%). On the contrary, Java Island had the lowest share of 34.5%. The relatively high share indicates the lack of manufacturing and services sectors in the outer regions. Provinces with relatively low share of agricultural employment, acid from Java, were Bangka Belitung (39.0%), Bali (37.1%), and East Kalimantan (30.9%), which might be primarily due to the dominance of oil and coal production in the province. (Table 1).

**Table 1**  
*Working Population Aged 15 Years and Above in the Agricultural Sector\*)*  
*by Province, 2004*

Province	Agriculture		Total (000)	Agriculture of Total (%)
	Number (000)	(%)		
Nanggroe Aceh Darussalam	906	2.2	1523	59.5
North Sumatra	2525	6.2	4902	51.5
West Sumatra	853	2.1	1768	48.2
Riau	902	2.2	2026	44.5
Iambi	744	1.8	1137	65.4
South Sumatra	2035	5.0	3092	65.8
Bengkulu	492	1.2	720	68.3
Lampung	2098	5.2	3132	67.0
Bangka Belitung islands	172	0.4	441	39.0
Sumatra	10727	26.4	18741	57.2
Jakarta Metropolitan	21	0.1	3497	0.6
West Java	3996	9.8	14619	27.3
Central Java	6186	15.2	15528	39.8
Yogyakarta	644	1.6	1702	37.8
East Java	7663	18.9	17375	44.1
3anten	788	1.9	3290	24.0
Jawa	19298	47.5	56011	34.5
Bali	681	1.7	1835	37.1
West Nusa Tenggara	908	2.2	1845	49.2
East Nusa Tenggara	1441	3.5	1956	73.7
Bali, Nusa Tenggara	3030	7.5	5636	53.8
West Kalimantan	1198	3.0	1790	66.9
Central Kalimantan	453	1.1	814	55.7
South Kalimantan	751	1.8	1562	48.1
East Kalimantan	322	0.8	1041	30.9
Kalimantan	2724	6.7	5207	52.3
North Sulawesi	429	1.1	873	49.1
Central Sulawesi	582	1.4	976	59.6
South Sulawesi	1752	4.3	3184	55.0

Province	Agriculture		Total (000)	Agriculture of Total (%)
	Number (000)	(%)		
Southeast Sulawesi	540	1.3	829	65.1
Gorontalo	155	0.4	324	47.8
Sulawesi	3458	8.5	6186	55.9
Moluccas	275	0.7	446	61.7
North Moluccas	219	0.5	351	62.4
Papua	873	2.1	1144	76.3
Moluccas & Papua	1367	3.4	1941	70.4
Outer Java	21765	53.6	37711	57.7
Indonesia	40608	100.0	93722	43.3

\*) Includes agriculture, forestry, hunting, and fisheries. *Source:* Central Statistical Agency. *2005 Statistical Yearbook of Indonesia 2004*, Jakarta, pp.74-75.

### III. RICE AND OTHER FOOD CROP PRODUCTION

Total land area under rice cultivation in Indonesia in 2003 reached 11.5 million Ha., about the same as in 2002, of which 5.4 millions Ha. (46.9%) were located on Java Island. Rice field area on Java reached a high of 5.8 millions Ha. in 1999, but then declined slowly to 5.4 millions Ha. in 2003 due to the conversion to other uses especially on the Northern coast of West and Central Java like for golf courses, industrial and housing estates, and shopping malls. There is no attempt or regulation from the government side to protect or preserve fertile agricultural land, since the use of land is totally left over to the working of market forces. Though area wise Sumatra is about four times as large as Java, total area of rice cultivation was only 3.1 millions Ha. (26.6%), concentrated mainly in North Sumatra, South Sumatra, Lampung and West Sumatra. Another important province for rice cultivation in terms of area was South Sulawesi, while Bali and West Nusatenggara are of relatively importance as compared to their total land area. Though all the provinces in Indonesia do cultivate rice planting, however the rest of the provinces not mentioned above have only relatively small area of rice cultivation. If the

island of Java saw a slight decline in rice areas between 2002 and 2003, on the contrary, all the islands showed slight increases in area. (Table 2)

Total rice production in Indonesia in 2003 reached 52.1 million tons, up from 51.5 million tons the year before, despite slightly declining area of cultivation but compensated by a relatively greater increase in yield from 4,469 kg/ha in 2002 to 4,538 kg/ha in 2003. The greater part of rice, 28.2 million tons (54.2%) in 2003, was produced on Java, slightly down from 28.6 million tons the year before. Though rice field area on Java declined slightly between 2002 and 2003, the decline could not be fully compensated by a small increase in yield, from 5,101kg/ha to 5,237 kg/ha, the highest in Indonesia. The contribution of outer Java in rice production increased correspondingly slightly from 44.4% to 45.8%, where yield also increased slightly from 3,870 kg/ha to 3,919 kg/ha. The second largest rice-producing island was Sumatra with a total of 12.1 million tons in 2003 or 23.3%, up from 11.5 million tons in 2002, due to light increases in both cultivation area and yield. The contribution of the other islands was relatively small. The three largest rice-producing provinces by far in 2003 were East Java (8.9 million tons), West Java (8.8 million tons) and Central Java (8.1 million tons). On Java, area of rice cultivation declined slightly from 2002 to 2003 in West Java and Central Java, but increased slightly in East Java. Then followed South Sulawesi with distance with 4.0 million tons and North Sumatra with 3.4 million tons. In South Sulawesi, increase in rice production was caused by increased planting area but declining yield. In North Sumatra, on the other hand, increase in rice production was reached through increasing area despite constant yields. Many other provinces produced only less than 0.5 million tons of rice, and the smallest rice producing provinces in 2003 were Bangka Belitung (12,000 tons), Moluccas (31,000 tons) and Papua (39,000 tons). Most of the outer provinces saw slight increased production from 2002 to 2003, with the exception of West Sumatra, Bali, East Kalimantan, Central Sulawesi and Papua, which show some slight decline. (Table 2).

Also in terms of productivity, there were wide discrepancies between the provinces and in particular between Java and the Eastern part of Indonesia. Average yield/ha on Java in 2003 was 5.2 tons and on Sumatra 4.0 tons. Even on Sumatra, yield varied between provinces, with the highest West Sumatra with 4.4 tons, and the lowest Bangka Belitung with only 2.3 tons. Outside of Java and Sumatra, provinces with relatively high yield/ha were Bali 5.5 tons, South Sulawesi 4.7 tons, West Nusa Tenggara and Gorontalo 4.5 tons, and North Sulawesi 4.4 tons. Provinces with the lowest yields/ha were Bangka Belitung (2.3 tons), East

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Nusa Tenggara (2.9 tons), West Kalimantan (2.9 tons), Central Kalimantan (2.5 tons), and Papua (3.0 tons). (Table 2).

Table 2 *Rice Production by Province,  
2002-2003*

PROVINCE	Area (ha 000)				Production (tons 000)				Yield /Ha	
	2002		2003		2002		2003		2002	2003
	(ha)	(%)	(ha)	(%)	(tons)	(%)	(tons)	(%)	(kg)	(kg)
Nanggroe Aceh Darussalam	315	2.7	368	3.2	1314	2.6	1547	3.0	4,170	4,209
North Sumatra	765	6.6	825	7.2	3153	6.1	3403	6.5	4,121	4,124
West Sumatra	424	3.7	412	3.6	1876	3.6	1824	3.5	4,421	4,428
Riau	129	1.1	133	1.2	397	0.8	414	0.8	3,074	3,117
Iambi	166	1.4	159	1.4	561	1.1	578	1.1	3,385	3,627
South Sumatra	562	4.9	570	5.0	1900	3.7	1977	3.8	3,382	3,469
Bengkulu	110	1.0	111	1.0	380	0.7	413	0.8	3,468	3,739
Lampung	475	4.1	473	4.1	1951	3.8	1966	3.8	4,104	4,160
Bangka Belitung islands	4	0.0	5	0.0	10	0.0	12	0.0	2,294	2,325
Sumatra	2951	25.6	3056	26.6	1154	22.4	12134	23.3	3,912	3,971
akarta Metropolitan	2	0.0	2	0.0	11	0.0	8	0.0	4,868	4,384
West Java	1792	15.6	1664	14.5	9167	17.8	8777	16.8	5,115	5,273
Central Java	1653	14.3	1536	13.4	8504	16.5	8124	15.6	5,143	5,290
Yogyakarta	135	1.2	131	1.1	654	1.3	652	1.3	4,847	4,991
East Java	1686	14.6	1696	14.8	8804	17.1	8915	17.1	5,220	5,258
3anten	339	2.9	348	3.0	1469	2.9	1692	3.2	4,337	4,861
lava	5608	48.7	5377	46.9	2860	55.6	2816	54.0	5,101	5,239
Ball	149	1.3	145	1.3	809	1.6	793	1.5	5,442	5,460
West Nusa Tenggara	311	2.7	319	2.8	1370	2.7	1422	2.7	4,406	4,453
East Nusa Tenggara	166	1.4	176	1.5	468	0.9	509	1.0	2,888	2,867
Bali, Nusa Tenggara	625	5.4	640	6.4	2647	5.1	2724	5.2	4,232	4,256
West Kalimantan	347	3.0	353	3.1	985	1.9	1027	2.0	2,844	2,906
Central Kalimantan	158	1.4	195	1.7	395	0.8	490	0.9	2,504	2,510
South Kalimantan	421	3.7	438	3.8	1346	2.6	1410	2.7	3,194	3,216
ast Kalimantan	153	1.3	136	1.2	443	0.9	430	0.8	2,889	3,168
Kalimantan	1079	9.4	1122	9.8	3169	6.2	3357	6.4	2,937	2,992
	Area				Production				Yield	

PROVINCE	(ha 000)				(tons 000)				/Ha	
	2002		2003		2002		2003		2002	2003
North Sulawesi	80	0.7	84	0.7	346	0.7	369	0.7	4,306	4,384
Central Sulawesi	197	1.7	190	1.7	746	1.4	739	1.4	3,786	3,885
South Sulawesi	838	7.3	847	7.4	3894	7.6	4003	7.7	4,647	4,724
Southeast Sulawesi	79	0.7	91	0.8	299	0.6	334	0.6	3,770	3,664
Gorontalo	35	0.3	35	0.3	153	0.3	156	0.3	4,422	4,509
Sulawesi	1229	10.7	1247	10.9	5438	10.6	5301	10.2	4,424	4,251
Moluccas	5	0.0	9	0.1	12	0.0	31	0.1	2,654	3,305
North Moluccas	-	-	16	0.1	-	-	60	0.1	-	3,665
Papua	24	0.2	19	0.1	73	0.1	58	0.1	2,996	3,042
Moluccas & Papua	29	0.3	44	0.3	85	0.2	149	0.3	2,943	3,386
Outer Java	5913	51.3	6111	53.2	22882	44.4	2397	46.0	3,870	3,922
Indonesia	11521	100.0	11488	100.0	5149	100.0	5213	100.0	4,469	4,538

Source: Ministry of Agriculture. 2004. *Agricultural Statistics 2004*, Jakarta, pp. 60, 69, 78; Central Statistical Agency. 2005. *Statistical Yearbook of Indonesia 2004*, Jakarta, pp. 169,172,175.

A similar picture applies also to other staple food products like maize, cassava, sweet potatoes, peanuts, soybeans and mungbeans (*kacang hijau*). In terms of volume of production, the biggest output is recorded by cassava, followed by maize and with a wide distance by sweet potatoes, peanuts, soybeans and mungbeans. Production of all these products concentrates to a relatively high degree on Java, followed in the second place by Sumatra. The other islands and provinces play only a minor role. In maize production, out of total production of 10.9 million tons in 2003, 62.1% was produced on Java and only 19.2% in Sumatra. Production in Java increased substantially by 15.9% from 2002 to 2003, while in other provinces production increased only slightly. Largest producers of maize by province were East Java, Central Java and Lampung. In case of cassava, production increased quite significantly by 92% from 16.9 million tons in 2002 to 18.5 million tons in 2003. The main producing provinces were Lampung, East Java, Central Java, and followed far behind by West Java. For sweet potatoes, total production increased also significantly by 11.1% from 1.8 million tons in 2002 to 2.0 million tons in 2003. Though Java was the greatest producer of sweet potatoes, the share to total production reached only 35.0%, followed by



Papua with 25.6%. By peanuts, though the volume of production was small, less than 1 million tons, production increased by 9.3% from 2002 to 2003. For soybeans, total production remained constant at 0.7 million tons. Production concentrated in only two provinces, East Java and Central Java. Production of mungbeans was relatively small, 288,000 tons in 2002 and 335,000 tons in 2003, again with high concentration Java. (Table 3).

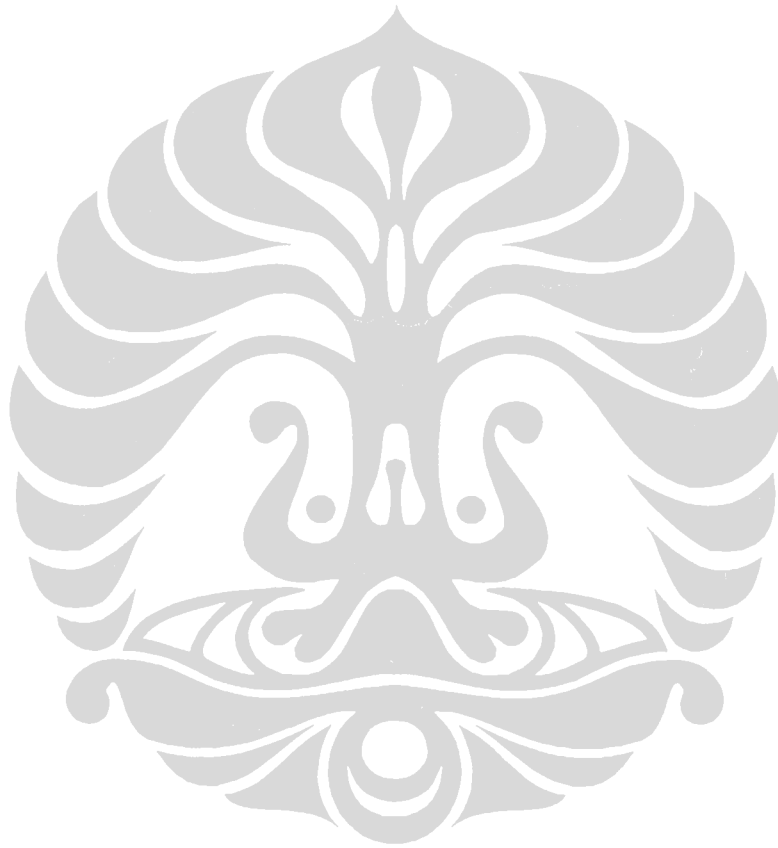
The relatively high yield in rice production can in general be explained by the relatively high production expenditures/ha as can be seen from the 1998/1999 figures in Table 4 as was also the case by soybeans. However by other products, the relationship was not clear. By maize the correlation was less obvious in case of Java and Sumatra. The highest yield in maize production was recorded in Java, followed in the second place by Sumatra, but production expenditures per ha was higher in Sumatra rather than in Java. However, by cassava, sweet potatoes and peanuts, no such correlation can be observed.

#### IV. VEGETABLE PRODUCTION

As to vegetable production, total production increased in case of spring onions (*bawang merah*), potatoes, cabbage, carrots and chili between 2002 and 2003, but by other vegetables, namely shallots and mustard green, total production declined slightly. Production increase by spring onions, potatoes and cabbage was relatively small, but by carrots and chili the increase was quite significant.

The island Java again dominated by far in the production of vegetables in 2003, the share was in particularly high in case of shallots (77.4%), carrots (76.3%) and spring onions (74.6%). To a lesser degree the dominance of Java was in case of potatoes (59.3%), cabbage (62.1%), mustard green (58.0%) and chili (56.0%). Main production areas for shallots were Central Java (30.3%) and East Java (28.0%). By spring onions, the largest production area by far was West Java (40.4%). By potatoes, the main production areas by ranking order were West Java (37.1%), North Sumatra (23.3%), and Central Java (12.5%). By cabbage West Java led with 32.5%, followed with distance by North Sumatra (18.5%) and Central Java (17.8%). In case of mustard green, West Java alone dominated with 40.1%, followed far behind by North Sumatra (19.9%) in the second place. Production of carrots was again dominated by West Java with 51.3%, followed far behind by Central Java with 14.7% and North Sumatra with 14.2%. By chili the main production provinces were West Java, East Java, North Sumatra and Central Java.

From **Table 5** it can be concluded that the main production areas for vegetables are West Java, Central Java, and for outer Java they are North Sumatra and South Sulawesi. At the other end, Kalimantan, Nusa Tenggara, Moluccas, Papua and also two provinces in Sumatra, Riau and Bangka Belitung, play only a minor role in vegetable production. (**Table 5**).





Ball	99	90	126	138	68	65	16	18	10	8	1	1
West Nusa Tenggara	58	64	88	89	18	21	32	40	60	76	24	35
East Nusa Tenggara	581	583	870	862	133	87	14	14	3	4	19	20
Ball, Nusa Tenggara	738	737	1084	1089	219	173	62	72	73	88	44	56
West Kalimantan	47	85	202	233	15	16	2	2	2	1	1	1
Central Kalimantan	8	9	104	115	19	11	2	2	2	2	0	0
South Kalimantan	29	30	107	72	24	19	17	16	7	6	2	1
East Kalimantan	12	11	116	96	23	27	3	2	2	2	1	1
Kalimantan	96	135	529	516	81	73	24	22	13	12	4	3
North Sulawesi	117	145	32	40	15	26	4	5	2	2	1	1
Central Sulawesi	48	49	69	50	29	25	6	6	2	2	1	1
South Sulawesi	661	651	543	591	78	62	42	53	19	24	33	28
Southeast Sulawesi	68	88	182	211	20	23	9	8	2	2	1	1
Gorontalo	130	184	10	9	4	4	2	3	2	1	0	1
Sulawesi	1025	1117	837	901	145	140	63	75	27	30	36	32
Moluccas	7	8	161	84	12	8	1	1	0	1	0	0
North Moluccas		4		103		28		2		1	-	0
Papua	8	5	47	41	257	512	3	2	5	3	1	1
Moluccas & Papua	15	17	208	228	269	549	4	5	6	5	1	1
Outer Java	3802	4105	7206	8694	1036	1290	220	257	170	184	114	132
Indonesia	9654	10886	16913	18524	1772	1991	718	786	673	672	288	335

Source: Ministry of Agriculture. 2004. *Agricultural Statistics 2004*, Jakarta, pp. 63-68; Central Statistical Agency. 2005, Jakarta, pp. 178-182.



Table 5  
*Production of Vegetables by Province,  
 2002 - 2003 (000 tons)*

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Province	Shallots"		Spring Onions"		Potatoes <sup>21</sup>		Cabbage"		Mustard Green"		Carrots"		Chili <sup>21</sup>	
	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003	2002	2003
Nanggroe Aceh D.	4	6.3	0.3	0.7	0.5	28.3	0.8	10.8	0.7	1.2	0.1	1.1		
North Sumatra	25.1	25.4	11.1	23.7	220.4	235.4	242.9	249.7	67.0	91.2	40.1	53.5	69	133
West Sumatra	10.7	8.2	3.3	9.3	8.3	13.9	21.5	36.1	2.9	2.9	1.9	2.6	21	49
Riau	-	-	0	0	-	-	0	0	2.8	0.6	0	0	4	3
Iambi	1.8	1.5	0.6	0.7	38.8	60.9	20.5	39.8	0.6	0.9	0.1	0.1	10	41
South Sumatra	0	0	0.7	4.5	0	0.1	1.5	2.7	1.3	3.9	0.4	1.7	9	20
Bengkulu	0.7	0.7	11.3	7.4	1.8	0.9	55.9	25.1	51.6	17.2	19.3	7.2	20	33
Lampung	1.4	1.4	0.9	3.6	0.5	1.2	5.8	9.9	3.2	9.3	0.5	2.3	5	10
Bangka Belitung is).	-	-	0	0	-	-	0	0	1.0	2.7	-	-	1	1
Sumatra	43.7	43.5	28.3	49.9	270.3	340.7	348.9	374.1	131.0	129.9	62.4	68.5	151	333
Jakarta Metropolitan	-	-	-	-	-	-	0	0	6.0	2.8	0	0	0	0
West Java	96.6	120.2	132.3	139.5	363.3	375.2	431.2	438.1	207.4	184.2	144.7	182.7	151	247
Central Java	215.6	231.1	51.3	77.0	118.1	126.2	165.9	240.1	30.3	31.4	41.6	54.8	89	127
Yogyakarta	27	24.8	1.5	1.1	0.2	0.1	2.3	1.0	4.4	4.3	0	0	16	20
East Java	223.1	213.8	29.9	39.2	85	97.3	166.6	157.4	16.2	28.3	18.0	33.7	127	198
Banten	0.4	0.2	0.8	1.2	-	-	0	0	7.3	15.6	0.2	0.3	12	5
Jawa	562.8	590.1	215.9	258.0	566.6	598.8	766.0	836.7	271.7	266.6	204.6	271.4	395	597
Bali	12.5	12.6	1.2	1.5	4.5	4.4	50.5	51.2	24.9	28.4	2.8	3.8	18	34



## V. FRUIT PRODUCTION

In case of fruit production, bananas by far take the lead in terms volume of production, and production is the most spread out all over the islands. In 2003<sup>1</sup>, production volume amounted to 4.2 million tons. Bananas are primarily produced on Java (62.8%), and in particular in West Java (25.6%) and in East Java (20.9%). The second and third largest fruit production volume, but far below bananas were oranges and mangos with 1.5 million tons each.

Production of oranges was to be found all over the country, however production concentrated in two provinces North Sumatra (28.3%) and followed closely by East Java (27.6%). Well-known types of oranges come from North Sumatra and Pontianak in West Kalimantan. But production in West Kalimantan declined sharply to only 49,400 tons in 2003 due to monopolized trade during the Suharto regime and because most the trees died of plant disease during the second half of the 90s and has not recovered yet.

Mangos were primarily produced on Java (79.4%), in particular in East Java (45.1%), West Java (18.3%) and Central Java (12.8%). East Java is well known for the production of good quality mangos, the *harum manis*, which is sweet and smells nicely.

By other fruit arts, total production volume was relatively small. Total production of avocados was only 256,000 tons and again with high concentration on Java (75.9%), mainly in West Java (52.5%), followed far behind by East Java (16.2%) and East Nusa Tenggara (9.5%).

By lanzons (*duku*), production amounted to only 233,100 tons and a larger part was produced outside of Java (83.8%), in particular in South Sumatra, South Sulawesi and Jambi. But the well known lanzons come from South Sumatra. In case of durians, production reached 741,800 tons and again outer Java took the lead with 69.7%, especially on Sumatra with 49.9%, though the share of Java with 30.3% was relatively large.

Leading production provinces for durians by ranking order were North Sumatra, West Java and South Sumatra. Total production of papayas reached only 626,700 tons and was highly concentrated to 70.6% on Java, in particular in East Java alone (48.3%). Production in provinces outside of Java plays only a minor role.

<sup>1</sup> The Central Statistical Agency in 2005 already released estimates for the year 2004, but the figures are not being used here, because the experience from past publications shows that the figures are highly verestimated.



Total production of salacias (*salak*) in 2003 was 928,600 tons, which was concentrated on Java (69.0%). Major production provinces were by ranking order Central Java (41.8%), North Sumatra (23.1%) and West Java (19.1%). But most well known salacias are produced in Yogyakarta (4.5%) and Bali (3.7%). Total production of pineapples amounted to 677,100 tons in 2003, again Java dominated with no less than 68.8%. Main production provinces were by ranking order East Java (40.7%), West Java (23.9%) and South Sumatra (10.3%). (Table 6). Palembang in South Sumatra and West Java are well known for their sweet pineapples. Though production of pineapples in Lampung reached only 443,000 tons, but there a large canning factory cultivates huge areas of pineapple estates whose products, canned pineapples and pineapple juice, are being exported.

Production of mangosteen (*manggis*) was relatively small, only 365,000 tons. They are mainly produced on Java and on Sumatra. In the past, Indonesia was a leading world exporter of mangosteen, but now its position is being taken over by Thailand.

Production of fruits is also unique according to regions where they grow due to different soil conditions. Pineapples grown in Palembang is different than those grown in Subang, salacia from Bali is different than those from Yogyakarta (*pondoh*) or West Java, oranges (*jeruk siam*) from Pontianak is different than those from Medan. So is the case with many other fruits.

Table 6  
Fruit Production by Province, 2003  
(00 tons)

Province	Avocado <sup>1</sup>	Man-SO <sup>21</sup>	Lan-zon <sup>1</sup>	Duri-an <sup>21</sup>	Orange <sup>21</sup>	Papaya <sup>1</sup>	Sala-cia <sup>1</sup>	Pine-apple <sup>1</sup>	Manggo-steen <sup>21</sup>	Rambut-an <sup>1</sup>	Bana-aa <sup>21</sup>	Sapo-dilla <sup>1</sup>	Gua-va <sup>1</sup>
Manggroe Aceh Darussalam	25	117	77	313	315	79	16	41	11	207	887	40	15
Morth Sumatra	52	249	56	994	4324	163	2147	310	75	419	1188	77	67
West Sumatra	71	32	35	436	645	43	16	8	87	404	322	51	7
Riau	4	50	114	239	578	45	4	177	27	207	567	25	22
Iambi	21	49	282	373	74	126	1	38	43	141	161	13	22
South Sumatra	24	158	384	826	577	99	5	697	40	242	950	55	29
Bengkulu	29	30	38	342	62	60	5	2	5	100	203	20	9
Lampung	44	176	67	153	763	137	93	443	6	346	3191	76	40
Bangka Belitung islands	4	24	26	26	53	18	8	7	12	29	69	9	3
Sumatra	274	885	108.0	3702	7091	772	2296	1725	306	2096	4538	365	213
Jakarta Metropolitan	2	34	3	3	-	13	3	0	-	23	17	3	16
West Java	1344	2792	157	954	222	542	1770	1615	280	1792	10689	109	618
Central Java	148	1950	111	468	251	542	3878	220	31	856	4550	86	588
Yogyakarta	32	282	11	60	25	174	301	7	22	207	462	33	24
East Java	415	6883	56	585	4218	3030	416	2754	51	1002	8736	93	277
Banten	2	177	40	176	19	126	31	10	42	186	1797	27	232
Iava	1942	12118	378	2246	4735	4426	6407	4605	426	4065	26251	352	1755
Bali	18	560	8	63	688	106	345	23	19	134	1022	31	15

Regional Discrepancy in Agricultural Development in Indonesia

West Kalimantan	Central Kalimantan	South Kalimantan	East Kalimantan	Kalimantan	North Sulawesi	Central Sulawesi	South Sulawesi	Southeast Sulawesi	Jorontalo	Sulawesi	Moluccas	North Moluccas	Moluccas &	Outer Java	Indonesia
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## VL PRODUCTION OF MEDICINAL HERBS

Production of medicinal herbs in 2003 was also highly concentrated on Java. By zingiber officinale (*jahe*) the share reached 87.8%, by kaemferia

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gelanga (*kencur*) 92.5%, by alpinia gelanga (*lengkuas*) 86.3%, by curcuma domestica val. (*kunyit*) 84.4% and by zingiber americans (*lempuyang*) 92.3%. The only province of importance outside of Java was North Sumatra. Other outer provinces play only a minor role. (See Table 7)

**Table 7**  
*Production of Medicinal Herbs by Province, 2003 (tons)*

PROVINCE	Zingiber Officinale	Kaemferia gelanga	Alpinia gelanga	Curcuma domestica Val.	Zingiber americans
North Sumatra	9940	595	1045	1782	120
Riau	392	184	222	569	69
ambi	486	72	268	262	79
akarta Metropolitan	5	3	9	5	1
West Java	79819	4879	6669	6530	476
Central Java	16082	9513	5596	8921	1946
Yogyakarta	1358	1549	2463	3106	313
East Java	13693	1632	4951	6634	1381
3anten	508	479	1408	732	206
Bali	770	144	135	534	0
West Kalimantan	665	154	308	397	31
last Kalimantan	514	250	432	290	38
North Sulawesi	723	43	102	475	2
South Sulawesi	388	25	956	419	22
Gorontalo	43	4	24	51	0
Indonesia	125386	19527	24588	30707	4684

Source: Ministry of Agriculture. 2004. *Agricultural Statistics 2004*, Jakarta, pp. 147-151.

## CLIMATE AND GEOLOGICAL CONDITIONS OF THE REGIONS

The regional discrepancies in agricultural production in Indonesia as described above can be explained in part by the difference in climate, soil and geological conditions pertaining in each province. One of the factors that determine the fertility of the soil is the volume of rainfall, and one can expect that areas with relatively high rainfalls are more fertile and suitable for agricultural exploitation than with relatively low rainfall. However the data in **Table 8** do not correspond with the factual agricultural distribution in Indonesia. Sumatra has relatively high rainfalls except Aceh and Lampung. West Kalimantan, Central Kalimantan, North Sulawesi, South Sulawesi and the Moluccas all have also relatively high rainfalls than Java and Bali. (**Table 8**).

Table 8  
*Average Monthly Rainfall in Selected Cities, 2001 and 2002 (mm)*

Province (City)	2001	2002
Nanggroe Aceh Darussalam (Banda Aceh)	1407	1297
North Sumatra (Medan)	2996	1945
West Sumatra (Padang)	2328	4241
Riau (Pekanbaru)	2035	3124
Jambi (Jambi)	2096	2054
South Sumatra (Palembang)	2365	2368
Bengkulu (Bengkulu)	2508	3077
Lampung (Lampung)	1678	2144
Bangka Belitung islands (Pangkal Pinang)	2308	1879
West Java (Bandung)	1975	2347
Central Java (Semarang)	1887	1987
East Java (Surabaya)	2066	1464
Banten (Serang)	1362	1838
Bali (Denpasar)	1454	1173
West Nusa Tenggara (Bima)	985	938
East Nusa Tenggara (Kupang)	1050	1230
West Kalimantan (Pontianak)	2479	2743
Central Kalimantan (Palangkaraya)	2379	2147
South Kalimantan (Banjarmasin)	1922	1952
East Kalimantan (Samarinda)	1710	1849

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Province (City)	2001	2002
North Sulawesi (Manado)	3093	2498
Central Sulawesi (Palu)	748	985
South Sulawesi (Makassar)	3399	2137
Southeast Sulawesi (Kendari)	1803	1710
Corontalo (Gorontalo)	1650	1118
Moluccas (Ambon)	2501	1575
North Moluccas (Ternate)	2058	1605
Papua (Jayapura)	1568	1537

*Source:* Central Statistical Agency. 2003 *Statistical Yearbook of Indonesia 2002*, Jakarta, pp. 26-27; CSA. 2004. *Statistical Yearbook of Indonesia 2003*, Jakarta, pp. 32-33.

It seems that the presence of volcanoes is a more determining factor in explaining the fertility of the soil in a certain region. And these are Java, Bali, Lombok and South Sulawesi. Sumatra on the whole is quite fertile though not as fertile as Java and Bali, though production of agricultural commodities is quite varied.

In terms of agricultural development, the most developed province in Indonesia is West Java. There can be found a wide range of variety of vegetables and fruits, not existing elsewhere in Indonesia. Because farmers use good quality seeds, some of which are being imported directly from abroad, their produce is also of superior quality. West Java is also leading in introducing new foreign varieties of vegetables like paprika, kokra, and radish. The beautiful cut-flower carnation is also being planted in West Java with seeds imported from abroad.

Kalimantan on the contrary is sparsely populated and it was once covered by dense virgin rainforests. Because of the long untouched rainforests, there accumulated a thick layer of humus making the upper soil of the land fertile. However, due to excessive tree-cutting for transmigration projects and for producing timber, fast forest areas become open land. During the first two or three years the soil in the transmigration areas was still fertile, but after several years, much of the humus is being washed away by rainfall, and the open soil becomes less and less fertile. In Kalimantan there are only limited areas where the land is suited for agricultural exploitation. Though Kalimantan is a great island, most of the land is sandy, water is difficult to get and wide areas are covered with turf. Though there are many big rivers, but due to the turf, the water is acid and not fit for irrigation or drinking water. Man

and plants depend highly on rainfall for their everyday need for water. There are not many varieties of vegetables and fruits being planted in Kalimantan, and part of its local need is being supplied from Java. It has wide areas of rubber and palmoil plantation estates and years ago West Kalimantan is well known for its oranges. The province of East Kalimantan is rich in mineral resources like oil, gas and coal.

The island of Sulawesi in general is quite fertile and is comparable to Sumatra, especially in the Southern part. But again there is not much variety in agricultural products, and local produce is generally of low quality and hence better quality produce is being supplied from Surabaya in East Java. In general the culinary culture in many parts of Sulawesi is still underdeveloped. E.g., for a Javanese living in Makassar 30 to 50 years ago, it was difficult to find exquisite spices on the local markets as one is accustomed to use on Java. In Java, people know exactly the use of a wide variety of spices, e.g. for one sort of vegetable there are many kinds of varieties like *temu lawak*, *temu kunci*, *temu ireng*, *temu putih* and *temu mangga*, which are not known in Sulawesi. In South Sulawesi in the past people did not eat ripe mango, and only after immigrants from Java came to Sulawesi they learn to know that ripe mango is also good for eating. That is why ripe mango is called *mangga Jawa*. In Central Sulawesi, local people in the past did not know that cassava could be eaten, they learned to eat cassava from immigrants from Java.

In East Nusa Tenggara and the Moluccas, the climate in general is hot and arid, the land covered with stones and rocks, and vast areas consist of grassland. Hence it is difficult to find fertile soil with good climate and enough rainfall to cultivate agriculture. The Indonesian part of Papua is sparsely populated and still many small tribes live their traditional way deep inland in the dense rainforests. Many of these tribes are still backward and uneducated, and as such agriculture is still underdeveloped. The soil itself is not fertile except those still covered by humus. Local people know only a small variety of fruits and vegetables, like sweet potatoes, banana and some varieties of pumpkins. Much of the agricultural produce is still being supplied from East Java. Like in many parts of Eastern Indonesia, culinary culture is still backward. The main reason for agricultural backwardness in Kalimantan and the Eastern part of Indonesia is because agricultural technological knowledge is still lacking. And farmers also lack capital to buy tools, good quality seeds, fertilizers and pesticides.

## **Vm. GOVERNMENT POLICY TOWARDS REGIONAL AGRICULTURAL DEVELOPMENT**

The governments agricultural policy for the period 2001-2004 aims at developing agribusiness activities that are competitive, provide benefits for the people, sustainable and decentralized. Decentralization means the exploitation of various local resources, the development of local business actors, the ability of local government as the main executor of agribusiness development and the increase in value added for the people. To achieve this goal, the focal point for agricultural regional planning should be centralized at the *kabupaten* level. (Agricultural Policy Analysis, Vol. 1 No. 1, 2003). Again for the period 2005-2020, one of the main goals of agricultural planning is the development of agribusiness (Agricultural Policy Analysis, Vol. 2 No. 4, 2004, p. 322). In case of horticultural commodities (fruits, vegetables, house plants, and medicinal plants), the development strategy should be directed towards the increase in productivity and quality of the product, based on regional advantages (Agricultural Policy Analysis, Vol. 1 No. 2, 2003, p. 176). As can be seen from the plan above, there is no mentioning about a specific strategic policy on how to promote agricultural development in the provinces.

## **IX. CONCLUSION AND RECOMMENDATIONS**

From the above description, it can be concluded that there is a wide discrepancy in agricultural development between regions, in particular between Java and the Eastern part of Indonesia. Java, and in particular West Java, is the most advanced region in agricultural development and cultivation. A large number of plant varieties, even through imported seeds, are already widely known in Java. This is because primarily culinary culture has already been highly developed on Java. On the other hand, partly due to climatic conditions, soil fertility, and partly due to lack of agricultural knowledge and simple culinary culture, many plant varieties are not known in the Eastern part of Indonesia. However, this backward condition could be changed, because there is still much room for agricultural development in the outer regions. From the demand side, women in the Eastern part of Indonesia should be taught culinary culture, in order to increase demand for vegetables, spices and medicinal herbs. It concerns also the wellbeing of a large number of farmers in the Eastern part of Indonesia, as the agricultural population in these provinces is still over proportionately high.

Based on these findings, the author suggests some recommendations for a more balanced regional agricultural development



in Indonesia. These are:

- The Department of Agriculture should put more attention to regional agricultural development and develop a comprehensive regional development plans.
- Send agricultural instructors to the Eastern part of Indonesia to assist and instruct farmers there, or send young farmers from the Eastern part of Indonesia to Java to study agricultural know-how. When Indonesia chaired the Non-Aligned Movement in the 90s, President Suharto invited young farmers from backward Central African countries to live and study farming methods in Java.
- The Indonesian government employs a large number of young agricultural university graduates to advice and assist farmers in many rural areas. But in many cases they were ineffective. Hence these young experts should be given sufficient financial support to perform their job more effectively.

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