

**'12
ASIA
PETROCHEMICAL INDUSTRY
CONFERENCE**

MAY 2012

Malaysia

DELEGATION OF THAILAND

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I. Report on the Thai Petrochemical Industry

Thai Petrochemical Industry – Current State and Issues

I-1. Business Environment

At the start of 2011, the world recovered from deep economic recession, which the recovery is becoming self-sustained and more broad-based despite some difficulties that could undermine growth, including rising oil and commodity price, European debt crisis and slower growth of the international trades. However, the IMF's Statistics Department estimated the growth of the world economy in 2011 at 3.8% much lower than the 5.2% rate achieved in 2010. Thailand, meanwhile, following the global economic trend, the Thai economy has been picked up a long with an internal problem that has been improved as political infighting has calmed down.

On the petrochemical side, with the Map Ta Phut issue resolved, Thailand's petrochemical producers began to operate plants that had halted production, the situation, meanwhile, creates more favorable impacts on overall business performance of petrochemical industries. In the meantime, Thailand's major petrochemical producers are moving toward innovation, starting with R&D and going beyond it as innovation is commenced as a key to solving many economic problems and also a key pillar for the green growth strategy for the petrochemical industry and other industries as well.

Nevertheless, 2012 will be definitely a year of difficulties for all business sectors in Thailand, as the country's business environment will be weighed down by many unfavorable factors - from the euro-zone crisis and fragile US economic recovery to the poor post-flood sentiment.

I-2. Present Situation and Future Prospect of the Thai Economy

The Thai economy continued to show sign of recovery in the former half of the 2011, factors supporting the Thai economic growth during that time were foreign demand leading to rising exports as well as domestic investor and consumer confidences leading to expanding investment and consumption along with improving tourism and rising crop price. The Office of the National Economic and Social Development Board (NESDB) of Thailand had projected GDP growth of 3.5-4.0% for Thailand in 2011. Nonetheless, in the latter half of

2011, Thailand had faced severe floods, that damaged the country from August through November 2011, which had brought about a halt in agricultural and manufacturing production in affected areas, causing shut down of 6 country's key industrial estates with located mainly in Ayutthaya and Pathum Thani provinces and had also disrupted production chains in Northern and Central Thailand as well. Afterward, in February 2012, NESDB had lowered the Thai GDP projection for 2011 to 0.1%, to reflect the severity and the broad-based impacts of the flood that effected Thailand.

Amidst the effects of severe flood and the weak global economic outlook given heightened risks and uncertainty from the US and the Euro zone, NESDB still expect that the Thai economic growth could reach 6.0% in 2012, moving within a range of 5.5%-6.5% following a rebound in private consumption after the impact of massive flooding and investment to regain the firm along with pushes from government reconstruction spending and fiscal stimulus. However, stages of recovery will be associated with various uncertainties, if the EU debt crisis exacerbated, severe recession in the Euro zone could be expected and the global financial system could inescapably be affected, like the US sub-prime crisis. The entire global economy may then experience a double-dip recession. Thai exports, as a result, could possibly hard hit and the country's overall economy could face with a slow growth.

Table-1 Thailand's GDP Growth 2002-2011

Year	GDP Growth (% Change)
2002	5.3
2003	7.0
2004	6.2
2005	4.5
2006	5.1
2007	4.8
2008	2.6
2009	-2.3
2010	7.8
2011	0.1

Source: NESDB

I-3. Present Situation and Future Prospect of the Thai Petrochemical Industry

The petrochemical industry in Thailand staged a comeback since mid 2010 before recovery towards the year 2011. The court decision on September 2, 2010 to allow 74 out of 76 industrial projects in the Map Ta Phut area suspended in September 2009 to proceed, leading several new petrochemical plants came on stream in the first half of 2011. Meanwhile, some projects are still seeking EIA approval such as TOC Glycol's 95,000-ton/year monoethylene glycol (MEG) and Thai Plastic and Chemicals (TPC)'s 90,000-ton/year vinyl chloride monomer (VCM). The more favorable economic climate in the first half of 2011 and the resumption of activity in Map Ta Phut have helped boost investor sentiment. But, counteracting these factors were floods crisis that hit Northern and Central parts of Thailand and disrupted the production of petrochemical end-user markets along the supply chain. The overall picture of petrochemical production and consumption are as follows:

- Ethylene production climbed 27% in 2011 as many new crackers starting since 2010, i.e., a 1,000,000-ton/year cracker of PTT Polyethylene (PTTPE) and a 900,000-ton/year cracker of Map Ta Phut Olefins (MOC), operated at close to full capacity. Meanwhile, consumption surged 28% in tandem with the start up of new derivatives plants, including a new 300,000-ton/year LDPE plant of PTTPE and a new 250,000-ton/year HDPE plant of Bangkok Polyethylene (BPE) in Q1 2011 and a full production rate at a 350,000-ton/year LLDPE plant of Siam Polyethylene.
- The production of major polymers in 2011 surged 20% from the previous year. The gain was the result of new polyolefins capacities began to come on stream and rising production rate at many downstream plants because internal and external petrochemical demands were likely to be healthy. Consumption of major polymers, meanwhile, was relatively stable. It was due to a downward trend in domestic end-user market demand for aromatic-based polymer such as PS, EPS and ABS/SAN resins particularly. Despite local polyolefins production kept growing, consumption for polyolefins grew with a declining growth compared with last year.

Table-2 Production/ Consumption and Import/ Export Figures of Five Major Products 2008-2011

(Unit: '000 T/Y)

Products	2008	2009	2010	2011
Ethylene				
Production	2,201	2,455	2,884	3,666
Import	210	180	99	110
Export	0	22	8	69
Consumption by derivative product ⁽¹⁾	2,435	2,576	3,038	3,889
Propylene				
Production	1,120	1,263	1,651	2,085
Import	5	3	13	10
Export	33	65	154	240
Consumption by derivative product ⁽²⁾	1,141	1,313	1,548	1,855
PTA				
Production	2,184	2,499	2,732	2,726
Import	3	0	0	0
Export	1,207	1,339	1,446	1,516
Consumption by derivative product ⁽³⁾	980	1,160	1,286	1,210
PE (including EVA)				
Production	1,782	1,833	2,259	3,150
Import	339	311	404	386
Export	1,008	1,005	1,396	2,112
Consumption ⁽⁴⁾	1,146	1,140	1,342	1,498
PP				
Production	1,087	1,120	1,342	1,611
Import	172	183	269	230
Export	314	318	500	737
Consumption ⁽⁴⁾	945	985	1,111	1,104

Note: Data shown as “ 0 “ means less than 0.5 ton.

(1) Consumption netbacked from PE, VCM, EG and SM production.

(2) Consumption netbacked from PP, Cumene and PO production.

(3) Consumption netbacked from polyester polymer (PET) production.

(4) Consumption figure is different from calculation (Production + Import – Export) due to inventory change.

Table-3 Capacity of Major Petrochemicals 2011 (as of February 2012)

(Unit: '000 T/Y)

Ethylene

Company	Capacity
IRPC	360
MOC	900
PTTGC (PTTCH) ⁽¹⁾	1,376
PTTPE	1,000
ROC	800
Total	4,436

Source: PTIT Industrial Survey, February 2012

Note: (1) PTTGC, PTT Global Chemical, is a merger company between PTTCH and PTTAR.

Polyethylene

Company	Capacity				
	LDPE/EVA	LLDPE	LLDPE/MDPE	HDPE	Total
BPE ⁽¹⁾				500	500
IRPC				152	152
PTTGC (PTTCH) ⁽²⁾				300	300
PTTPE ⁽³⁾	300	400			700
Siam Polyethylene		770			770
SSLC (Specialty Elastomers) ⁽⁴⁾		270			270
TPE	100		120	960	1,180
TPI Polene	158				158
Total	558	1,440	120	1,912	4,030

Source: PTIT Industrial Survey, February 2012

Note: (1) BPE started up a new 250-KTA HDPE unit in Q1 2010.

(2) PTTGC, PTT Global Chemical, is a merger company between PTTCH and PTTAR.

(3) PTTPE brought on stream a new 300-KTA LDPE unit in Q1 2011.

(4) Siam Synthetic Latex Co, Ltd. (SSLC) started up a new 270-KTA specialty elastomers in Q2 2011.

Vinyl Chloride Monomer

Company	Capacity
TPC	500
VNT	400
Total	900

Source: PTIT Industrial Survey, February 2012

(Unit: '000 T/Y)

Polyvinyl Chloride

Company	Capacity
Apex Petrochemicals ⁽¹⁾	-
TPC	530
TPC Paste Resin	36
VNT	280
Total	846

Source: PTIT Industrial Survey, February 2012

Note: (1) Apex Petrochemicals closed out its 100-KTA polyvinyl chloride plant in 2011.

Propylene

Company	Capacity
HMC ⁽¹⁾	310
MOC	800
IRPC	312
PTTGC (PTTCH) ⁽²⁾	487
PTTPE	25
ROC	400
SPRC	132
Total	2,466

Source: PTIT Industrial Survey, February 2012

Note: (1) HMC started up a new 310-KTA PDH unit in Q4 2010.

(2) PTTGC, PTT Global Chemical, is a merger company between PTTCH and PTTAR.

Polypropylene

Company	Capacity
HMC	755
IRPC	475
TPP	720
Total	1,950

Source: PTIT Industrial Survey, February 2012

(Unit: '000 T/Y)

Styrene Monomer

Company	Capacity
IRPC	200
SSMC	320
Total	520

Source: PTIT Industrial Survey, February 2012

Polystyrene

Company	Capacity
Eternal Plastics ⁽¹⁾	-
Thai Styrenics	90
Siam Polystyrene	150
Thai ABS	130
Total	370

Source: PTIT Industrial Survey, February 2012

Note: (1) Eternal Plastics closed out its 60-KTA polystyrene plant in 2011.

Synthetic Rubber

Company	Capacity	
	SBR	BR
BST Elastomer	72	50
Thai Synthetic Rubber		72
Total	72	122

Source: PTIT Industrial Survey, February 2012

II. Committee Meetings

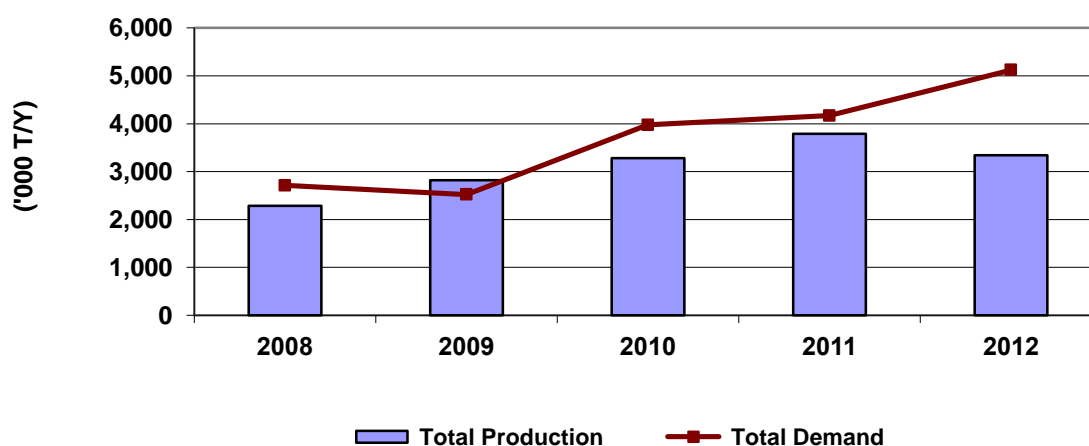
General Matters & Raw Materials Committee

II-1. General Matters & Raw Materials Committee

Capacity, Production and Demand of Light Naphtha

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Production	2,288	2,821	3,284	3,792	3,343
Feedstock	2,666	2,475	3,929	4,123	5,076
Solvents	46	46	46	46	46
Total Demand	2,712	2,521	3,975	4,169	5,122



1. Review of 2011

Thailand's light naphtha production in 2011 rose significantly as Thai oil and Bangchak petroleum adjusted operating rate runs at their refineries. Meanwhile, domestic demand for light naphtha has surged by 5% from 2010 as cracker operators increased their run rates particularly a new 900,000-ton/year naphtha cracker at Map Ta Phut Olefins Co, Ltd (MOC) stepped up operating rates close to full capacity after brought on stream in Q2 2010.

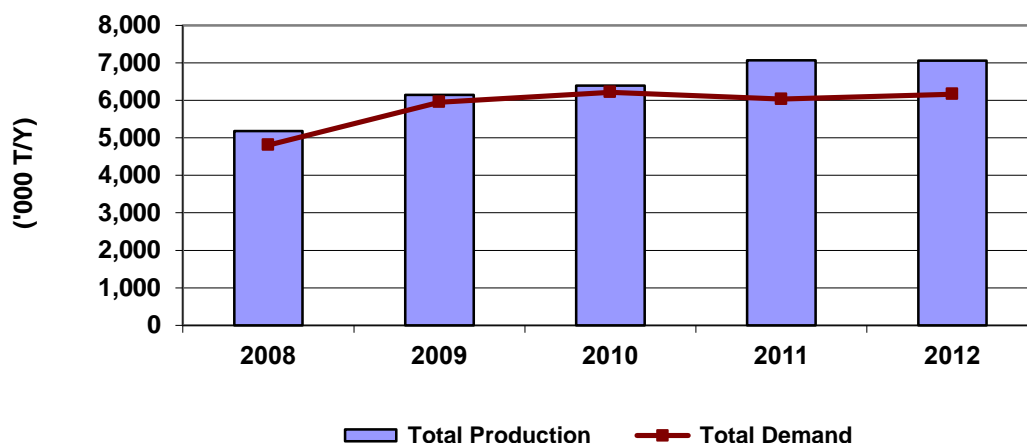
2. Outlook for 2012

Domestic demand for light naphtha in Thailand in 2012 is expected to rise by 22% from 2011 as naphtha cracker operators in Thailand increase operating rates at their crackers to serve increasing demand from olefins market following additional olefins capacity plans to expand in 2012.

Capacity, Production and Demand of Heavy Naphtha

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Production	5,184	6,144	6,399	7,072	7,065
Feedstock	4,809	5,952	6,216	6,036	6,166
Total Demand	4,809	5,952	6,216	6,036	6,166



1. Review of 2011

Domestic production for heavy naphtha increased as refinery stepped up production rates particularly Thai Oil while consumption dropped due to a downward trend in domestic end-user market demand for aromatic-based polymers.

2. Outlook for 2012

Thailand's demand and production for heavy naphtha in 2012 are expected to be steady or slightly increase.

Capacity, Production and Consumption of Olefins: Ethylene

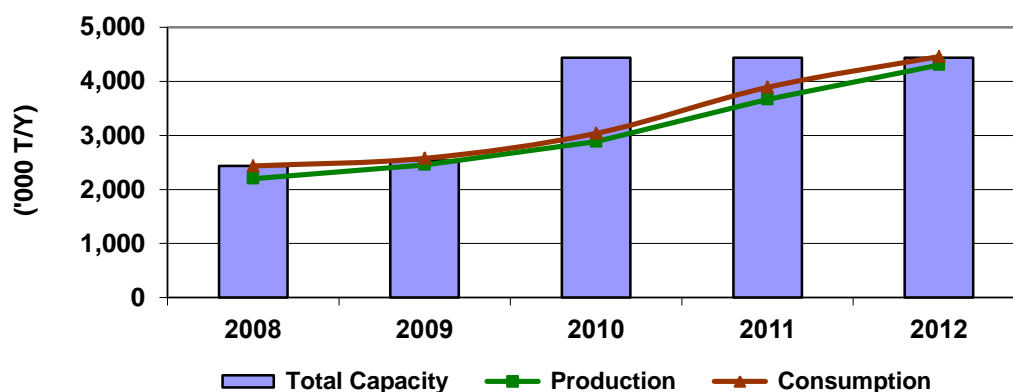
Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	2,436	2,536	4,436	4,436	4,436
Production	2,201	2,455	2,884	3,666	4,303
Consumption by Derivative Prod.	2,435	2,576	3,038	3,889	4,459*
Export	0	22	8	69	
Import	210	180	99	110	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from PE, EDC/VCM, EG and SM production which is projected by assuming a 80% operating rate.

'0' means below 500T/Y



1. Review of 2011

Ethylene production sharply increased 27% in 2011 as several new crackers, including the 1,000,000-ton/year ethane cracker plant at PTT Polyethylene (PTTPE), a subsidiary of PTT Global Chemical (PTTGC, the former PTTCH), and a 900,000-ton/year naphtha cracker at Map Ta Phut Olefins (MOC) stepped up operating rates close to full capacity to meet recovering demand from the petrochemical end market. Meanwhile, consumption surged 28% from last year due to the start up of new derivatives plants in tandem with downstream extension, including a new 300,000-ton/year LDPE plant of PTTPE, a new 250,000-ton/year HDPE plant of Bangkok Polyethylene (BPE) in Q1 2011 and a full operating rate of a 350,000-ton/year LLDPE plant of Siam Polyethylene (Siam PE II).

2. Outlook for 2012

Assuming 90% operating rate, ethylene production in 2012 is expected to be 4,459,000- ton/year. Ethylene consumption is expected to drastically increase following additional consumption from the start up plan of new VCM plant of Thai Plastic and Chemicals PLC (TPC) and the expansion of MEG plant of TOC Glycol.

Capacity, Production and Consumption of Olefins: Propylene

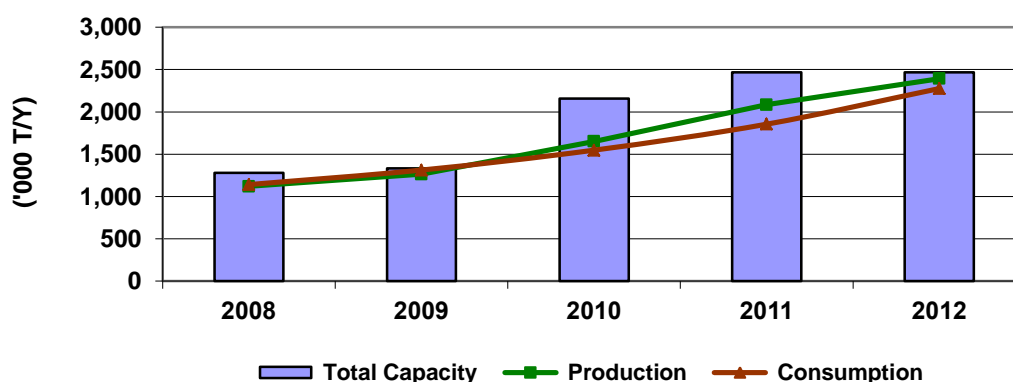
Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	1,281	1,331	2,156	2,466	2,466
Production	1,120	1,263	1,651	2,085	2,392
Consumption by Derivative Prod.	1,141	1,313	1,548	1,855	2,276*
Export	33	65	154	240	
Import	5	3	13	10	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from PP, Cumene and PO production which is projected by assuming a 90% operating rate.

'0' means below 500T/Y



1. Review of 2011

Propylene production sharply increased by 26% from the previous year as the new on - purpose 350,000-ton/year Metathesis plant of MOC and a new 300,000 –ton/year PDH unit of HMC Polymers stepped up operating rate to full operation. Propylene consumption, meanwhile, increased by 20% from the previous year, boosted by higher demand from a new 400,000-ton/year derivative polypropylene (PP) plant of Thai Polyethylene (TPE) that brought on stream in Q2 2010, and a new 360,000-ton/year PP plant of HMC Polymers (HMC) that came on stream in Q4 2010, which run higher rate to meet growing demand for domestic downstream PP.

2. Outlook for 2012

Assuming a 90% operating rate, propylene production in 2012 is expected to be 2,392,000 tons supporting by additional propylene capacity coming on stream from IRPC Plc. Meanwhile, propylene consumption is expected to increase due to higher demand from a new MTP HPPO Manufacturing's PO plant in tandem with the expansion plan of Thai Polycarbonate's PC plant.

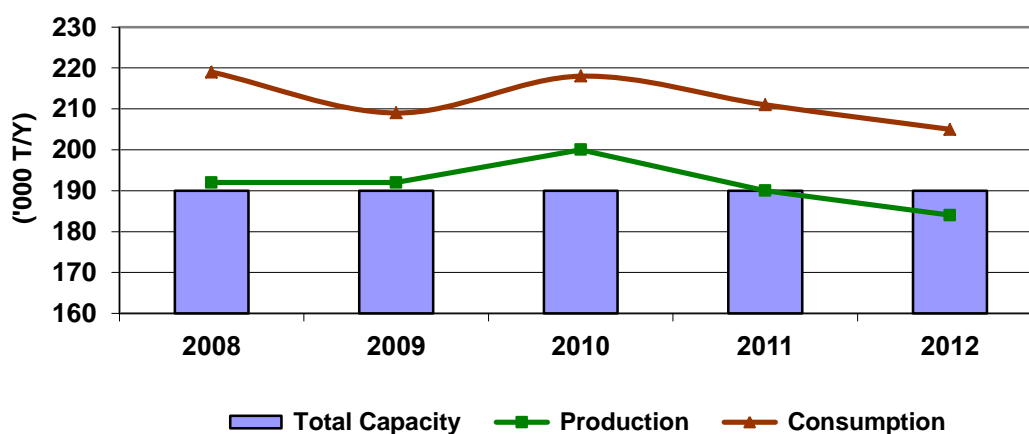
Capacity, Production and Consumption of Olefins: Butadiene

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	190	190	190	190	190
Production	192	192	200	190	184
Consumption by Derivative Prod.	219	209	218	211	205*
Export	14	28	26	29	
Import	23	21	27	38	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from SBL, SBR, BR and ABS/SAN (assumed 100% ABS) production, which is projected by assuming a 90% operating rate except ABS/SAN is assumed by 85% operating rate.



1. Review of 2011

Butadiene production declined by 5% from the year 2010, meanwhile, butadiene consumption was dropped by 3% from the previous year. These were due to a downward trend in domestic end-user market demand for aromatic-based polymer such as BR and ABS/SAN resins particularly, as a result of a slowdown in automobile and electric and electronics industries both domestic and export markets resulting in the downturn demand of butadiene, especially in the last quarter of the year when Thailand faced with the severe floods hitting many areas, including 6 industrial parks in Ayutthaya and Pathum Thani provinces.

2. Outlook for 2012

Butadiene production and consumption is expected to steady or slightly drop in 2012 in line with its downstream derivatives.

Capacity, Production and Consumption of Aromatics: Benzene

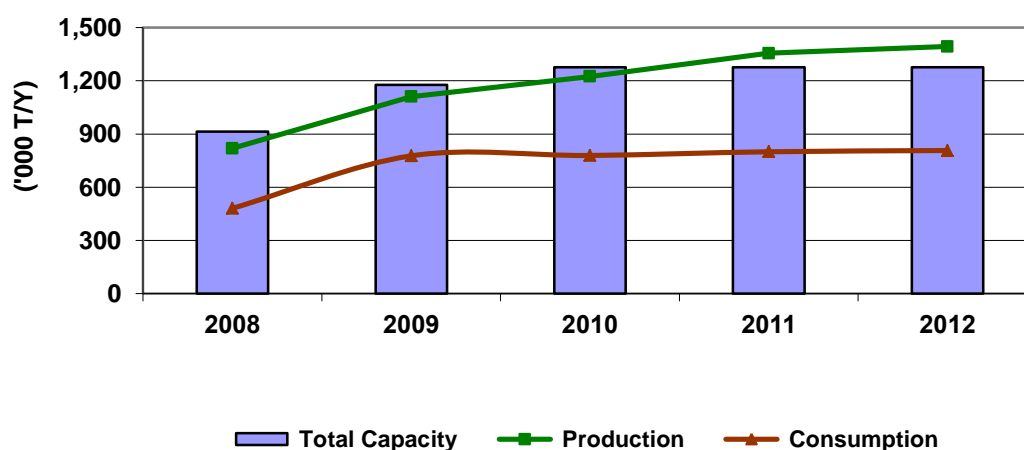
Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	914	1,177	1,277	1,277	1,277
Production	819	1,111	1,225	1,356	1,394
Consumption by Derivative Prod.	481	777	779	800	807*
Export	338	396	505	610	
Import	0	0	0	0	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from SM, cumene and cyclohexane production, which is projected by assuming a 90% operating rate.

'0' means below 500T/Y



1. Review of 2011

Benzene production surged 11% in 2011 as producers increased their operating rates particularly MOC, a joint venture between Siam Cement Company and Dow Chemical that came on stream in the second half of 2010, resulting in an increase in benzene production from pygas of around 160,000 tons per year. The benzene produced from MOC is mainly intended to be used by SCG's downstream unit. Meanwhile, benzene consumption slightly increased 3% from the previous year on the net back of demand from PTT Phenol's 150,000-ton/year bis-phenol A (BPA) plant that brought on stream during the year.

2. Outlook for 2012

Assuming a 90% operating rate, benzene production in 2012 is expected to be 1,394,000 tons, while, benzene consumption is expected to remain stagnant as the poor economic outlook in the US and European countries continues to pressure benzene demand from derivative petrochemical PS/EPS, SM and ABS/SAN following a slowdown in demand from the electric and electronics appliance, automotive and packaging sectors.

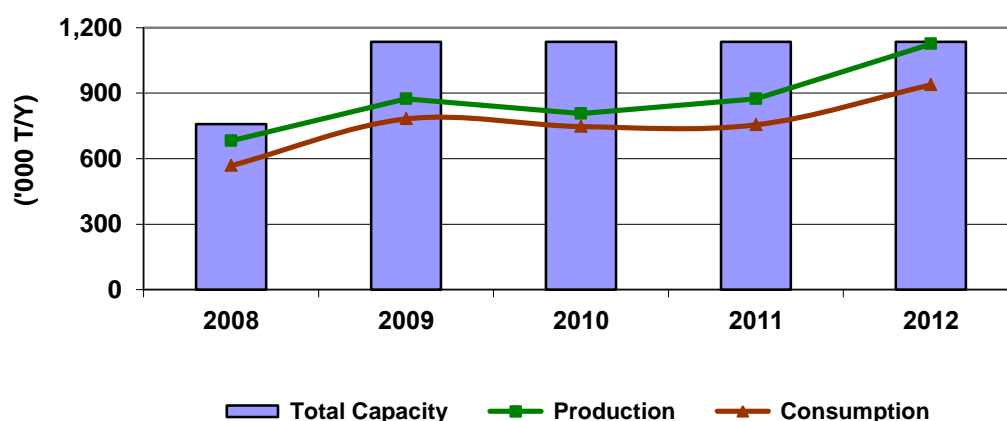
Capacity, Production and Consumption of Aromatics: Toluene

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	758	1,135	1,135	1,135	1,135
Production	682	874	806	874	1125
Consumption by Derivative Prod*	568	782	747	755	938*
Export	114	199	188	228	
Import	1	0	0	0	

Source: PTIT Industrial Survey, The Customs Department

Note: *Including consumption netbacked from benzene/xylene production, solvents, etc, which is projected by assuming a 90% operating rate
'0' means below 500T/Y



1. Review of 2011

Toluene production in 2011 was 874,000 tons. This also included toluene volume which PTT Global Chemical (PTTGC, the former PTTAR) used in its benzene and p-xylene production process. Therefore, the toluene consumption figures mainly comprised of toluene used for benzene and p-xylene production.

2. Outlook for 2012

Assuming a 90% operating rate, toluene production in 2012 is expected to be 1,125,000 tons. Toluene consumption is expected to rise in 2012 as a result of demand from benzene and p-xylene production.

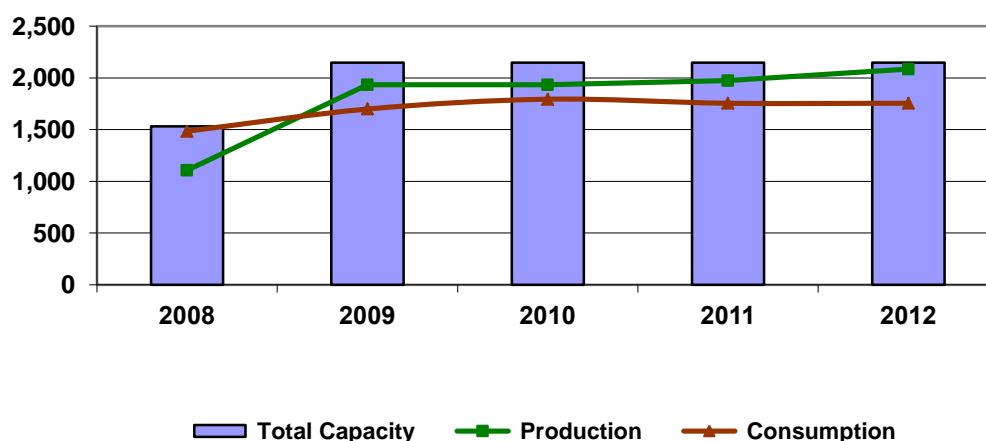
Capacity, Production and Consumption of Aromatics: P-Xylene

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	1,533	2,149	2,149	2,149	2,149
Production	1,107	1,933	1,933	1,973	2,085
Consumption by Derivative Prod.	1,485	1,699	1,794	1,755	1,755*
Export	124	355	381	428	
Import	307	122	242	228	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from PTA production, which is projected by assuming a 90% operating rate.



1. Review of 2011

Thailand p-xylene production slightly firmed 2% from the previous year with no new capacity was added in 2011. PTT Global Chemical (PTTGC, the former PTTAR) added 655,000-ton/year p-xylene to the market in 2009 but since then, no major production expansion of the product has occurred in Thailand. Meanwhile, p-xylene consumption was down 2% in 2011 following a slowdown in demand from downstream derivative PTA and polyester due to global economic recession in tandem with severe flood hitting Thailand in the last quarter of the year, causing weak demand and purchasing of luxury goods which mainly made from aromatic polymer, resulting in the downturn demand of aromatics, including p-xylene.

2. Outlook for 2012

In 2012, Thailand p-xylene production is expected to be steadily as in 2011, nevertheless, consumption is forecasted to be idle or falls slightly as demand from downstream derivative PTA is expected to stagnate or fairly drop.

Polyolefins Committee

II-2. Polyolefins Committee

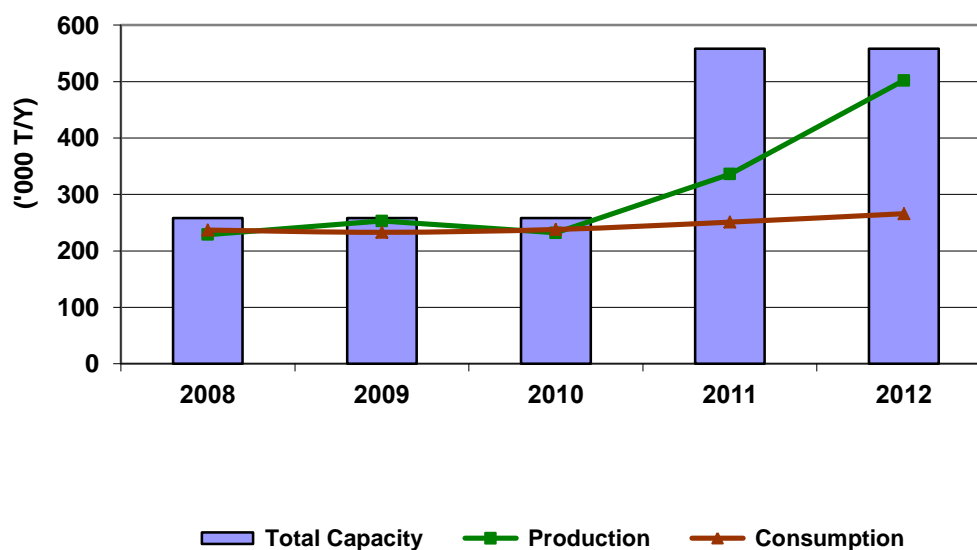
Capacity, Production and Consumption of LDPE/EVA

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	258	258	258	558	558
Production	229	253	232	336	502
Consumption	237	233	238	251	266*
Export	102	108	175	277	
Import	108	89	105	88	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures : assume 90% operating rate. Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.



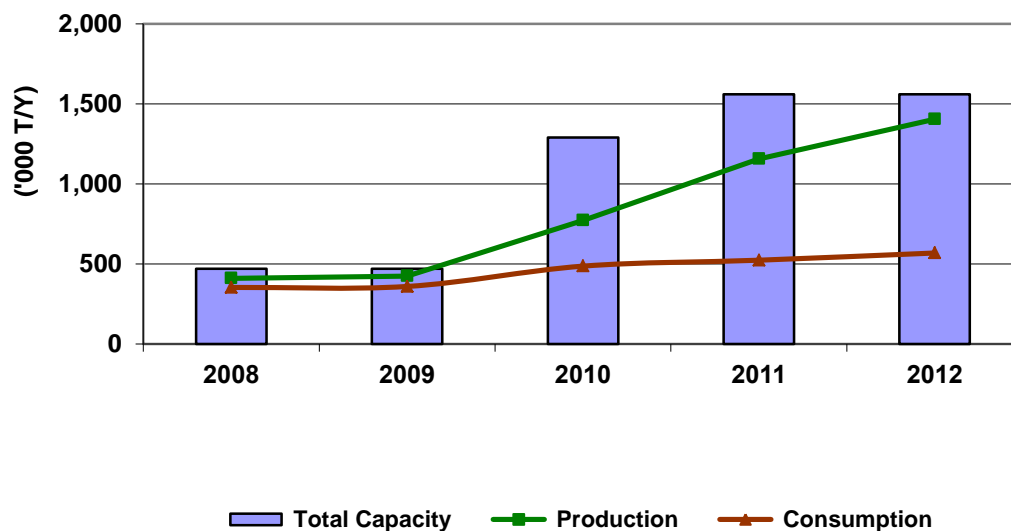
Capacity, Production and Consumption of LLDPE

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	470	470	1,290	1,560	1,560
Production	411	425	773	1,157	1,404
Consumption	354	360	487	524	569*
Export	225	210	454	811	
Import	154	145	168	178	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures : assume 102% operating rate. Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.



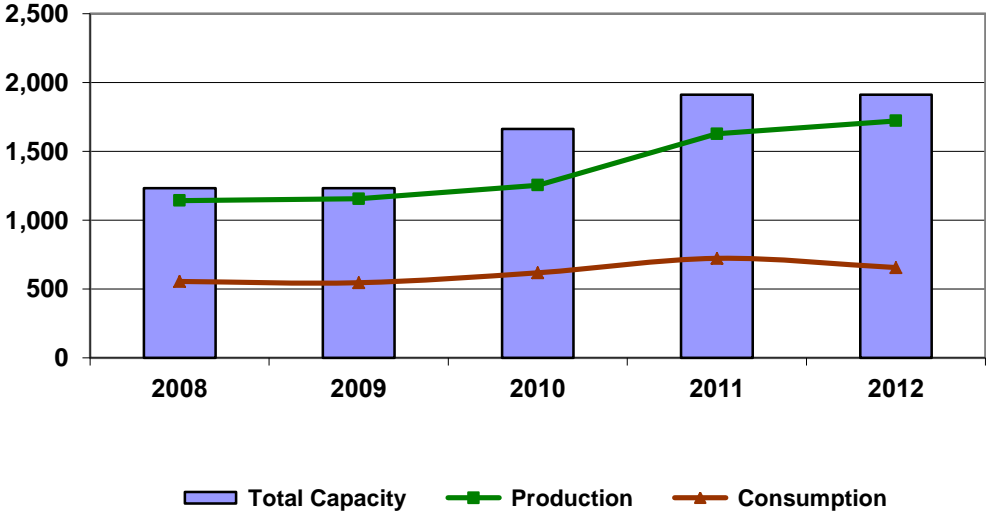
Capacity, Production and Consumption of HDPE

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	1,232	1,232	1,662	1,912	1,912
Production	1,142	1,155	1,254	1,627	1,721
Consumption	555	546	618	723	656*
Export	681	686	767	1,024	
Import	77	77	131	120	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures : assume 85% operating rate. Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.



1. Review of 2011

In 2011, domestic production for LDPE/EVA, LLDPE and HDPE increased significantly from 2010 as several manufacturers brought on stream additional capacities in the first half of 2011, including a 300,000-ton/year LDPE plant of PTTPE, a 270,000-ton/year specialty elastomers of Siam Synthetic Latex Co, Ltd. (SSLC) and BPE's 250,000-ton/year HDPE plant. Domestic consumption and export, meanwhile, markedly increased on account of improved demand from end-user markets, packaging industry in particular.

2. Outlook for 2012

Thailand PE production is expected to continue to expand as the new plants that brought on stream in the first half of 2011 will boost operating rate to meet internal and external demands. In addition, PE consumption and export are expected to increase in line with the domestic and regional's economies, in which Thailand's economy is poised to make a recovery from devastating floods.

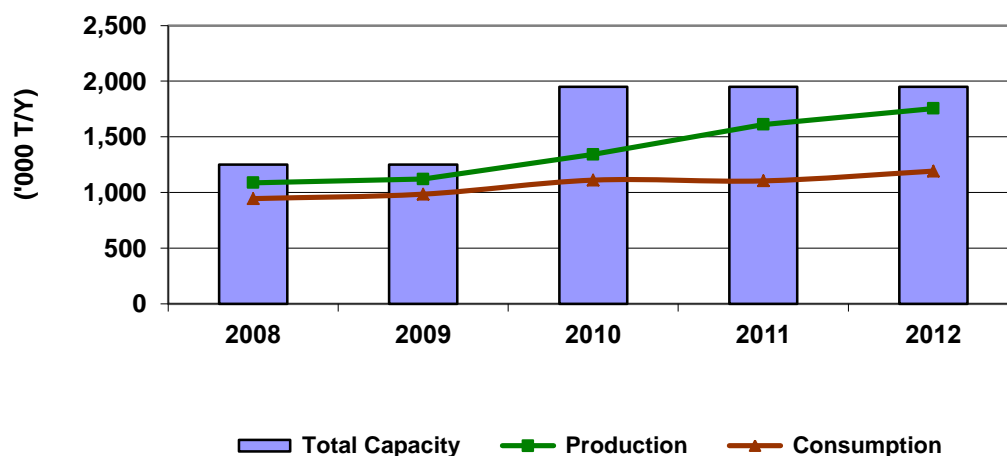
Capacity, Production and Consumption of PP

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	1,250	1,250	1,950	1,950	1,950
Production	1,087	1,120	1,342	1,611	1,755
Consumption	945	985	1,111	1,104	1,192*
Export	314	318	500	737	
Import	172	183	269	230	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures: assume 90% operating rate. Some consumption figure is different from calculation (Production + Import – Export) due to inventory change.



1. Review of 2011

Domestic polypropylene (PP) production continued to surge by 20% from the previous year, boosted by rising operating rate of a new 400,000-ton/year PP plant of Thai Polypropylene (TPP) that came on stream in Q2 2010 and a new 300,000-ton/year PP plant of HMC Polymers (HMC)'s PDH unit with started commercial run in Q4 2010. PP consumption, meanwhile, was relatively stable. It was due to slower demand from PP end-used market as domestic end-user market demand; automotive and electrical and electronic industries particularly, was effecting by two major crisis both tsunami in Japan and severe flood in Thailand, the worst flood that had halted these industries along the supply chain.

2. Outlook for 2012

PP production, consumption and export are projected to continue its upward trend as internal and external end-user market demands are likely to be healthy, especially automotive, electronic and electrical and packaging industries which are the key market of PP, as the Thai's government will put efforts to spur an economic revival.

Styrenics Committee

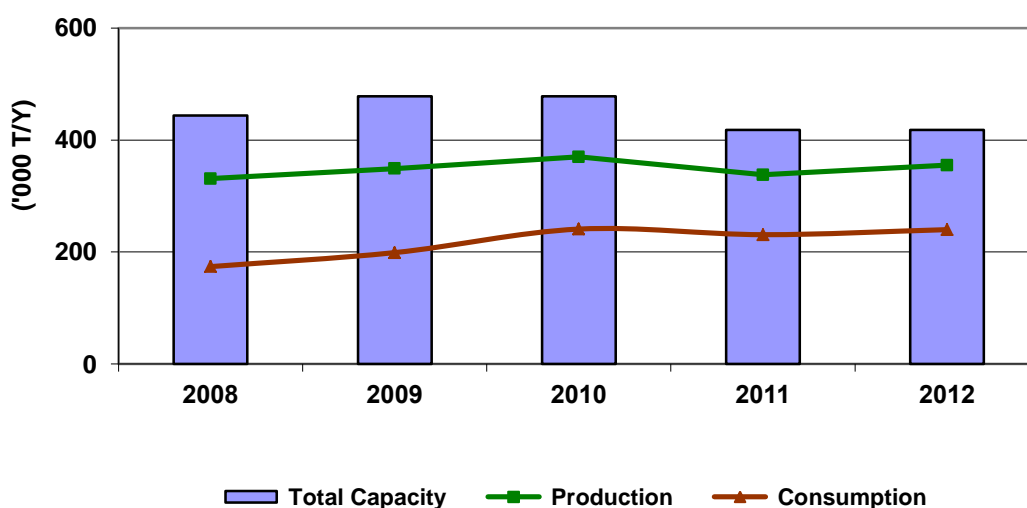
Capacity, Production and Consumption of PS/EPS

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	444	478	478	418	418
Production	331	349	370	338	355
Consumption	174	199	241	231	240*
Export	206	183	176	151	
Import	49	34	47	44	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures: assume 85% operating rate



1. Review of 2011

Domestic production and consumption of PS/EPS in 2011 dropped 9% and 4% respectively. Production of EPS plummeted as producers reduced operating rates to meet existing demand, while production of PS dropped as Eternal Plastics closed out its 60,000-ton/year PS plant. Consumption of PS/EPS, meanwhile, declined in response to a slump in demand from end-user market demands due to a shock in electrical and electronic and packaging industries as these industries were hard hit by massive flood.

2. Outlook for 2012

PS/EPS production and consumption is expected to increase following the post-flood recovery demand from end-user markets especially electronic and electrical and packaging industries.

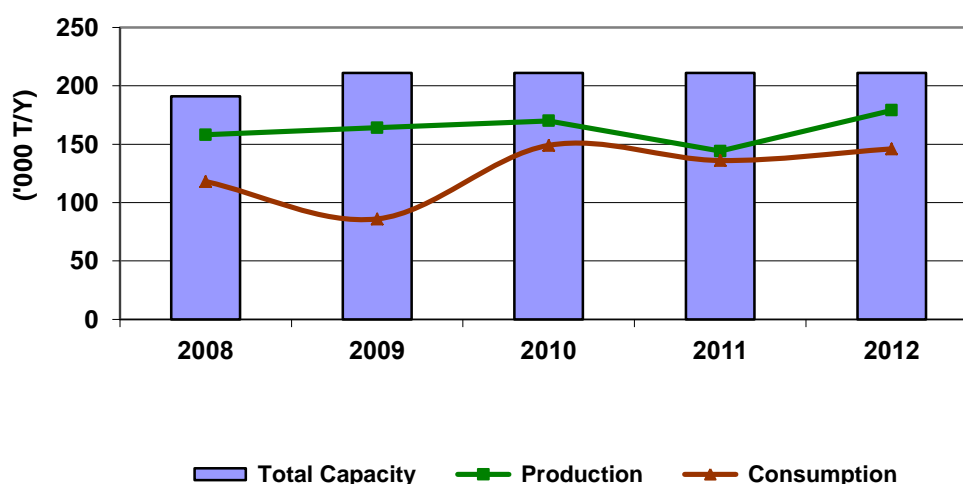
Capacity, Production and Consumption of ABS/SAN

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	191	211	211	211	211
Production	158	164	170	144	179
Consumption	118	86	149	136	146*
Export	133	157	136	117	
Import	93	80	114	109	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures: assume 85% operating rate



1. Review of 2011

Domestic production and consumption of ABS/SAN sank by 15% and 9% respectively in 2011 due to the impact of massive flooding subsides that disrupted supply chains of the automobile, electrical and electronic industries which are the largest ABS/SAN market. Last years' flood were among the worst that Thailand has faced, the flood stretched from August through November, and shut down many of the country's most important industrial parks for few months.

2. Outlook for 2012

Domestic production and consumption of ABS/SAN is expected to continue to expand following stronger demand from domestic end-user markets as the country's economy is poised to make a recovery from debilitating floods.

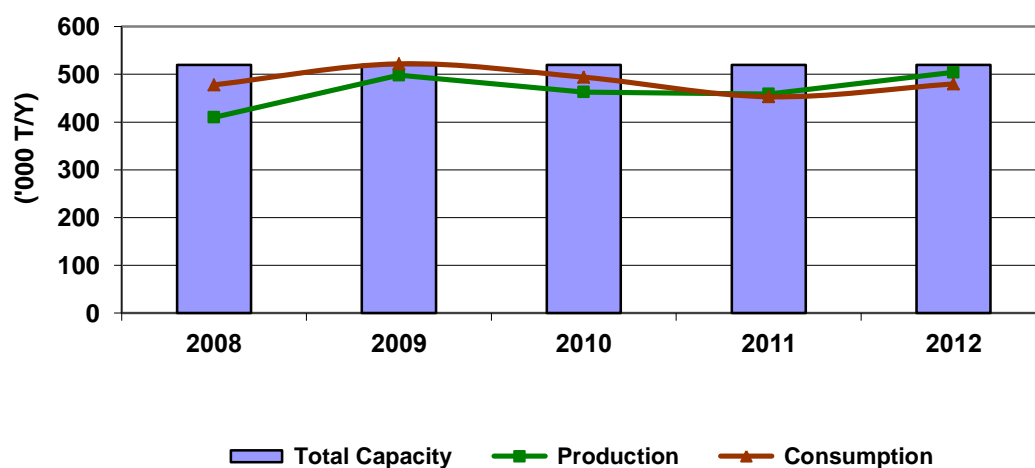
Capacity, Production and Consumption of SM

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	520	520	520	520	520
Production	410	498	463	459	504
Consumption by Derivative Prod.	478	522	494	453	480*
Export	0	22	0	22	
Import	66	49	86	67	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from PS+EPS, ABS/SAN, SBL and SBR (assumed ABS 100%) production, which is projected by assuming a 85%, 85%, 90%, 90% operating rate respectively.
'0' means below 500 T/Y



1. Review of 2011

SM production slightly down aligned with continual plummet in consumption which dropped 8% as a result of a bearish market sentiment in the key derivatives products, especially EPS and ABS/SAN.

2. Outlook for 2012

Assuming a 90% operating rate, SM production in 2012 is expected to increase, while consumption is forecasted to recover to the pre-flood levels hinge on a recovery in key end-user markets.

PVC Committee

II-4. PVC Committee

Capacity, Production and Consumption of PVC

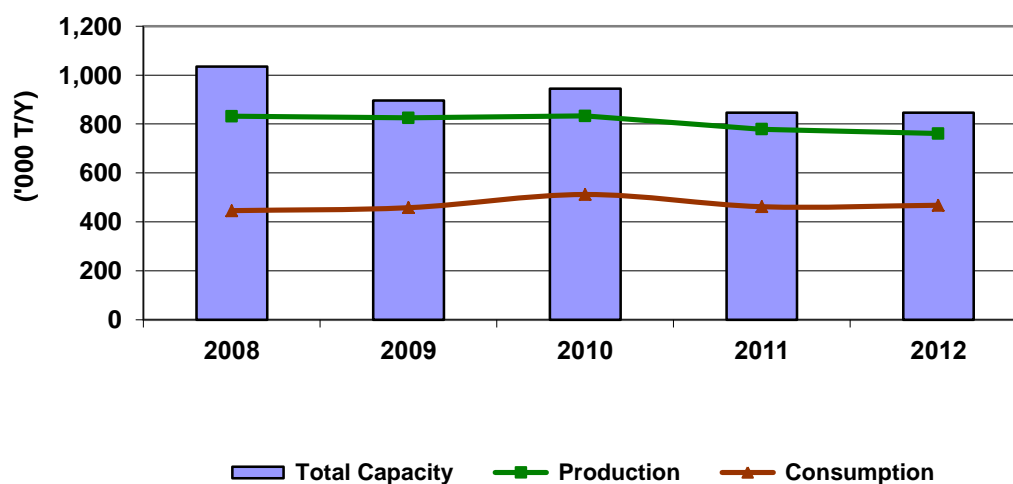
Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	1,035	896	945	846**	846
Production	832	825	833	779	761
Consumption	446	458	512	462	468*
Export	424	424	382	387	
Import	37	56	61	70	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures: assume 90% operating rate

** Apex petrochemicals closed out its 100-KTA polyvinyl chloride plant in 2011.



1. Review of 2011

Thailand's PVC production dropped 6% as producer reduced operating rate in tandem with Apex Petrochemicals closed out its plant due to the difficulty in business expansion and the PVC over supply. Meanwhile, Thailand's PVC consumption plummet 10% in 2011, from roughly 500,000 tons a year to 460,000 tons a year as Thailand's PVC market is saturated and severe flood halting production of some PVC converters.

2. Outlook for 2012

Thailand's domestic PVC production is forecasted to remain stagnate or slightly drop in 2012, meanwhile, consumption is projected to fairly steady or slightly increase supporting by stimulus programs from Thai's government embarking on post-flood recovery programs as well as water management facilities and private investments.

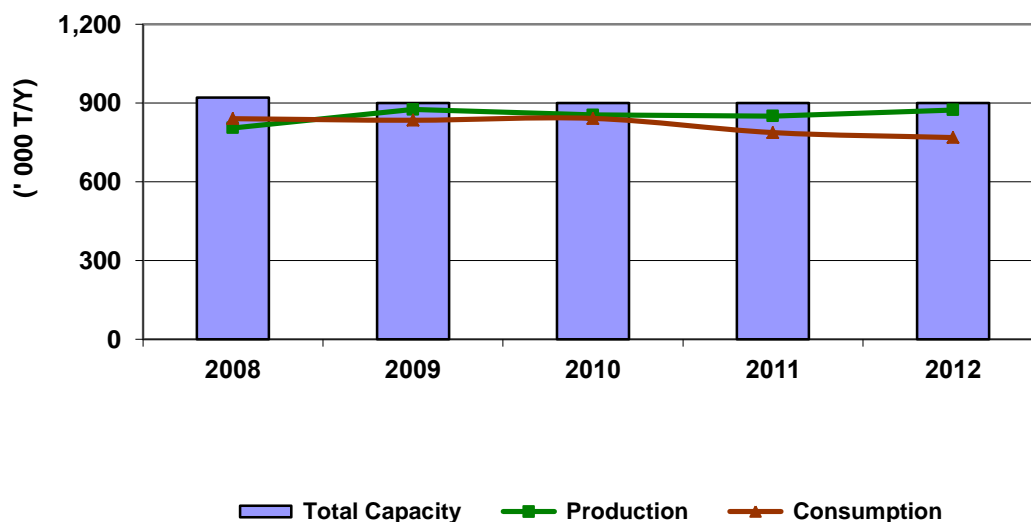
Capacity, Production and Consumption of VCM

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	920	900	900	900	900
Production	805	875	854	850	873
Consumption by Derivative Prod.	840	834	841	787	768*
Export	59	86	66	58	
Import	65	32	42	7	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption by derivative netbacked from PVC production, which is projected by assuming a 90% operating rate.



1. Review of 2011

Thailand's VCM production in 2011 relatively stagnated as producers kept running at constant production levels because the downstream PVC markets both domestic and export slumped.

2. Outlook for 2012

Domestic supply for VCM in Thailand in 2012 is expected to remain stagnate or slightly increase, pressure by slower demand from downstream PVC market as the country's PVC market is saturated and domestic producers are now facing with the difficulty in business expansion and the PVC oversupply.

Synthetic Rubber Committee

II-5. Synthetic Rubber Committee

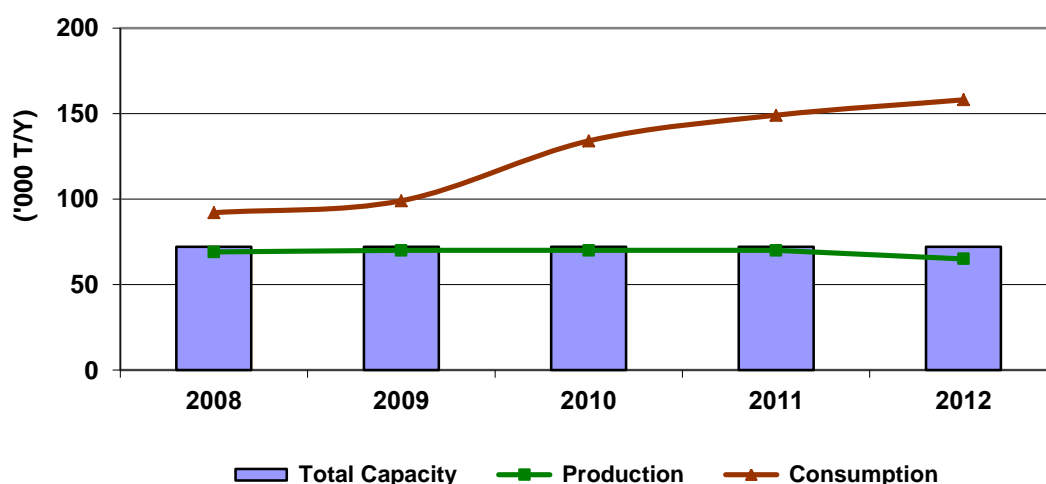
Capacity, Production and Consumption of SBR

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	72	72	72	72	72
Production	69	70	70	70	65
Consumption	92	99	134	149	158*
Export	34	47	36	39	
Import	57	76	100	118	

Source: PTIT Industrial Survey, The Customs Department

Note: *Some consumption figure is different from calculation (Production + Import – Export) due to inventory change. Projected production figures: assume 80% operating rate.



1. Review of 2011

Thailand's SBR consumption markedly increased from 92,000 tons in 2008 to 149,000 tons in 2011. An upward trend in domestic SBR consumption is attributed to the growth of the auto industry in Thailand as local demand for vehicles in the country is projected to increase along with the export markets. The most popular vehicles are pick-up trucks and eco-cars for both domestic and export.

2. Outlook for 2012

Domestic demand for SBR in Thailand in 2012 is forecasted to increase by 6% from 2011 as demand of SBR from key automotive industry is expected to continue to expand following the post-flood recovery. Thailand's auto manufacturers expect to produce 2.0 and 2.5 million vehicles in 2012 and 2014 respectively.

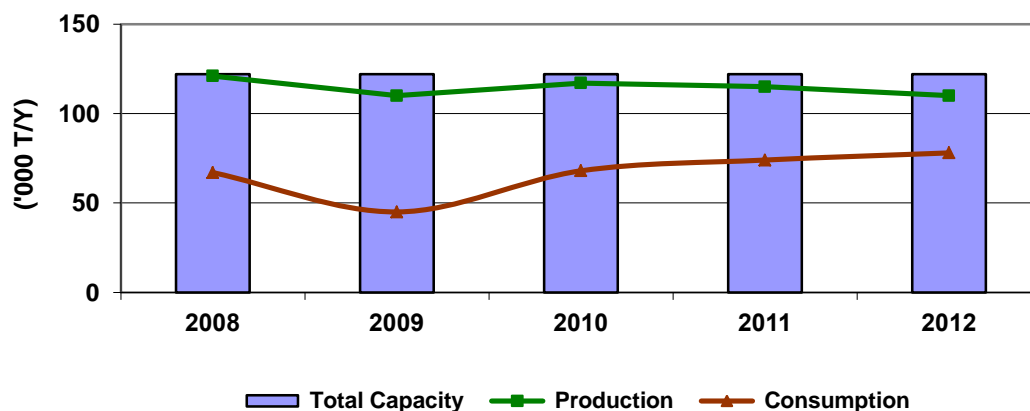
Capacity, Production and Consumption of BR

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	122	122	122	122	122
Production	121	110	117	115	110
Consumption	67	45	68	74	78*
Export	74	88	84	81	
Import	20	23	35	40	

Source: PTIT Industrial Survey, The Customs Department

Note: Projected production figures: assume 80% operating rate



1. Review of 2011

Domestic production for BR in Thailand in 2011 relatively stagnated, despite an increase in BR consumption as a result of high production volumes compared to level of consumption. An increase in domestic BR consumption was resulted from growing domestic auto industry.

2. Outlook for 2012

Thailand's BR production is forecasted to remain stagnant or slightly drop, while domestic BR consumption is expected to expand to some extent in line with the expansion of local automotive industry following the post-flood recovery.

Synthetic Fiber Raw Materials Committee

II-6. Synthetic Fiber Raw Materials Committee

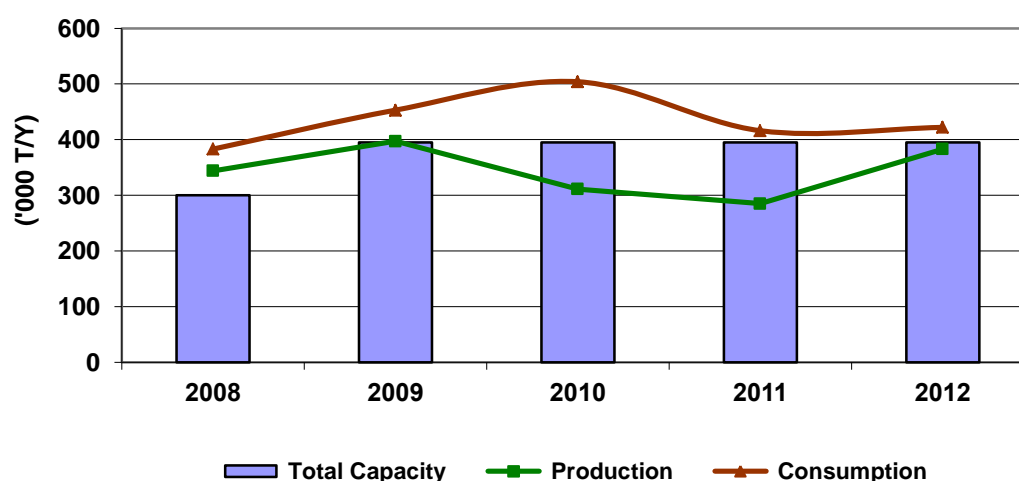
Capacity, Production and Consumption of Ethylene Glycol

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	300	395	395	395	395
Production	344	397	311	285	383
Consumption by Derivative Prod.	383	453	504	416	442*
Export	77	91	8	27	
Import	188	171	225	258	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from polyester polymer production, which is projected by assuming a 90% operating rate.



1. Review of 2011

The effect of the massive flood in the latter part of the year caused a drop in MEG production and consumption, in which production downed 8% in 2011, after a markedly dropped 22% in 2010 caused by the effect of legal and environmental issues in Map Ta Phut area. Domestic MEG consumption, meanwhile, declined 17% as demand from derivative PET was affected by flood that forced numerous packaging and textile factories along with the supply chains to shut-down temporarily.

2. Outlook for 2012

In 2012, MEG production is forecasted to increase following the expectation that TOC Glycol will raise its operating rate to meet high consumption volumes; meanwhile, consumption is projected to stagnate as export orders in textile industry may take a year to recover.

Capacity, Production and Consumption of Acrylonitrile

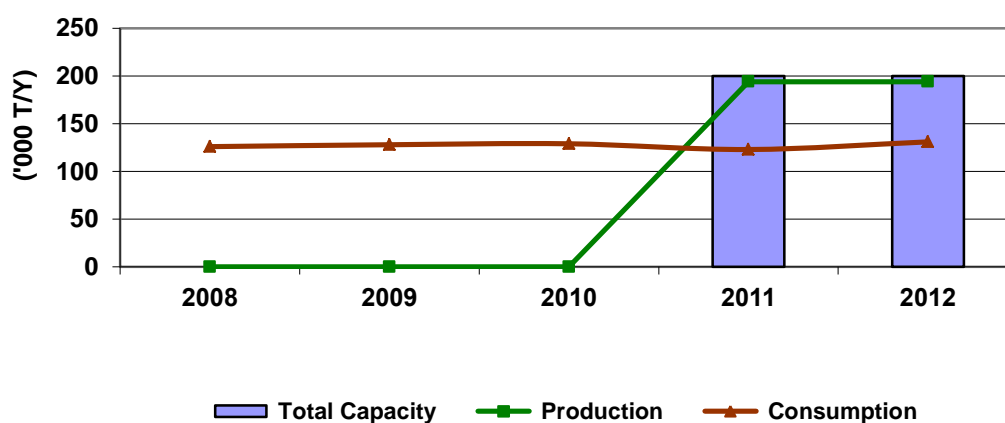
Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity				200	200
Production				194	194
Consumption by Derivative Prod.	126	128	129	123	131*
Export	0	0	0	0	
Import	131	139	141	137	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from ABS/ SAN and acrylic fibre production with an assumed operating rate of 90%.

'0' means below 500T/Y



1. Review of 2011

Thailand's ACN consumption slightly dropped by 4% in 2011 in line with a decline in demand from downstream derivative ABS/SAN as a result of two major crises both inside and outside Thailand hit the electrical and electronic industry, which is the largest ABS/SAN market; the two crises were the tsunami in Japan and the massive flood in Thailand.

On the production side, PTT Asahi Chemical, a joint venture between PTT and Asahi Kasei, brought on stream its 200,000-ton/year ACN plant in Q1 2011.

2. Outlook for 2012

Production and consumption of ACN are expected to remain stagnate or slightly increase.

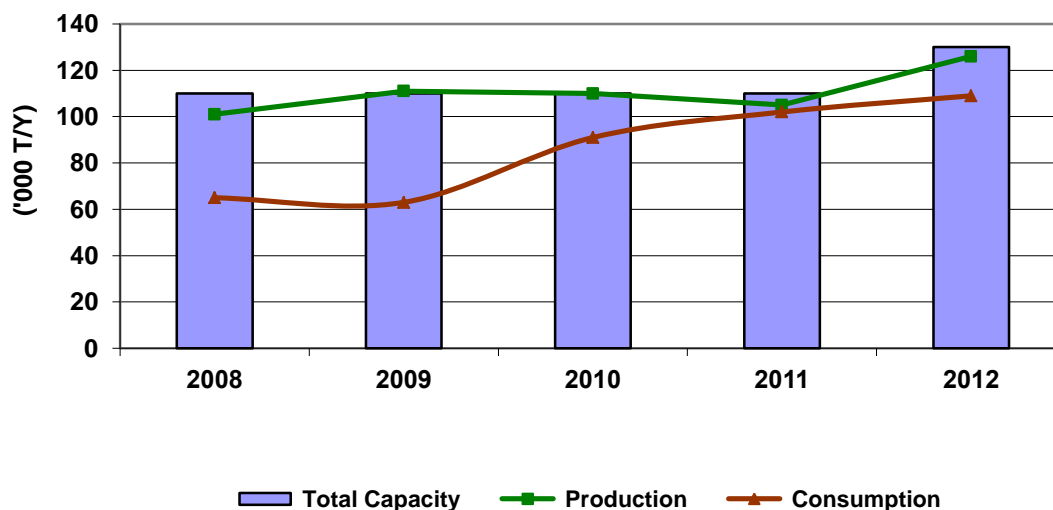
Capacity, Production and Consumption of Caprolactam

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	110	110	110	110	130
Production	101	111	110	105	126
Consumption by Derivative Prod.	65	63	91	102	109*
Export	44	50	22	18	
Import	8	2	2	14	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption is netbacked from Nylon 6 production, which is projected by assuming a 76% operating rate



1. Review of 2011

Domestic production of caprolactam in 2011 plunged 5% as Ube Chemicals shut down for debottlenecking. Besides, consumption increased 12% as demand from derivative Nylon 6 increase boosted by rising operating rate from Nylon 6 producers to support export markets, especially a new 25,000-ton/year Nylon 6 plant of Ube Chemicals that came on stream in 2010.

2. Outlook for 2012

Caprolactam production and consumption is projected to increase in 2012 as Ube Chemicals plans to strengthen its production capacity for caprolactam and nylon 6 in Thailand. The plan is to start commercial operations it's 20,000-ton/year caprolactam and 50,000-ton/year Nylon 6 to meet rising demand in Asia region including China.

Capacity, Production and Consumption of Terephthalic Acid

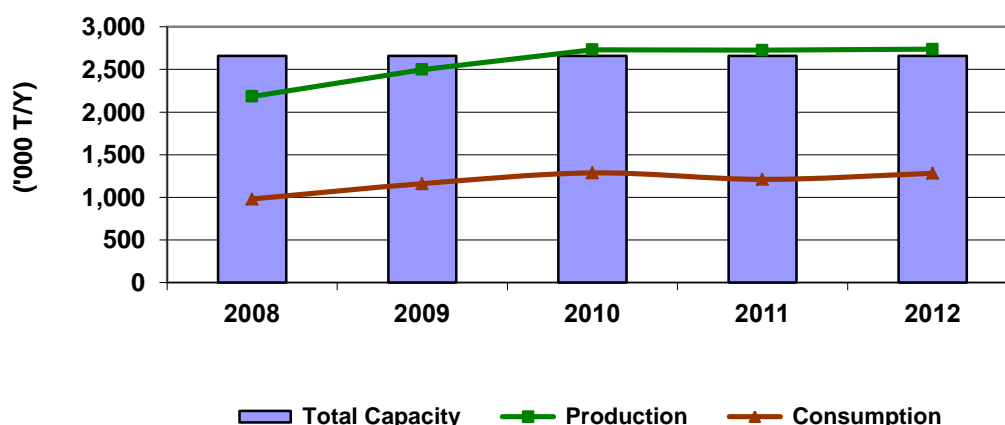
Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	2,660	2,660	2,660	2,660	2,660
Production	2,184	2,499	2,732	2,726	2,737
Consumption by Derivative Prod.	980	1,160	1,286	1,210	1,281*
Export	1,207	1,339	1,446	1,516	
Import	3	0	0	0	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from polyester polymer production, which is projected by assuming a 70% operating rate.

'0' means below 500T/Y



1. Review of 2011

Thailand's PTA production relatively stagnated from that of 2010 as local producers continued to run at high operating rates to support regional market– China in particular, despite a drop in local demand. Domestic PTA consumption, meanwhile, dropped by 6% on weak demand from downstream polyethylene terephthalate (PET) and polyester markets as a result of sudden dropped in packaging and textile and apparel industries in Thailand due to a massive flood.

2. Outlook for 2012

In 2012, domestic PTA production and consumption is expected to rise in line with an increase in derivative PET and polyester products as export markets remain strong while domestic packaging and textile and apparel industries are expected to improved.

Chemicals Committee

II-7. Chemicals Committee

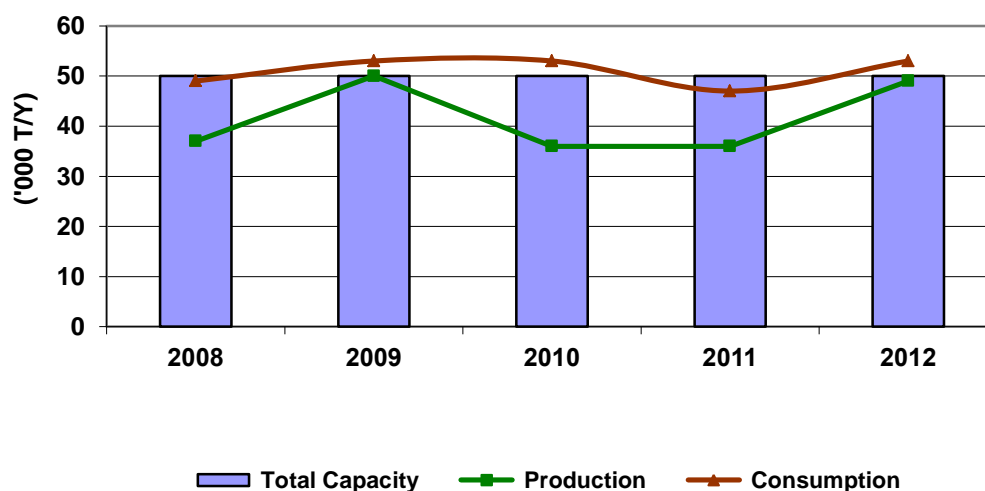
Capacity, Production and Consumption of Phthalic Anhydride (PA)

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity	50	50	50	50	50
Production	37	50	36	36	49
Consumption by Derivative Prod.	49	53	53	47	53*
Export	1	4	6	1	
Import	10	13	12	12	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption by derivative netbacked from plasticizer, UPR and alkyd resins production, which is projected by assuming 50%, 60%, 65% operating rate, respectively.



1. Review of 2011

Domestic PA production in 2011 relatively stagnated; despite a drop in consumption due to slower demand from downstream derivative plasticizer and Alkyd resins as end-user market demand from plastic and construction industries was affected by the massive flood.

2. Outlook for 2012

Assuming 50%, 60%, 65% operating rate for plasticizer, UPR and alkyd resins respectively, Thailand PA production and consumption is expected to increase in line with stronger end-user market demand from post-flood recovery.

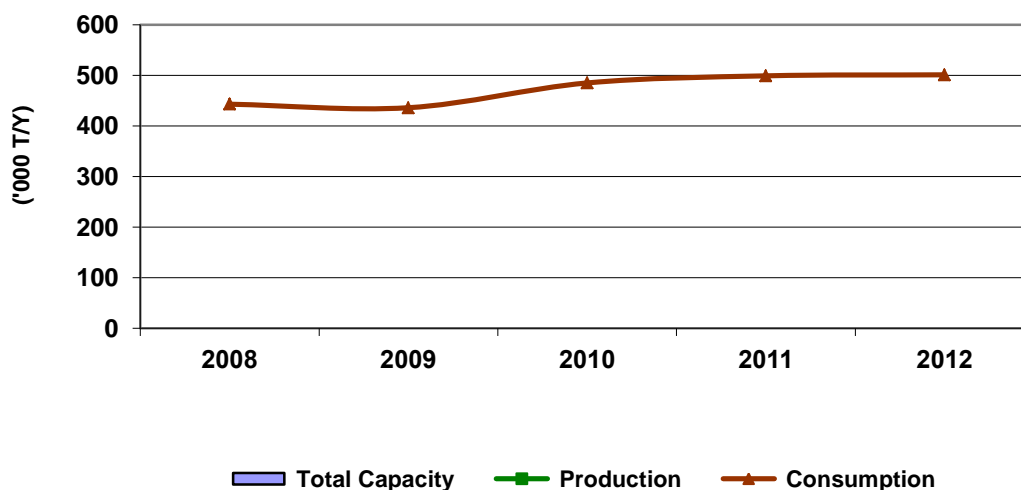
Capacity, Production and Consumption of Methanol

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity					
Production					
Consumption by Derivative Prod.	443	436	485	499	501*
Export	4	2	3	0	
Import	444	476	556	515	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from MTBE, MMA, POM and formaldehyde production, which is projected by assuming 90% operating rate.



1. Review of 2011

Domestic consumption of methanol increased from 485,000 tons in 2010 to 499,000 tons in 2011.

Thailand has no methanol production facility. All methanol usage is imported.

2. Outlook for 2012

Methanol consumption in Thailand is expected to increase in 2012 assuming a 90% operating rate for MMA, POM, formaldehyde and MTBE.

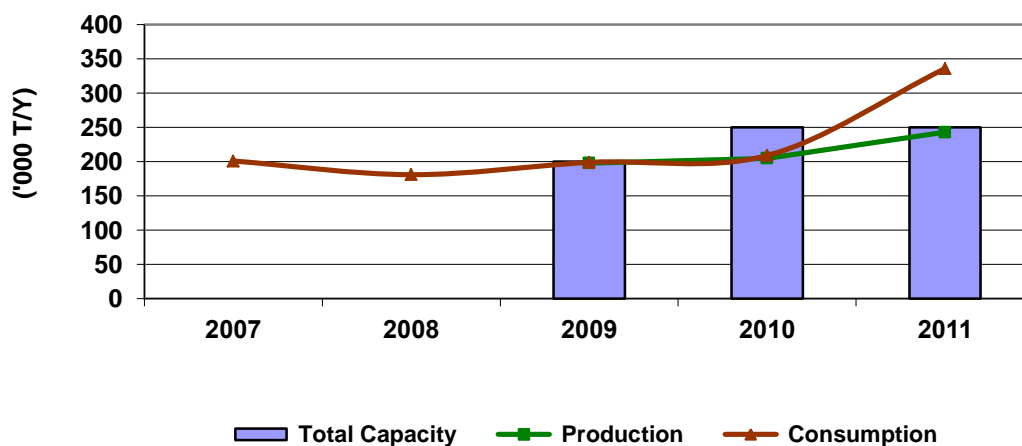
Capacity, Production and Consumption of Phenol

Unit: '000 T/Y

	Historical				Estimated
	2008	2009	2010	2011	2012
Total Capacity		200	250	250	250
Production		198	205	227	243
Consumption by Derivative Prod.	181	199	209	295	331*
Export	15	169	166	200	
Import	181	153	178	106	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from bisphenol A and phenolic resin production, which is projected by assuming a 95%



1. Review of 2011

Domestic phenol production and consumption increased from 2010 following an increase in downstream derivatives demand.

2. Outlook for 2012

Phenol production and consumption in Thailand is expected to increase in 2012 assuming a 90% operating rate for bisphenol A and phenolic resin.