THE FEATURES OF VEGETABLES IN INDONESIA AND THE CURRENT POLICY IN THE FRAMEWORK OF AGRICULTURAL DEVELOPMENT

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ABSTRAK

Sayuran berkembang luas di seluruh Indonesia terutama di wilayah pegunungan. Perkembangan jumlah penduduk yang makin pesat, meyebabkan konsumsi yang makin besar terhadap produk hortikultura terutama sayuran sebagai sumber bahan makanan. Tujuan utama kajian ini adalah untuk menyajikan perkembangan dan karakteristik pertanian secara umum dan tanaman sayuran secara khusus serta kebijakan pemerintah yang sedang dilaksanakan dalam kerangka pembangunan pertanian nasional. Hasil kajian menunjukkan bahwa selama periode 1998-2005, perkembangan luas panen sayuran cenderung menurun sementara produksi mengalami stagnasi. Dilain pihak, konsumsi sayuran masih sangat minim. Sementara alokasi pengeluaran untuk sayuran terhadap total pengeluaran untuk makanan meningkat dari 8,96 persen di tahun 1996 menjadi 9,91 persen tahun 2002. Dalam periode yang sama, nilai impor sayuran mengalami fluktuasi. Namun demikian, nilai ekspor sayuran justru menunjukkan keadaan yang stagnan, terutama selama periode 1999-2003. Pangsa nilai ekspor terhadap total ekspor mengalami stagnasi pada kisaran 0,09-0,11 persen. Memasuki pasaran dunia, strategi yang telah dijalankan pemerintah untuk membangun produk-produk hortikultura ditujukan untuk meningkatkan produksi, produktivitas dan kualitas melalui efisiensi usahatani untuk menghasilkan produk yang kompetitif.

Kata kunci : *sayuran, produksi, konsumsi, ekspor, impor*

ABSTRACT

Vegetables are grown throughout Indonesia, especially on high altitude areas. Indonesians traditionally consume vegetables for their daily food. The objectives of this paper are (1) to describe status and characteristics of agriculture and vegetables in Indonesia and (2) to illustrate current policy in the framework of agricultural development. The results showed that during the period of 1998 – 2005 the trend of vegetable tended to decline in harvested area and stagnant in production. On the other hand, vegetable consumption in Indonesia is very small. Budget allocation for vegetable increased from 8.96 percent of total food expenditure in 1996 to 9.91 percent in 2002. During the same period, vegetable import value fluctuated. However, the share of vegetable export value showed a constant performance, especially during 1999 – 2003 period, namely 0.09 – 0.11 percent. Entering global market, increasing strategies currently implemented in developing horticulture products are aimed at increasing production, yields, and improving quality through efficient farm management to produce competitive products.

Key words *: vegetable, production, consumption, export, import*

INTRODUCTION

It is rather difficult to precisely describe the status of vegetable in Indonesia, especially under the circumstance of such rapid and abrupt changes in economical and political status during the last decades. The significance of agriculture has always been emphasized with respect to food crops and this trend is especially serious in Indonesia with large total population and is very limited with arable land. Even though vegetable crops can also be regarded as food crops in many countries and circumstances, vegetables also provides different, interesting, and refreshing aspects in human life and environment. Growing vegetable crops should be distinguished from securing the food crops because many vegetable crops are being evaluated in terms of their quality rather than the quantity.

International competition will intensify everywhere, even in domestic markets. Competition on costs will remain important, but much more important will be the ability to create differences in markets. The pressure of international competition will lead to remarkable scaling up of companies. Differentiation implies a need for a continuous stream of new products and production processes. It requires a culture that stimulates innovation. Especially, it requires a dedicated marketing strategy, market knowledge including consumer preferences as well as the continuous changes in these preferences.

The objectives of this paper are: (i) to describe present status and characteristics of agriculture and vegetables in Indonesia; and (ii) to describe current policy in the framework of agricultural development.

Changes in Roles of Agricultural Sector in GDP

Agricultural sector remains playing an important role in the economy of the country, indicated by its role in GDP. In nominal term, the contribution of agricultural sector to GDP increased from Rp 30,534 billions in 1971 to Rp 72,896 billions in 2004 or an increase of more than twice. However, in the same period GDP rose from Rp 79,363 to Rp 472,884 or an increase of more than five times (Table 1).

It shows that growth of agricultural sector was on average less than those of the others' sectors. Role of agricultural sector in 1971 was the biggest, namely 38.5 percent, but it kept declining to 15.0 percent in 1997. The next period, i.e. 1997-2000, the role of agricultural sector enhanced but again it declined for the next years. Contrary to agriculture, industrial sector started with low share in 1971 (7.0%) and in the next two decades its share (19.9%) surpassed that of agricultural sector. Since then, industrial sector became the leading sector until 2004 such as shown in Table 2. It revealed that economic development in the country was more industrialized.

Table 1. Gross Domestic Product Based on 1993 Constant Price, 1971-2004 (Rp billions).

Sectors	1971	1981	1991	1996	1997	2000	2002	2004
1.Agriculture	30534	41067	54839	63779	64149	66209	68018	72896
Food crops	14715	22952	30145	33647	33048	34534	34442	36728
Estate crops	3381	4869	8131	10331	10772	10722	11328	12084
Livestock	2566	3524	5442	7132	7422	7061	7537	8111
Forestry	7939	6911	6307	6384	6346	6389	6651	6732
Fisheries	1934	2811	4815	6284	6561	7503	8060	9050
2. Industry	5524	20371	56508	96378	103025	93868	100834	112991
3. Mining	11448	22847	29885	37569	38182	38896	39768	37467
4. Construction	6375	31309	22936	38806	40644	34398	38093	43443
5. Utilities	369	1345	2713	4841	5414	6548	7515	8293
6. Trade, Hotel & Rest.	11095	36817	47390	69372	73161	63498	69303	77234
7. Transport	2689	8354	16632	24445	26040	29072	33649	42804
8. Finance	1852	5453	11565	19903	20597	27449	29936	34412
9. Services	9476	22780	42262	54107	56311	38052	39597	43345
Total	79363	190344	284731	409199	427521	397990	426714	472884

Source: Swastika *et al.* (2005) and CBS (2005), data computed.

In agricultural sector, share of food crops dominated the sector since 1971 at 18.5% to 15.4% in 2004 as shown in Table 2. Share of forestry sub sector was the second in 1971 (10.0%), but it dropped sharply in the next decade and the subsequent periods. Livestock sub sector's share was 3.2 percent or the fourth in 1971, decreased to 1.9 percent in the next decade and fluctuated over the periods. In 2004 the share of food crops sub sector was still the biggest compared to those in agriculture sector.

Table 2. Share of Gross Domestic Product Based on 1993 Constant Price, 1970 – 2004 (%)

Sector	1971	1981	1991	1996	1997	2000	2002	2004
1. Agriculture	38.47	21.58	19.26	15.59	15.00	16.64	15.94	15.42
Food crops	18.54	12.06	10.59	8.22	7.73	8.68	8.07	7.77
Estate crops	4.26	2.56	2.86	2.52	2.52	2.69	2.65	2.56
Livestock	3.23	1.85	1.91	1.74	1.74	1.77	1.77	1.72
Forestry	10.00	3.63	2.22	1.56	1.48	1.61	1.56	1.42
Fisheries	2.44	1.48	1.69	1.54	1.53	1.89	1.89	1.91
2. Industry	6.96	10.70	19.85	23.55	24.10	23.59	23.63	23.89
3. Mining	14.42	12.00	10.50	9.18	8.93	9.77	9.32	7.92
4. Construction	8.03	16.45	8.06	9.48	9.51	8.64	8.93	9.19
5. Utilities	0.47	0.71	0.95	1.18	1.27	1.65	1.76	1.75
6. Trade, Hotel & Restaurant	13.98	19.34	16.64	16.95	17.11	15.95	16.24	16.33
7. Transport	3.39	4.39	5.84	5.97	6.09	7.30	7.89	9.05
8. Finance	2.33	2.86	4.06	4.86	4.82	6.90	7.02	7.28
9. Services	11.94	11.97	14.84	13.22	13.17	9.56	9.28	9.17
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: Swastika *et al.* (2005) and CBS (2005), data computed.

For the first decade of 1971-1981 the overall growth of GDP was 9.14 percent per year. The growth was mainly due to those of construction, industry, utilities, transport, and services sub sectors with each of 17.25, 13.94, 13.79, 12.00, and 9.17 percents, respectively. On the other hand, growth of agricultural sector for the same period was only 3.01 percent. Shares of food crops, estate crops, livestock, and fisheries were greater than that of agricultural sector, but forestry sub sector grew at negative rate (Table 3). Growth of GDP for the next decade dropped to 4.11 percent per year. Conversely, industry sector kept growing at relatively high rate of 10.74 percent while that of agricultural was 2.93 percent. Livestock, estate crops, and fishery sub sectors grew by 4.44, 5.26, and 5.53 percent, respectively or higher than that of overall agriculture sector.

During the period of 1991-1997, or before economic crisis ruined South East Asian countries including Indonesia, GDP grew much higher than the previous period, i.e., 7.01 percent per year. The growth was mainly driven by performances of non-agricultural sectors, except that of mining. However, during this period agricultural sector grew at a relatively low rate of 2.65 percent per year, while that of livestock sub sector reached higher growth than the previous period, i.e., 4.44 percent per year (Table 3).

Table 3. Growth of Gross Domestic Products Based on 1993 Constant Price (%/yr).

Sector	1971-1981	1981-1991	1991-1997	1997-2000	2000-2004
1. Agriculture	3.01	2.93	2.65	1.06	2.52
Food crops	4.55	2.76	1.54	1.48	1.59
Estate crops	3.71	5.26	4.80	-0.15	3.18
Livestock	3.23	4.44	5.31	-1.65	3.72
Forestry	-1.38	-0.91	0.10	0.23	1.34
Fisheries	3.81	5.53	5.29	4.57	5.15
2. Industry	13.94	10.74	10.53	-3.05	5.09
3. Mining	7.15	2.72	4.17	0.62	-0.92
4. Construction	17.25	-3.06	10.00	-5.41	6.57
5. Utilities	13.79	7.27	12.21	6.54	6.66
6. Trade Hotel & Restaurant	12.74	2.56	7.51	-4.61	5.41
7. Transport	12.00	7.13	7.76	3.74	11.81
8. Finance	11.40	7.81	10.10	10.05	6.34
9. Services	9.17	6.38	4.90	-12.25	3.48
Total	9.14	4.11	7.01	-2.36	4.70

Source: Swastika *et al.* (2005) and CBS (2005), data computed.

GDP growth during the economic crisis lasting from 1997-2000 dropped to -2.36 percent per year. Most of non-agricultural sectors, namely industry, mining, construction, trade and services, experienced negative growth rates. On

the other hand, agricultural sector kept growing positively even though at a lower rate of 1.06 percent per year. Except estate crops and livestock sub sectors with growth rates of -0.15 and -1.65 percent per year, respectively, all sub sectors in agriculture had positive growth rates. In the post crisis period (2000-2004), GDP recovered at the rate of 4.70 percent per year. It was also shown by the other sectors, except that of agriculture with its lower growth rate of 2.52 percent and that of mining with its negative growth rate. All sub sectors in agriculture sector held positive growth rates.

OVERVIEW OF VEGETABLES IN INDONESIA

Overall Situation and Trend of Vegetables Production

Vegetables are important among commodities of horticulture. From the point of view of harvested area and products, vegetables are the most important branch (Saptana *et al.*, 2001). Vegetables in Indonesia are important commodities of food crops sub sector but during the period of 1998 – 2005, the trend of vegetables tended to decline in harvested area and stagnant in production.

Harvested area of vegetables for the period of 1998 – 1999 was increasing at a very low rate, i.e. 0.22 percent per year, during the period of 2000 – 2005 its growth rate was faster, i.e. 2.17 percent per year. Compared with fruits and ornamental crops, harvested area growth of vegetable was better. During the period of 1998 – 1999, harvested area growth of fruits and ornamental crops were about –1.92 and –27.40 percent per year, but for medicinal crops, it fast increased at the rate of 21.46 percent per year.

During the period of 2000 – 2005, fruit crops showed a great performance. Harvested area of fruits was growing at the rate of 20.30 percent per year which better than vegetables. Medicinal crops showed different performance. Harvested area growth of medicinal crops during the same period (2000 – 2005) was decreasing at the rate of 5.16 percent per year.

In general, the growth of vegetable harvested area in Indonesia for the period of 1998 – 2005, increased at the rate 1.04 percent per year. Meanwhile, for fruits and medicinal crops increased at the rates of 11.94 and 6.16 percent per year. But, for ornamental crops, it was decreased -4.15 percent per year.

The production growth of vegetable during the period of 1998 – 2005 was increased 2.43 percent per year. On the other hand, fruits, ornamental crops and medicinal crops had different performances. Fruits production growth increased at the rate of 11.67 percent per year. Ornamental crops increased faster than fruits at the rate of 15.09 percent per year and medicinal crops growth was lower at the rate of 7.30 percent per year. The detailed information on harvested areas and production of horticulture commodities are shown in Table 4.

Vegetables Consumption in Indonesia

There are wide varieties of vegetables consumed by Indonesian people (Table 5). The largest quantity and the most commonly consumed are swamp cabbage (kangkung), spinach, cassava leaf, string bean and egg crops. Those five vegetable crops are easily grown in all parts of Indonesia for all year-round. They are widely available at reasonable price and hence can be accessed easily, among all types of vegetables by all households for all seasons. They can be served either in single or mixed vegetables main menu. They are, therefore, the common traditional vegetable menus in Indonesia.

Table 5. Vegetable Consumption per Capita, 1996-2004 (kg/year)

Vegetables	Year			
	1996	1999	2002	2004
Single item:				
Spinach	4.00	3.64	4.16	4.43
Swamp cabbage	4.11	4.42	4.63	4.54
Cabbage	1.82	1.56	1.92	2.03
Chinese cabbage	0.47	0.47	0.52	0.47
Mustard green	0.83	0.73	0.88	0.83
Beans	1.04	0.68	0.88	0.94
String bean	3.74	3.22	3.74	3.44
Tomato	1.25	1.30	1.56	1.51
Carrot	0.62	0.57	0.83	0.73
Cucumber	1.61	1.20	1.72	1.93
Cassava leaf	4.11	4.11	4.06	4.28
Egg crops	1.92	1.92	2.50	2.56
Bean sprout	0.88	0.88	0.83	0.89
Squash	0.88	0.73	0.88	0.83
Unripe corn	0.99	0.88	1.56	1.72
Mushroom	0.31	0.26	0.47	0.47
Young jackfruit	1.66	1.25	1.14	1.20
Unripe papaya	1.04	1.14	1.09	0.99
Mixed items:				
Soup/Stir-Fried Vegetables	3.95	3.80	4.68	5.27
Sour Vegetables Soup	5.25	4.73	5.51	5.68
Total	40.48	37.49	43.56	44.74

Source: CAS (1980-2005)

Cabbage and Chinese cabbage may also be served as single vegetable menu. But these crops are best grown in high altitude agro ecosystem. Carrot, unripe corn, unripe papaya, tomato, cucumber, and mushroom, are usually used as

ingredients of mixed vegetable menu. Carrot and mushroom are also best grown in high altitude agro ecosystem. Cabbage and Chinese cabbage, sprout, carrot and mushroom are most commonly consumed by urban people. Young jackfruit is particularly consumed by Javanese people, also consumed by people in Bali and West Sumatra.

Quantity wise, vegetables consumption in Indonesia is still very small. In 2002, vegetables consumption was only about a half of the recommended quantity or an ideal nutritional health (Ariani and Ashari, 2003). Although still small, vegetables consumption tends to increase overtime (Table 2). Consumption of swamp cabbage increased from 4.11 kg/capita/year in 1996 to 4.54 kg/capita/year in 2004, spinach increased from 4.00 kg/capita/year in 1996 to 4.43 kg/capita/year in 2004, cassava leaf increased from 4.11 kg/capita/year in 1996 to 4.28 kg/capita/year in 2004, and cucumber increased from 1.61 kg/capita/year in 1996 to 1.93 kg/capita/year in 2004.

It should be noted, in 1999, consumption of most vegetable products either declined or was constant due to the great economic crisis. During 1998-1999, Indonesia economy was in deep depression and combined with hyperinflation. Among the five main vegetable products, only spinach and string bean consumption was negatively affected by the extreme crisis. Spinach consumption declined from 4.00 kg/capita/year to 3.64 kg/capita/year in 1999, whereas string bean consumption declined from 3.74 kg/capita/year in 1996 to 3.22 kg/capita/year in 1999. In contrary swamp cabbage (kangkung) consumption increased from 4.11 kg/capita/year in 1996 to 4.42 kg/capita/year in 1999. Consumption of cassava leaf and egg crops was constant at 4.11 and 1.92 kg/capita/year respectively. The data indicates that during the economic crisis, the Indonesian consumers substituted the more expensive vegetables (spinach and string bean) to the cheaper vegetables (swamp cabbage, cassava leaf) in attempt to resist against reduction in overall vegetables consumption. They consumed cheaper vegetables because it's easier to get and some of them were planted in their home yard and field. In general, by 2004, vegetables consumption recovered from negative impact of the economic crisis. Consumption level of almost all vegetable products had reached or even passed their respective pre-crisis level.

Expenditure on Vegetable Consumption

The average household expenditure on vegetable is still very low. On average in 2002, it was only Rp 9,750/household/month or 8.08 percent of total food expenditure (Table 5). Expenditure on vegetables consumption varies by region and income. On average, the urban household's expenditure on vegetable is higher than the rural household's. In 2002, urban household's expenditure coverage on vegetable was Rp. 10,962/month, whereas rural household was Rp. 8,780/month. This can be due to difference in quantity, commodity bundle and price of the consumed vegetable products.

Table 6. Average Household Expenditure on Vegetable, 1996-2002 (Rp/month)

Item/region	Nominal			Real		
	1996	1999	2002	1996	1999	2002
Vegetable						
- Urban	44,104	9,525	10,962	4,104	4,668	4,216
- Rural	3,112	7,949	8,780	3,112	3,895	3,377
- Urban+Rural	3,469	8,569	9,750	3,469	4,199	3,750
	(8.96)	(9.91)	(8.08)			
Food	38,725	86,511	120,649	38,725	42,393	46,403
Total expenditure	70,062	137,454	206,336	70,062	67,356	79,360

Notes : Figures in parentheses are percentage in food expenditure (%)
Deflated by CPI, 1996 = 100
Source: CAS (1996-2002)

It is interesting to note that during the economic crisis in 1999, although real value of total households' expenditure declined, real value of the expenditure on vegetables, and total food as well, increased significantly (Table 3). Budget allocation for vegetables also increased from 8.96 percent of total food expenditure in 1996 to 9.91 percent in 1999. Rural household's expenditure on vegetables increased faster than urban household's. This indicates that during the economic crisis, when their purchasing power dropped significantly, Indonesian household's reallocated budget expenditure for as much as possible fulfilling their food need first even with the expense of forgoing other necessities. Among the food necessities, they preferred to maintain or even to increase vegetables consumption. It was due to relatively lower price of vegetables.

Household expenditure increases with income. Households with higher income spend more on vegetables. But proportional wise, household with lower income allocate larger part of their income on vegetables (Table 7). This again, indicates awareness to meet nutritional necessities for a healthy living. This awareness seems already widely practiced by Indonesian households, not only by the rich but also by the poor, in urban areas and in rural areas as well. This may be the main reason when the extreme economic crisis in 1998-1999 did not cause fatalistic famine in Indonesia.

Even though the level is still relatively small, vegetables consumption in Indonesia will continue increasing as household's income increases in the future. Indonesia people have strong awareness on the necessity of vegetables consumption for their healthy living. The rapidly expanding vegetable demand would create ample domestic market opportunities for vegetable agribusiness in the coming years. Rather than in the demand side, the bottleneck may be in the supply side of the vegetables agribusiness system.

Table 7. Household Expenditure on Vegetables by Income Level, 1996–2002 (Rp/month)

Year / Item	Monthly Household Expenditure				
	Less Than 39,999	40,000-59,999	60,000-79,999	80,000-99,999	100,000 And Over
1996					
Vegetables :					
* Urban	1,452	2,836	3,624	4,388	6,517
* Rural	1,574	3,150	4,090	4,777	6,550
* Urban+Rural	1,562	3,062	3,889	4,557	6,548
	(9.43)	(9.45)	(9.20)	(8.95)	(7.59)
Food	16,563	32,407	42,263	50,891	86,318
Non Food	26,554	16,651	26,544	38,236	674,394
Food + Non Food	43,117	49,058	68,807	89,127	760,712
1999					
Vegetables :					
* Urban	3,205	4,115	5,203	6,442	12,536
* Rural	3,110	4,239	5,697	7,117	12,911
* Urban+Rural	3,115	4,222	5,595	6,931	12,820
	(11.41)	(10.54)	(10.64)	(10.60)	(8.39)
Food	27,305	40,072	52,590	65,366	152,826
Non Food	8,209	12,477	17,994	24,553	903,132
Food + Non Food	35,514	52,549	70,584	89,919	1,055,958
2002					
Vegetables :					
* Urban	0	3,730	5,148	6,221	11,932
* Rural	2,657	4,216	5,000	6,051	12,420
* Urban+Rural	2,657	4,186	5,020	6,080	12,210
	(9.43)	(10.39)	(9.58)	(9.34)	(7.30)
Food	28,168	40,272	52,428	65,084	167,215
Non Food	7,576	13,704	19,285	25,542	868,802
Food + Non Food	35,744	53,976	71,713	90,626	1,036,017

Figures in parentheses are percentage in food expenditure.
Source: CAS (1996-2002)

The Structure of Vegetable Export and Import

During 1998 – 2003 period, a share of vegetable import value to total import value fluctuated and the highest share took place in 2002, namely 0.44 percent (Table 8). During the same period, share of vegetable import value to agricultural value showed a different performance. During 1998 – 2001, its share tended to increased from 3.09 percent in 1998 to 9.08 percent in 2001. It was conditioned by the increasing total vegetable import value while total agricultural import value was decreasing. The next years, i.e. 2002 and 2003, shares of vegetable import value to agricultural value tended to decrease i.e. 7.19 and 6.78 percent.

Table 8. Indonesia's Structure of Vegetable Import and Export, 1998-2003

Indonesia	Year					
	1998	1999	2000	2001	2002	2003
Total Import - Value (1000$)	27,336,900	24,003,300	33,514,800	30,962,100	31,288,900	32,695,324
Total Export - Value (1000$)	48,847,600	48,665,500	62,124,000	56,320,900	57,158,800	59,006,524
Total Agricultural Import – Value (1000$)	2,727,680	3,128,000	2,667,932	1,382,645	1,895,879	1,987,685
Share Agric. Import to Total Import (%)	9.98	13.03	7.96	4.47	6.06	6.08
Total Agricultural Export – Value (1000$)	2,942,686	2,085,700	1,607,419	1,279,245	2,007,847	2,653,986
Share Agric. Export to Total Export (%)	6.02	4.29	2.59	2.27	3.51	4.50
Total Vegetables Import – Value (1000$)	84,429	85,666	110,718	125,543	136,247	134,788
Share of Veg. Import to Total Import (%)	0.31	0.36	0.33	0.41	0.44	0.41
Share of Veg. Import to Agric. Import (%)	3.09	2.73	4.15	9.08	7.19	6.78
Total Vegetables Export – Value (1000$)	24,949	54,769	61,009	58,759	52,885	56,377
Share Of Veg. Export to Total Export (%)	0.05	0.11	0.09	0.10	0.09	0.10
Share Of Veg. Export to Agric. Export (%)	0.8	2.63	3.79	4.59	2.63	2.12

Source: CAS (1998-2003), data computed.

Since 1998, shares of vegetable export to total export value showed a stagnant performance, especially during 1999 – 2003 period, namely around 0.09 – 0.11 percent. This was mainly caused by constant in value of total vegetable export while the total agricultural export value tended to increase.

For the last six years, shares of vegetable export value to agricultural export value showed a similar pattern to shares of vegetable import to that of agriculture. During 1998 – 2001, shares of vegetable export value to agricultural export value increased from 0.80 percent in 1998 to 4.59 percent in 2001. This performance was mainly due to the value decline on total agricultural export value. For the next two years, 2002 – 2003 the shares declined from 4.59 percent in 2001 to 2.63 and 2.12 percent in 2002 and 2003 (Table 8).

Change in Volume and Value of Vegetable Export

Indonesia's vegetables export volume rose by 4.60 percent per year during the period of 1998 – 2003. This was mainly caused by an increase in volume of prepared vegetables by 14.44 percent per year. Meanwhile, Indonesia's volume of fresh vegetables export increased by 4.50 percent per year (Table 9).

Table 9. Change in Volume and Value of Indonesia's Vegetable Export 1998 – 2003 (%/year)

Export	Growth		
	1998 - 2003	1998 – 1999	2000 - 2003
Weight			
Vegetables	4.60	14.26	-0.24
Fresh Vegetables	4.50	10.42	1.54
Prepared Vegetables	14.44	44.03	-0.35
Value			
Vegetables	14.04	44.64	-1.25
Fresh Vegetables	13.01	31.81	3.60
Prepared Vegetables	18.17	59.57	-2.52

Source: CAS (1998-2003), data computed.

During 1998 – 1999, the Indonesia's vegetables export volume grew at the rate of 14.26 percent annually. However, for the period of 2000 – 2003 the growth rates decreased by 0.24 percent per year. During the same period of 1998 – 1999, the growth of Indonesia's fresh vegetables export volume increased by 10.42 percent per year. Meanwhile, Indonesia's prepared vegetables export volume grew faster at the rate of 44.03 percent per year.

Indonesia's vegetables export value rose by 14.04 percent per year during the period of 1998 – 2003. This was mainly caused by an increase in value of prepared vegetables by 18.17 percent per year. Meanwhile, Indonesia's value of fresh vegetables export increased by 13.01 percent per year.

During the period of 1998 – 1999, Indonesia's vegetables export value grew at the rate of 44.64 percent annually. For the period of 2000 – 2003, the growth decreased by 1.25 percent per year. During the same period, 1998 – 1999, growth of Indonesia's fresh vegetables export value increased by 31.81 percent per year and for the period of 2000 – 2003 it grew at lower rate i.e. 3.60 percent per year. Meanwhile, Indonesia's prepared vegetables export value grew faster at the rate of 59.57 percent per year for the period of 1998 – 1999. But for the next period, 2000 – 2003, its growth rate decreased 2.52 percent per year.

Change in Volume and Value of Vegetable Import

Indonesia's vegetables import volume increased by 13.10 percent per year during the period of 1998 – 2003. This was mainly caused by an increase in volume of prepared vegetables by 26.30 percent per year. Meanwhile, Indonesia's volume of fresh vegetables import increased by 12.50 percent per year (Table 10).

During the period of 1998 – 1999, Indonesia's vegetables import volume grew by 26.41 percent annually. For the period of 2000 – 2003 the growth rate

was lower i.e. 6.45 percent per year. During the same period of 1998 – 1999, growth of Indonesia's fresh vegetables import volume increased by 26.64 percent per year. Meanwhile, Indonesia's prepared vegetables import volume grew faster at the rate of 40.13 percent per year.

Indonesia's vegetables import value increased slowly at the rate of 1.15 percent per year during the period of 1998 – 2003. This was mainly caused by a decrease in value of fresh vegetables by 1.07 percent per year. Meanwhile, Indonesia's value of prepared vegetables import increased fast at the rate of 22.44 percent per year.

Table 10. Change in Volume and Value of Indonesia's Vegetables Import, 1998 – 2003 (%/year)

Export	Growth		
	1998 - 2003	1998 - 1999	2000 - 2003
Weight			
Vegetables	13.10	26.41	6.45
Fresh Vegetables	12.50	26.64	5.43
Prepared Vegetables	26.30	40.13	19.39
Value			
Vegetables	1.15	-21.60	12.52
Fresh Vegetables	-1.07	-23.31	10.05
Prepared Vegetables	22.44	3.28	32.03

Source: CAS (1998-2003), data computed.

During 1998 – 1999, the Indonesia's vegetables import value decreased by 21.60 percent annually. But for the period of 2000 – 2003 it change increased by 12.52 percent per year. During the same period of 1998 – 1999, the growth of Indonesia's fresh vegetables import value decreased by 23.31 percent per year and for the period of 2000 – 2003 it showed different growth rate, i.e. 10.05 percent per year. Meanwhile, Indonesia's prepared vegetables import value grew at the rate of 3.28 percent per year in 1998 – 1999. For the next period of 2000 – 2003, it grew faster to 32.03 percent per year.

DEVELOPMENT OF VEGETABLES PRODUCTION IN THE FRAMEWORK OF INDONESIAN AGRICULTURAL DEVELOPMENT

Horticulture development policies are aimed at increasing production, yield, and quality attained through efficient farm management to produce competitive horticulture commodities in accordance with market demand. Horticulture commodities consist of fruit, vegetable, and medicinal crops. Thus, vegetables development is part of that of horticulture policies. The following description will refer to horticulture policies in general and will be focused mainly

on vegetables. To support those policies, some strategies taken in horticulture development are: (1) Determining potential or first-class commodities; (2) Commodities zoning in accordance with each regional plan; (3) Increasing farmers-businessmen partnership; (4) Empowering farmers' groups; (5) Improving application of recommended technologies and efficient farm management; (6) Empowering human resource in technical sector and farm management.

Based on those strategies, there are three development patterns implemented, namely: (1) Increasing intensification quality in the producing centers; (2) Expanding cropped areas; (3) Improving cropping index from 200 percent to 300 percent per year using different crops, especially vegetables. Based on the production trends, it revealed that during pre economic crisis period (1970-1996) both fruits and vegetables production tended to increase. Increased production volumes of shallot, potato, cabbage, tomato, and carrot were due to applied technology in farm management. It meant that technology treatment in farm management caused yield improvement.

During the economic crisis (1997-1999) production volumes of some fruit crops tended to decline, but those of vegetables were increasing. For the next period (2000-2002) production volumes of some fruits and tomato increased, but other fruits and vegetables decreased.

Before economic crisis until 1996, farmers' net income from their farm management kept increasing. During this period input price, especially that of urea fertilizer was still subsidized by the government. For example, ratio of input to output prices of tomato was among the highest even though it was not stable. The ratios for other commodities were lower but relatively stable.

Horticulture farmers' incomes during economic crisis period (1997-1999) tended to increase. It was due to increased price of the commodities, on the other hand input prices kept stable. Thus, output to input prices ratio increased. However, from mid of 1998 to 1999 horticulture farmers' incomes declined due to increased prices of outputs along with increased input prices.

Horticulture production, especially fruits and vegetables, got improved in 2002. It was shown by increased export volumes and decreased import volumes. Increased export and decreased import volumes showed improved domestic production compared to previous years. However, fresh vegetables export in 2002 declined by 49 percent due to decreased production or constant production and most of the production was domestically consumed directly or as raw materials of industries.

Agricultural Policies under the National Development Plan

In the past, agricultural development was focused on monoculture agriculture, i.e., rice. Other related activities, such as practice, extension, research,

and institution were well developed. The country reached rice-self sufficiency in 1984.

Government policy during New Order era focused on rice commodity and was much involved through supply driven intervention. Thus, the past macro policy did not include agriculture sector as a whole. Macro policy focused more on finance and industrial development to achieve high economic growth. Economic crisis caused severe income gap. In the future, horticulture sub sector has to be well developed. An advanced agricultural country has to achieve highly developed horticultural sub sector.

Agricultural sector still plays important role in national economy, especially people-oriented economy. Experiences in the past showed that inability to supply food for our own demand and relying on rice import led to troubled economy. Through intensive policies and programs, the government achieved rice self sufficiency in 1984. This achievement is necessary to maintain. Therefore, in the Fifth National Development Plan the agricultural production development mainly for rice self sufficiency maintenance besides increasing other agricultural commodities' production. Agricultural development is an important policy to alleviate poverty.

Some measures taken to achieve targets in agricultural development, such as intensification backed with post harvest technology, diversification, and extensification. Those efforts produced increased rice production over years despite sever draught season in 1990's. Rice production during the Fifth National Development Plan grew higher than that of population rate such that rice self sufficiency was maintained.

Current Policy Measures for the Vegetable Production and Export Promotion in Indonesia

Horticulture commodities, especially vegetables and fruits, on general have at least four strategic roles in national economy. *First*, those commodities are nutritious food as the sources of mineral and vitamins for Indonesian population. Total consumption is expected to increase along with population growth, increased income, and knowledge of the community on healthy nutrition. Average annual per capita consumption of vegetables of Indonesians (37.95 kg) is still below that of FAO's standard (65.75 kg) or that of United States, i.e., 95 kg (Sutrisno, 2000). *Second*, it functions as the source of incomes for rural people and business activities for businessmen. Although average cropped areas per farmer are relatively small, but economic values of horticulture commodities are high and especially vegetables have quick capital turnover due to short cropping periods (2-3 months). *Third*, it serves as raw materials for agro industry supporting industrialization process in which some vegetable and fruit commodities are processed and preserved before sold to the domestic or international markets.

Fourth, horticulture products are exported commodities that mean foreign exchange earners. Many types of fruits and vegetables are exported, either fresh, frozen, preserved or juice, to many countries. *Fifth*, it provides as the market for non-agricultural commodities. Farm management of horticulture crops need products produced by industrial sector such as fertilizers, pesticides, agricultural machineries, transportation, finance, and communication. Improved roles of horticulture sub sector will contribute to economic growth through backward and forward linkages.

Some government policies currently implemented in developing horticulture products are: (1) Improving technical assistance on vegetables and fruits in the hinterland areas; (2) Increasing production system of vegetables during off-season and peak-season, especially chili and shallot; (3) Expanding production volumes of vegetables and fruits through utilization of rural and urban home gardens; (4) Improving technical practices of vegetables and fruits through application of improved cropping systems for implementation of quality assurance system and food safety; (5) Expanding exported commodities, import substitutes, and raw materials for processing industries of food and beverages; (6) Improving cropping patterns of vegetables to control production aimed at stabilizing price fluctuation; (7) Developing horticulture agribusiness zones, especially those export oriented and import substitute, according to comparative advantage of each region; (8) Increasing quality and products safety; and (9) Improving institutional system and farm management through establishment of producing centers (expansions of producing areas and markets) and maintenance of existing producing centers through sciences and technologies application to improve quantity and quality (Sutrisno, 2000).

Strategic Plan of the Director General of Horticulture Production (2001-2004) mentions that horticulture policies include policies on seed, production increase, horticulture protection, horticulture agribusiness development, and horticulture agribusiness management development. Horticulture production development policies are aimed at improving production, yields, and quality through efficient farm management to produce competitive products.

CONCLUDING REMARKS

Vegetables in Indonesia are the important agricultural sub sector but during the period of 1998 – 2005, the trend of vegetables tended to decline for harvested area and stagnant for production. On the other hand, vegetable consumption in Indonesia is very small. In 2002, vegetable consumption was only about a half of the recommended quantity or an ideal nutritional health by the government. Budget allocation for vegetable also increased from 8.96 percent of total food expenditure in 1996 to 9.91 percent in 2002.

During the period of 1998–2003, share of vegetable import value to total import value has fluctuated. The highest share took place in 2002 namely 0.44 percent. Meanwhile, share of vegetable export to total export value showed a stagnant performance, especially during 1999 – 2003 period and its shares were constant. This was mainly caused by stagnation in value of total vegetable export while the total agricultural export value tended to increased.

In future, there must be agreement among nations related with horticulture including vegetables to satisfy both domestic and global demands. Furthermore, strategies currently implemented in developing horticulture products are aimed at improving production, yields, and quality through efficient farm management to produce competitive products.

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Table 4. Harvested Area and Production of Horticulture, 1998 – 2005

No.	Items	Year								Trends (%/year)		
		1998	1999	2000	2001	2002	2003	2004	2005	1998-1999	2000-2005	1998-2005
1	Harvested Area (000 ha)											
	a. Vegetables	907	909	866	794	842	913	978	945	0.22	2.17	1.04
	b. Fruits	369	362	406	483	651	723	707	717	-1.92	20.30	11.94
	c. Ornamental Crops	3.63	2.76	3.07	2.74	3.19	2.53	2.58	2.46	-27.40	-4.28	-4.15
	d. Medicinal Crops	9.61	11.91	13.97	14.83	11.92	12.65	14.42	18.91	21.46	-5.16	6.16
2	Production (000 ton)											
	a. Vegetables	7,825	8,078	7,559	6,920	7,145	8,575	9,060	9,102	3.18	4.10	2.43
	b. Fruits	7,237	7,541	8,413	9,959	11,664	13,551	14,348	14,787	4.11	15.88	11.67
	c. Ornamental Crops*)	67.35	51.03	102.77	113.94	118.86	115.74	158.52	173.24	-27.76	3.99	15.09
	d. Medicinal Crops	189	171	193	208	203	228	231	342	-10.01	4.76	7.30

Sources : CAS (1971-2005) and Directorate General of Horticulture Production Development (1998-2005).
Note : *) on (million stalks).