STRATEGY FOR DEVELOPING INDONESIAN PEPPER EXPORT BASED ON TRADE PERFORMANCE INDEX AND ANALYTIC HIERARCHY PROCESS

Strategi pengembangan ekspor lada Indonesia berdasarkan trade performance index dan analytic hierarchy process

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ABSTRACT

Production and export of Indonesian pepper in the world market has declined because of low in productivity, quality and product diversification, inefficient marketing chain and lack of technology transfer to farmers level. The study was conducted to identify and analyze export problems in pepper, and to formulate strategies and policies for pepper export development. This study used primary and secondary data. Data were analyzed with Trade Performance Index and Analytic Hierarchy Process. The results showed that the problems in Indonesian pepper export were low competitiveness and productivity, poor infrastructure, inappropriate institutional farmers and traders, high interest rates and improper policy implementation. The recommended grand strategies for pepper export development were resources optimization, infrastructure and institutional development, financing schemes, and strengthening policy implementation.

Key words: *Piper nigrum*, export strategy, world market, productivity, competitiveness

ABSTRAK

Produksi dan ekspor lada Indonesia di pasar dunia mengalami penurunan dalam beberapa tahun terakhir akibat rendahnya produktivitas, kualitas dan diversifikasi produk, rantai pemasaran yang tidak efisien serta lambatnya transfer teknologi kepada petani. Penelitian ini bertujuan untuk mengidentifikasi dan menganalisis permasalahan serta memformulasikan strategi kebijakan untuk mengembangkan ekspor lada Indonesia. Penelitian ini menggunakan data primer dan sekunder yang dianalisis dengan Trade Performance Index *dan* Analytic Hierarchy Process. *Hasil analisis menunjukkan bahwa permasalahan ekspor lada Indonesia disebabkan oleh rendahnya produktivitas dan daya saing, infrastruktur yang belum memadai, kelembagaan petani, tingginya suku bunga serta lemahnya implementasi kebijakan dan peraturan.* Grand strategy *yang direkomendasikan adalah optimalisasi pemanfaatan sumberdaya, pembangunan infrastruktur, kelembagaan, pembiayaan serta penguatan implementasi kebijakan dan peraturan.*

Kata kunci: Piper nigrum, *strategi ekspor, pasar dunia, produktivitas, daya saing*

INTRODUCTION

Indonesia is one of the largest pepper producers and exporters in the world for both black and white pepper In 2000, Indonesia was the largest pepper exporter country with export volume 65,011 tons worth US$ 221,090, higher than Vietnam (36,465 tons). Indonesian peppers export was also far above the other major pepper producing countries, such as India, Brazil and Malaysia. However since 2001, pepper production and export from Indonesia was weakening, even in 2005 it declined to 34,556 tons with value US$ 58,468 (Ditjenbun, 2010). Since 2004 to 2007, total pepper production and export experienced severe decline. Fortunately since 2008, Indonesian pepper export showed increasing trend, which was contrast with Vietnam. Vietnam, as new pepper producing country, showed high growth rate in pepper production compared with the

established pepper producing countries such as Brazil, India, Indonesia, Malaysia, Sri Lanka and Thailand. The growth rates of Vietnam's pepper production reached 22% year^{-1} Since 1997 to 1998, Vietnam's pepper production was only about 22,000 to 25,000 tons, but it escalated to 30,000 tons in 1999 and reached 110,000 tons in 2010. Meanwhile, pepper production in Indonesia and other pepper producing countries such as Brazil, India, Malaysia and Sri Lanka, increased only about 5-6% during 1997 to 2010. Yogesh and Mokshapathy (2014) stated that the reduction of global pepper production of 9% in 2010-2011 mainly due to substantial decrease of pepper production in Indonesia.

The decline of pepper production and export from Indonesia was caused by several problems, both on-farm and off-farm levels. The main problems were (i) low productivity compared with competitor countries; (ii) high yield loss due to pests and diseases attacks; (iii) inefficient farming system; (iv) low quality and diversification of products; (v) inefficient marketing chain; and (vi) lack of technology transfer to farmer level (Nurdjannah, 2006; Wahyuno, 2009; Wahyuno *et al.*, 2010; Kemala, 2007). In addition, pepper farms in production center such as Lampung competed with cocoa and oil palm farms; while in Bangka-Belitung, pepper land uses competed with traditional tin mining and rubber and oil palm farms (Daras and Pranowo, 2009).

Although the competition among the pepper producing countries in the international markets was high, Indonesian pepper is still competitive. It was given a *"brand-image"* as Lampung black pepper and Munthok white pepper that are widely known and popular in international markets, especially in European Union (Germany, France, Netherlands, United Kingdom, Spain and others) and also in the United States market. The problem was government involvement to develop and implement appropriate strategies to take these opportunities. Therefore, this study was conducted to identify and analyze export problems in pepper, and to formulate strategies and policies for pepper export development.

MATERIAL AND METHOD

A. Trade Performance Index (TPI)

Position and competitiveness of *Indonesian pepper* export was conducted using data and analysis from COMTRADE Statistics, International Trade Center (ITC, 1978). This study used *Trade Performance Index* (TPI) that was calculated based on the indicators of trade performance of Indonesia in world market for pepper Indicators of trade performance were grouped into three categories namely General Profile, Current Performance and Decomposition of Changes in Trade Performance (Table 1).

B. Analytic Hierarchy Process (AHP)

In AHP, the alternatives of action were determined by the actors including considerations and logical personal values. Both of these were defined by knowledge, experience, imagination, logic and intuition (Bayazit and Karpak, 2005; Bhushan and Rai, 2004). In *Expert Choice,* the same considerations to determine the ranks, was executed using the principals of the various elements which determined various actions. Determination of this rank was crucial to understand the characteristics of each major estate crops. AHP frame work of pepper export issues was arranged in several steps problems preparation focus, identification of influential factors, actors identification (doers and facilitators), goals setting, and identification of alternative actions required to be executed by actors (Figure 1). Descriptions of the hierarchy analysis were described as follows:

(i) Focus or target to be achieved

- Value of pepper export.
- Growth of pepper export.

Table 1. The determinants of competitiveness indicators of Indonesian pepper.
Tabel 1. Faktor-faktor penentu indikator daya saing lada Indonesia.

Current performance	***General profile***	***Decomposition of changes in world market share***
P1. Value of net exports	G1. Export value	C1. Changes relative to world market share
P2. Export per capita	G2. Trends in export growth since 2001	Decomposed into:
P3. World market share	G3. Share of national export	(C1a) Competitiveness effects
P4. Product diversification and concentration	G4. Share of national import	(C1b) Geographical area specialization
P5. Market diversification and concentration	G5. The growth of exports per capita since 2001	(C1c) Specialized products
	G6. Relative value products	(C1d) Adaptation effect
	G7. Adaptation ability to the world market demand since 2001	
	G8. Changes in the world market share since 2001	

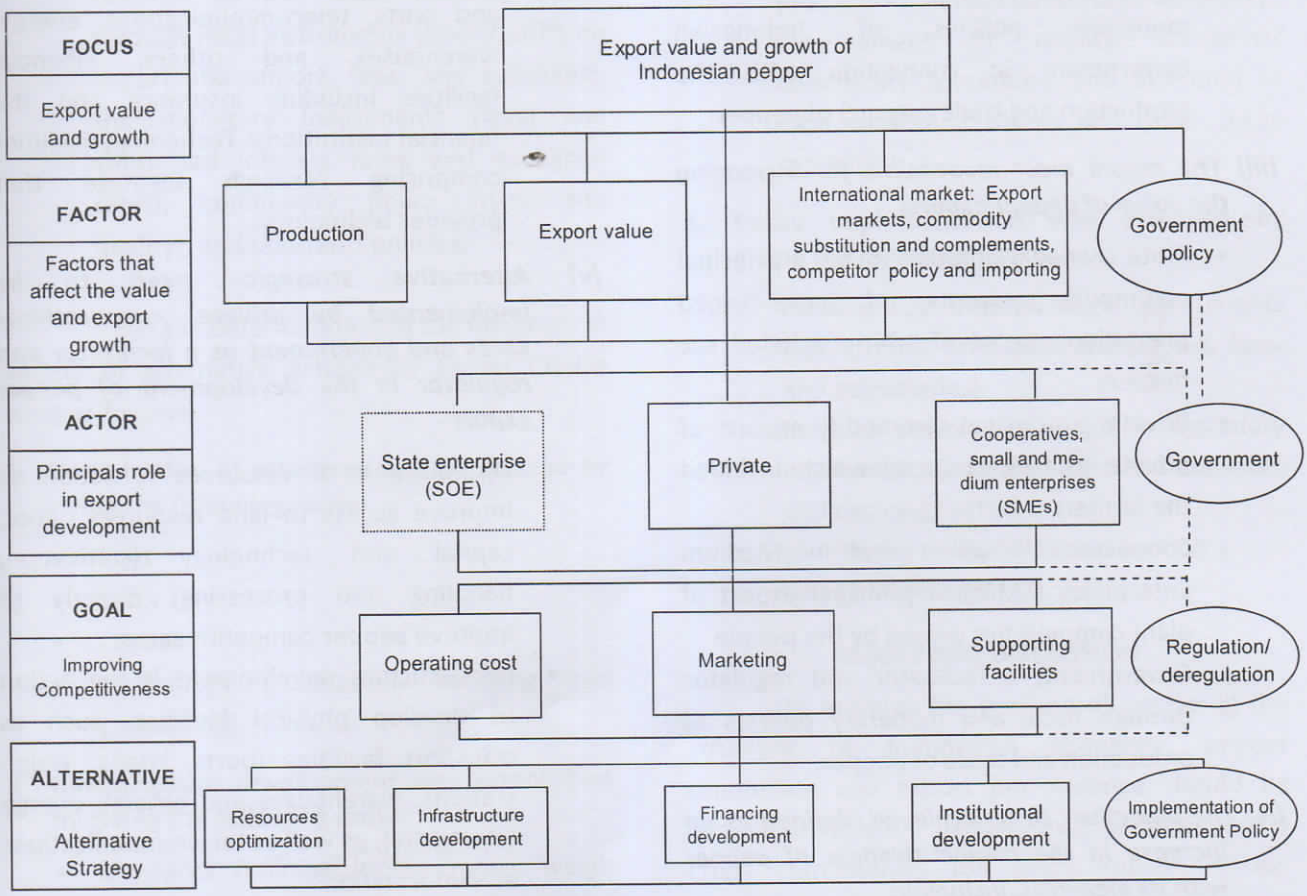

Figure 1. Hierarchy analysis of pepper export development issues.
Gambar 1. Hirarki analisis masalah pengembangan ekspor lada Indonesia.

(ii) Factors affecting the value and growth of pepper exports

- Production; a production surplus is defined as the volume exports of pepper from production reduced by stocks of domestic consumption.
- Export prices; a Free on Board (FOB) export price level ($) which is the international market price net of the transfer margin (shipping and insurance) and discount prices (if any).
- International markets; an export market (pepper importing countries), the existence of substitutes and complementary commodities, production and trade policies of other exporting and importing countries.
- Government policy; the fiscal and monetary policies of Indonesian Government in connection with the production and trade (export) of pepper

(iii) The actors most responsible for increasing the value of pepper exports

- State Owned Plantation (SOE); a principal commodity exports of state-owned plantations, some of which included the farmers
- Private; a principal commodity exports of private estates, some of which included the farmers
- Cooperatives/Small and Medium Enterprises (SMEs); a principal export of plant commodities owned by the people
- Government; a facilitator and regulator through fiscal and monetary policies of production and trade of pepper

(iv) The objectives to be achieved, defined as an increase in the competitiveness of pepper with its elements, including:

- Operating costs; the costs incurred associated with the production and sale of estate commodities, such as the Terminal Handling Charge (THC), interest costs, packaging costs, transportation costs, taxes, fees, unofficial charges and other costs.
- Marketing; a marketing management and market barriers. Marketing management includes product development, distribution, pricing, promotion, market intelligence and strategic position in the market. Barriers and ease of market entry including matters related to consumer needs and requirements in export destination countries, tariff and non-tariff, agreements/bilateral trade cooperation and the multilateral trading institutions.
- Supporting facilities; the physical facilities, finance, and technology. Physical facilities including facilities/infrastructure, roads and ports, telecommunications, energy, warehouses, and others. Financial facilities including insurance and the financial institutions. Technology facilities comprising research institute that provides technology.

(v) Alternative strategies need to be implemented by private, cooperatives/ SMEs and government as a facilitator and regulator in the development of pepper export

- Optimization of resources is action to improve access to land resources, labor, capital and technology (cultivation, handling and processing) directly to improve pepper competitiveness.
- Infrastructure development is the action to develop physical facilities, such as transport facilities (ports, roads, weigh stations, warehouses and others), energy (electricity), as well as telecommunications and information.
- Development financing is an act of financial institutions to provide a credit scheme (investment and export credits) with competitive rates, easy procedure, consideration of the situation of

commodity business, and protection against risks (insurance).

- Institutional development is action organizations (commodity/business, research, training, education, and marketing), the application of the regulations (international rules, regulation, export procedures, networks/strategic alliances), the development of quality standards/commodity specialties, and attention to local wisdom (customs and other social capitals).
- Implementation of policies (regulation/ deregulation) is an action that required to be executed by the government to facilitate pepper export. Policies are referred to the trade policies, either through fiscal instruments (taxes/tariffs on export and import, fees, and subsidies), the monetary instruments (level and subsidized interest rates and exchange rates), commodity policy (type and quality), and non-tariff policies.

The rank determination of the elements in variety of alternative actions by Expert Choice were as follows:

1. **Optimization of resources was performed by giving the following ranks:**
   - land
   - labor
   - capital
   - technology (cultivation, handling and processing)
2. **Infrastructure development was established by giving the following ranks:**
   - transport facilities (ports, roads, weigh stations, warehouses and others)
   - energy (electricity)
   - telecommunications and information
3. **Financing Development was done by giving the following ranks:**
   - provide a credit scheme (investment and export credits) with a competitive interest rate
   - easy requirements
   - attention to commodity business environment
   - protection against the risk (insurance)
4. **Institutional development was accomplished by giving the following ranks:**
   - organizational development (commodity/ business, research, training, education, and marketing).
   - application of rules (international rules, law, government regulation, export procedures, networks/strategic alliances).
   - development of quality standards/ commodity specialties, and attention to local wisdom (customs and other social capitals).
5. **Policy implementation was achieved by giving the following ranks:**
   - trade policy through fiscal instruments (taxes/tariffs on export and import, fees, and subsidiaries)
   - trade policy through monetary instruments (interest rates and subsidies and exchange rates)
   - commodity policy (type and quality)
   - non-tariff policies

RESULT AND DISCUSSION

To examine the position of pepper in the structure of Indonesian economy, pepper production and export performance should be compared with the performance of other estate crops commodities (oil palm, rubber, cocoa, coffee and tea) and other countries foreign exchange earners. The comparison was expected to be useful in formulating the recommendations for proposed strategy.

A. Production

Pepper production showed lower growth rate than palm oil, rubber, and coffee from 2001 to 2010. This position was better than tea, which had negative growth rate. Estate commodities with the highest production growth rate from 2001 to 2010 was palm oil (10.72% $year^{-1}$), and the lowest one was tea with -1.05% $year^{-1}$, while pepper was 0.54% $year^{-1}$ (Table 2).

Indonesian pepper production from 2001 to 2010 experienced a declining trend, and relatively stagnant from 2004 to 2007 (Table 2). It indicated that there were serious problems confronted by Indonesian pepper, both at on-farm and off-farm level. The decline of pepper production in Indonesia was caused by low productivity due to lack of intensive cultivation. The average productivity of pepper in the three main production centers (Lampung, Bangka Belitung and West Kalimantan) was still below its potential production which was 3 to 4 tons ha^{-1} $year^{-1}$ Pepper productivity in Lampung was only 744.45 kg ha^{-1}, West Kalimantan 991.66 kg ha^{-1} and Bangka 1,023.40 kg ha^{-1} (Kemala, 2007). Pepper farmers in those areas applied improper cultivation technology, caused the plants were susceptible to environmental stress, especially pests and disease. Hasibuan *et al.* (2011) stated that pepper farmers faced high yield loss risk because of pepper disease infestation, especially foot rot disease.

B. World pepper export performance

Pepper export in this research could be divided into two types Pepper of the genus *Piper*, ex Cubeb pepper, neither crushed nor ground (090411) and pepper of the genus *Piper*, except Cubeb pepper, crushed or ground (090412). For the type of pepper with Standard International Trade Classification (SITC) numbers 090411, Indonesia was the third largest pepper exporting countries after Vietnam (Table 3). For the type of pepper with SITC numbers 090412, Indonesia's pepper export was minor compared to India, Germany and Vietnam as the three largest exporting countries (Table 4).

In 2010, the exports pepper in the world with SITC numbers 090411 was US$ 1.07 billion (290 thousand tons) with annual growth of 10.76% and 2.14% from 2001 to 2010. From 2009 to 2010, the growth rate of pepper world exports value reached 33.4%. In 2010, Indonesia's exports were US$ 244 million with the volume of 62 thousand tons. The value per unit of Indonesia's exports was relatively more expensive (US$ 3.93 kg^{-1}) than other major producing countries such as Vietnam, Brazil, India and Sri Lanka; but cheaper than Malaysia. Indonesia's pepper export growth rate in value and volume reached 17.01% and 4.07% respectively, better than the growth rate of world exports. In 2009-2010, the exports growth rate was increased to 75.7%, better than other major producing countries. The share of

Table 2. Main Estate Plants Commodity Production from 2001 to 2010 (thousand tons).
Tabel 2. Produksi komoditas perkebunan utama, 2001-2010 (ribu ton).

Commodities	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Growth (% $year^{-1}$)
CPO	8,396	9,622	10,441	10,830	11,862	17,351	17,665	17,540	18,641	19,845	10,72
Rubber	1,607	1,630	1,792	2,066	2,271	2,637	1,755	2,751	2,440	2,952	5,77
Cocoa	537	571	699	692	749	769	740	804	810	845	5,40
Coffee	569	682	671	647	640	682	676	698	683	684	2,28
Tea	167	165	170	166	166	147	151	154	157	150	-1,05
Pepper	82	90	91	77	78	78	74	80	83	84	0,54

Note/*Keterangan* : CPO = Crude Palm Oil.

Source/*Sumber*: Ditjenbun (2011).

Indonesia's exports for this commodity was 21.44%, lower than Vietnam (35.29%) (Table 3).

In 2010, the world export of pepper with SITC numbers 090412 was 51.8 thousand tons or US$ 240 million, with annual value growth rate of 17% and volume growth rate of 11.6% from 2001 to 2010. From 2009 to 2010, growth rate of world exports value reached 17.4%. Indonesia's export in 2010 was US$ 1.5 million with the volume of 386 thousand tons. Value per unit of Indonesia's pepper exports was relatively cheap in the world compared to other countries, which was only US$ 4.02 ton^{-1} However, Indonesia's pepper export growth rate in value and volume reached 71.8% and 25.7% respectively, was higher than world exports (Table 4).

Table 3.Indonesia's exports position of pepper with SITC number 090411.
Tabel 3. Posisi ekspor lada Indonesia dengan nomor SITC 090411.

Exporters	Value exported in 2010 (US$ 000)	Quantity exported in 2010	Unit value (US$/Unit)	Annual growth rate in value 2001-2010 (%)	Annual growth rate in quantity 2001-2010 (%)	Annual growth rate in value 2009-2010 (%)	Share in world exports (%)
World	1,070,653	290,150	3,69	10,76	2,14	33,40	100,00
Vietnam	362,070	102,394	3,54	17,52	13,47	16,80	35,29
Indonesia	244,373	62,213	3,93	17,01	4,07	75,70	21,44
Brazil	107,989	30,717	3,52	10,12	-1,42	18,50	10,59
India	55,551	19,464	2,85	12,77	7,16	11,90	6,71
Malaysia	53,274	12,759	4,19	4,45	-6,65	47,80	4,40
Netherlands	23,274	5,193	4,48	-0,97	-9,24	7,80	1,79
Singapore	30,202	7,588	3,98	-3,25	-15,49	16,90	2,62
Germany	27,376	6,101	4,49	23,31	21,33	14,00	2,10
Sri Lanka	38,874	10,951	3,55	38,57	10,77	118,90	3,77
Mexico	20,163	6,510	3,10	13,60	7,97	38,80	2,24
China	18,879	3,734	5,06	386,85	267,11	153,60	1,29
France	11,003	1,384	7,95	29,72	24,91	32,70	0,48
Others	77,474	21,142	3,66	14,59	5,44	35,20	7,29

Source/*Sumber*: ITC calculations based on COMTRADE statistics (ITC, 2011).

Table 4. Position of Indonesia's pepper exports with SITC number 090412.
Tabel 4. Posisi ekspor lada Indonesia dengan nomor SITC 090412.

Exporters	Value exported in 2010 (US$ 000)	Quantity exported in 2010	Unit value (US$/Unit)	Annual growth rate in value 2001-2010 (%)	Annual growth rate in quantity 2001-2010 (%)	Annual growth rate in value 2009-2010 (%)	Share in world exports (%)
World	240,877	51,867	4,64	17,00	11,60	17,40	100,0
Vietnam	59,387	14,478	4,10	264,60	425,50	55,00	27,91
Germany	26,037	5,028	5,18	16,30	14,30	2,10	9,69
India	23,186	3,918	5,92	21,80	11,10	-21,00	7,55
Netherlands	16,287	3,189	5,11	25,60	22,30	19,80	6,15
USA	16,061	3,176	5,06	11,90	9,00	2,80	6,12
China	4,843	835	5,80	53,40	27,70	198,80	1,61
France	12,134	1,720	7,05	28,40	16,50	-10,20	3,32
Malaysia	8,714	1,347	6,47	9,10	6,80	4,30	2,60
Singapore	8,662	2,189	3,96	29,70	21,30	41,70	4,22
Austria	6,462	894	7,23	19,40	12,30	30,50	1,72
Belgium	4,326	742	5,83	8,40	9,00	12,50	1,43
Israel	5,074	857	5,92	80,30	35,00	777,90	1,65
Indonesia	1,551	386	4,02	105,80	71,80	25,70	0,74
Poland	4,518	752	6,01	48,10	24,50	9,20	1,45
UK	4,085	664	6,15	1,90	8,40	8,10	1,28
Others	39,550	11,692	3,38	8,50	8,40	13,90	22,54

Source/*Sumber*: ITC calculations based on COMTRADE statistics (ITC, 2011).

The export destination of pepper (SITC number 090411) was USA, Singapore and Germany which were the main destination countries. It is important to note that the USA, Singapore and Germany were three countries with low import growth rate in value of this type of pepper 12, 6 and 3% respectively from 2002 to 2006. In these three countries, the share of Indonesia's exports was only 17, 17 and 15% respectively, with growth rate of exports to these countries suffered a setback at -10, -3 and -20% correspondingly (Table 5).

C. Performance of Indonesian pepper export

Analysis of Indonesian pepper competitiveness was performed by comparing to other pepper exporting countries (Brazil and Vietnam). This analysis was conducted with the assumption that the importing countries were the real consumers, not as re-exporter countries. The analysis showed that Indonesia still had the advantages over Brazil on exports value, export value growth rate, national exports share, national imports share, average annual change in per capita exports, relative unit value, product diversification, competitiveness effect, initial geographic specialization, initial product specialization, and adaptation to world demand. As of Vietnam, Indonesia had advantages on growth rate of exports value, national imports share, market diversification, competitiveness effect, initial geographic specialization, and matching with dynamics of world demand (Table 5).

Based on the indicators of Indonesian pepper export performance until 2006, it showed that pepper export contributed significantly on national exports. Diversification of markets, products and their changes had also been developed. Detail explanation of Trade Performance Index indicators (Table 5) was as follows:

1. Per capita exports was high (US$ 20.7), though was lower than Brazil and Vietnam. This reflected that the Indonesian pepper product had been export-oriented, and the pepper products generated at farmers level were relatively high. In addition, change in per capita exports during 2001-2005 was also faster (85% year^{-1}).
2. Relative unit value for Indonesian pepper products was about 0.7 This indicated that

Table 5. Trade performance index for pepper, 2001-2005.
Tabel 5. Trade performance index lada, 2001-2005.

Product Performance Table				INDONESIA		BRAZIL		VIETNAM	
Indicators				Value	Rank	Value	Rank	Value	Rank
General profile	G1	Exports value (in thousand US$)		1,845,581	2	923,507	5	3,169,436	1
	G2	Exports value growth rate (% p.a.) (2001-2005)		7%	13	12%	44	22%	38
	G3	National exports share (%)		6.4%	11	5.1%	15	7.3%	7
	G4	National imports share (%)		0.8%	47	0.7%	51	0.6%	62
	G5	Average annual change in per capita exports		85%	6	79%	7	93%	3
	G6	Relative unit value (World average = 1)		0.7	26	0.7	50	1.2	2
Position in 2005 (Current Index)	P1	Net exports (in thousand US$)		1,172,788	5	812,212	2	2,127,072	1
	P2	Per capita exports (US$ per inhabitant)		20.7	29	33.1	1	42.2	15
	P3	Share in World market (%)		32.18%	5	36.58%	2	40.41%	1
	P4a	Product diversification (N° of equivalent products)		3.7	27	3.1	39	2.9	43
	P5a	Market diversification (N° of equivalent markets)		10.8	6	16.2	2	4.9	42
Change 2001-2005 (Change Index)	C1	Relative change of world market share (% p.a.)							
		Sources	Competitiveness effect (% p.a.)	10.00%	25	4.00%	62	15.00%	66
			Initial geographic specialization (% p.a.)	2%	20	2%	21	-1%	51
			Initial product specialization (% p.a.)	8%	13	5%	24	12%	7
			Adaptation to world demand (% p.a.)	2%	26	0%	37	-2%	57
	C2	Matching with dynamics of world demand		-21.00%	81	9.00%	80	18.00%	86

Source/*Sumber*: ITC (2011).

the product or value was good, but still below the world value average.

3. Value of net export in 2006 was positive meaning that pepper exports value were higher than imports value. It indicated that Indonesia is net exporter country.
4. World market share was 32.18%, meaning Indonesia was a major exporting country for pepper market. As the main exporter country, Indonesia had a significant role to influence pepper price in the world market (Yogesh and Mokshapathy, 2014).
5. Diversification of products was relatively low (3.7). This indicated that the Indonesian pepper export was still concentrated in a few types, i.e. Pepper of the genus *Piper*, ex Cubeb pepper, neither crushed nor ground (090411) and Pepper of the genus Piper, except Cubeb pepper, crushed or ground (090412). It suggested that pepper-based downstream industries did not develop well. However, added value and quality improvement from downstream industry process were important aspects for better market access, pepper brands development and their promotion in major markets (Sujatha *et al.*, 2007; Kiong *et al.*, 2010; Shelaby *et al.*, 2011).
6. The level of pepper diversification and market concentration in Indonesia was good, 11 out of 25 export markets. Indonesia's reliable markets were European Union (Germany, France, Netherland, United Kingdom, Spain and others) and the United States. Meanwhile, Singapore, United of Arab Emirate and Hongkong were included in re-exporter countries which imported pepper for re-exported to other countries.
7. Indonesia as a pepper exporting country would get benefit from a change in market share. This can be explained further as follows:
   i. Competitiveness effect was positive, by 10%. Indonesia would get benefit from the competitiveness (10%) against Brazil (4%), but lost to Vietnam (15%).
   ii. Initial geographic specialization effect was positive (2%). It implied Indonesia got benefit from exporting to specific markets. It was same level with Brazil, but still lower than Vietnam.
   iii. Initial product specialization effect was 8%, suggesting Indonesia got benefit from pepper exports related to a change in the dynamic global demand. It was higher than Brazil, but lower than Vietnam.
   iv. Adaptation to world demand was 2%. It indicated Indonesia adapted slowly to the change in the world demand.
   v. Matching with the dynamics of world demand by -21%. It denoted that Indonesia got difficulties to meet the changing dynamics in the world demand.

Indicators above indicated that Indonesian pepper has some advantages in international market, especially for its competitiveness. Hasibuan and Sudjarmoko (2008) stated that pepper farming system in Lampung had both comparative and competitive advantages in international market. In addition, Indonesian pepper got the advantages from initial geographic specialization effect as shown by Lampung Black Pepper and Muntok White Pepper, which was known as the best quality pepper in pepper trade. One of the weaknesses of Indonesian pepper was product diversification, although there were many types of product diversification of pepper which potential to be developed to create added value (Dhas and Korihanthimath, 2003; Risfaheri, 2012). Susilowati (2003) suggested a serious effort to improve product diversification, hence can give added value and support competitiveness of Indonesian pepper export. Furthermore, Indonesian pepper product got difficulties and adapted slowly to meet changes in the dynamics world demand. However, the capability to fulfil consumer preference is important in marketing strategy. Consumers will pay premium price if the

product can satisfy their specification and preference (McCluskey and Loureiro, 2003; Curtis *et al.*, 2014; Moser *et al.*, 2011).

Strategies for Indonesian pepper export

The following descriptions provided details of focus and strategy for increasing Indonesian pepper export. The experts from focus group discussion agreed that the main strategy for export development was resource optimization, followed by infrastructure development, institutional development, policy implementation, and financial development (Table 6). They approved that the issue of capital (provision and access) and issues related to fertilization were resource problem in pepper export development. It was indicated by 'need easy access in the capital for farmers' as the most important criteria for pepper export development with value by 0.175 (Figure 2). Wahyudi and Hasibuan (2011) revealed that capital had significant influence for farmers to adopt the existing technology which has direct effect to pepper productivity. Until now, there was no credit scheme based on pepper characteristics. Therefore, the provision of access to credit with financial institutions (banks) was a strategic step for the acquisition of capital for pepper agribusiness. In input optimization, the experts agreed that increase in productivity was one of the key to optimize the resources.

Table 6. Alternative strategies for Indonesian pepper export development.

Tabel 6. Alternatif strategi pengembangan ekspor lada Indonesia.

Alternative strategies	Priority vector	Priority
Resource optimization	0.456	1
Infrastructure development	0.208	2
Financial development	0.064	5
Institutional development	0.193	3
Policy implementation	0.080	4

In terms of infrastructure (priority vector = 0.208) (Table 6), the experts agreed that the problem in transportation facilities need to be considered through improving the quality and quantity of farm roads as shown by value in 'transportation facilities' criteria by 0.080 (Figure 2). Saptana and Hadi (2008) stated that infrastructure was still a constraint for agricultural development especially in rural area. Moreover, infrastructure has a big role on economic activity (Prasetyo and Firdaus, 2009).

In terms of institutional development (priority vector = 0.193) (Table 6), the main problem was farmer's organizations were still weak (criteria value by 0.074) (Figure 2). The experts come to an agreement that the institutional development (establishment and strengthening) of farmers' organizations were very important. This institutional development would facilitate technology adoption process by farmers to increase pepper productivity. The practice of recommended cultivation technologies is a method to push superior pepper variety to produce yield following its genetic potency. Therefore, the forms of institutional development such as companion institution, provision of extension workers and publications; were important as guidance for farmers (Kemala, 2007; Wahyudi and Hasibuan, 2011). Institutions development could also be directed to the preparation and dissemination of recommended technology application. Farmers institutions have important role to solve problems encountered by farmers such as ensuring continuity of technology dissemination, increasing farmers ability to compete in market, supporting resources utilization efficiently (Hidayanto *et al.*, 2009) and increasing farmers welfare (Anantanyu, 2011).

In terms of policy implementation, the experts agreed that the government involvement to enforce existing regulations (criteria value by 0.148) and law enforcement (criteria value by 0.074) were very important (Figure 2). As in terms of financial development, the experts approved that the issue of taxes and levies, including local levies were not a major problem. However, they suggested that operational costs, market/

marketing and supporting facilities caused high cost leading to economic problem (Ministry of Industry and Trade, 2005). It was allegedly steering to inefficiency in pepper export business. In addition to economic conditions, less support related to government policies, were thought to have contributed to the problem in exporter operating costs. Therefore, to enhance exporting business, government should enforce existing regulation as a form of policy implementation and financial development such as tax policies.

For international markets, Dradjat (2002) mentioned that the competitiveness of main estate crops was estimated lower than those of competitors. The low competitiveness continued to the domestic market, hence the prices received by farmers was relatively low. Thus, there was a wide price gap between the exporters and the farmers. Competitiveness problem was the focus of government related to policymaking and program development of agricultural marketing (Directorate General of Processing and Marketing of Agricultural Products, 2001). Marketing problems in the main estate commodities exports were related to management and market barriers such as Technical Barriers to Trade (TBT), sanitary and phytosanitary (SPS) and others. To be a main supplier of estate commodities in international markets, the exporters are required to fulfil product specification that may vary and different both in quality and preference for each destination country. However, market barriers such as SPS could be very effective to protect importer countries (Becker, 2006; Bathan and Lantican, 2009) and it could be became a major barrier for developing countries to exploit export opportunities of their agricultural products in developed countries (Henson and Loader, 2001).

Ministry of Industry and Trade (2004) in its industrial development policies and national trade 2005-2009 mentioned that government supports, particularly in financial sector, insurance, and transportation were worth and strategist to drive the existing local traders to be key players in global commodity export markets. It is important to cope with high level of international competition and rapid globalization process.

Finally, all strategies are more relevant to the current situation where pepper price increases significantly. In 2010, average price of white

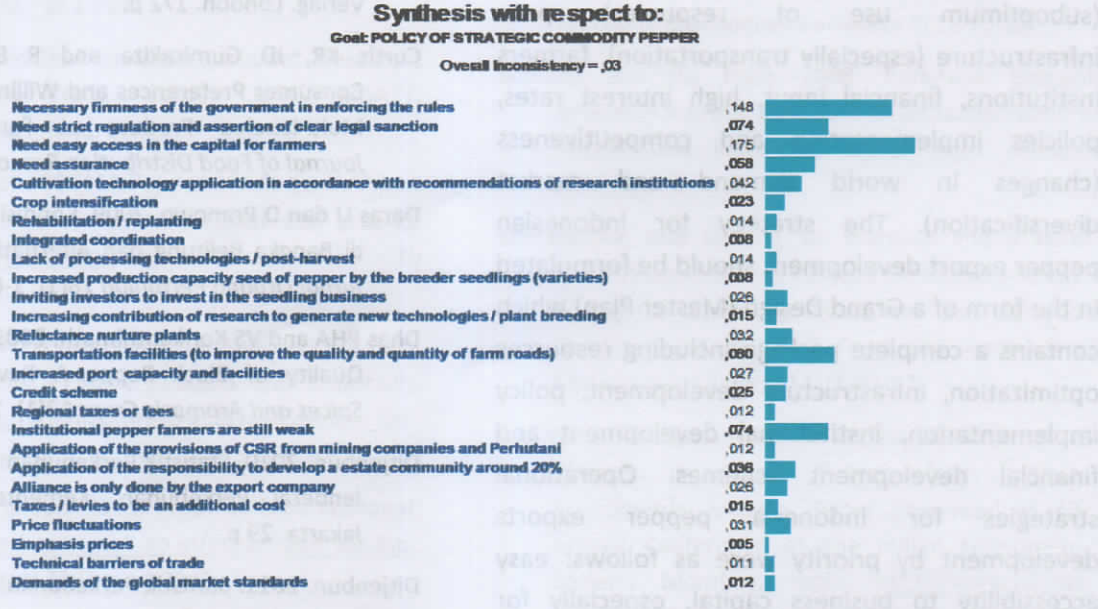

Figure 2. Policy for Indonesian pepper export development.
Gambar 2. Sintesa kebijakan pengembangan ekspor lada Indonesia.

pepper was just Rp. 47,180,- kg^{-1} and black pepper Rp. 28,836,- kg^{-1} However in 2014, the price rose almost 300%, where white pepper price reached Rp. 124,154,- kg^{-1} and black pepper Rp. 76,851,- kg^{-1} (Bappebti, 2015). Unfortunately, price increasing is not followed by escalation in both production and export volume. Indonesian pepper production in 2013 just reached 91,039 tons (average growth rate by 2.86% $year^{-1}$ from 2010 to 2013) (Kementerian Pertanian, 2015), and export by 48,959 tons (average growth rate 1,5% $year^{-1}$ from 2010 to 2013) (ITC, 2015). These facts indicated that Indonesia had loss important opportunity in pepper business. Therefore, it needs serious commitment from decision makers to implement strategies and regulations to develop Indonesian pepper export. Improved cultivation technologies as well as postharvest technologies, the increase of pepper price and so on, should promote Indonesian pepper competitiveness and finally increase quantity of pepper exports.

CONCLUSION

Indonesian pepper industry encountered several major issues such as productivity (suboptimum use of resources) poor infrastructure (especially transportation), farmers institutions, financial input, high interest rates, policies implementation and competitiveness (changes in world demand and market diversification). The strategy for Indonesian pepper export development should be formulated in the form of a Grand Design (Master Plan) which contains a complete package including resources optimization, infrastructure development, policy implementation, institutional development and financial development schemes. Operational strategies for Indonesia pepper exports development by priority were as follows: easy accessibility to business capital, especially for farmers; effective pepper-related policies; transport facilities development from farm to port; provision of guarantee institutions; institution development for farmers and other business; application of recommended cultivation and processing technologies.

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