UNIVERSITI PUTRA MALAYSIA

IMPACT OF ASEAN RICE POLICY ON INTRA-ASEAN RICE TRADE

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Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia, in Fulfillment of the Requirements for the Degree of Master of Science

September 2016

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DEDICATION

*I dedicated this -very little- work to those whom we pray together; unite by citing Tashahud in our prayer, and those whom I joined in the same journey begins by citing Salam at the end of every praye*r.

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfillment of the requirement for the Degree of Master of Science

IMPACT OF ASEAN RICE POLICY ON INTRA-ASEAN RICE TRADE

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MOHAMMAD JAVAD DORDKESHAN

September 2016

Chairman : Professor Datuk Mad Nasir Shamsudin, PhD
Institute : Agricultural and Food Policy Studies

The Association of Southeast Asian Nations (ASEAN) member countries have implemented various plans to achieve the integrated economic growth, political and cultural development in the region. In order to realize their economic goal, the ASEAN Economic Community (AEC) has been implemented by member countries through the ASEAN Free Trade Area (AFTA) agreement to experience free market situation. Due to political and dietary importance of rice, historically, the ASEAN member governments have intervened in the rice sector using different policy instruments. However, these interventionist policies may not be sustainable in the long-term as they incur a high budgetary burden to the government. On the other hand, globalization asked for a greater market access with gradual elimination of all different types of market distortions and trade barriers.

In this study, five selected countries which are Malaysia, Indonesia, the Philippines, Thailand, and Vietnam have signed several international trade organizations such as World Trade Organization (WTO), Asian-Pacific Cooperation (APEC) and ASEAN Free Trade Area (AFTA) to boost free trade market structure. Therefore, they are duty bound to eliminate governments' interventions gradually. The main focus of this study was on quantitative restriction policies which are considered as more effective market distortion than other governments' interventions. Therefore, the effect of changes in the minimum export price policy for Thailand and Vietnam as well as import quota in Malaysia were examined in this study.

Minimum Export Price (MEP) policy is a method of controlling the volume of export when the international rice market introduces more competitive price. Thailand and Vietnam implemented MEP policy after the food crisis of 2007-2008 to control their rice export price that might change the rice trade flow within ASEAN region. In addition, Import quota is a way of protecting domestic rice production by giving permission to only a certain quantity of rice to be imported. In Malaysia, the rice import quota is constant at 700,000 tons per year which was started in 2010 by the Malaysian Ministry of Agriculture.

The general objective of this study was to investigate the impact of ASEAN rice policy on Intra-ASEAN rice trade in the five selected ASEAN countries with those following specific objectives of developing a system dynamics model for ASEAN rice sector, simulating the impact of ASEAN rice policy on intra-ASEAN rice sector namely changes in Minimum Export Price in Vietnam and Thailand, and the rice import quota in Malaysia.

System Dynamics (SD) methodology was used to understand the complexity of rice sector in five selected ASEAN member countries and forecast the future situation of rice industry in this region until 2025. First, causal loops diagram were developed based on the literature explanation of relationships between the variables in the rice industry, then secondly, stock and flow diagrams were built based on the casual loop diagrams to run computer simulation and forecast using Vensim software.

Simulations were run based on five scenarios which were designed based on comparison between Thailand and Vietnam rice export price with international price, considering the implementation of MEP policy in Thailand and Vietnam along with eliminating import quota mainly in Malaysia. Simulation results indicated that Vietnam will dominate the rice market in the region up to 85-90% of total Indonesia, Malaysia and the Philippines rice import in 2025. However, Thailand might loss up to less than 10% of its trade partners in the region at the same period of time. Hence, ASEAN rice importer countries need to manage reliable sources of rice supply probably from outside the region in case of the shortage in their own local market and at the time of food crisis due to food security concern.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk Ijazah Master Sains

KESAN DASAR BERAS ASEAN TERHADAP PERDAGANGAN DI KALANGAN NEGARA ASEAN

Oleh

MOHAMMAD JAVAD DORDKESHAN

September 2016

Pengerusi : Profesor Datuk Mad Nasir Shamsudin, PhD
Institut : Kajian Dasar Pertanian dan Makanan

Anggota Persatuan Negara-negara Asia Tenggara (Association of Southeast Asian Nations atau ASEAN) telah melaksanakan pelbagai rancangan untuk mencapai pertumbuhan ekonomi yang bersepadu, perkembangan politik dan budaya di rantau tersebut. Bagi merealisasikan matlamat ekonomi mereka, Komuniti Ekonomi ASEAN (ASEAN Economic Community atau AEC) telah dilaksanakan oleh negara-negara anggota melalui perjanjian Kawasan Perdagangan Bebas ASEAN (ASEAN Free Trade Area atau AFTA) untuk mewujudkan keadaan pasaran bebas. Oleh kerana kepentingan politik dan pemakanan beras, secara sejarahnya, kerajaan-kerajaan ASEAN telah pun campur tangan dalam sektor beras dengan menggunakan instrument-instrumen polisi yang berbeza. Walau bagaimanapun, polisi-polisi ini mungkin tidak mampan dalam jangkamasa panjang kerana ia mem bebankan belanjawan yang tinggi kepada kerajaan. Sebaliknya, global meminta akses pasaran yang lebih besar dengan penghapusan segala jenis herotan pasaran dan halangan perdagangan.

Dalam kajian ini, lima buah negara dipilih iaitu Malaysia, Indonesia, Filipina, Thailand, dan Vietnam yang telah menyertai beberapa organisasi perdagangan antarabangsa seperti Pertubuhan Perdagangan Dunia (World Trade Organization atau WTO), ASEAN dan Kerjasama Asia Pasifik (Asian-Pacific Cooperation atau APEC) dengan tujuan meningkatkan struktur pasaran perdagangan bebas. Organisasi yang terlibat ini berkewajipan untuk menghapuskan campur tangan kerajaan secara beransur-ansur. Fokus utama kajian ini adalah mengenai polisi-polisi sekatan secara kuantitatif yang dianggap sebagai herotan pasaran yang lebih berkesan daripada campur tangan kerajaan. Oleh itu, kesan perubahan dalam polisi harga eksport minimum bagi Thailand dan Vietnam serta kuota import di Malaysia telah diperiksa dalam kajian ini.

Polisi Harga Export Minimum (Minimum Export Price Policy atau MEP) ialah polisi untuk negara-negara pengeksport untuk menguruskan harga eksport mereka dengan mengawal jumlah eksport apabila pasaran beras antarabangsa memperkenalkan harga yang lebih kompetitif. Thailand dan Vietnam memperkenalkan MEP selepas

mengalami krisis makanan 2007-2008 untuk mengawal harga eksport beras mereka yang mungkin menukar aliran perdagangan beras dalam kawasan ASEAN. Di samping itu, kuota import adalah cara untuk melindungi pengeluaran beras tempatan dengan memberikan kebenaran import beras untuk hanya kuantiti tertentu. Di Malaysia, kuota import beras adalah malar pada 700,000 tan setahun yang dimulakan pada tahun 2010 oleh Kementerian Pertanian dan Industri Asas Tani Malaysia.

Objektif umum kajian ini adalah untuk mengkaji kesan polisi beras ASEAN terhadap perdagangan beras Intra-ASEAN di lima negara ASEAN yang dipilih. Objektif khusus kajian ini ialah untuk membangunkan model dinamik sistem bagi sektor beras ASEAN dan membina simulasi kesan polisi beras ASEAN kepada sektor beras intra-ASEAN, dengan melihat perubahan Harga Minimum Eksport di Vietnam dan Thailand.

Metodologi sistem dinamik digunakan untuk memahami dinamik sektor beras di lima buah negara anggota ASEAN yang dipilih dan meramalkan keadaan masa depan industri beras di rantau ini sehingga tahun 2025. Gambar rajah gelung kausal telah dibangunkan berdasarkan penjelasan kesusasteraan berkenaan hubungan antara pemboleh ubah dalam industry beras. Seterusnya gambar rajah saham dan aliran dibina berdasarkan gambar rajah gelung kausal untuk komputer simulasi dan ramalan menggunakan perisian Vensim.

Simulasi telah dijalankan berdasarkan kepada lima senario yang direka berdasarkan perbandingan harga beras eksport Thailand dan Vietnam dengan harga eksport beras antarabangsa, dengan mengambil kira implementasi Polisi Harga Export Minimum di Thailand dan Vietnam dengan mengeluarkan atau menghapuskan kuota impot terutamanya di Malaysia. Keputusan simulasi menunjukkan bahawa Vietnam akan menguasai pasaran beras lebih 85-90% daripada jumlah import beras pada tahun 2025 bagi Indonesia, Malaysia dan Filipina. Walau bagaimanapun, Thailand akan kehilangan lebih daripada 10% daripada rakan seperdagangannya pada waktu yang sama. Oleh itu, pengimport beras dari negara-negara ASEAN perlu menguruskan sumber pengeksport beras daripada negara luar kawasan ASEAN untuk menangani kes kekurangan pasaran tempatan dan dalam masa krisis makanan serta kebimbangan dalam keselamatan makanan.

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This thesis was submitted to the Senate of the Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Master of Science.The members of the Supervisory Committee were as follows:

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This is to confirm that:

- the research conducted and the writing of this thesis was under our supervision;
- supervision responsibilities as stated in the Universiti Putra Malaysia (Graduate Studies) Rules 2003 (Revision 2012-2013) were adhered to.

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AEC	ASEAN Economic Community
AFTA	ASEAN Free Trade Area
AGRM	Arkansas Global Rice Model
AOA	Agreement on Agriculture
APEC	ASEAN and Asian-Pacific Cooperation
APSC	ASEAN Political-Security Community
ASCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
BERNAS	PadiBeras National Berhad
BULOG	Badan Urusan Logistik
CEPT	Common Effective Preferential Tariff
CES	Constant Elasticity of Substitution
FIELDS	Fertilizer, Infrastructure and Irrigation, Extension and Education, Loans, Drying and other Post-harvest Facilities, and Seeds
GATT	General Agreement on Tariffs and Trade
GE	General Equilibrium
IMF	International Monetary Fund
IMPACT	International Model for Policy Analysis of Agricultural Commodities and Trade
MARD	Ministry of Agriculture and Rural Development
MFN	Most-Favored Nation
MOT	Ministry of Trade
MP	Malaysian Plan
MEP	Minimum Export Price

MSE	Mean Square Error
MVSS	Multivariate Sensitivity Simulation
NAP1	First National Agricultural policy
NFA	National Food Authority
NGA	National Grain Authority
PE	Partial Equilibrium
QR	Quantitative Restriction
RCA	Rice and Corn Administration
RMSE	Root Mean Square Error
SPC	State Planning Committee
SSL	Self- Sufficiency Level
UAP	Unprocessed Agricultural Products
VFA	Vietnam Food Association
WTO	World Trade Organization

CHAPTER 1

INTRODUCTION

1.1 Background of the Study

Rice plays a significant role as an important food staple and principal crop in many Asian countries. It is a major source of employment and accounts for about 50 percent of the income earn by households involved in rice production. In addition, about 25-40% of the expenditure of the urban poor, farm households that cultivate other crops and rural landless are devoted to rice consumption (Timmer, 2009). As a consequence, rice price changes leads to a significant changes (either positive or negative) in the consumers' purchasing power which is exerted especially to the poor (Dawe & Timmer, 2012). Furthermore, Asia has emerged as a major player in the international rice market and this has contributed substantially to the economies of these countries. Historically, however, the global rice market has been unstable and thin, as such domestic rice price stabilization policies have become increasingly important. Thus, all Asian countries both rice farmers and consumers involve in fluctuating world prices by way of controlling the of rice flow within their borders, this giving rise to a rice price stabilization policy which is inconsistent with free trade (Dawe & Timmer, 2012).

1.2 ASEAN Rice Sector

The current situation of the Association of Southeast Asian Nations (ASEAN) rice sector including the trend of paddy yield, harvested area and rice production is depicted in Table 1.1. And total rice consumption along with rice consumption per capita from 2000 to 2012 is shown in Table 1.2.

Table 1.1 : ASEAN 5 Selected Country members' Rice Production (2000-2012)

	Yield (t/Ha)						Harvested Area (000 Ha)					Rice production (000 t)						
Year	Malaysia	The Philippines	Thailand	Vietnam	Indonesia	ASEAN 5	Malaysia	The Philippines	Thailand	Vietnam	Indonesia	ASEAN 5	Malaysia	The Philippines	Thailand	Vietnam	Indonesia	ASEAN 5
2000	3.06	3.07	2.61	4.24	4.4	**3.476**	698.7	4038.08	9891.2	7666.3	11800	**34094.3**	1427.91	8263.73	17200	21700	34600	**83191.6**
2001	3.11	3.19	2.77	4.29	4.39	**3.55**	673.6	4065.44	10100	7492.7	11500	**33831.7**	1397.36	8640.92	18700	21400	33700	**83838.3**
2002	3.24	3.28	2.9	4.59	4.47	**3.696**	678.5	4046.32	9653.53	7504.3	11500	**33382.7**	1465.63	8851.52	18700	23000	34300	**86317.2**
2003	3.36	3.37	2.9	4.64	4.54	**3.762**	671.8	4006.42	10200	7452.2	11500	**33830.4**	1505.42	9004.43	19700	23100	34800	**88109.9**
2004	3.33	3.51	2.86	4.86	4.54	**3.82**	680.7	4126.65	9992.87	7445.3	11900	**34145.5**	1510.09	9669.35	19000	24100	36100	**90379.4**
2005	3.42	3.59	2.96	4.89	4.57	**3.886**	676.2	4070.42	10200	7329.2	11800	**34075.8**	1543.44	9740.2	20200	23900	36100	**91483.6**
2006	3.39	3.68	2.92	4.89	4.62	**3.9**	645	4159.93	10200	7324.8	11800	**34129.7**	1458.73	10200	19800	23900	36300	**91658.7**
2007	3.53	3.8	3.01	4.99	4.71	**4.008**	673.24	4272.89	10700	7207.4	12100	**34953.5**	1584.12	10800	21400	24000	38100	**95884.1**
2008	3.58	3.77	2.96	5.23	4.89	**4.086**	656.6	4459.98	10700	7400.2	12300	**35516.8**	1569.45	11200	21100	25800	40200	**99869.5**
2009	3.72	3.59	2.88	5.24	5	**4.086**	674.93	4532.3	11100	7437.2	12900	**36644.4**	1674.87	10800	21400	26000	43000	**102875**
2010	3.64	3.62	2.94	5.34	5.02	**4.112**	677.88	4354.16	12100	7489.4	13300	**37921.4**	1644.04	10500	23000	26700	44300	**106844**
2011	3.75	3.68	2.9	5.54	4.98	**4.17**	687.52	4536.64	11900	7655.44	13200	**37979.6**	1718.18	11100	24100	28300	43800	**108018**
2012	3.97	3.84	3	5.63	5.14	**4.316**	692.34	4689.96	12600	7753.16	13400	**39135.5**	NA	12027	24991	29122	46060	

(Source: FAO, 2016)

Table 1.1 reveals the recent state of the ASEAN rice sector; it shows the trend in paddy yield, harvested areas, rice production, total rice consumption and rice consumption per capita from 2000 to 2012.

Rice yield (tons/ha) witnessed over 24.20 percent increase (3.476 tons/ha to 4.316 tons/ha) among the ASEAN 5 (Malaysia, The Philippines, Thailand, Vietnam and Indonesia) within this period. Specifically, rice yield (tons/ha) increased by 32.78 percent in Vietnam (4.24 tons/ha to 5.63 tons/ha), 29.73 percent in Malaysia (3.06 tons/ha to 3.97 tons/ha), 25.08 percent in the Philippines (3.07 tons/ha to 3.84 tons/ha), 16.81 percent in Indonesia (4.4 tons/ha to 5.14 tons /ha) and 14.94 percent in Thailand (2.61 tons/ha to 3.0 tons/ha). While the rate of increase differed among countries, rice yield also differed among countries. As of 2012, Vietnam (5.63 tons/ha) had the highest yield, followed by Indonesia (5.14 tons/ha), Malaysia (3.97 tons/ha), The Philippines (3.84 tons/ha) and surprisingly Thailand (3.0 ton/ha) had the lowest recorded paddy yield.

Harvested area (000 ha) also increased by almost 14.93 percent in the ASEAN 5 between 2000 and 2012. While there was an increase in harvested area in countries such as the Philippines, Thailand, Vietnam and Indonesia, a decrease in harvested area was witnessed in Malaysia. Harvested area increased by 27.40 percent in Thailand (9891.2 to 12600), 16.37 percent in the Philippines (4038.08 to 4689.96), 13.56 percent in Indonesia (11800 to 13400) and about 1.17 percent in Vietnam (7666.3 to 7753.16) while it decreased by less than 1 percent in Malaysia (698.7 to 692.34)

Table 1.2 : ASEAN 5 Selected Country members' Rice Consumption (2000-2012)

	Rice Consumption (000 t)						Rice Consumption per capita (Kg/Year)					
Year	**Malaysia**	**The Philippines**	**Thailand**	**Vietnam**	**Indonesia**	**ASEAN 5**	**Malaysia**	**The Philippines**	**Thailand**	**Vietnam**	**Indonesia**	**Average ASEAN 5**
2000	2072.46	9202.26	10400	17800	36100	**75574.72**	84.2	103.7	117.2	149.4	129.5	**116.8**
2001	2016.78	9460.8	10400	17000	34900	**73777.58**	80.2	104.1	112.8	151.9	127.6	**115.32**
2002	1922.98	10000	10500	18500	36200	**77122.98**	74.5	108.3	113.6	155.2	127.5	**115.82**
2003	1977.07	10100	10800	18700	36400	**77977.07**	75.2	107.2	115.2	155.4	126.6	**115.92**
2004	2056.91	11100	10900	19200	36500	**79756.91**	75.3	116.3	114.3	154.8	125.9	**117.32**
2005	2251.41	11700	11500	19000	36300	**80751.41**	80.5	120.5	117.6	148.9	125.1	**118.52**
2006	2258.3	12000	11700	18800	36800	**81558.3**	79.5	120.8	119.6	143.3	125.1	**117.66**
2007	2337.22	12700	11900	19100	37700	**83737.22**	80.1	128.6	112.7	144.1	126.5	**118.4**
2008	2547.23	13200	12400	20200	41300	**89647.23**	80.3	131	117.9	145.7	128	**120.58**
2009	2774.38	12600	12500	20200	42700	**90774.38**	80.1	123.1	117.6	144.8	129.9	**119.1**
2010	2707.36	12100	12981	20000	43900	**92007.36**	80.3	116	115.1	145.4	131.8	**117.72**
2011	2841.56	12500	13053	20800	44800	**93741.56**	79.9	118.8	111.7	145.3	133	**117.74**
2012	NA	13003	13732	20836	46361		NA	120.88	114.6	141.69	134.39	

(Source: FAO, 2016)

Rice production (000 t) also increased by approximately 29.83 percent in the ASEAN 5 between 2000 and 2012. This was not surprising as an increase in yield as well as increase in harvested area was observed in most of the countries. Between 2000 and 2012, rice production increased by 45.27 percent in the Philippines (8263.73 tons to 12027 tons) and it increased by 45.29 percent in Thailand (17200 tons to 24991 tons). Rice production also increased by 34.19 percent in Vietnam (21700 tons to 29122 tons) and Indonesian rice production increased by 33.12 percent from 34600 tons to 46060 tons in the same period. Between 2000 and 2011, rice production also increased in Malaysia by 20.42 percent (1427.91 to 1718.18). However, Malaysia rice production data for 2012 has not been released yet.

Rice consumption (000 t) also increased by about 19 percent in the ASEAN 5 between 2000 and 2012. Between 2000 and 2012, rice consumption increased by 41.30 percent in the Philippines (9202.26 tons to 13003 tons), 32.01 percent in Thailand (10400 tons to 13732 tons), 28.42 percent in Indonesia (36100 tons to 46361 tons), and 17.02 percent in Vietnam (17800 tons to 20836 tons). Between 2000 and 2011, rice consumption also increased in Malaysia by 37.19 percent (2072.46 tons to 2841.56 tons). This increase is mostly attributed to an increase in population of those courtiers. Data for Malaysian rice consumption for 2012 has not been released yet.

Rice consumption per capital (kg/year) increased by less than 1 percent among the ASEAN 5 between 2000 and 2012. However, the trend in rice per capita consumption differs among the five countries; some countries are experiencing an increase per capita consumption, while others are witnessing decrease per capita rice consumption.

Table 1.3 : ASEAN 5 Selected Country Members' Rice Export pattern (2005-20012)

	Thailand					Vietnam				
Year	Intra- ASEAN				Outside ASEAN	Intra- ASEAN				Outside ASEAN
	Indonesia	Malaysia	The Philippines	ASEAN all		Indonesia	Malaysia	The Philippines	ASEAN all	
2005	118986778	434827865	77323142	879209858	6662934499	58057115	246370897	979918041	1309101455	1730924053
2006	169265257	374368158	112048860	908508524	6525032391	339830032	504622402	1509853750	2469110590	2173866823
2007	440147352	406561963	412849592	1556898774	7640757660	1169428832	379512712	1464511500	3097393858	1482580568
2008	126712344	520807726	601895072	1563703239	8652337218	75656496	477665760	1693723000	2337228566	2407813087
2009	219124269	165083050	155389469	781227296	7838642537	17786350	613213336	1708238694	2683199814	3285561840
2010	273623903	182912073	510102811	1171334965	7768295297	687212976	398012000	1475820952	3121123493	3773043719
2011	901308038	330931825	185966360	1650092410	9056136842	1882970992	530433376	978918858	3797853413	3318762546
2012	337710723	70768445	3323376	604316468	6142501526	929905324	764922210	1112326048	3090497908	2832169797

Table 1.4 : ASEAN 5 Selected Country Members' Rice Import pattern (2005-20012)

	Indonesia			Malaysia			The Philippines		
Year	Thailand	Vietnam	ROW	Thailand	Vietnam	ROW	Thailand	Vietnam	ROW
2005	126,408,909	44,772,500	11,586,150	277,592,700	255,713,650	37,869,840	58,809,905	1,695,760,174	18,300,137
2006	157,983,250	272,832,650	5,724,262	349,105,650	449,584,150	35,197,300	112,891,840	1,463,705,206	53,991,391
2007	363,640,086	1,022,834,576	18,537,567	483,569,380	277,969,004	33,128,070	404,655,084	1,380,834,373	18,389,010
2008	157,007,344	125,070,450	5,964,409	581,608,560	471,309,776	36,116,600	584,177,396	1,662,219,299	70,041,825
2009	221,372,611	20,970,500	7,522,037	144,949,320	860,910,584	59,260,610	54,816,234	1,692,704,879	11,913,593
2010	209,127,767	467,369,601	11,000,742	211,684,653	591,434,039	125,489,948	444,866,484	1,775,095,085	153,006,534
2011	938,695,680	1,778,480,572	30,596,477	325,707,561	550,597,056	140,449,704	118,385,061	581,880,363	2,147,090
2012	315,352,697	1,084,782,835	398,192,652	74,011,798	765,749,784	132,857,765	20,563,060	822,940,213	144,896,672

(Source: International Trade Center, 2016)

Between 2000 and 2012, rice per capita consumption increased by 16.56 percent in the Philippines (103.7 kg/year to 120.88 kg/year) and 3.77 percent in Indonesia (129.5 kg/year to 134.39 kg/year) while per capita consumption decreased by 5.16 percent in Vietnam (149.4 kg/year to 141.69 kg/year) and 2.21 percent in Thailand (117.2 kg/year to 114.6 kg/year). Between 2000 and 2011, rice per capita consumption also decreased in Malaysia by 5.1 percent (84.2 kg/year to 79.9 kg/year). Data of Malaysian rice consumption per capita for 2012 has not been released yet.

Table 1.3 shows Thailand and Vietnam rice export within ASEAN and the rest of the world between 2005 and 2012. Between 2005 and 2010, Thailand exported an average of 1, 143,480,443 tons within ASEAN; this increased by 44 percent to 1,650,092,410 tons in 2011 and then decreased by more about 63 percent to 604,316,468 tons in 2012. Also, Thailand exported an average of 7,514,666,600 tons to the rest of the world between 2005 and 2010; this also witnessed about 21 percent increase to 9,056,136,842 tons in 2011 and then decreased by 32 percent to 6,142,501,526 tons in 2012.

The trend of Thailand export to the three major rice importers in ASEAN also revealed a declining volume in export quantity. Thailand exported an average of 224,643,317 tons to Indonesia between 20005-2010; the quantity of export to Indonesia increased by more than 300 percent to 901,308,038 tons in 2011 and decreased rapidly by 63 percent to 337,710,723 tons in 2012. Thai rice export to Malaysia also decreased by 5 percent from an average of 347,426,806 tons between 2005 and 2010 to 330,931,825 tons in 2011 and further decreased drastically by 79 percent to 70,768,445 tons in 2012. Similar scenario was witnessed in The Philippines as Thailand rice export into the country decreased by about 40 percent from an average of 311,601,491 tons between 2005 and 2010 to 185,966,360 tons in 2011 and further decreased by 98 percent to 3,323,376 tons in 2012. Thailand exported only about 60% of its rice surplus in 2012.

Contrary to Thailand, Vietnam exported large percentage of its rice within ASEAN than to the rest of the world. Between 2005 and 2010, Vietnam exported an average of 2,502,859,629 tons within ASEAN, this increased by 52 percent to 3,797,853,413 tons in 2011 and decreased by 19 percent to 3,090,497,908 tons in 2012. Also, Vietnam exported an average of 2,475,631,682 tons to the rest of the world between 2005 and 2010; this also witnessed about 34 percent increase to 3,318,762,546 tons in 2011 and decreased by 15 percent to 2,832,169,797 tons in 2012.

The trend of Vietnam export to the three major rice importers in ASEAN also displayed a declining volume in export quantity. Vietnam exported an average of 391,328,633 tons to Indonesia between 20005-2010; it rose by more than 380 percent to 1,882,970,992 tons in 2011 and decreased by about 51 percent to 929,905,324 tons in 2012. Vietnam rice export to Malaysia also increased by 22 percent from an average of 436,566,185 tons between 2005 and 2010 to 530,433,376 tons in 2011 and further increased by 44 percent to 764,922,210 tons in 2012. In the Philippines, Vietnam rice export into the country decreased by about 34 percent from an average of

1,472,010,900 tons between 2005 and 2010 to 978,918,858 tons in 2011 and increased by 14 percent to 1,112,326,048 tons in 2012.

Table 1.4 shows the imported volume of the three major rice importers in ASEAN (Indonesia, Malaysia and the Philippines) from Thailand, Vietnam and the rest of the world.

Indonesia imported an average of 205,923,328 tons between 2005 and 2010 from Thailand; this increased by about 356 percent to 938,695,680 in 2011 and decreased by 36 percent to 315,352,697 tons in 2012. Indonesia also imported an average of 325,641,713 tons between 2005 and 2010 from Vietnam; this increased by over 400 percent to 1,778,480,572 tons in 2011 and decreased by 39 percent to 1,084,782,835 in 2012. Finally, Indonesia imported an average of 10,055,861 tons from the rest of the world; this increased by 204 percent to 30,596,477 tons in 2011 and further increased rapidly by over 1,200 percent to 398,192,652 tons to 2012.

Malaysia imported an average of 341,418,377 tons between 2005 and 2010 from Thailand; this decreased by 5 percent to 325,707,561 in 2011 and further decreased by 77 percent to 74,011,798 tons in 2012. Malaysia also imported an average of 484,486,867 tons between 2005 and 2010 from Vietnam; this increased by 14 percent to 550,597,056 tons in 2011 and further increased by 39 percent to 765,749,784 in 2012. Finally, Malaysia imported an average of 54,510,395 tons from the rest of the world; this also increased by 158 percent to 140,449,704 tons in 2011 and decreased by about 5 percent to 132,857,765 tons to 2012.

The Philippines imported an average of 276,702,824 tons between 2005 and 2010 from Thailand; this decreased by about 57 percent to 118,385,061 in 2011 and further decreased by around 83 percent to 20,563,060 tons in 2012. The Philippines also imported an average of 1,611,719,836 tons between 2005 and 2010 from Vietnam; this decreased by more about 64 percent to 581,880,363 tons in 2011 and then increased by 41 percent to 822,940,213 in 2012. Finally, The Philippines imported an average of 54,273,748 tons from the rest of the world; this decreased by 96 percent to 2,147,090 tons in 2011 and then increased by more than 6,600 percent to 144,896,672 tons to 2012.

1.3 ASEAN Rice Policy

The Association of Southeast Asian Nations (ASEAN) member countries have implemented various plans to make combined efforts geared towards stimulating the economic growth, social progress, political and cultural development in the **r**egion. The ASEAN Vision 2020 is a shared vision of ASEAN to enable Southeast Asian nations, to look outwardly, live in peace, stability and prosperity, and bond together in partnerships for dynamic development and the establishment of caring societies[1].

[1] ASEAN (2016): http://www.asean.org/asean/about-asean

Therefore, the member countries decided that the ASEAN Community by 2015 should be politically cohesive, culturally harmonious and socially responsible and economically integrated. In order to realize their ultimate goal, three major components namely the ASEAN Socio-Cultural Community (ASCC), the ASEAN Political-Security Community (APSC) and the ASEAN Economic Community (AEC) has been implemented by member countries[2].

Based on the ASEAN economic concern, agricultural activity, specifically the rice sector is one of the crucial issues for this region that presents an opportunity to be exploited in order to potentially become a major player in the world economy. While rice is the major food for more than 50 percent of the world's population, but only 7% of rice production is traded. as a result, member states of ASEAN play a vital role in the international rice market (Wailes & Chavez, 2012). Among the top five world rice exporters, Thailand and Vietnam, being an ASEAN members, account for 48% of global net exports (Wailes & Chavez, 2012). Though, currently there is strongly competition from other main rice exporters, but Thailand and Vietnam are expected to remain the top exporters over the next decade. Myanmar and Cambodia also have good potential production to increase rice exports in ASEAN (Wailes & Chavez, 2012). Therefore the ASEAN rice industry can be a reliable source for ASEAN itself as well as the world, while the international rice market is highly volatile and unstable. Thus, it is a crucial step for ASEAN member countries to have an integrated rice market.

The ASEAN Free Trade Area (AFTA) agreement is one of the initial promises in this region to establish a trade environment without any form of barrier which was launched in 1992. The mechanism for tariff reduction of a free trade area is the Common Effective Preferential Tariff (CEPT) Scheme. In the mid-90s, the ASEAN countries aimed to achieve the goal of the AFTA agreement by the year 2003 instead of 2008 which was the initiated target. The CEPT scheme has also been updated to cover not only manufactured and processed agricultural products, but also primary agricultural products or unprocessed agricultural products (UAPs) (Acosta & Kagatsume, 2003).

Rice is still considered a sensitive sector and is not included in the agricultural products in the CEPT of AFTA and Agreement on Agriculture (AOA) of World Trade Organization (WTO) agreements, largely due to its importance as a main source of food and a main source of income for small scale farmers. Furthermore, in recent years, especially after the food crisis in 2008, most ASEAN governments have reintroduced their efforts to reach rice self-sufficiency and stabilize domestic prices by using strong policy interventions to protect the domestic market from international uncertainty (Tobias, Molina, Valera, AbdulMottaleb, & Mohanty, 2012). Though, with emergence of trade liberalization, the policies implemented by governments to continue supporting any intervention will be limited.

[2] Same

1.3.1 Malaysian Rice Sector

Over the years, the government of Malaysia has implemented a number of policies in the rice sector. From the beginning of 1960s, a total of nine plans have been applied in the rice sector by the government under the Malaysian Plan (MP). In 1984, the First National Agricultural policy (NAP1) was implemented and currently three types of National Agriculture Policy (NAP) have been applied so far. These policies on rice are measures carried out by the government over the decades which revolve around three broad objectives, namely; safeguarding food security, raising farmers' income and productivity and the last, ensuring food supply to consumers at affordable costs. In an attempt to successfully achieve these objectives, the Malaysian government over the years has rolled out different level of policies (Daño & Samonte, 2005).

Under the First Malaysian Plan (1MP) implemented between 1966–1970, the agricultural sector in addition to contributing one-third of the country's GDP also generated employment for 50% of the employees. Additionally, around 50% of the foreign exchange earnings were due to the agricultural sector. However, it should be noted that during this period, a larger proportion of the Malaysian population lived in the rural areas. The agriculture sector in 1996 had become the third largest contributor to the country's economy, making up about thirteen percent of the GDP and seventeen percent of total earning from the export (Daño & Samonte, 2005). Because of its strategic importance as most essential crop in the Malaysian agricultural sub-sector and as a staple food for the majority of the country's population, rice has become the focus of the self-sufficiency program of the government of Malaysia. The instability in the international rice market on which Malaysia was heavily dependent for her import coupled with an undeveloped domestic rice sector, prompted the government in the 1960s to intervene to safeguard food security via the rice self-sufficiency policy.

Although, the contribution of the agricultural sector to the domestic economy has dwindled considerably over the decades, the sector nonetheless continues to receive significant support from the Malaysian government. Thus, to further strengthen the agricultural sector as a strategically important sector, the government introduced a number of strategies in the Third to the Seventh Malaysian Plans (3MP-7MP).

Between 1976 and 1980, the Third Malaysian Plan (3MP) came into effect with the launching of the New Economic Policy. Under this policy, priority was given to the agricultural sector to lease lands for agricultural activity, rehabilitate abandoned lands, and develop drainage for agriculture and food crops, including rice production (Daño & Samonte, 2005). The result of the implementation of this policy was that 92 % rice self-sufficiency was achieved during this period as compared to 78 % attained in 1970. The Fourth Malaysian Plan (4MP) of 1981–1985 produced the First National Agricultural Policy (NAP1) which was implemented in 1984. The prime focus of the NAP1 was the implementation of strategic policy for long-term measures to enhance the development of the agricultural sector till 2000. Under this policy, emphasis was placed on domestic production in the light of the high and rising bill for food import (RM 4-5 billion per year) during the time, by targeting rice self-sufficiency level of 80-85% which about 76% was gained.

Furthermore, effort has been made by the government to streamline the agricultural sector with the urbanization of the rural areas as its goal during the Fifth Malaysian Plan (5MP) of 1986–1990. Emphasis was placed on commercializing and improving the small holder sub-sector, rationalizing the magnitude of government participation and growing the private sector participation. The Sixth Malaysian Plan (1991–1995) elaborated the fifth plan which called for the development of agro-industry. This plan emphasized the importance of mechanization and labor saving techniques by lowering production cost and increasing labor and land productivity (Najim, T.S. Lee & Esham, 2007). As a result of the 5MP and 6MP, agriculture was opened for the private sector to use part of 85 % of the total developed land throughout the 6MP. The Second NAP (1992-1998) was also implemented during this period, which signaled the shift of Malaysia towards industrial development and promoting the production of export-earning crops like palm oil and cocoa.

The Seventh Malaysian Plan (1996–2000) revealed the country's shift toward the agricultural activity as more competitive sector and free market structure by joining the World Trade Organization (WTO). In 1995, Malaysia became a WTO member which obliged it to implement different agreements under the membership. In terms of the rice sector, the Agreement on Agriculture (AoA) was called for the agricultural liberalization to be followed by all members.

In NAP3 eight areas were designated as permanent land allocated for paddy harvesting in order to achieve a minimum self-sufficiency level for rice of 65% and try to enhance productivity and yield from 4.0 in 1995 to 5.5 tons per hectare in 2010 and to improve cropping intensity from 117 percent to 185 percent in the eight specific areas (Ramli, Shamsudin, Mohamed, & Radam, 2012)

In the 8 MP and 9 MP the agriculture sector was subject to more commercialization by the private sector, foreign investment. Recently in 2008, during the food crisis world rice price market fluctuated, thus the government decided to establish the Food Security Policy 2008-2010. This policy commenced on 23 April 2008 with the objectives of increasing production and productivity of agro food sector to achieve SSL by ensuring food safety and security as well as appropriate income for producers to maintain sufficient supply of food product (Ramli, Shamsudin, Mohamed, et al., 2012). After the rice crisis in 2008, the Malaysian government increased the rice stock from 92,000 tons to 292,000 tons, in order to guarantee higher levels of self-sufficiency (Vengedasalam, Harris, & Macaulay, 2011).

Rice in Malaysia is mainly protected by the government intervention such as subsidies, price controls and monopoly on imports, tariffs and buffer stocks. The Malaysian government introduced Guaranteed Minimum Price (GMP) in 1949 to protect rice farmers' income due to the instability of world-rice price, as well as to increase the farmer's income by reducing the role of the middle men. In 2010, the minimum paddy price was increased from RM650 to RM750 per metric tons by the government (Vengedasalam et al., 2011).

Basically, the Malaysian government has implemented food security policies, including two types of plans and policies which are the short term as well as the long term programs, in order to achieve self-sufficiency level (SSL) and other socio-economic concerns such as production and trade policies.

The Malaysian government has introduced production policies in order to increase production, productivity and farmers' income as well as to encourage farmers to remain in this sector. Fertilizer subsidies, guaranteed minimum price policy and paddy price subsidy scheme are different types of policies applied to achieve SSL which are not included in the analysis of this study.

1.3.1.1 Trade Policy

With respect to the Malaysian government policies towards trade, the country is considered as a relatively opened country to trade in foreign investment and commodities, except for agricultural products, and especially rice, due to political and socio-economic concerns. As a measure been taking to guard the domestic rice industry and safeguarding the food security, the government introduced production policies and high import duties on rice for the food security purpose. Recently, the rice import tariff for imports are 40% under the Agreement on Agriculture (AoA) of the WTO and 20 % under the Common Effective Preferential Tariff Agreement (CEPT) of AFTA. However, PadiBeras National Berhad (BERNAS) as the sole importer distorts rice market as the government offers a privilege to import rice at duty free charges by BERNAS. The real situation is that the tariffs on rice trade have been removed for BERNAS. Until 2016 when BERNAS's license expires the tariff was then be imposed (Vengedasalam et al., 2011).

In 1970 four main objectives, namely, (a) to ensure fair and stable paddy prices for farmers; (b) to ensure fair and stable prices for consumers; (c) to provide sufficient supply of rice to meet all emergencies; and (d) to propose policies to promote the development of the paddy and rice industry and to organize and assist in the implementation of state policies associated with the rice sector, prompted the establishment of BERNAS (Daño & Samonte, 2005). It was accorded extensive power and authorizing to control both farm-gate and border prices. In addition, its influence extended to having control over the entire value chain such as issuance of licenses to exporters, importers, millers, wholesaler and retailers, In 1974, BERNAS became the sole importer of rice while the private sector was excluded (Vengedasalam et al., 2011).

From four state-owned mills in 1969, BERNAS raised the number of public integrated milling operations to 31 in 1982. The expansion of its direct milling processes enabled BERNAS to buy up an growing share of domestic rice production between 1973 and 1985, the private sector's share in the paddy market dropped down drastically from 88 % to 54% (Daño & Samonte, 2005).

The combined effect of creating an import monopoly and fixing domestic rice prices facilitated to achieve price stabilization. Since its privatization in January 1996, the role of BERNAS has extended to include the regulation of the paddy and rice sector in Malaysia and the procurement of paddy and rice processing, distribution, importation, exportation and marketing activities. In addition, its privatization agreement with the government of Malaysia includes the national rice stock management and maintenance and ensuring adequate supply while stabilizing price.

In fulfilling its obligation and to make certain that the country has sufficient supply of rice at all times, BERNAS continues to discharge its role in managing and maintaining the Government Rice Stockpile of 292,000 MT at any point in time. The idea is that the stockpile will act as an emergency food security buffer as well as to stabilize rice supplies and prices in the country. In addition, it is reported that BERNAS has spent about RM74.5 million on a number of plants, machinery and infrastructure improvement projects in 2012 (BERNAS annual report, 2012).

On 18 September 2012, BERNAS and the Government of Malaysia entered into an agreement (BERNAS Agreement) for the extension of its concessionary privilege for an additional period of 10 years commencing from 11 January 2011 to 10 January 2021. As part of this agreement, BERNAS is obligated to play a number of important roles in the rice sector including maintaining and managing the government's rice stockpile of 292,000 tones at its cost, and comply with the security, safety and other standards as required by the government (Ramli, Shamsudin, Mohamed, et al., 2012).

The Malaysian government has implemented other rice trade policies as a way of protecting domestic rice production. Implementation of the rice import quota ensures that a certain quantity of rice is permitted to be imported. The rice import quota is constant at 700,000 metric tons per year. The implementation of rice import quota was started in 2010 which was established by the Malaysian Ministry of Agriculture (Ramli, Shamsudin, Mohamed, et al., 2012).

1.3.2 Indonesian Rice Sector

In Indonesia, rice is a strategic product that acutely influences the economy, employment, rural development, social and political issue. The rice sector which is included paddy production, paddy and rice processing, rice trade and supporting services such as transportation considered as a main source of employment (Dawe, 2010. P 109).

With regard to rice production, Indonesia ranks as third in the world. It also ranks as the top ten of rice importer countries. Furthermore, the country's rice per capita consumption ranges to the seventh highest in the whole world, where consumption grows faster than production due to population growth rate. In addition, the daily 50 % of protein and 40 % of caloric requirements of average Indonesian is based on rice (Pandey et al., 2010; P, 17). Thus, self-sufficiency in the rice production is the main

objective of the policies implemented in Indonesia. To enhance rice production, farmers managing less than 0.5 hectare where receiving 40% of the total amount of subsidy. The country import reaches about 0.8 million tons of rice in a year averagely. The import duty for rice is $0.05 per kilogram (Tobias et al., 2012).

Since independence of Indonesian government, maintaining a low and stable rice prices has been the key country's policy toward the rice market. As a result of the rice contribution to the caloric intake for the average Indonesian, the rice is politically sensitive issue. When compare rice with other different food commodities, it is considered as the least responsive to the changes of its own price (Dodge & Gemessa, 2012).

Prior to the introduction of free trade at the first Five-Year Development Plan of 1969 to 1974, the rice price cost stabilization was averaged around US$30 million per year. The costs increased to US$40 million per year at the second Five-Year Development Plan of 1974 to 1979. Thus, within these 10 years of the price stabilization program, the average added value was increased to US$270–300 million per year (based on prices in 1991) which is equivalent to approximately 1 % economic growth of each year. However, in the third and fourth Five-Year Development Plan, the rice price cost stabilization increased to nearly to US$80 million per year. While, in the fifth Five-Year Development Plan of 1989 to 1994 it increased only to US$90 million. As the fifth development plan was ended in March 1994 the cost of stabilization start to decline as a result of the Badan Urusan Logistik (BULOG) operation of managing the cost of large surplus under control. This adaptation of is considered more flexible to achieve the targeted food security than before (Arifin, 2008).

Since BULOG was established, there was a significant improvement in irrigation system, road infrastructures and diversification of the economy. More importantly, marketing and rice trade competition has enhanced so that market integration of both the flow of information and goods was substantially expanded (Arifin, 2008).

1.3.2.1 Free Market and Indonesian Rice Policies

In 1998 rice trade policy was changed when BULOG lost its monopoly control and the linear command system adopted in the past. While, the International Monetary Fund (IMF) promoted openness in the rice trade market was led to serious challenges. This was as a result of the failure of liberalization strategy been adopted to strengthen the organizations involved in the rice market especially in the production and distribution systems in Indonesia (Arifin, 2008).

In addition, the fertilizer subsidy removal which complies with trade liberalization at the time of highest economic crisis was also debated. On one hand, In order to reduce its budget deficit and maintain its fiscal sustainability, the Indonesian government tried to remove the fertilizer subsidy which they considered as ineffective policy because it was for large-scale agribusinesses not for small-scale farmers. While, on

the other hand, most farmers in Indonesia were not in support to remove subsidies by knowing that the developed countries still provide subsidies for their own farmers (Arifin, 2008).

Therefore government had to implement other policy in order to impress the farmers thereby introducing what is called the subsidized credit program, although this policy was also failed due to the lack of institutions and infrastructure necessary to implement it. In spite of declining fertilizer use as a result of the policy failure, and the decrease in the harvest area of rice in 2000, rice production increased due to better yield and new processing and harvesting technology for. But, unfortunately, the majority of farmers experiencing lower revenues as a result of a persistent decline in the farm-gate rice price, mount pressure on the Indonesian government to increase protection through a tariff increase instead of liberalization of rice trade.

Import tariffs for rice in 2000 were at Rp 430 per kilogram or about 30 % of the world price. The policy objective was to protect rice farmers from cheaper imports and to maintain domestic rice supply at an affordable price for rice consumers living below the poverty line (Arifin, 2008).

Despite import and stabilization effects on part of the government, the 2004 ban led to a period of rising prices as domestic supply failed to keep pace with domestic demand (McCulloch, 2008). By January 2008, domestic prices stood at 94% above their January 2004 level, and 27% above the world price. The government began making attempts at stabilization in 2007 through ad hoc imports by BULOG and eventually by giving BULOG greater autonomy to make stabilization efforts (McCulloch, 2008). The import tariff was also reduced from 750Rp/kg in 2003 to 550Rp/kg in August 2007 and further to 450/kg in December of the same year in an attempt to ease upward pressure on prices The same period also saw an increase in the Rice for the Poor or Raskin program (the poorest households can purchase up to 10 kg of rice at a subsidized price) in an effort to dampen the effects of price increases on the poor (Dodge & Gemessa, 2012).

Domestic rice prices were declining up to 2004 due to the increase in the rice import in 2002–2003. Therefore, there was the need to reduce the impact of rice price import on domestic rice prices at the farm level in 2004, which instigate to apply the seasonal cycle import policy with an open and closed system. Consequently, the rice importation at that time was strictly limited with the BULOG as the sole executor after import licenses insurance by the Ministry of Trade. However, the permission for the importation of specialty rice varieties (which make up for less than 1% of local consumption) is still retained by the private sector (Dodge & Gemessa, 2012).

1.3.2.2 The Indonesian Bureau of Logistics (BULOG)

The transition to democracy in 1998 saw the forced abolishment of BULOG's rice import monopoly through the country's structural adjustment agreement with the IMF

(McCulloch, 2008). While an import tariff of 430Rp/kg (21%) was introduced in 2000 and increased to 750Rp/kg (37%) in 2003, all supply shortfalls were filled through private trade (Dodge & Gemessa, 2012). Then in 2004 the trade ministry (through decree No. 9/MPP/ Kep /1/2004) implemented a seasonal ban on rice imports aimed at buoying producer prices at the time of main harvesting season from early March to June (Timmer, 2004). The new policy also gave discretionary power over import and export licenses to the trade ministry. Currently still in place, this trade ban has given BULOG a monopoly over imports and exports of medium rice, the most commonly consumed variety of rice in Indonesia. However, private rice importers companies may also apply for a rice import license from the government for importing certain types of premium rice only.

The highest domestic procurement achieved by BULOG over the last 20 years is 2.5 million tons, a figure which has only been reached a few times. Nevertheless, because reliance on rice import was becoming very costly with the consequent political sensitivity, BULOG was forced to procure rice domestically. Thus, increasing domestic rice procurement was adopted as a strategy to maintain constant rice distribution for the poor. A target of 2.43 million tons of domestic procurement was initially set in order to reach the targeted rice subsidy allocation in January 2008. A combination of flexibility and early procurement preparation measures were put in place to guarantee it's consistent with market developments. Accordingly, procurement began in February with the idea of meeting the set targets by July. In April 2008 the Indonesian government resolved to extend the period of the subsidized rice distribution program from 10 months to one year (making total allocations to 3.34 million tons). Relative improvement in harvest across all regions provided the incentive for BULOG to increase planned procurement to 2.8 million tons (Dawe, 2010b).

Furthermore, the government of Indonesia had targeted to 10 million tons of annual rice surplus for 2015. Similarly, rice procurement for 2011 was set to 3.5 million tons by the government, where a 2 million tons of stocks would be held by BULOG (Tobias et al., 2012).

Because rice occupies an important position in the Indonesian economy, BULOG has been mandated to carry out a number of roles in the Indonesia rice industry. This includes: a) Ensuring price stability by maintaining grain stocks for the government through buying from farmers when prices drop and selling of stocks when prices are too high; b) Procurement of 7% of the rice produced in the country and which is eventually sold at a subsidized rate; c) Domestic purchases of milled rice and rough rice with a price support fixed at $0.39 per kilogram and $0.59 per kilogram for rice and dry paddy, respectively; d) Engage in distributing subsidized rice among the poor and vulnerable in the country while maintaining and managing the national rice reserve stock.

In 2011, a total of 3.15 million tons of Raskin rice was handed out to 17.5 million poor families, with each family receiving 15 kg of rice monthly; equivalent to a price of $33.84 per kilogram (Tobias et al., 2012).

1.3.3 The Philippines Rice Sector

Being the largest rice importer country in the world, rice is very important to the economy of the Philippines in addition to being the main food in the country, and a highly political commodity, the Philippines rice sector has always occupied the front burner of government policies towards agriculture (Tobias et al., 2012).

Although the Philippines and Thailand are member countries in the Southeast Asia region, the Philippines nonetheless have designated rice within the list of sensitive items with limitation of access to the market under the AFTA. The Philippines applies -for Thai white rice- an import tariff rate at the 50% Most-Favored Nation (MFN) rate. Additionally, rice is categorized under the minimum market access rules of Annex 5 of the Agreement on Agriculture from the Uruguay Round. In view of this, the Philippines import rice solely under a quota system and does not impose an excise tax for rice (Hathaway, Ingco, & Martin, 1996).

Government intervention in the rice sector is based on two main objectives, firstly, to ensure stable and high prices for farmers and secondly, to ensure stable and low prices for consumers. To achieve these objectives, the Philippines government has employed an array of instruments, including: output procurement, credit subsidies, tariffs and quantitative trade restrictions, provision of rice subsidy to consumers, and public spending in research, irrigation, extension, land reform, and other support services (Balisacan & Sebastian, 2006). Market intervention in the Philippines rice price policy has taken different forms began with protection, moving to taxation in the early 1970s and then coming back to protection again in the early 1980s. The implementation of policies considering price of rice in the Philippines is carried out by a parastatal organization as in Indonesia. In contrast to its counterpart in Indonesia, however, the Philippines' state organization does not have the power to propose policies; it is only mandated to implement them. The parastatal organization, initially was called the Rice and Corn Administration (RCA) until 1972, thereafter, the National Grain Authority (NGA) this parastatal finally became known as the National Food Authority (NFA) in 1981 (Kajisa & Akiyama, 2005).

NFA functions as the arm of government involved in price and supply stabilization in the rice sector. It has the monopoly over international trade of rice, the authority to issue import licenses, as well as the mandate to operate the marketing and price support operations of rice and corn. The high volatility that characterizes the world rice price coupled with the ability of private traders to extract monopoly profits from farmers during harvest season and from consumers during rice scarcity was the basis for which the interventions of NFA were exempted in the Philippines' rice sector (Rashid, Gulati, & Cummings, 2008).

1.3.3.1 Pre- Free Trade Structure

Since the early 1960s, improving the welfare of small farmers as well as attaining self-sufficiency in production of rice has always been the main objectives consistently embodied in almost all government programs, irrespective of changes in regimes. Presently, however, the issue of achieving a more sustainable growth in rice production has evoked a lot of debate and continues to be a major challenge for policymakers and other stakeholders.

Historical records have shown that era of taxation and protection match periods of rice export and import, showing that rice self-sufficiency has been the underlying motive for intervention. Following the extreme food shortages faced by the country in 1971-72, the government, in order to mitigate the undesirable impact, imposed rice price controls and also launched a program called "Masagana 99" that help rice farmers in the form of fertilizer subsidies, irrigation, credit and extension services (Yap, 1982). This program, coinciding with the huge success of the Green Revolution, gave rise to significant increases in rice production; rice export was even recorded in the mid-1970s. Authorized by the government, the parastatal started intervening by setting the domestic rice price lower than the world price, a practice which prevailed until the mid-1980s when the economic and political uncertainty led the country to be relegated to the position of importer (Yap, 1982).

The Philippines rice sector witnessed a structural break during the 1980s and 1990s owing to a 16% to 41% increase in the protection and a decline in domestic price stabilization. In addition, over PhP6.3 billion was used by the government to maintain the parastatal operations in the late 1990s. There was financial subsidy provided by the government to agricultural research and development in rice during that same period (Kajisa & Akiyama, 2005).

1.3.3.2 Free Market and the Philippines Rice Polices

Although the Philippines government signed the General Agreement on Tariffs and Trade (GATT) in December 1979, it was only applied to the rice sector in 2004. Thus, there was no structural change in 1979 as a result of the government's reluctance to liberalize the rice market (Kajisa & Akiyama, 2005).

The importation of rice was carried out by both public and private sectors. While 35% duty-free import of the total import allocation fell to the state agency known as the National Food Authority, 65% of rice was imported by the private sector. To participate, the private traders were required to bid for the so-called "service charge" with each importer allowed to bid up to 20000 tons. A PhP2 per kilogram was fixed as the minimum floor price for bidding (Tobias et al., 2012).

From 1994 to 2012, the Philippines government entered an agreement to replace lower tariff rates with quantitative restriction (QR) on some agricultural products. Quantitative restrictions refer to explicit limits or quotas, on the quantity of a certain goods that can be traded at a particular time period, usually measured by volume but sometimes by value. Also, the minimum access to rice was increased during this period. With a relatively free trade regime, the Philippines economy has witnessed significant improvement since the Philippines' third plan in 2005. The Philippines also implemented a minimum import quota of 350,000 tons at 40 percent tariff rate which is starting from 2005 to 2015. The minimum quota is a specific volume of agricultural product allowed to be imported with a lower tariff as agreed to follow the WTO agreements under the Uruguay Round Final Act. Between 2006 and 2008, the Philippines was the world's highest rice importer, purchasing around 2 million tons annually. For 2010, the governments' target was to import nearly 3 million tons of rice (Tobias et al., 2012).

In view of the food crises of 2007-2008, the government implemented a program called FIELDS (Fertilizer, Infrastructure and Irrigation, Extension and Education, Loans, Drying and other Post-harvest Facilities, and Seeds) in early of 2008. This was a key program designed to boost rice production. About PhP44 billion was designated to finance the implementation of FIELDS and this fund was to come from the proposed PhP330 billion fiscal stimulus program that included funding for the hiring of additional policemen, soldiers, teachers and doctors, rehabilitation and repair of government buildings, purchase and supplies of equipment (Dawe, 2010 p 133).

As a primary means for achieving rice self-sufficiency by 2013, the FIELDS program had the following mechanisms and the corresponding budgets: a) Provision of subsidized fertilizer and micronutrients, PhP0.5 billion. b) Rehabilitation and restoration of irrigation facilities, PhP6 billion. c) Farm-to-market roads and other rural infrastructure, PhP6 billion d) Extension, education and training, and research and development, PhP5 billion e) Agricultural credit, PhP15 billion f) Post-harvest facilities, PhP2 billion g) Hybrid and certified seed production and subsidy, PhP9.2 billion (Balisacan, Sombilla, Dikitanan, & Dawe, 2010).

In order to increase food self-sufficiency in the country, the Philippines government has outlined a number of strategies as part of the Food Self-Sufficiency Roadmap 2011- 2016. The idea is to raise paddy production to 22.5 million tons by 2016 by employing the following strategies: a) to raise production by using hybrid rice varieties, b) to implement rice seed subsidy schemes for farmers were implemented to acquire high yielding varieties, c) to encourage farmers to use hybrid rice seeds, which would be achieved by the government subsidizing half of the cost, pegged at PhP 60 per kilogram, d) liquid fertilizers subsidy, e) mechanization Program subsidy. f) rice subsidies to 678,621 small-scale farmers (Tobias et al., 2012).

1.3.4 Vietnam Rice Sector

Rice remains politically and culturally central to the Vietnamese people and their lifestyle. Rice is the main diet for the Vietnamese. And, rice farming is the main source of livelihood for majority of the farmers. While, rice contributes to the diet and livelihood for the majority of Vietnamese, changes in the rice price on the other hand contribute to their economic wellbeing which is derived by government policies and market forces (Hai & Talbot, 2013). By this, the Vietnam government monitors domestic as well as international rice price trend and adopts trade policies to control over input subsidies (for example; fertilizers, insecticides) and rice exports. While the Vietnam's economy is now mainly driven by the free market structure, still there is a need for government intervention in order to guarantee the social stability. This was especially proved by food crisis in 2007-2008 (Dawe, 2010, P 219- 232). Vietnam rice exports are primarily intermediate quality imposing a lower export price than the Thailand rice varieties (Tobias et al., 2012).

1.3.4.1 Free Market and Vietnam Rice Trade Policies

Vietnam's rice policies paradigm change which was between 1976 to date is divided into four phases. The first period which was considered as pre free trade market structure between 1976 and 1989, harvested area (6 million hectares) and production of paddy remained stable at a low level mainly due to the government attitude towards market. The second period of DoiMoi (Renovation) which was introducing to the free market structure from 1990 to 1999, harvested area and paddy production rose drastically, from 6 million hectare in 1990 to 7.66 million hectare in 1999, which was recorded as highest at that time. As a result the Vietnam's paddy production in 1998 exceeded 30 million tons for the first time, which recorded the increase of nearly 60% when compared with 1990 production of 19 million tons. Policies adopted towards land area expansion, high use of inputs and mechanization, and investing in infrastructure for rural transportation and irrigation was led to the achievement of food production targeted. Vietnam rice export can be seen as a successful agricultural reform policy which triggers the export to 1.4 million tons of rice in 1989 after long time being a net importer of food. By 1997, Vietnam holds a position of major rice exporters in the world, with an average of more than two million tons of exports for five years continuously (Dawe, 2010b).

The third period (2000 to 2007), due to investment in infrastructure for rural transportation and irrigation, high use of inputs and mechanization, there was slightly increased in the yield production which increased annual paddy production despite the reduction in the paddy harvested area. The production hovered around 36 million tons from 2004 to 2007. By this period, paddy harvested area fell in all parts of the country by nearly 300,000 hectare (Dawe, 2010b).

During this period (mainly between 2001 and 2005), Vietnam's trade policies witnessed some changes towards greater free market structure such as removing export quotas, allowing private companies to participate in rice trade, coordination by Vietnam Food Association (VFA) through registration and minimum export price,

price stabilization by adjustable quotas and funds to state-owned enterprises (SOEs) to storage rice. Foreign investors acquire permission in 2006 to participate in rice trading as well.

However, most rice trade was directed to countries whose imports have (until recently) been dominated by government agencies 40 to 60% through government to government (G2G) transactions (the major rice importers from Vietnam are the Philippines, Indonesia, and Malaysia due to G2G transactions) by state-owned enterprises (SOEs) which account for 75% of trade. Therefore, rice trade is still considered heavily 'administered', and only moderately based on commercial principals (Xie, Artachinda, Yang, & Liu, 2014)

In the fourth period began 2007, the Ministry of Agriculture and Rural Development (MARD) encourages farmers to implement the large scale farm model, where farmers consolidate individual small farms into larger farms to lower per hectare production costs on land preparation, irrigation, planting, and harvesting costs; and to effectively use mechanization, protect the environment, and to build a stronger competitiveness (Baldwin, Childs, Dyck, & Hansen, 2012).

The policies has been established at three different levels namely, the household, national and regional level and include, allowing free trade and establishing distribution systems for rice transactions nationwide, maintaining 4 million hectares of rice cultivation land to meet food demand based on population growth as well as export demand, creating conditions that help farmers in mountainous areas to diversify activities and widen their agricultural commodity production, balancing production and domestic demand in order to estimate rice exporting targets from the beginning of the year, banning or restricting rice exports if necessary to ensure food security and extending rice import–export rights for domestic private traders (Dawe, 2010b).

But due to the food crisis of 2007-2008, the Vietnam Food Association (VFA) and Ministry of Industry and Trade (MOIT) set rice export target for a year as well as per quarter and guidelines for a minimum export price and volume in each month, the rice export was regulated. The VFA also registered and allocated rice export volumes and prices for rice exporting companies. Despite the export restrictions during the crisis there was still a strong connection between domestic prices and world prices (Dawe, 2010b). The minimum export price (MEP) for 5% and 25 % broken were $465−475 and $425−435 per ton respectively as of 21 December 2011(Tobias et al., 2012).

Previously, the Vietnam's government had imposed a quota on rice exports in order to maintain the domestic price low and safeguard sufficient domestic supplies (Francesco Goletti, 1997). However, in recent time, the main target of Vietnam rice policy is to balance between domestic food security and export promotion which cater for adequate domestic needs and foreign currency generated by the export. Since most of the Vietnam rice production is prioritizing for export, therefore any shortage of rice supply for domestic consumption will be imported mainly from Cambodia. In fact,

Vietnamese farmers do invest on paddy in Cambodia to produce additional rice which is used to export by the Vietnams government for their local consumption (Tobias et al., 2012).

Vietnam's exports between 2005 and 2010 made up 17.25 percent of total world rice exports measured in volumes, but only 13.77 percent in value terms. Prior to 2001, the Vietnamese government organized the volume of the rice export through a national rice export quota set each year by the Ministry of Agriculture and Rural Development (MARD), the State Planning Committee (SPC), and the Ministry of Trade (MOT) based on estimates of domestic source and utilization. The rights to export rice under the national quota were allocated to the state-owned trading enterprises (VFA) and a number of provincial state-owned trading enterprises (VINAFOOD I in Hanoi and VINAFOOD II in Ho Chi Minh City) (Nielsen, 2003).

1.3.4.2 Vietnam Food Association (VFA)

Government intervention is limited in the domestic market and a majority of rice exports in the country are made through state-owned trading enterprises, particularly by the Vietnam Food Association (VFA) (Tobias et al., 2012).

The role of the Vietnam Food Association (VFA) is very essential in rice exportation. This organization which involves the state-owned enterprises (SOEs) and private are under the roles of the Ministry of the Interior with respect to state governance and under the Ministry of Agriculture and Rural Development in terms of sectoral management on the issue of rice export. The role of this association is mainly to propose policies on production, processing and trading of food and policies on food market to the government. In addition, they control rice export in terms of value and volume.

The primary objectives of Vietnam's food price policy are: i) to ensure domestic food security, in other words, to protect rice consumers' interest; ii) to protect rice farmers' (or producers) interest; iii) to contribute to social and macroeconomic stability. It goes to show that, the government cares about both the interests of the rice consumers and producers (Hai & Talbot, 2013). The Vietnam Food Association (VFA) keeps rice export registration requirements and the minimum export price (MEP) based on the government regulation on rice exports, ordinance 109/2010/ND-CP, in order to control the flow and prices of rice exports (Jones & Kwiecinski, 2010).

1.3.5 Thailand Rice Sector

Thailand is the world largest rice exporter for many decades. Between 2008 and 2012 Thailand rice export constituted almost 30 percent of total rice exports in the whole world.

The rice industry in Thailand is the highest employee of the total population and the majority of the farmers. As around 26.5 % of the countries' population engage in rice farming activity and live in rural areas (Forssell, 2009).

Furthermore, the rice industry generated a significant amount in government revenues, and tis export earns the highest government forging exchange. As a result, the policy adopted on the rice issue is vital as many economists and other analysist focus on. Thus, policies formulating and implementation on agricultural sector and rural development is very important for the nation (Forssell, 2009).

Thailand has been the largest rice exporter in the world for many decades with abundant land resources, suitable climate and long tradition of rice cultivation. Each year, about 9.9 -11.0 million tons of milled rice is for local consumption. About 40-50 % of total rice production is for other rice usage consumption, seeds for next crop, raw material for animal feed industry and processing products which is more used for rice-based industries. The rest is for export and keeping as stock for domestic food security and controlling the rice export price (Dechachete, 2011).

Beside private sector, the Thai government operates rice export through government to government (G2G) trading. The main concern of government involvement in rice trade is primarily aimed to secure and promote the Thai rice export market rather than to have rice export monopoly. Recently, there is no domestic subsidies and domestic tax for rice in Thailand (Dechachete, 2011).

Although investment in irrigation system, adoption of modern varieties and increasing cropping intensity have resulted in increasing yield of paddy since the 1970s in Thailand, but still considerably low compared to other Asian countries. Despite low yield, production of rice in Thailand has been growing within the past four decades which contribute mainly by the expansion of rice harvested area (Titapiwatanakun, 2012).

As Thailand's main target to continuously hold their position in the international rice market, they maintain high quality rice production in order to achieve their target. But, price support program like pledging program on the other hand has contributed to increasing rice production, though it may hinder the quality rice production as the price is set by the government and not recognized by its quality. All Thailand rice exports are long grain including the fragrant jasmine rice, which are relatively less protected than medium grain in world trade (Wailes, 2003).

1.3.5.1 Free Market and Thailand Rice Policies

In Thailand, rice policies have always been to accelerated toward domestic consumption and refining production for trade (Tobias et al., 2012) In the mid-1850s Thailand signed a treaty with Great Britain to adopt a free trade system that lasted until

the Second World War. As a result, there was a significant increase in demand for rice from the western countries, which led to large public investments in infrastructure (Forssell, 2009). Due to these investments, Thailand could produce ample rice to increase and sustain large rice exports and develop into a large rice economy.

After the Second World War when the rice exporter monopoly was created but the monopoly was abandoned by the government in 1954 where private exports were allowed to participate in rice export, but several taxes and regulations were imposed. The long history of the agricultural sector being export orientated made it possible for the government to implement straight forward and effective rice policies. The aim was to stabilize prices, keep them low for consumers and to extract revenues (Puapongsakorn, 2010).

During the period 1950-1986, four instruments for intervention and taxation of exports were used. They all had different foundations and were controlled by different departments but all the revenues added to the government. Together these instruments resulted in an export taxation rate around 40 percent from the end of the 1950s until the beginning of the 1970s. This high export taxation policy could be used to industrialize the country and subsidize the urban citizens. And even there was an increase in the rice taxes to about 60 percent within the period of food crisis of 1972-1974 (Puapongsakorn, 2010).

The main change in government agricultural policy occurred in 1986 when a pro-consumer policy was replaced by a pro-producer policy. Lower price program was slowly reduced and support price for farmers were increased gradually. The main purpose of this policy was to redirect profits from the export tax to the millers due to political pressure from millers to government (Puapongsakorn, 2010).

1.3.5.2 The paddy pledging policy

Thailand has the most liberalized rice market in the ASEAN region. However, to fulfil their domestic and international demand Thai government needs to encourage rice farmer to continue producing ample rice. As a result, a policy called “paddy pledging policy” was first introduced in the 1981–1982 cropping season with the aim of providing soft loans for farmers who delayed the sale of their crops. But 2001–2002, the objective has been changed ‘to support price and increase farmers’ income’ (Maneechansook, 2011).

Since this policy implemented for the past 30 years, several major changes to the nature and objectives of the program where accrue. For instances, in 1993-1994 the warehouse deposit slips scheme was introduced in addition to the barn-house pledging program which was the second type of the program. This change benefited by both the farmers (who did not have barn houses) and the rice mills (who had paddy warehouses). Moreover, in 2001, the program was included to cover dry-season paddy, so as the farmers and rice millers in the irrigated areas would also be benefited.

The third change and the most important one was the increase in the pledging price (Maneechansook, 2011).

In addition, the pledging price has been increased to 120 - 130 % of the market price. Therefore, the program was changed to a 'de facto price support' program, although the pledging procedure and its name remained the same. Thus, in practice, most farmers sell their paddy to the government.

There was a significant increase in the volume of pledged paddy within the few years which was recorded to be up to 8.65 million tons in 2004-2005 wet season, the share surged peaked at 38 %. Dry-season pledging peaked in 2008 when the pledging price was set at the record of 14,000 baht per ton, the share surged to 44.8%. While pledging prices were below market prices, the share of pledged paddy in total production was relatively small, only ranging from almost 3 to 8 % (Puapongsakorn, 2010).

The price provision helped farmers increase their income and it added support from millers who also profited from the price support. Since the assured price was set much higher than the market price, the policy became too costly for the government because it ended up with very large procurements. In addition, rice importing countries delayed their imports to await cheaper rice from other rice exporting countries which embodying more cost to the Thai government (McLean, Hardy, & Hettel, 2013).

To support the paddy pledging program and reduce the cost of implementing this policy for the government, minimum export price (MEP) policy was introduced to be able to achieve purpose of implementing paddy pledging program. Thai rice prices in 2012 were $100-140/MT higher than major competitors Vietnam and India, a direct result of policies combination of the paddy pledging program with minimum export price policy (Laiprakobsup, 2014).

1.3.6 Minimum Export Price Policy (MEP)

The Thai government always believed that rice exporter using price cutting strategy, therefore, the Thai rice export price always remained too low. Consequently, the Thai government set the export price whereby all rice exporters had to sell at the set price. Rice exporter, who failed to sell at the price determined by government, would not be granted an export license from Thai government. In 1997-1998, the low rice export prices were became as an evidence of supporting government's hypothesis which showed that Thai rice exporters were participated in price cutting strategy. As a result, in October 2002, the rice export cooperation strategy was introduced by the Thai government. At then, the ministers of five main rice export countries (India, Vietnam, Pakistan and China, as well as Thailand) were invited by the Thai government invited for a meeting to establish a Council on Rice Trade Cooperation (CRTC). The objectives of the CRTC were to share information and opinions with regards to the world rice market condition which could lead governments to set appropriate policies on (like setting reasonable minimum export prices) to stabilize rice prices. Although,

there was no agreement reached to take measures on limiting the rice production and planting area among the country members (Puapongsakorn, 2010).

In Vietnam, also a minimum export prices and quotas was introduced in 1998 and 2000 to manage the exports, this was allocated to authorized export enterprises (both public and private sectors). However, as a result of Vietnam's rice international market decline, there was a considerable short fall of the government target export in 2000. Therefore, minimum export prices was also frequently been adjusted downward to be able to cope with international price changes.

After the world food crisis in 2007-2008, a number of major rice-exporting countries in Asia set a minimum export price mainly for two reasons, first to control the free flow of trade and secondly to ensure an available supply of rice in the domestic market (Tobias et al., 2012 & USITC 2009).

To insulate the domestic market from global uncertainty, a majority of Asian countries control movement of rice in and out of their countries through a variety of trade measures, including setting minimum export prices to ensure the availability of rice for their domestic consumers by controlling exports, and, in some cases, countries even temporarily ban rice exports. Basically, minimum prices are set on the basis of grain quality as well as destinations. Minimum export price (MEPs) are $1,060 per ton for jasmine rice, $550−560 per ton for 5% broken rice, $535−545 per ton for 25% broken rice and $555−565 per ton for parboiled rice (Tobias et al., 2012).

In Thailand, yield and harvested area improved thereafter, and consequently the total production improved. On the other hand, rice consumption per capita reduced, consequently, there was a surplus for export but due to the implementation of minimum export price policy total exports dropped in both intra-ASEAN as well as outside the region which is illustrated in the Figures 1.1 and 1.2.

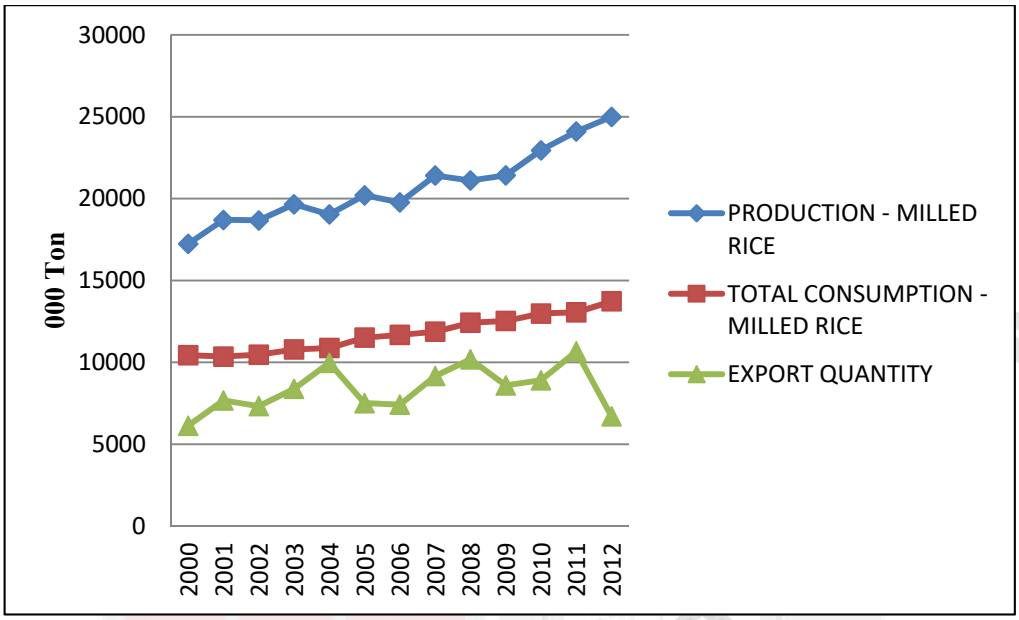

Figure 1.1 : Total Thailand Rice Market, 2000-2012

Figure 1.1 above shows the trend in the Thai rice production, consumption and export between 2000 and 2012. In this period of time, rice production in Thailand has been increased significantly from about 16000 (000) ton to 25000 (000) ton. Rice consumption in Thailand also is increased from about 10000 (000) ton to 14000 (000) ton during the same period. However, the increase in the rice consumption in Thailand was due to population growth. The quantity of rice export was about 5000 (000) ton which rises a little above 10 million tons from 2007 – 2008. It then declined and remained parallel after worth to between 8million tons to 10 million tons from 2008 – 2010. It rises sharply between 2010 and 2011 after which it declined sharply again in 2012. Even though production exceeds consumption, the rapid fall in exportation might be due various government policies such as minimum export prices to ensure continuous domestic availability and temporary ban of rice exportation as discussed earlier.

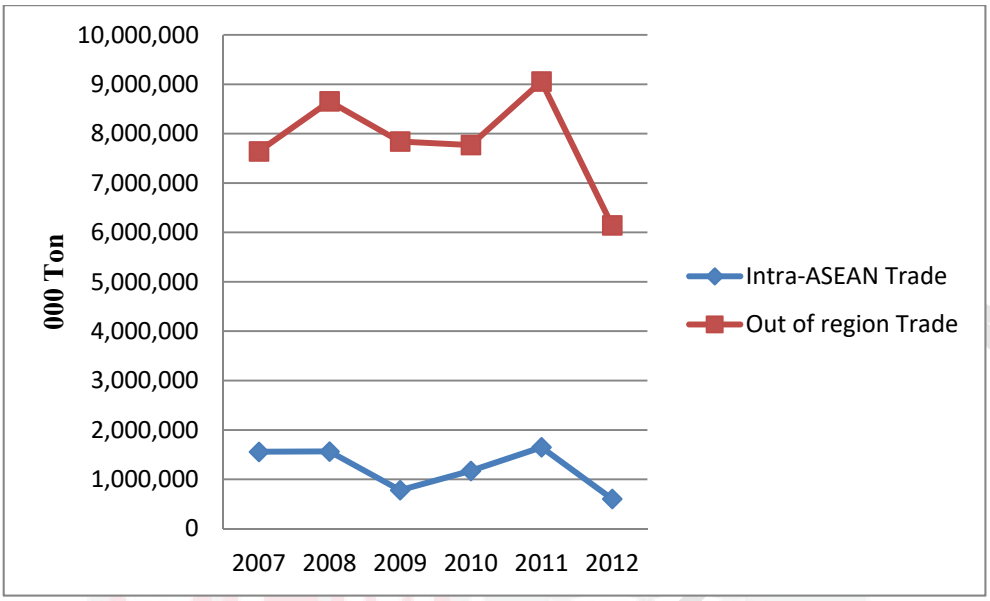

Figure 1.2 : Intra-ASEAN and Outside region Thai rice Export, 2007-2012

Figure 1.2 also illustrates the trend in Thai rice trade pattern for both intra ASEAN and outside ASEAN rice exportation. The patterns are similar to those of Figure 1.1 and thus further validate the existence of a market controlling policies for general exportation. It shows the possibility that during this period restricting policies such as a minimum export price policy were implemented.

1.4 Problem Statement

In Southeast Asia, rice is a strategic crop which provides the main livelihood to paddy farmers in addition to being a staple food. Furthermore, rice has been a staple food of the ASEAN population over many decades and contributes to about 29.8 percent energy and 20 percent protein. Rice production in ASEAN accounts for more than 25 and 23 percent of world total rice production and total rice consumption respectively.

Rice is thinly-traded in the international market accounting for only about 7 percent of total rice production. In the global rice market, member states of ASEAN play a major role with two of the top five world rice exporters, Thailand and Vietnam, both ASEAN members, accounting for a combined 48% of global net exports (Wailes & Chavez, 2012). Notwithstanding current stiff competition from other leading rice exporters, Thailand and Vietnam remain the top exporters and are expected to maintain that position over the next decade. This region also includes two of the world's largest importers, namely Indonesia and the Philippines. Historical data on trade reveals that Indonesia, the Philippines and Malaysia have consistently relied on rice imports for more than a century. In addition, they have also been the main rice trade partners for Thailand and Vietnam.

Rice consumption in the ASEAN region has been increasing principally due to increase in the population of member countries; from 100,000 million tons in 2000 to almost 150,000 million tons in 2012. In order to meet the upsurge in domestic demand, measures to boost rice production has become a main concern for all ASEAN five countries. Although rice production has increased over the years mainly by an increase in rice yield in all five countries as well as a slight increase in the harvested area, this increase has not kept pace with the rise in demand.

Historically, the governments of member states of ASEAN have intervened in the rice sector using different policy instruments. These policies are applied with the aim of strengthening the rice sector by focusing on achieving generally three main objectives, that is, to attain a reasonable level of production and hence self-sufficiency in rice, to increase paddy farmers' income, and ensure affordable and stable rice price to the consumers. However, these interventionist implementations may not be sustainable in the long-term as they incur a high budgetary burden to the government (Arshad, Alias, Noh, & Tasrif, 2011).

On the other hand, globalization has heightened market competition and demanded a greater market access with elimination of all different types of market distortions such as production and consumption protectionism, and trade barriers. Among the ASEAN region, all five countries have signed some international trade organizations like ASEAN, Asian-Pacific Cooperation (APEC) and World Trade Organization (WTO) to promote free trade market structure. Therefore, Malaysia, Indonesia, the Philippines, Thailand and Vietnam are duty bound to dismantle agricultural support especially for the rice industry gradually as liberalization demand from WTO and ASEAN Free Trade Area (AFTA) agreements.

The Association of South East Asia Nations (ASEAN) which is striving to attain its Vision 2020, and is responding to trade globalization, is focusing on the enhancement of food, agricultural and forestry products competitiveness in international markets, while sustaining agricultural production to ensure food security. In its march towards the ASEAN Vision 2020, the ASEAN Economic Community (AEC) shall be the aim of regional economic integration by 2015, by the implementation among others the CEP-AFTA (Common Effective Preferential Tariff of the ASEAN Free Trade Area) schemes, which stipulate the lowering and elimination of intra-regional tariffs and non-tariffs for the agricultural and forest products.

Intra-ASEAN rice trade pattern during 2010 and 2012 shows that among the mentioned countries total imports account for almost 90 percent of imports for importer countries such as Indonesia (92 %), The Philippines (92%), and Malaysia (86 %). In addition, the total proportion of rice exports from Vietnam to ASEAN region during 2010 to 2012 is 50%. Seventy percent of total Vietnam rice exports to the region is allocated to Indonesia (33.7 %), The Philippines (36.7 %), and Malaysia

(17.5 %). The total proportion of Thailand intra-ASEAN rice trade from 2010 to 2012 is 13% which is mainly traded with Indonesia and The Philippines[3]

With respect to the WTO and ASEAN Free Trade Area (AFTA) agreement, all five member countries have to eliminate government intervention in the rice sector. Minimum export price (MEP) is considered a government intervention in exporter countries. After the world food crisis, a number of major rice-exporting countries in Asia set a minimum export price mainly for two reasons: (1) to control the free flow of trade and (2) to ensure an available supply of rice in the domestic market (Tobias et al., 2012). As it is clearly stated that the first reason of setting MEP is to control the free flow of trade, thus this study attempts to simulate the impacts of changes in intra-ASEAN rice policy on the intra-ASEAN rice sector, namely changing Minimum Export Price in both Vietnam and Thailand using system dynamics model.

1.5 Objectives of the Study

The general objective of this study is to simulate the impact of changes in intra-ASEAN rice policy on the intra-ASEAN rice sector. The specific objectives are:

a) To develop a system dynamics model for ASEAN rice sector;
b) To simulate the impact of change in intra-ASEAN rice policy on intra-ASEAN rice sector namely changes in Minimum Export Price in Vietnam and Thailand, and rice import quota in Malaysia.

1.6 Significance of the Study

Almost all countries in Asia have a very strong desire to be able to produce enough rice to fulfill their domestic demand. This desire stemmed deeply from thousands years of planting and consuming rice in the region, that is why it became a fundamental part of their local culture. And yet it is the most important and widely planted crop in this region. Rice as being staple food creates the food security concern for government to implement policies to fulfil rice consumption deficit. Among Asian countries Southeast Asia are more concern about rice sector.

There are a lot great studies regarding food security issue within individual countries of Southeast of Asia in national level like food security in Malaysia, Indonesia and the Philippines. Even more, there are some very excellent work on trade partnerships in the rice industry between Vietnam and its main rice importers in the region. Similarly for Thailand. However, there was not a study looking at the whole region partnerships and trade flow specially after reintroducing government interventions due to food crisis 2007-08. Among 10 member countries of ASEAN region, five main role players have been selected due to significant of their market influence. Thailand and Vietnam as the world top rice exporters and the Philippines and Indonesia as the world top rice importers and Malaysia mainly due to importing high portion of their total

[3] International Trade Centre, 2016

consumption (about 30% of total rice consumption). Other countries in the region such as Myanmar and Cambodia are yet to be considered as a rice market role players regionally and globally. And, Laos, Singapore and Brunei Darussalam being member of the region do not have the potential rice sector in their economy. Therefore, this study will look at rice trade flow among Thailand, Vietnam, Indonesia, the Philippines and Malaysia.

Many different types of economic models have been utilized to analyze long-term effect of government policies towards rice industry. However, there are limited studies using system dynamics approach.

Moreover, as of complexity of food security issue, the system dynamics model is able to monitor the complex interdependencies in the system and show the influence of changes in one or more variables on the performance of the whole system. Therefore, this study attempts to apply a system dynamics model to simulate policy analysis on ASEAN as well as Malaysian rice industry.

In addition, as the rice price is expected to witness a decline in the world rice market due to greater free market structure, it is more likely that Minimum Export Prices policy would play a significant role for rice trade allocation in the ASEAN region. Therefore, this study attempts to investigate the impact of minimum export price (MEP) on Intra-ASEAN rice trade pattern as well as rice import quota in Malaysia.

1.7 Organizational structure of the study

Having discussed about background of ASEAN rice sector in the first chapter. The second chapter consist of reviewing the previous studies which was categorized into two sections. First section was about studies related international trade and food security while the second section demonstrate the review of methodological issues. The third chapter, designed the ASEAN rice trade flow conceptual framework along with the steps of designing the ASEAN rice sector SD model including seven sub-models. In the fourth chapter, validation test has been executed then findings and discussion. In the fifth chapter summery of the study, policy implications and the future research implication has been discussed so also limitation of study were listed.

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