

Country Report of Thailand

Asia Petrochemical Industry Conference

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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 2010, the world, as well as Thailand, recovered from deep economic recession, despite some snags that could undermine growth. Several massive stimulus packages implemented by superpowers plus the relatively stable crude oil price have helped sustain the world's economic recovery. Thailand, while following the global economic trend, has been picked up, according to NESDB, overall Thai economy expanded by 7.9% in 2010.

Moreover, an internal problem has been improved as political infighting that has dragged on for a few years has calmed down.

In addition, the dispute on environmental issues in Map Ta Phut, Rayong province, was near completion of resolving. The issues began in early March 2009, when local communities, with the help of environmentalists, succeeded in taking legal action against the industry authority to prevent the construction of more plants in the area. On September 29, the Central Administrative Court ordered the suspension of 76 projects in Rayong while it considered whether their permits violated Section 67 of the 2007 Constitution. Afterward, on September 2, 2010, the Central Administrative Court allowed 74 out of 76 industrial projects in the Map Ta Phut area suspended in September 2009 to proceed. The two projects judged too dangerous according to the NEB's list of environmentally-harmful industrial projects are 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).

With the Map Ta Phut issue almost resolved, Thailand's petrochemical producers can now begin to operate plants that had halted production, the situation, meanwhile, creates more favorable impacts on overall business performance of petrochemical industries.

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

The Thai economy during the past two years have seen a lot of volatility, from the mortgage crisis in the US to the sovereign debt crisis in Europe, to ongoing concerns about the strength of the global recovery. Nevertheless, several massive stimulus packages

implemented by authorities worldwide including that Thailand plus the relatively stable crude oil price have helped sustain the world's economic recovery in 2010. The Thai GDP expanded by 7.9% in 2010 driven by global economic recovery, growing exports, a more stable political situation and oil prices, more farm incomes, investors' confidence, as well as improving tourism, household and private consumption and the government's stimulus efforts.

Seeing that the Thai economy has shown clear signs of recovery, The Office of the National Economic and Social Development Board (NESDB) of Thailand estimates that Thai economy will likely show moderate growth to about 4.0% in 2011, with the forecast range between 3.5-4.5% boost by the global turnaround, manufacturing and some additional stimulus from the government. However, stages of recovery will be associated with various uncertainties both at home and abroad including fragile global recovery, impending export slowdown, rising inflation, upturn of interest rate, Baht appreciation, political uncertainty and risk from unexpected incident.

Table-1 Thailand's GDP Growth 2002-2010

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	7.9
2011 (est.)	4.0

Source: NESDB

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

The petrochemical industry in Thailand staged a comeback in 2010 from a tumultuous period the year before. Producers benefited from improved margins, supported by soaring demand from local converters and sound market conditions amid an expanding economy. The global economic recovery that began in mid 2009 and continued through 2010, especially in Asia, spurred local demand for products at home and abroad. The rebound in the Thai petrochemical industry can also be attributed to the successful implementation of the economic stimulus package and near completing of resolving the Map Ta Phut issue. But, counteracting these factors were unstable domestic political conditions, a series of flash floods that hit different areas in Thailand and the strong baht which affected exports. According to PTIT Industrial Survey, the overall picture of petrochemical production and consumption are as follow:

- Ethylene production and consumption climbed 17% and 20% respectively, in 2010 as PTT Polyethylene (PTTPE) brought on stream additional ethylene production capacity of 1,000,000-ton/year in Q1, Map Ta Phut Olefins (MOC) started up its new 900,000-ton/year crackers in Map Ta Phut in Q2 and the stepped-up operating rates of many crackers to meet recovering demand from the petrochemical end market. Meanwhile, consumption surged in tandem with the commercial production of a new 400,000-ton/year derivative LLDPE plant of PTTPE in Q1 coupled with the start up of a new 400,000-ton/year HDPE plant of Thai Polyethylene (TPE) in Q2 and the commercial production of a new 350,000-ton/year LLDPE plant of Siam Polyethylene (Siam PE II) in Q4. The positive market conditions were triggered by the global economic recovery, especially in Asia, the Thai government's SP2 or the Strong Thai scheme to support the nascent recovery in the Thai economy, and improved domestic fundamentals, stronger private demand, and consumer and business confidence.
- The production of major polymers stood at 4,935,000 tons in 2010, an increase of 16% from the previous year. The gain was the result of the commercial operation of new derivative LLDPE plants of PTT Polyethylene (PTTPE) and Siam Polyethylene (Siam PE II), HDPE plants of Thai Polyethylene (TPE) and the expansion of HDPE plant of PTT Chemical (PTTCH) in tandem with PP plants of Thai Polypropylene (TPP) and HMC

Polymers (HMC). An increase in major polymers production was also supported by higher end-user market demand due to the nascent recovery in the Thai economy, and improved domestic fundamentals, higher private demand, and consumer and business confidence, on the back of the global economic recovery. Meanwhile, consumption of major polymers in 2010 was 3,207,000 tons, an increase of 13% from the previous year. This represented stronger domestic end-user market demand especially for PP and ABS/SAN in line with growing demand from the electronic and electrical goods and appliances and automobile industries.

Table-2 Production/ Consumption and Import/ Export Figures of Five Major Products 2007-2010

(Unit: '000 T/Y)

Products	2007	2008	2009	2010
Ethylene				
Production	2,347	2,201	2,455	2,884
Import	119	210	180	99
Export	16	0	22	8
Consumption by derivative product ⁽¹⁾	2,469	2,464	2,572	3,078
Propylene				
Production	1,220	1,120	1,263	1,639
Import	0	5	3	13
Export	71	33	65	154
Consumption by derivative product ⁽²⁾	1,206	1,141	1,313	1,570
PTA				
Production	2,562	2,184	2,499	2,732
Import	2	3	0	0
Export	1,487	1,207	1,339	1,446
Consumption by derivative product ⁽³⁾	1,077	980	1,160	1,286
PE (including EVA)				
Production	1,788	1,782	1,833	2,258
Import	273	308	278	339
Export	928	984	973	1,326
Consumption ⁽⁴⁾	1,120	1,139	1,138	1,350
PP				
Production	1,148	1,087	1,125	1,367
Import	156	172	183	269
Export	347	314	318	500
Consumption ⁽⁴⁾	958	945	990	1,136

Source: PTIT Industrial Survey, The Customs Department

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 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 2010 (as of February 2011)

(Unit: '000 T/Y)

Ethylene

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

Source: PTIT Industrial Survey, February 2011

Polyethylene

Company	Capacity				
	LDPE/EVA	LLDPE	LLDPE/MDPE	HDPE	Total
BPE				250	250
IRPC				152	152
PTTCH				300	300
PTTPE		400			400
Siam Polyethylene		770			770
SSLC		270			270
TPE	100		120	960	1,180
TPI Polene	158				158
Total	258	1,440	120	1,662	3,480

Source: PTIT Industrial Survey, February 2011

Vinyl Chloride Monomer

Company	Capacity
TPC	500
VNT	400
Total	900

Source: PTIT Industrial Survey, February 2011

(Unit: '000 T/Y)

Polyvinyl Chloride

Company	Capacity
Apex Petrochemicals	100
TPC	566
TPC Paste Resin	36
VNT	280
Total	982

Source: PTIT Industrial Survey, February 2011

Propylene

Company	Capacity
IRPC	312
MOC	800
PTTCH	487
PTTPE	25
ROC	400
SPRC	132
Total	2,156

Source: PTIT Industrial Survey, February 2011

Polypropylene

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

Source: PTIT Industrial Survey, February 2011

Styrene Monomer

Company	Capacity
IRPC	200
SSMC	320
Total	520

Source: PTIT Industrial Survey, February 2011

(Unit: '000 T/Y)

Polystyrene

Company	Capacity
Eternal Plastics	60
Thai Styrenics*	90
Siam Polystyrene	150
Thai ABS	130
Total	430

Source: PTIT Industrial Survey, February 2011

Note: * HMT Polystyrene was taken over by Thai Styrenics Co., Ltd., a 100% affiliate of PTT Polyethylene, in April 2008.

Synthetic Rubber

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

Source: PTIT Industrial Survey, February 2011

II. Committee Meetings

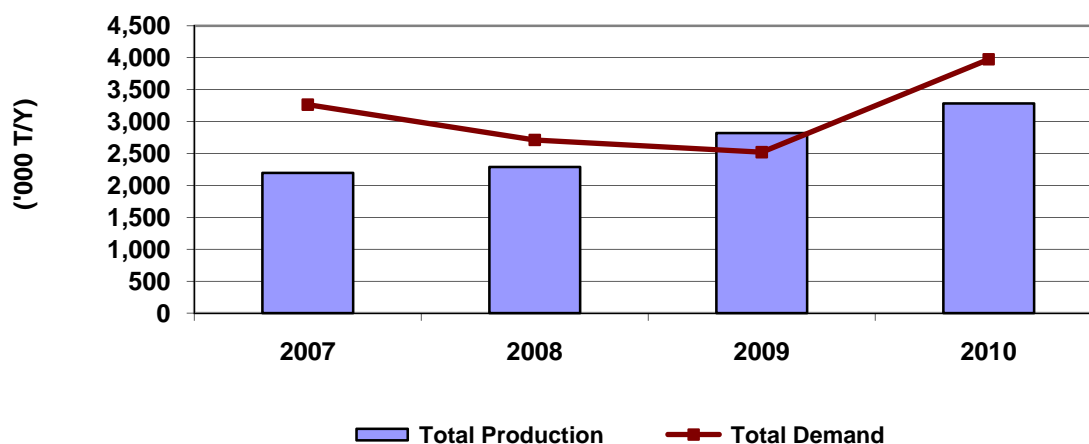
General Matters & Raw Materials Committee

II-1. General Matters & Raw Materials Committee

Capacity, Production and Demand of Light Naphtha

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Production	2,197	2,288	2,821	3,284
Feedstock	3,219	2,666	2,475	3,929
Solvents	46	46	46	46
Total Demand	3,265	2,712	2,521	3,975



1. Review of 2010

Thailand's light naphtha production in 2010 rose significantly as Thai oil adjusted production rate at its refinery coupled with other refineries increased its operating rate cause . Meanwhile, domestic demand for light naphtha has surged by 58% from 2009 as Map Ta Phut Olefins Co, Ltd (MOC) began commercial operation of its 900,000-ton/year naphtha cracker in Q2 2010 in tandem with naphtha cracker producers increased their run rates.

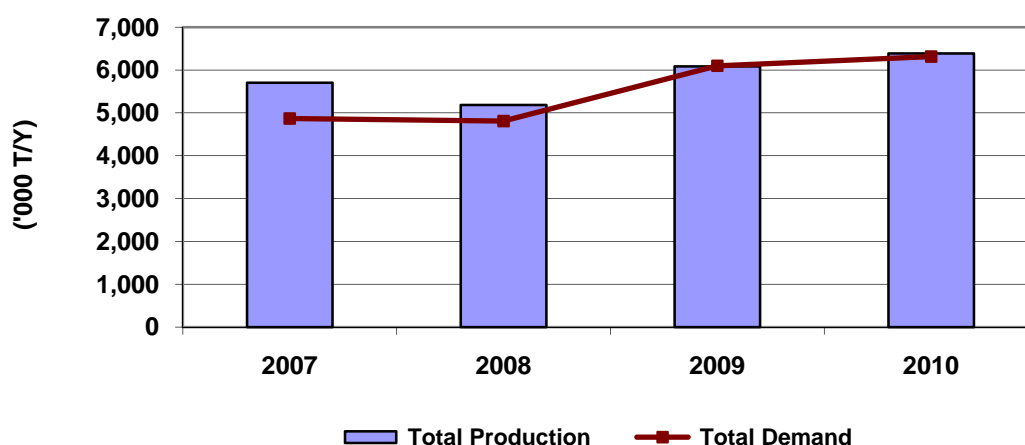
2. Outlook for 2011

Domestic demand for light naphtha in Thailand in 2011 is expected to rise by more than 32% from 2010 as naphtha cracker operators in Thailand increase operating rates at their crackers to serve increasing demand from olefins market following additional olefins capacity expanded and started up in 2010 and additional capacity plans to bring on stream in early 2011.

Capacity, Production and Demand of Heavy Naphtha

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Production	5,706	5,184	6,085	6,388
Feedstock	4,870	4,809	6,100	6,316
Total Demand	4,870	4,809	6,100	6,316



1. Review of 2010

In 2010, both domestic demand and production for heavy naphtha increased from 2009 as a result of petrochemical producers increased operating rates and consumption due to a recovery of the global economic and improved margins, especially IRPC which has normally been an exporter of heavy naphtha.

2. Outlook for 2011

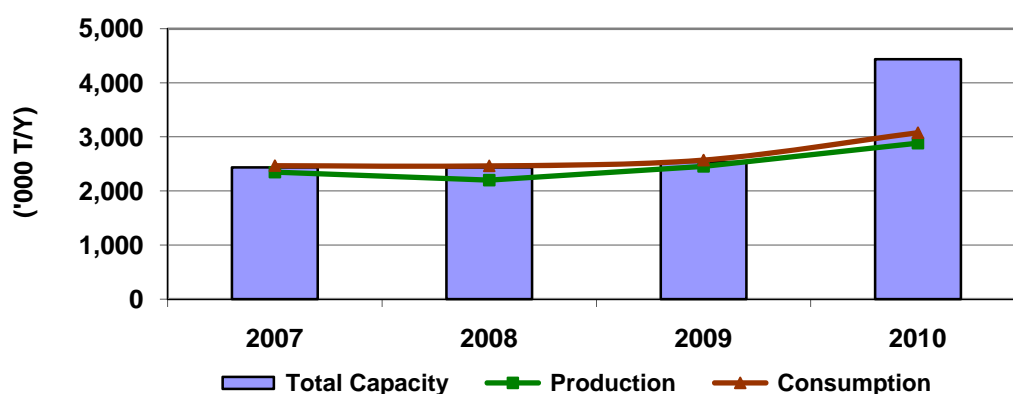
Thailand's demand and production for heavy naphtha in 2011 are both expected to increase from 2010 – mainly due to the continued good margin projections and sound market condition.

Capacity, Production and Consumption of Olefins: Ethylene

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	2,436	2,436	2,536	4,436
Production	2,347	2,201	2,455	2,884
Consumption by Derivative Prod.	2,469	2,464	2,572	3,078
Export	16	0	22	8
Import	119	210	180	99

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Ethylene production climbed 17% in 2010. The increase was attributed to the opening of several new cracker plants, including the 1,000,000-ton/year ethane cracker plant at PTT Polyethylene (PTTPE), a subsidiary of PTT Chemical (PTTCH), and a 900,000-ton/year naphtha cracker at Map Ta Phut Olefins (MOC) and the stepped-up operating rates of many crackers to meet recovering demand from the petrochemical end market. Meanwhile, consumption surged 20% from last year due to new plants and downstream extension of various manufacturers beginning production, including a 400,000-ton/year LLDPE plant of PTTPE, a 400,000-ton/year HDPE plant of Thai Polyethylene (TPE) and a 350,000-ton/year LLDPE plant of Siam Polyethylene (Siam PE II).

2. Outlook for 2011

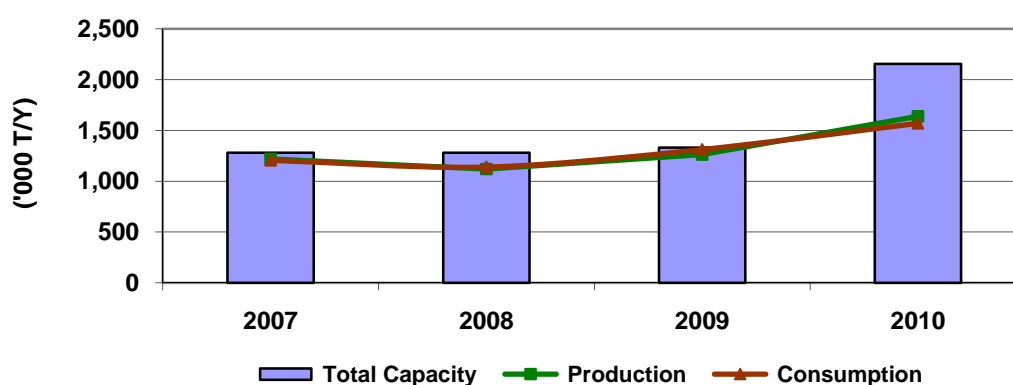
Thailand's demand and production of ethylene production in 2011 are expected to drastically increase supporting by the stepped-up operating rates of cracker producers and additional consumption from the commercial production of new HDPE plants of Bangkok Polyethylene (BPE) and PTT Chemical (PTTCH), LDPE plant of PTT Polyethylene (PTTPE) and the expansion of EG plant of TOC Glycol.

Capacity, Production and Consumption of Olefins: Propylene

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	1,281	1,281	1,331	2,156
Production	1,220	1,120	1,263	1,639
Consumption by Derivative Prod.	1,206	1,141	1,313	1,570
Export	71	33	65	154
Import	0	5	3	13

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Propylene production sharply increased by 30% from the previous year due to the new 25,000-ton/year ethane cracker of PTTPE that came on stream in Q1, the commercial production of a new 800,000-ton/year naphtha cracker and metathesis of MOC in Q2 and the increase in operating rates of many crackers starting from the second quarter of the year. Propylene consumption, meanwhile, increased by 29% from the previous year, boosted by the startup of a new 400,000-ton/year derivative polypropylene (PP) plant of Thai Polypropylene (TPP) in Q2, the commercial production of a new 300,000-ton/year PP plant of HMC Polymers (HMC)'s PDH unit in Q4 and growing demand for domestic downstream PP.

2. Outlook for 2011

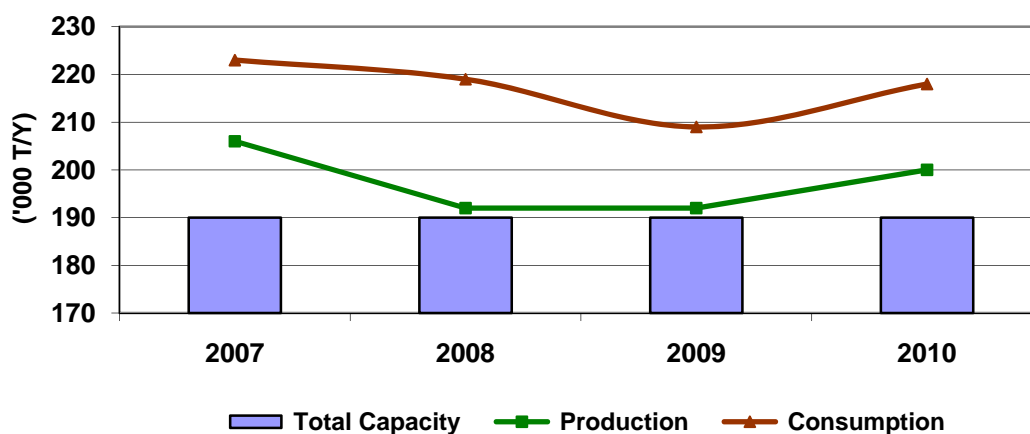
Thailand's production of propylene in 2011 is expected to sharply surge following additional propylene capacity coming on stream from HMC polymers. Meanwhile, propylene consumption is expected to increase from the start up plan of Thai Polypropylene's PP plant.

Capacity, Production and Consumption of Olefins: Butadiene

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	190	190	190	190
Production	206	192	192	200
Consumption by Derivative Prod.	223	219	209	218
Export	26	14	28	
Import	27	23	21	

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Butadiene production increased by 4% from the year 2009, meanwhile, butadiene consumption was surged by 4% comparing to the year 2009 as a result of better demand from end market throughout the year, especially its rubber derivative business that was remarkably surged following an increase in auto industry both domestic and export markets.

2. Outlook for 2011

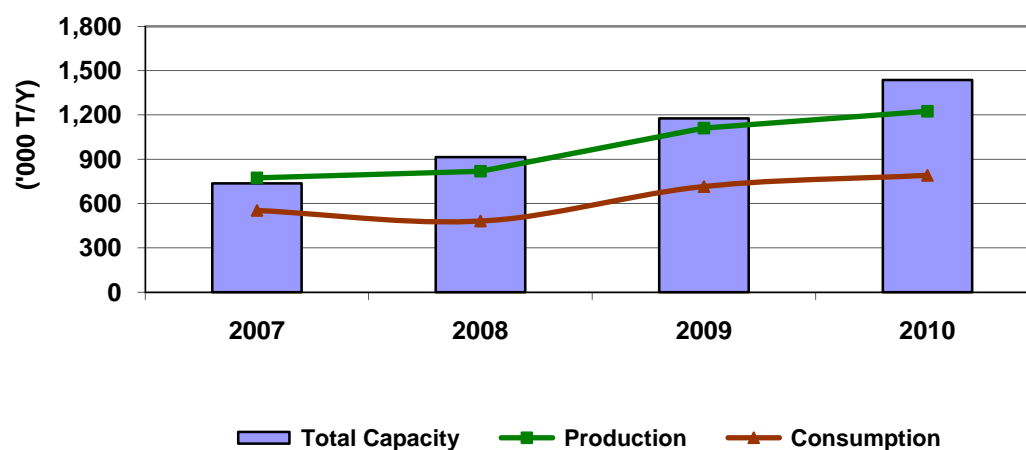
Thailand's production and consumption of butadiene in 2011, both are expected to drop in line with the falling down of its derivatives SBL.

Capacity, Production and Consumption of Aromatics: Benzene

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	737	914	1,177	1,437
Production	774	819	1,111	1,225
Consumption by Derivative Prod.	553	481	715	791
Export	221	338	396	505
Import	0	0	0	0

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Benzene production surged 10% in 2010 as MOC, a joint venture between Siam Cement Company and Dow Chemical, began production 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 increased 10% from the previous year on the back of a surge in demand for ABS/SAN and EPS due to expansion in the auto, electrical and electronic and packaging industries. While, the production of derivative petrochemicals polystyrene (PS) and styrene monomer (SM) was relatively stable in 2010.

2. Outlook for 2011

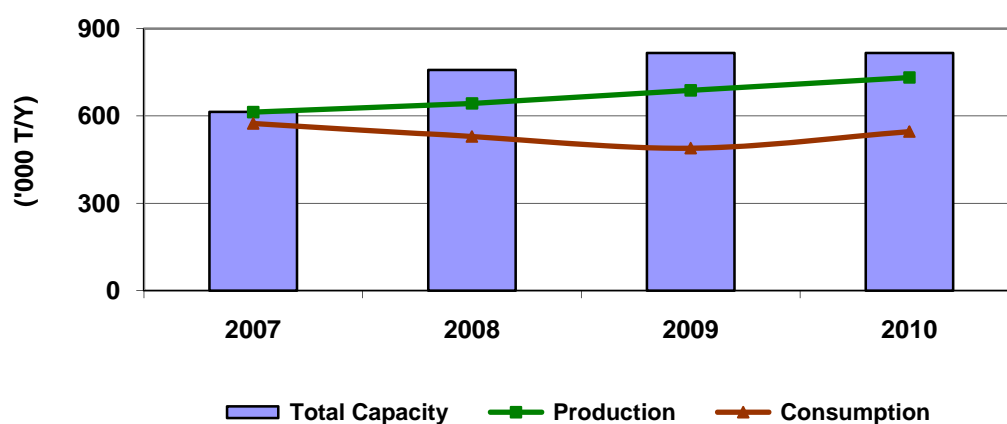
Thailand's production of benzene in 2011 is expected to rise but consumption is expected to remain stagnant.

Capacity, Production and Consumption of Aromatics: Toluene

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	614	758	816	816
Production	613	643	688	732
Consumption by Derivative Prod*	574	529	489	546
Export	40	114	199	185
Import	1	1	0	0

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Toluene production in 2010 was 732,000 tons. This also included toluene volume which PTT Aromatics and Refining (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. PTTAR has started to use all of its toluene production as raw material for benzene and p-xylene production since 2004. In 2009, following the start up of the 2nd aromatics complex PTTAR has addition toluene capacity of 377,000 tons/year which is as raw material for benzene and p-xylene production at its existing complex.

2. Outlook for 2011

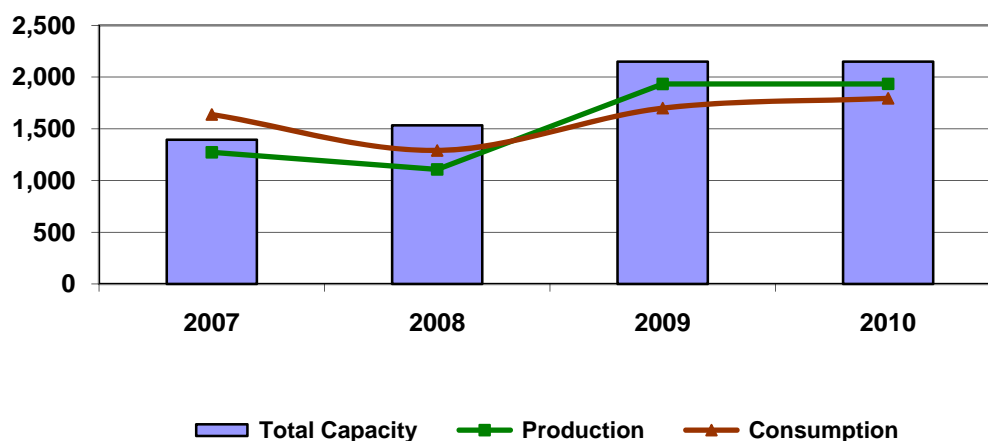
Thailand's production and consumption of toluene in 2011 are expected to rise as a result of an ongoing demand from benzene and p-xylene production.

Capacity, Production and Consumption of Aromatics: P-Xylene

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	1,394	1,533	2,149	2,149
Production	1,273	1,107	1,933	1,934
Consumption by Derivative Prod.	1,638	1,290	1,699	1,794
Export	122	124	355	381
Import	487	307	122	242

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Thailand p-xylene production was stagnant from the previous year as no new capacity was added in 2010. PTT Aromatic and Refining Company (PTTAR) added more than million tons paraxylene to the market in 2009 but since then, no major production expansion of the product has occurred in Thailand. Meanwhile, paraxylene consumption firmed 6% in 2010. With no derivative capacity coming on stream, the increase was mainly supported by demand stemming from the production of downstream derivative PTA.

2. Outlook for 2011

In 2011, Thailand p-xylene production is expected to be steady as in 2010, however, consumption is forecasted to fall slightly as demand from downstream derivative PTA is expected to stagnate or fairly drop.

Polyolefins Committee

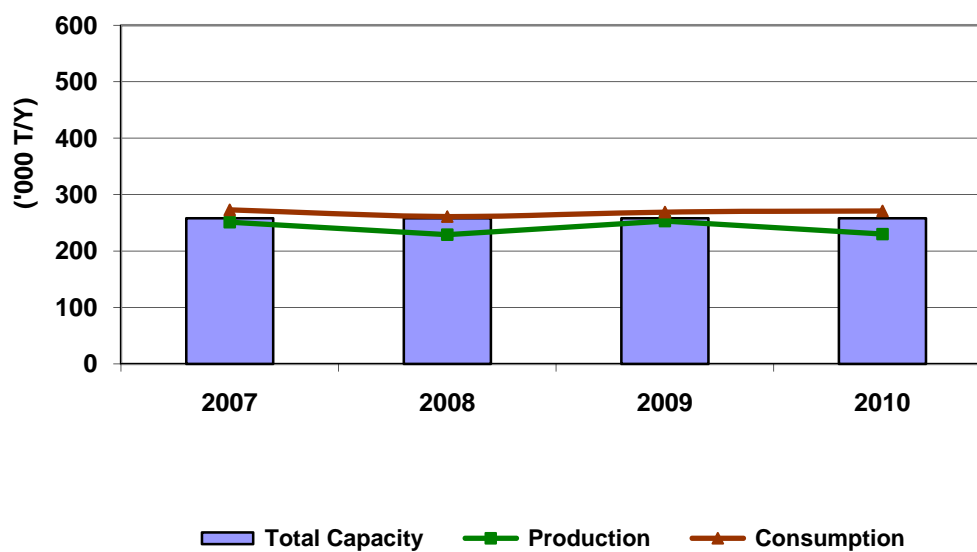
II-2. Polyolefins Committee

Capacity, Production and Consumption of LDPE/ EVA

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	258	258	258	258
Production	251	229	253	230
Consumption	273	261	269	271
Export	72	78	77	135
Import	94	108	93	101

Source: PTIT Industrial Survey, The Customs Department

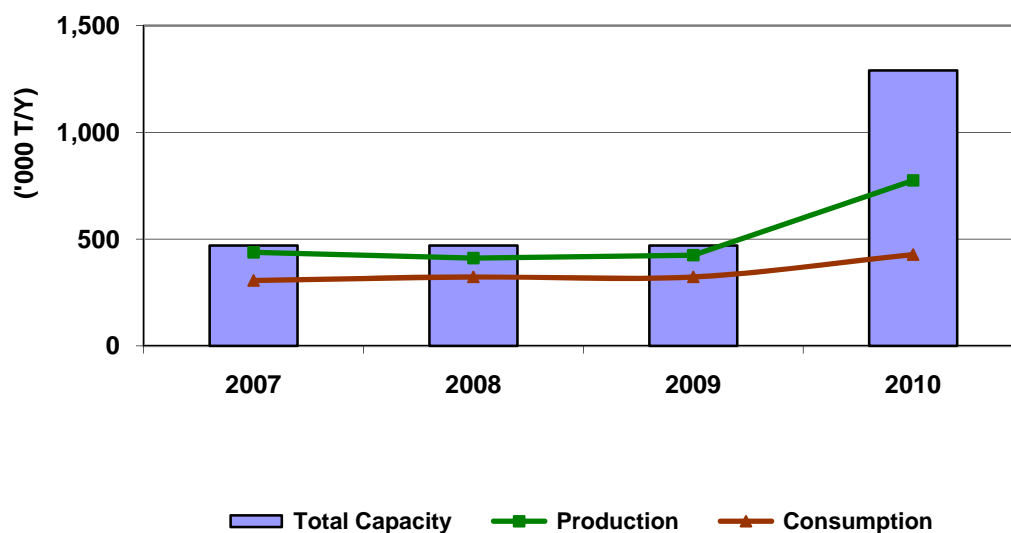


Capacity, Production and Consumption of LLDPE

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	470	470	470	1,290
Production	438	411	425	775
Consumption	306	323	323	427
Export	216	225	210	454
Import	104	123	108	107

Source: PTIT Industrial Survey, The Customs Department

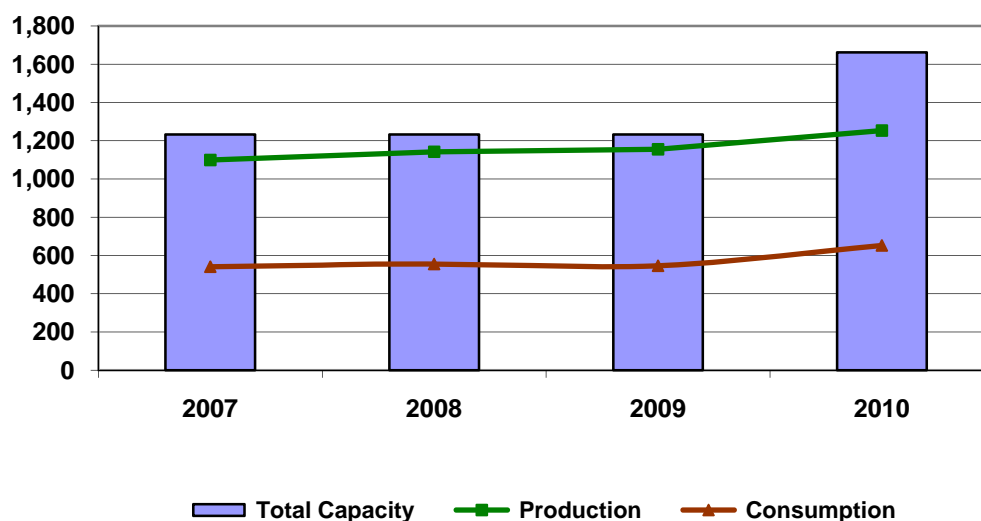


Capacity, Production and Consumption of HDPE

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	1,232	1,232	1,232	1,662
Production	1,099	1,142	1,155	1,253
Consumption	541	555	546	652
Export	640	681	686	737
Import	75	77	77	131

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

In 2010, domestic production for LLDPE and HDPE increased significantly from 2009 as various manufacturers beginning production their new or extension plants, including a 400,000-ton/year LLDPE plant of PTTPE, 50,000-ton/year expansion of PTTCH's HDPE plant, a 350,000-ton/year LLDPE plant of Siam Polyethylene and TPE's 400,000-ton/year HDPE plant. Domestic consumption, meanwhile, markedly increased on account of improved demand from domestic packaging industry

2. Outlook for 2011

Thailand PE production is expected to increase markedly as PTTPE schedules to startup its new LDPE 300,000 tons/year in 2011 while Bangkok Polyethylene (BPE) plans to commercial production it new HDPE 250,000 tons/year in 2011.

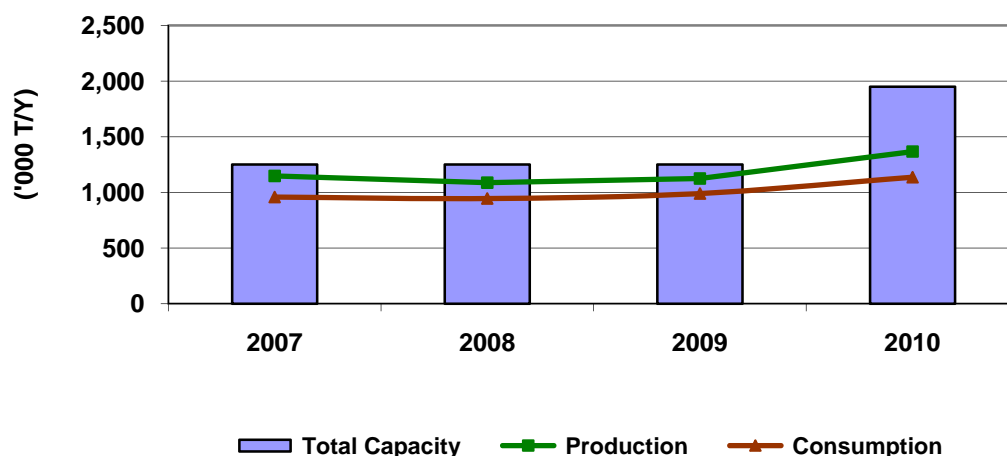
PE consumption is expected to increase in line with the country economy recovery as thing seem to have improved, following positive signs of the global economic recovery and improved domestic fundamentals including consumer and business confidence.

Capacity, Production and Consumption of PP

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	1,250	1,250	1,250	1,950
Production	1,148	1,087	1,125	1,367
Consumption	958	945	990	1,136
Export	347	314	318	500
Import	156	172	183	269

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic polypropylene (PP) production sharply surged by 22% from the previous year, boosted by the start up of a new 400,000-ton/year PP plant of Thai Polypropylene (TPP) that came on stream in Q2 2010 following by the commercial production of a new 300,000-ton/year PP plant of HMC Polymers (HMC)'s PDH unit in Q4 2010. PP consumption, meanwhile, increased by 13% from the previous year, supported by the growing demand from PP end-used market in response to stronger demand in automotive industry, as the global and domestic economies showed signs of recovery.

2. Outlook for 2011

Domestic PP production is forecasted to grow markedly in 2011 as Thai Polypropylene (TPP) plans to start up its new 120,000-ton/year PP plant in Q1 2011. PP consumption, meanwhile, is expected to increase following an expansion of domestic and regional automotive industry which is a key market of PP.

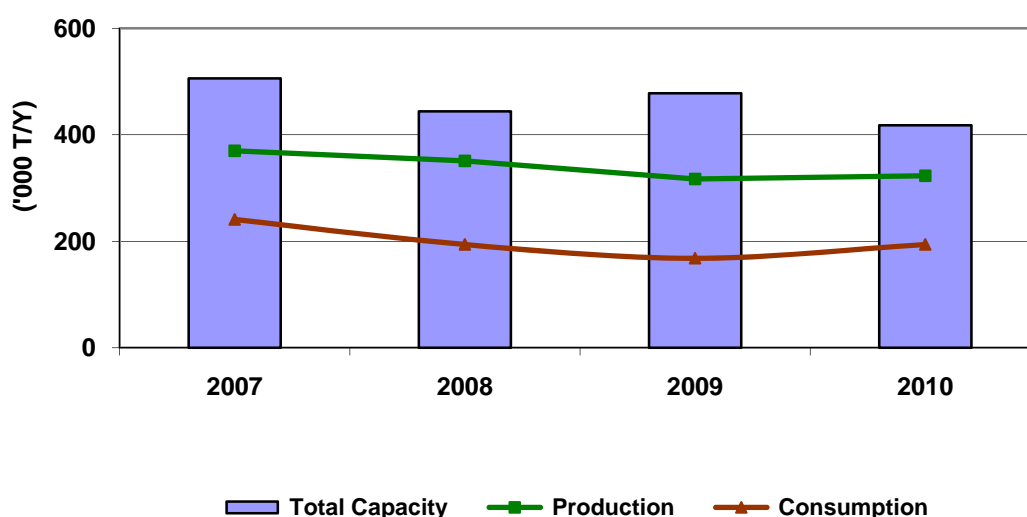
Styrenics Committee

Capacity, Production and Consumption of PS / EPS

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	506	444	478	478
Production	370	351	317	323
Consumption	241	194	168	194
Export	186	206	183	176
Import	58	49	34	47

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic production of PS/EPS relatively stagnated; production merely increased by 2% in 2010 to 323,000 tons. Production of EPS increase sharply as producers stepped up operating rates to meet recovering demand from end-use markets, while production of derivative petrochemicals PS remained stagnated as Eternal Plastics closed out its 60,000 tons/year PS plant. Consumption of PS/EPS, on the other hand, markedly increased by 15% in response to an increase in demand from end-use markets due to an expansion in the auto, electrical and electronic and packaging industries.

2. Outlook for 2011

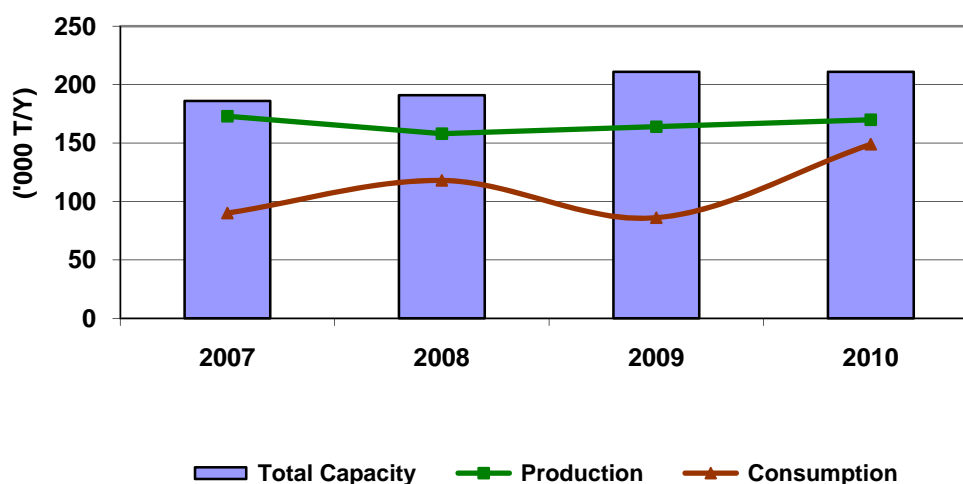
PS/EPS production is expected to markedly increase especially EPS, meanwhile, PS/EPS consumption is forecasted to maintain its level as in 2010 or slightly increase.

Capacity, Production and Consumption of ABS / SAN

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	186	191	211	211
Production	173	158	164	170
Consumption	90	118	86	149
Export	170	133	157	136
Import	88	93	80	114

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic production of ABS/SAN relatively stagnated; production merely increased by 4% in 2010 to 170,000 tons despite a markedly surge in demand for ABS/SAN due to an expansion in the auto, electrical and electronic industries, which is the largest ABS/SAN market, as production remain exceeded demand.

2. Outlook for 2011

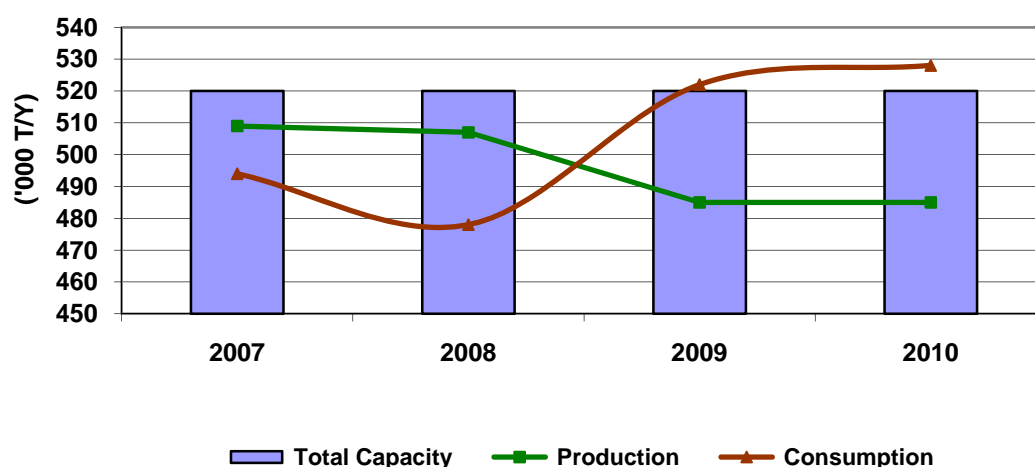
Domestic production and consumption of ABS/SAN is expected to continue to expand following stronger demand from domestic end-use markets as the international auto industry is investing hundreds of millions of dollar in major new assembly plants and eco-car facilities are being built in Thailand – namely Ford, Toyota, Mitsubishi, Honda, Suzuki and Nissan. Meanwhile, the electronic and electrical industries are also following the same golden path.

Capacity, Production and Consumption of SM

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	520	520	520	520
Production	509	507	485	485
Consumption by Derivative Prod.	494	478	522	528
Export	9	0	22	0
Import	74	66	49	86

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

SM production stagnated in 2010 despite surged in consumption, which increased by 1% as a result of an improved market condition in the key derivatives products, especially EPS and ABS/SAN.

2. Outlook for 2011

Domestic SM production in 2011 is expected to maintain its level as in 2010 or slightly increase, while consumption is forecasted to remain stagnate or slightly increase hinge on a recovery in key end-use markets.

PVC Committee

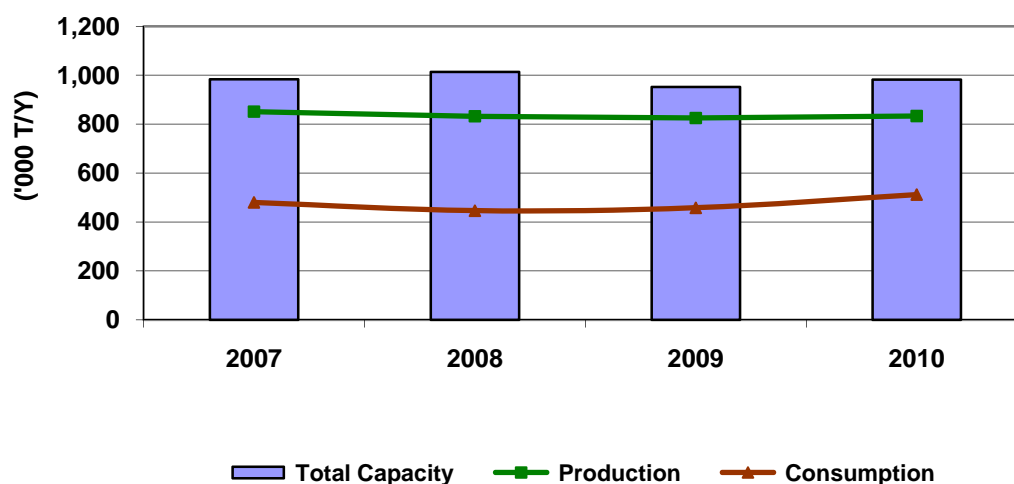
II-4. PVC Committee

Capacity, Production and Consumption of PVC

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	983	1,013	952	982
Production	851	832	825	833
Consumption	480	446	458	512
Export	399	424	424	382
Import	28	37	56	61

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Thailand's PVC production remained stagnant from the previous year despite additional capacity adding up in the year 2010; the three leading PVC manufacturers produce approximately 825,000 tons a year. Thailand's PVC consumption, meanwhile, firmed 12% in 2010 from roughly 458,000 tons a year to 512,000 tons a year due to improved construction industry supported by economic recovery at home and abroad, stimulus package from Thai government and private investments.

2. Outlook for 2011

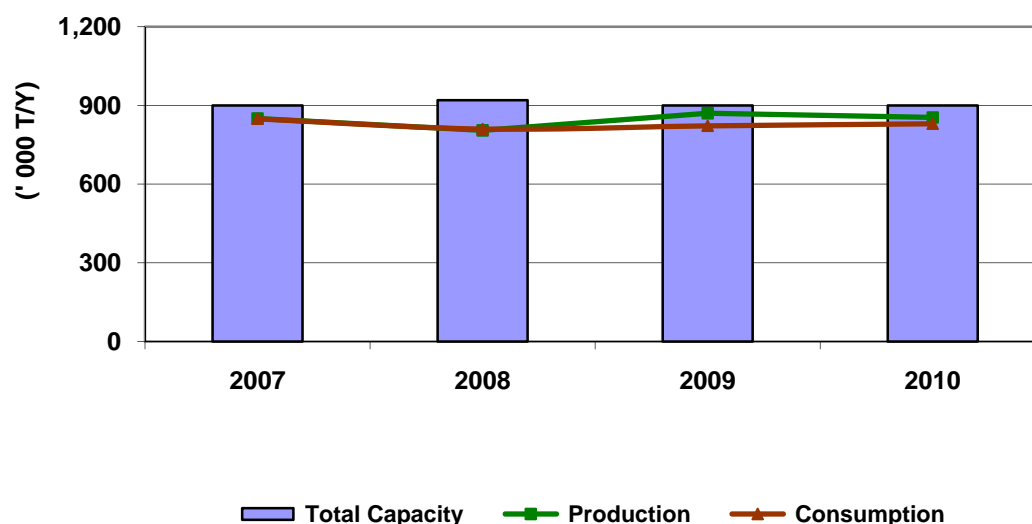
Thailand's domestic PVC production and consumption is forecasted to continue growing in 2011, but probably in a smaller rate than in 2010 due to government stimulation measures and improving private sector activities.

Capacity, Production and Consumption of VCM

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	900	920	900	900
Production	850	805	870	854
Consumption by Derivative Prod.	849	810	822	830
Export	9	59	86	66
Import	8	65	32	42

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Thailand's VCM production in 2010 fell slightly as local producers reduced operating rates due to operation problem.

2. Outlook for 2011

Domestic supply and demand for VCM in Thailand in 2011 is expected to increase following additional capacity coming on stream from Thai Plastic and Chemicals that plans to expand its VCM capacity by 90,000 tons in 2011, while VCM demand is expected to increase slightly supporting by demand from downstream PVC market.

Synthetic Rubber Committee

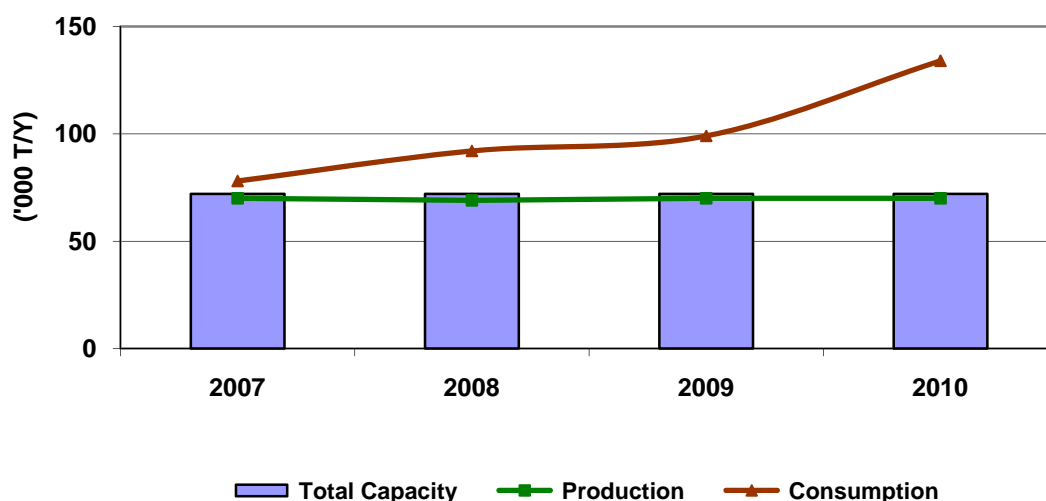
II-5. Synthetic Rubber Committee

Capacity, Production and Consumption of SBR

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	72	72	72	72
Production	70	69	70	70
Consumption	78	92	99	134
Export	45	34	47	37
Import	53	57	49	100

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Thailand's SBR consumption markedly increased from 99,000 tons in 2009 to 134,000 tons in 2010 as a result of growing automotive industry as auto manufacturers in Thailand manufactured about 1.65 million vehicles and 2.02 million units of motorcycle. The most popular vehicles would be pick-up trucks and eco-cars for both domestic and export markets.

2. Outlook for 2011

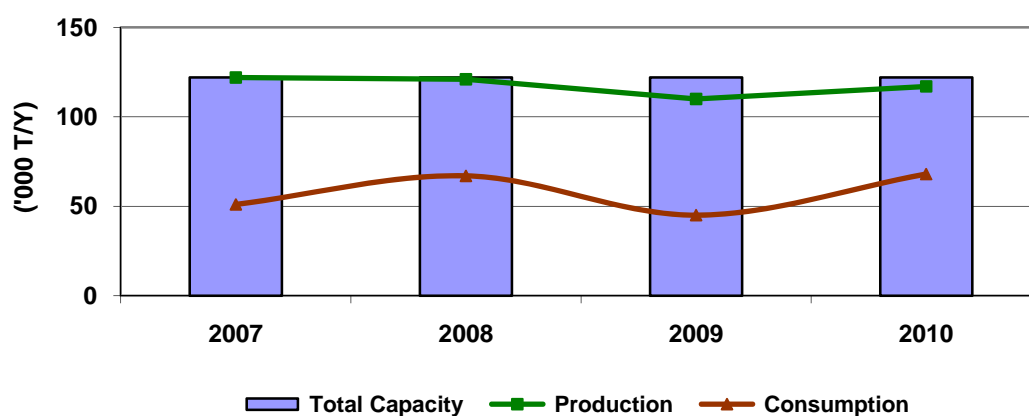
Domestic demand for SBR in Thailand in 2011 is expected to increase as demand of SBR from key automotive industry is expected to continue to expand following global economic recovery including that in Thailand. Thailand's auto manufacturers expect to manufacture about 1.8 million vehicles in 2011 plus 2.18 million units of motorcycle.

Capacity, Production and Consumption of BR

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	122	122	122	122
Production	122	121	110	117
Consumption	51	67	45	68
Export	90	74	88	84
Import	19	20	23	35

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic production for BR in Thailand in 2010 relatively stagnated, despite markedly increased in BR consumption as a result of high production volumes compared to level of consumption. A remarkable increase in domestic BR consumption was resulted from growing automobile industry in the country as auto manufacturers in Thailand manufactured about 1.65 million vehicles - of which 800,000 vehicles were for domestic sale and 850,000 vehicles were for export.

2. Outlook for 2011

Thailand's BR production is forecasted to remain stagnant or slightly drop, while domestic BR consumption is expected to surge in line with the expansion of local automotive industry following the economic recovery both at home and abroad. Thailand is expected to manufacturer about 1.8 million vehicles - of the 1.8 million automobiles, 800,000 vehicles are for domestic sale and the rest or 1 million vehicles, are for export. As Thailand aims to be Southeast Asia's automotive hub, the country is now moving towards production of more fuel-efficient vehicles, including the hybrid, plug-in hybrid, electrical and fuel cell-powered models.

Synthetic Fiber Raw Materials Committee

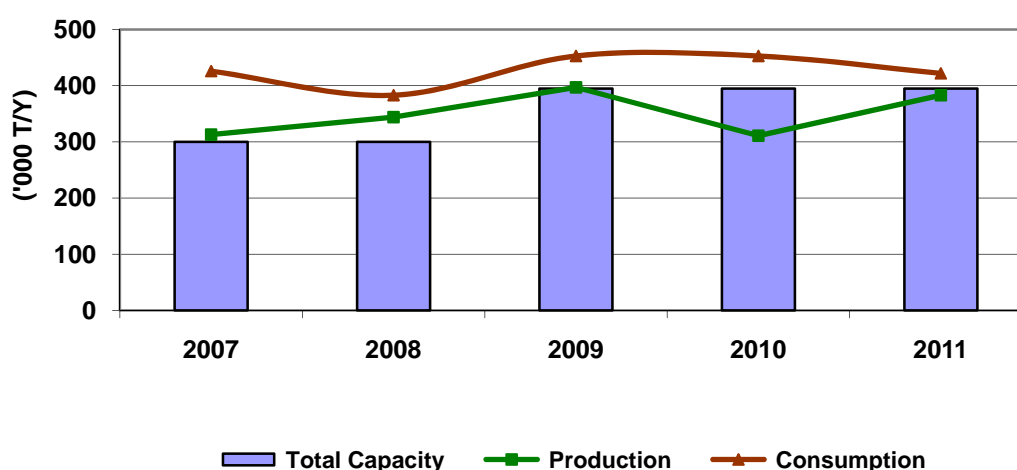
II-6. Synthetic Fiber Raw Materials Committee

Capacity, Production and Consumption of Ethylene Glycol

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	300	300	395	395
Production	313	344	397	311
Consumption by Derivative Prod.	426	383	453	453
Export	118	77	91	8
Import	192	188	171	225

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

The effect of legal and environmental issues in Map Ta Phut area caused a drop in MEG production which was markedly downed by 22% in 2010. Domestic MEG consumption remains stagnated from the previous year; demand mainly came from textile industry.

2. Outlook for 2011

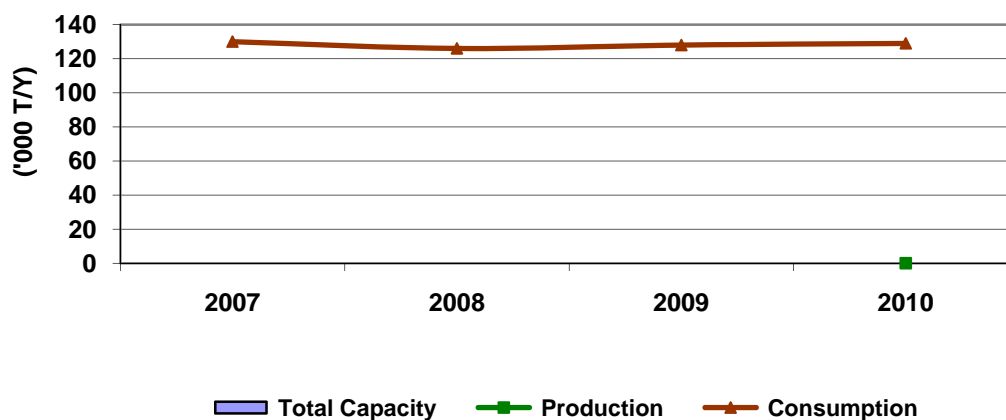
In 2011, MEG production is expected to increase following the increase in operating rates of TOC Glycol, as environmental issues in Map Ta Phut area is near completion of resolve.

Capacity, Production and Consumption of Acrylonitrile

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity				
Production				
Consumption by Derivative Prod.	130	126	128	129
Export	0	0	0	0
Import	146	131	139	141

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Thailand's ACN consumption slightly surged by 1% in 2010 in line with an increase in demand from downstream derivative ABS/SAN as a result of improving local electrical and electronic industry, which is the largest ABS/SAN market.

As Thailand has no ACN production facility, all ACN consumed has to be imported.

2. Outlook for 2011

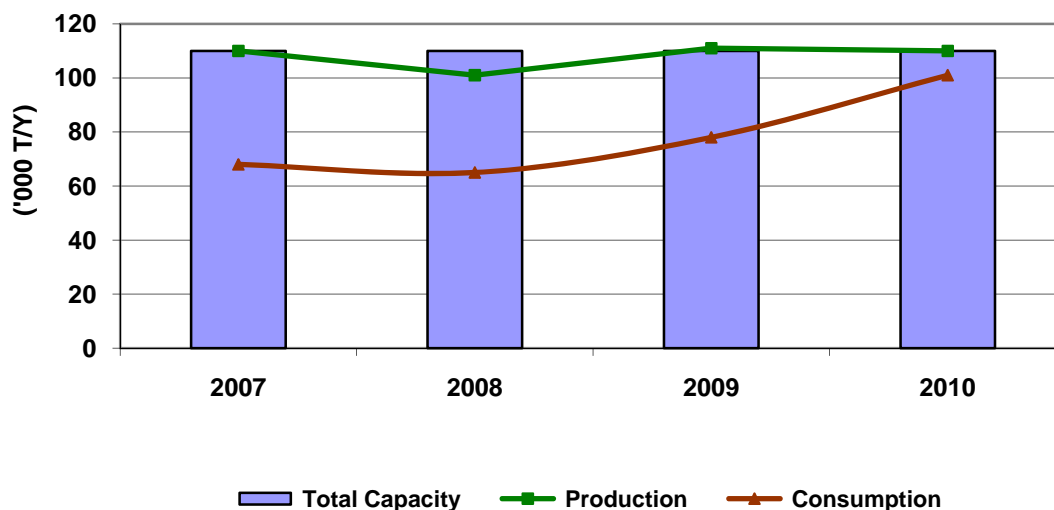
PTT Asahi Chemical, a joint venture between PTT and Asahi Kasei, postpones the start-up plan at its new ACN unit with capacity of 200,000 tons/year from 2010 to 2011.

Capacity, Production and Consumption of Caprolactam

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	110	110	110	110
Production	110	101	111	110
Consumption by Derivative Prod.	68	65	63	90
Export	47	44	50	22
Import	5	8	2	2

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic CPL production was stagnated at capacity of 110,000 tons.

Consumption was significantly increased resulting from economic recovery and strong demand of Nylon 6 products especially from China.

2. Outlook for 2011

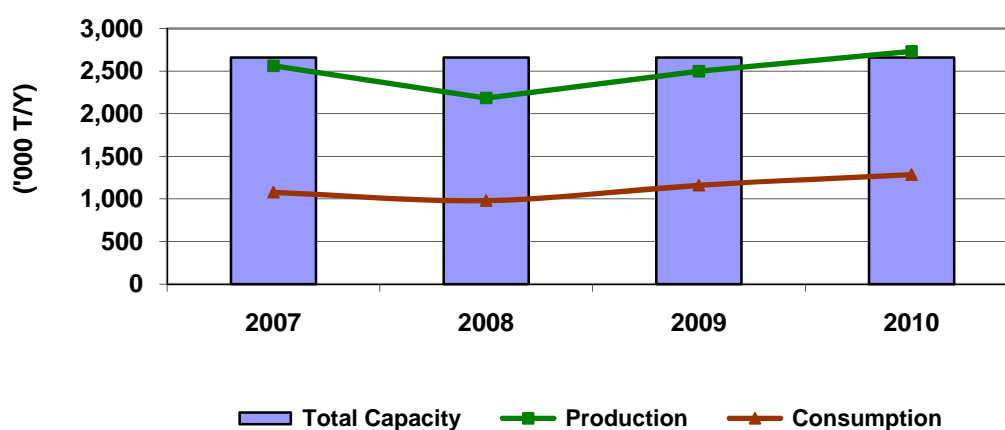
Assuming a 90% operating rate for Nylon 6 production, CPL consumption quantity is expected to remarkable growth at 30% from last year contribution by continue strong demand of textile industry, film and engineering plastic in Asia market.

Capacity, Production and Consumption of Terephthalic Acid

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	2,660	2,660	2,660	2,660
Production	2,562	2,184	2,499	2,732
Consumption by Derivative Prod.	1,077	980	1,160	1,286
Export	1,487	1,207	1,339	1446
Import	2	3	0	0

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Thailand's PTA production markedly increased from that of 2009 as local producers increased their operating rates to meet soaring downstream demand, especially for polyester and polyethylene terephthalate (PET) markets both domestic and regional – China in particular. Domestic PTA consumption, meanwhile, rose significantly boosted by strong demand from downstream polyethylene terephthalate (PET) and polyester markets as a result of a rapid increase in packaging and textile and apparel industries in Thailand.

2. Outlook for 2011

In 2011, domestic PTA production and consumption is expected to decline in line with a drop in derivative PET and polyester products as domestic packaging industry in the country is expected to decelerate while polyester use in textile and apparel industries is expected to drop.

Chemicals Committee

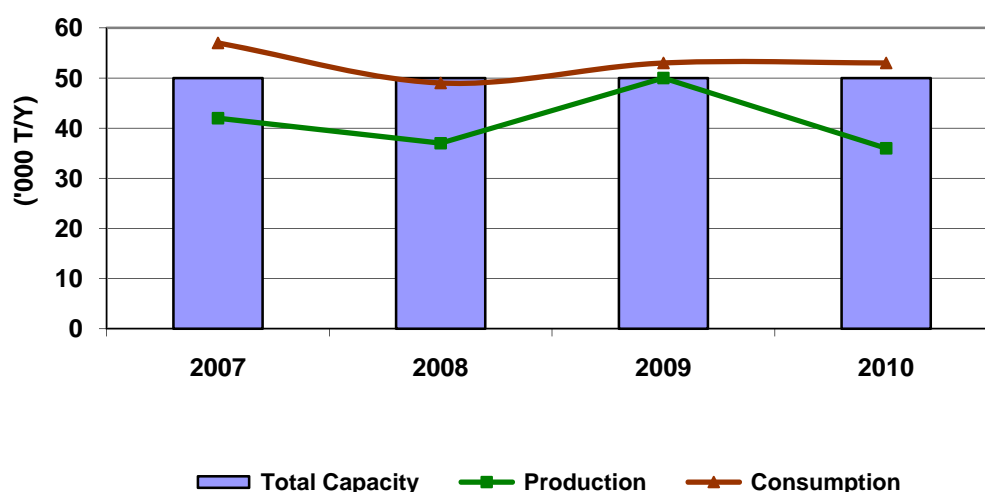
II-7. Chemicals Committee

Capacity, Production and Consumption of Phthalic Anhydride (PA)

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity	50	50	50	50
Production	42	37	50	36
Consumption by Derivative Prod.	57	49	53	53
Export	2	1	4	6
Import	8	10	13	12

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic PA production in 2010 sharply dropped; despite consumption remain stagnated from the previous year following the improved demand from downstream derivatives as domestic economy showed signs of recovery.

2. Outlook for 2011

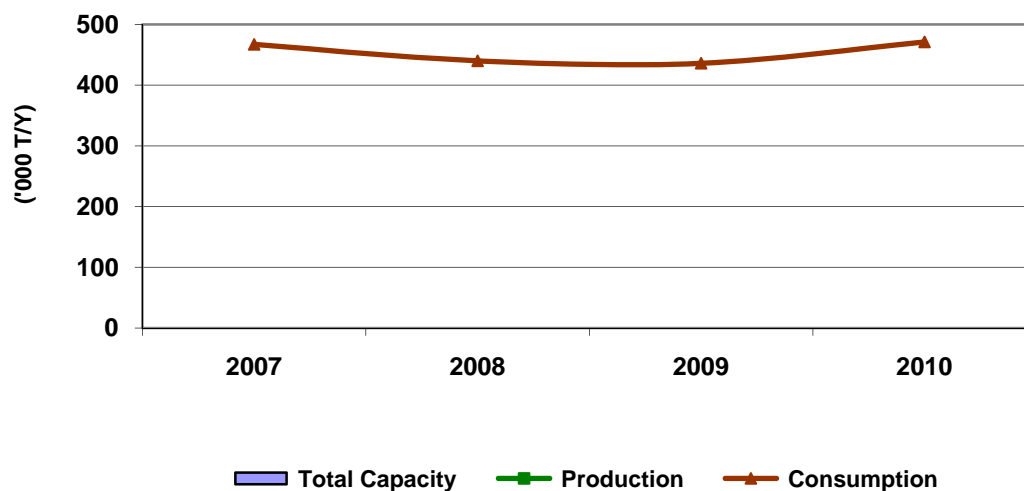
Thailand PA consumption is expected to increase slightly in 2011 as a result of demand from plasticizer, UPR and alkyd resins respectively.

Capacity, Production and Consumption of Methanol

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity				
Production				
Consumption by Derivative Prod.	467	440	436	471
Export	2	4	2	3
Import	443	444	476	556

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic consumption of methanol increased from 436,000 tons in 2009 to 471,000 tons in 2010.

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

2. Outlook for 2011

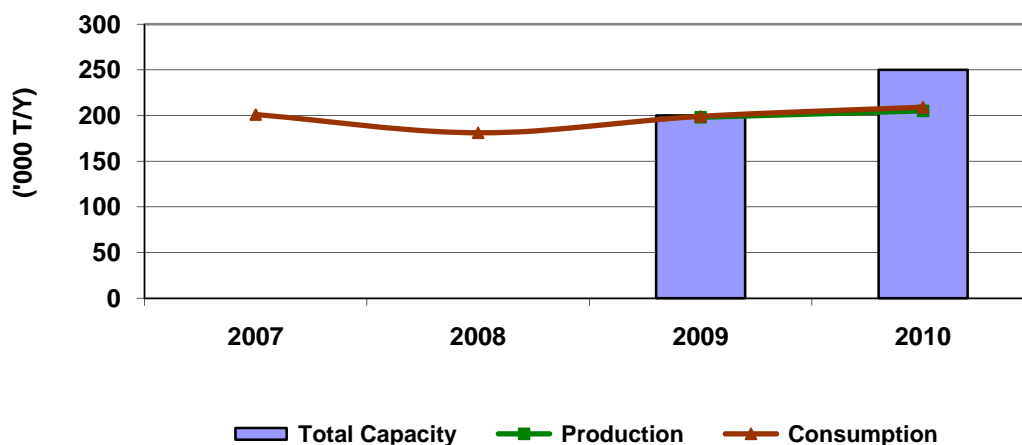
Methanol consumption in Thailand is expected to increase in 2011 following demand from MMA, POM, formaldehyde and MTBE.

Capacity, Production and Consumption of Phenol

Unit: '000 T/Y

	Historical			
	2007	2008	2009	2010
Total Capacity			200	250
Production			198	205
Consumption by Derivative Prod.	201	181	199	209
Export	0	15	169	166
Import	192	181	153	178

Source: PTIT Industrial Survey, The Customs Department



1. Review of 2010

Domestic phenol consumption increased from 199,000 tons in 2009 to 209,000 tons in 2010 following an increase in downstream derivatives demand.

2. Outlook for 2011

Phenol consumption in Thailand is expected to increase in 2011 supporting by demand from bisphenol A and phenolic resin.



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