2019
ASIA PETROCHEMICAL INDUSTRY CONFERENCE

MAY 2019
Taiwan DELEGATION OF THAILAND

Contents

I. Report on the Thai Petrochemical Industry

Thai Petrochemical Industry – Current State and Issues

I-1. Business Environment

International Monetary Fund (IMF) has estimated the 2018 global economic growth at 3.7%, despite weaker performance in some countries in the latter half of the year, notably Europe and Asia. For example, new fuel emission standards in Germany that caused a contraction in car manufacturing industry, the slowdown in the Japanese economy due to natural disasters, and the slowdown in the Chinese economy due to a financial regulatory tightening, and trade tension between US and China.

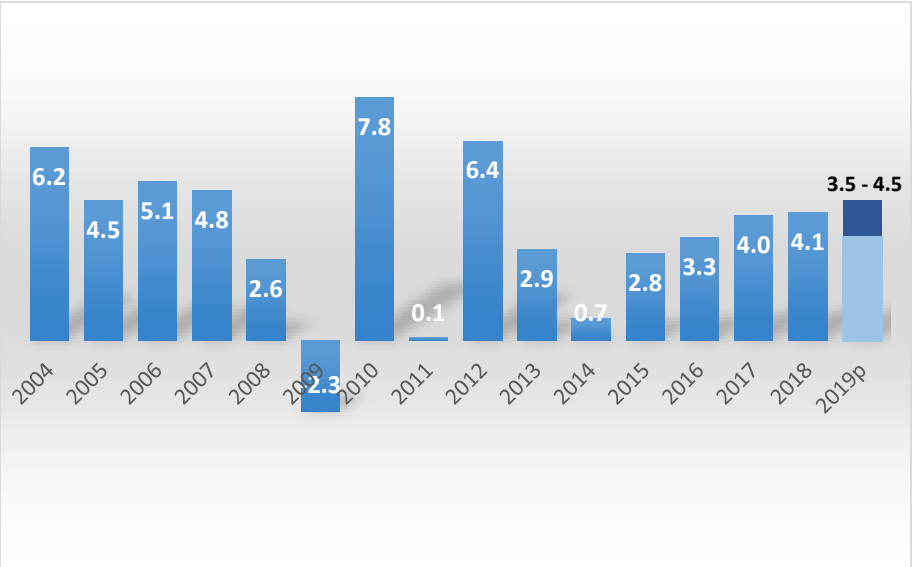
The global economy will continue to expand but at a lower rate than earlier forecasted, at 3.5% in 2019 and 3.6% in 2020, due to the mixed of both positive and negative factors from weakness and uncertainties in the second half of 2018 that will carry over. For key developed economies, the prolonged uncertainty about the Brexit outcome may be offset by the fiscal stimulus package announced in 2019 budget. Growth in major EU countries economies, like Germany, Italy and France, are marked down as the same as in the US, while Japan's economy is expected to grow due to additional fiscal supports. The uncertain US trade policy will still be a key challenge for all economies. For key emerging economies, China's economy will slow down as a result of financial regulatory tightening and trade tension with the US. India's economy is forecasted to pick up, benefiting from lower oil prices and slower pace of monetary tightening.

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

Thailand GDP growth for 2018, as reported by the Office of the National Economic and Social Development Board (NESDB), of 4.1% was an improvement over 4.0% in 2017, and was recorded as the fastest expansion in 6 years. The improvement was mainly supported by private consumption and investment, and public investment. Export of goods continued to grow although at a slower rate.

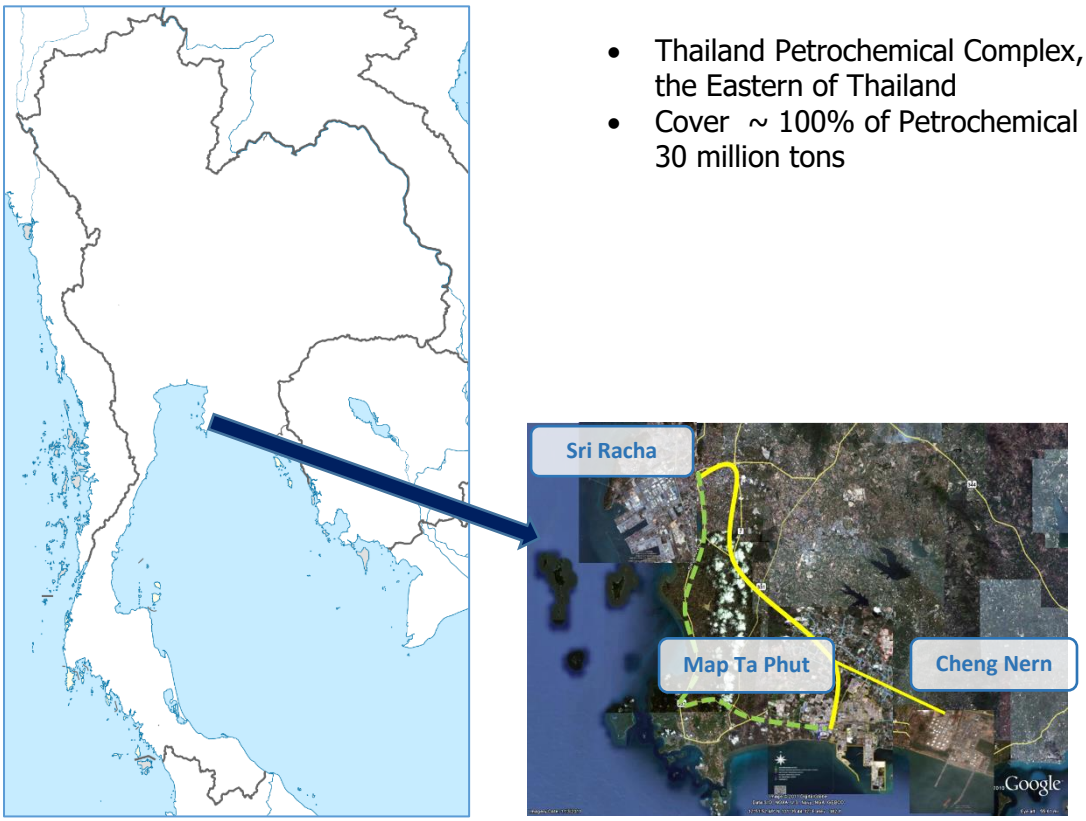
The Thai economy in 2019 is inclined to face downside risks posed by global economic and financial volatilities. According to the NESDB, the Thai economy is projected to grow in the range of 3.5-4.5% in 2019, supported by a favorable growth momentum of private investment and consumption and an acceleration of public investment following progresses of key public infrastructure projects. Challenging areas with opportunities but require a prioritized management focus include: fostering export sector; promoting a recovery of tourism sector; maintaining economic momentum from government expenditure and public investment; supporting expansion of private investment; supporting small farmers, low income groups, SMEs and local economics and; preparing the labor force in terms of quantity and quality to support economic expansion, especially target industries.

Figure-1 Thailand's GDP Growth 2004-2019



Source: NESDB, BOT

Location of Petrochemical Plants in Thailand- Map Ta Phut



- Thailand Petrochemical Complex, mostly in the Eastern of Thailand
- Cover ~ 100% of Petrochemical Capacity 30 million tons

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

Thailand petrochemical industry continued to expand in 2018 which was mainly supported by a strong export market. For domestic market, demand for petrochemical products that served automotive & vehicle parts manufacturing, textile industry and construction industry still grew. Whilst demand for petrochemical products for plastic packaging and electrical & electronic products contracted.

Overview of 5 major petrochemical products production and consumption in 2018 compared with that of 2017 is as follow:

- Ethylene and propylene production increased by 5%. Ethylene export almost doubled due to its high price coinciding with a very narrow spread of PE-ethylene in some periods of 2018.
- PTA production and consumption increased by almost 2% followed its major derivatives, PET, production.
- PE and PP production increased by 4% and 12%, respectively supported by a strong demand in export market. PP export increased by 26% a result of upward trend in packaging segment in China and Indonesia, while PE export increased by 17% due to a strong demand in China, Japan, Indonesia and Vietnam.

Table-2 Production/Consumption and Import/ Export Figures of Five Major Products 2015-2019

(Unit:'000 T/Y)

Products	2015	2016	2017	2018	2019
Ethylene					
Production	4,458	4,277	4,575	4,812	4,609
Import	23	93	28	53	
Export	70	22	129	227	
Consumption by derivative product(1)	4,483	4,441	4,582	4,714	4,652
Propylene					
Production	2,361	2,468	2,831	3,038	2,934
Import	21	3	14	10	
Export	181	212	234	213	
Consumption by derivative product(2)	2,358	2,494	2,674	2,923	2,893
PTA					
Production	2,077	2,194	2,251	2,401	2,446
Import	0	0	0	0	
Export	854	940	960	978	
Consumption by derivative product(3)	1,223	1,254	1,291	1,423	1,443
PE (including EVA)					
Production	3,758	3,708	3,843	3,986	3,927
Import	413	459	407	488	
Export	2,575	2,394	2,559	2,882	
Consumption (4)	1,596	1,773	1,756	1,592	1,658
PP					
Production	1,856	1,931	1,996	2,241	2,190
Import	240	270	276	243	
Export	856	858	887	1,122	
Consumption (4)	1,240	1,343	1,384	1,362	1,424

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

Source: PTIT Industrial Survey, March 2019

Table-3 Capacity of Major Petrochemicals 2018 (as of March 2019)

(Unit:'000 T/Y)

Ethylene

Company	Capacity
IRPC	433
MOC	900
PTTGC	2,376
ROC	900
Total	4,609

Source: PTIT Industrial Survey, March 2019

Polyethylene

Company	Capacity				
	LDPE/EVA	LLDPE	LLDPE/MDPE	HDPE	Total
IRPC				140	140
PTTGC	300	800		800	1,900
Siam Polyethylene		650			650
SSLC (Specialty Elastomers)		220			220
TPE	152		120	920	1,192
TPI Polene	156				156
Total	608	1,670	120	1,860	4,258

Source: PTIT Industrial Survey, March 2019

Vinyl Chloride Monomer

Company	Capacity
TPC	590
VNT	400
Total	990

Source: PTIT Industrial Survey, March 2019

Polyvinyl Chloride

Company	Capacity
TPC	530
TPC Paste Resin	36
VNT	300
Total	866

Source: PTIT Industrial Survey, March 2019

Propylene

Company	Capacity
HMC	310
MOC	800
IRPC	732
PTTGC	512
ROC	450
SPRC	130
Total	2,934

Source: PTIT Industrial Survey, March 2019

Table-3 Capacity of Major Petrochemicals 2018 (as of March 2019)

(Unit:'000 T/Y)

Polypropylene

Company	Capacity
HMC	810
IRPC	775
TPP	720
Total	2,305

Source: PTIT Industrial Survey, March 2019

Styrene Monomer

Company	Capacity
IRPC	260
SSMC	280
Total	540

Source: PTIT Industrial Survey, March 2019

Polystyrene

Company	Capacity
Siam Polystyrene	150
IRPC (Thai ABS)	125
Thai Styrenics	90
Total	365

Source: PTIT Industrial Survey, March 2019

Butadiene

Company	Capacity
BST	140
IRPC	56
PTTGC	75
Total	271

Source: PTIT Industrial Survey, March 2019

Synthetic Rubber

Company	Capacity			
	ESBR	SSBR	BR	NBL
BST Elastomer	72			110
JSR BST Elastomer		100		
Thai Synthetic Rubber			72	
Total	354			

Source: PTIT Industrial Survey, March 2019

II. Committee Meetings

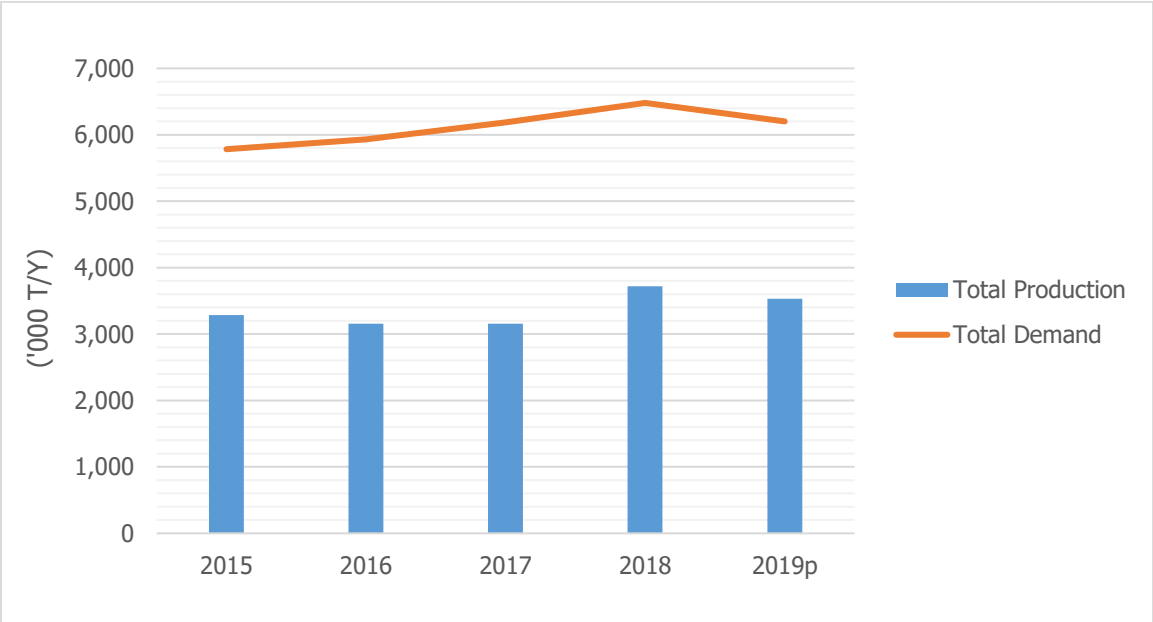
General Matters & Raw Materials Committee

II-1. General Matters & Raw Materials Committee

Capacity, Production and Demand of Light Naphtha

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Production	**3,287**	**3,157**	**3,154**	**3,719**	**3,719**
Feedstock	5,690	5,814	6,077	6,365	
Solvents	93	116	110	115	
Total Demand	**5,783**	**5,930**	**6,187**	**6,480**	**6,211**



1. Review of 2018

   Thailand's light naphtha production in 2018 significantly increased by 18% from the previous year mainly due to a strong demand for petrochemical feedstock. Domestic demand for light naphtha as petrochemical feedstock and solvent increased by 5%, mainly due to an increase in ethylene production.

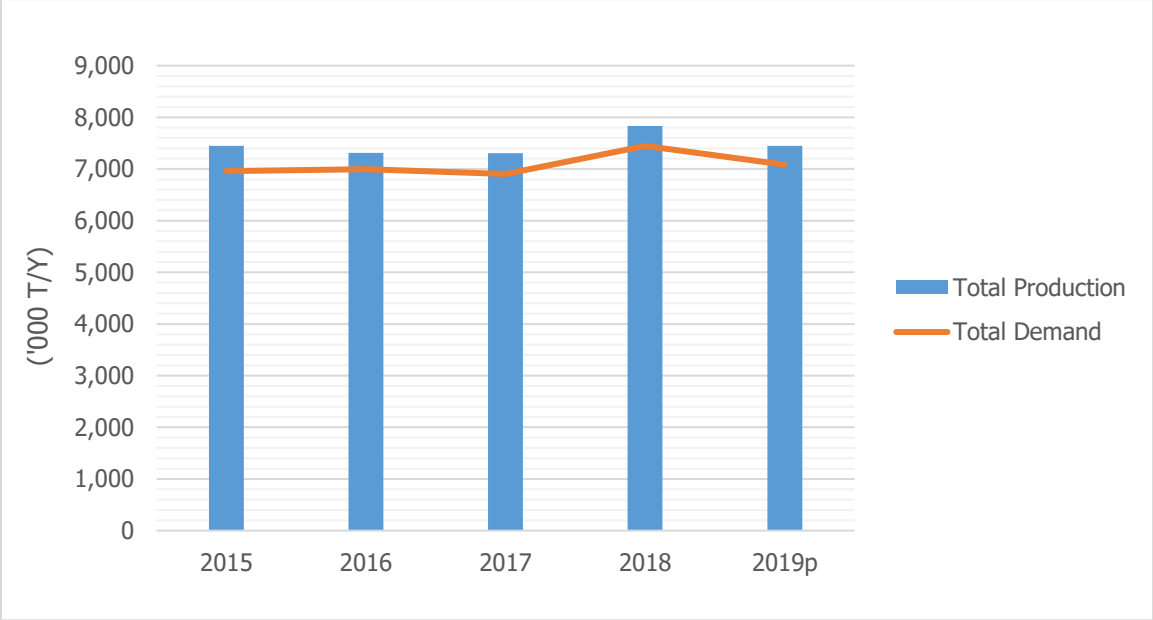
2. Outlook for 2019

   Production of light naphtha is expected to be the same as that of 2018, whilst domestic consumption for light naphtha in Thailand is projected to decrease from that of 2018 coinciding with the expected decrease in ethylene production which is projected at a 100% operating rate.

Capacity, Production and Demand of Heavy Naphtha

(Unit:'000 T/Y)

	Historical				Estimated
	2015	**2016**	**2017**	**2018**	**2019**
Total Production	**7,446**	**7,314**	**7,307**	**7,830**	**7,449**
Feedstock	6,968	6,995	6,903	7,446	
Total Demand	**6,968**	**6,995**	**6,903**	**7,446**	**7,080**



1. Review of 2018

   Domestic production of heavy naphtha increased by 7% from that of 2017. Whilst, domestic demand for heavy naphtha as petrochemical feedstock increased by 8% following the increase in benzene and p-xylene production.

2. Outlook for 2019

   Thailand's domestic production and consumption of heavy naphtha is expected to decrease from that of 2018 due to the expected decrease in p-xylene production.

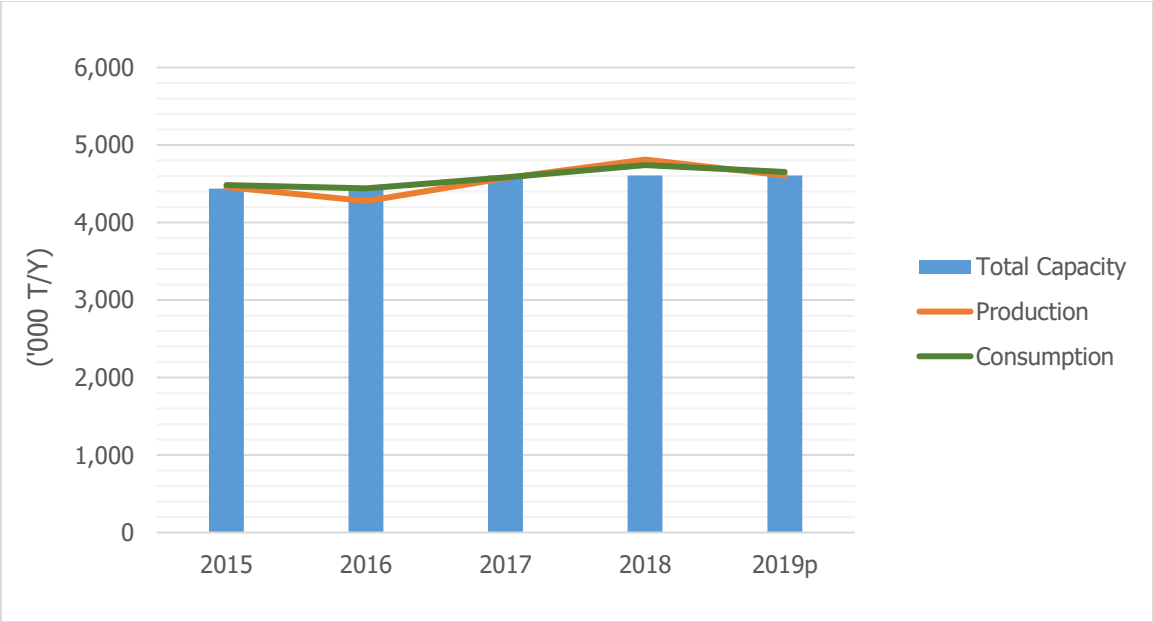
Capacity, Production and Consumption of Olefins: Ethylene

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	4,436	4,436	4,609	4,609	4,609
Production	4,458	4,277	4,575	4,812	4,609
Consumption by Derivative Prod.	4,483	4,441	4,582	4,741	4,652*
Export	70	22	129	227	
Import	23	93	28	53	

Source: PTIT Industrial Survey, The Customs Department

Note: * Consumption netbacked from PE, EDC/VCM, EG and SM production which is projected by assuming 92%, 95%, 95% and 97% operating rate, respectively.



1. Review of 2018

   Ethylene production increased by 5% in 2018 due to an increase in ethylene capacity and a strong ethylene demand from export markets and derivative productions. Ethylene export significantly increased by 76%.

2. Outlook for 2019

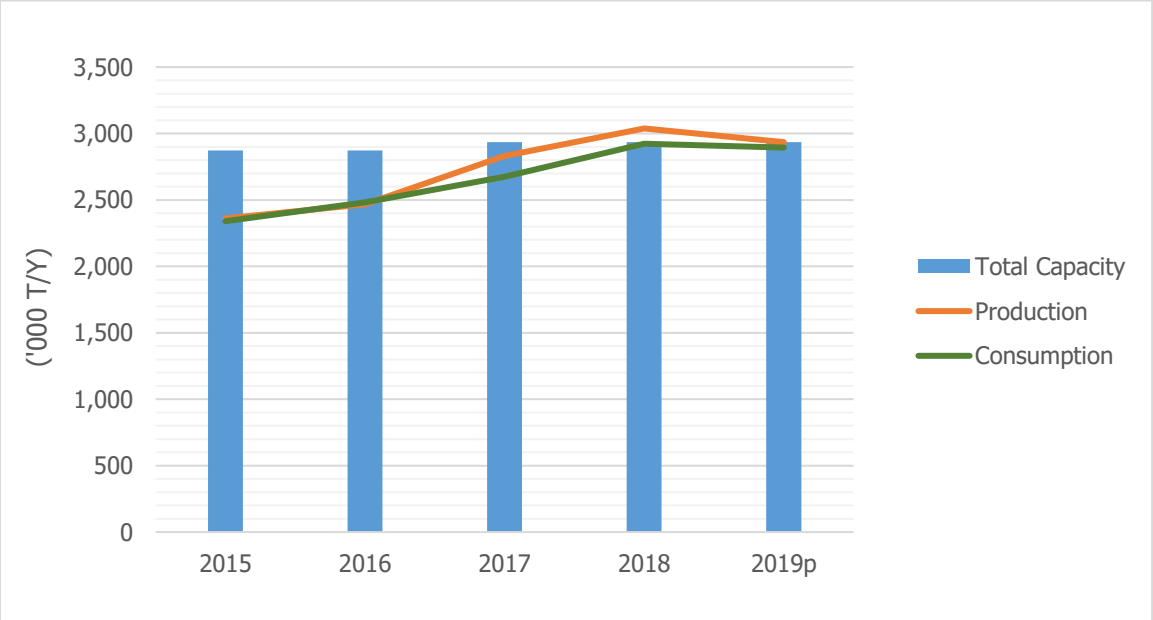
   At a 100% operating rate, ethylene production is expected to be 4,609,000 tons. Ethylene consumption is expected to slightly decrease at the assumed production rate of ethylene derivatives.

Capacity, Production and Consumption of Olefins: Propylene

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	2,872	2,872	2,934	2,934	2,934
Production	2,361	2,468	2,831	3,038	2,934
Consumption by Derivative Prod.	2,358	2,494	2,674	2,923	2,893*
Export	181	212	234	213	
Import	21	3	14	10	

Source: PTIT Industrial Survey, The Customs Department
Note: *Consumption netbacked from PP, Cumene and PO production which is projected by assuming 95%, 97% and 90% operating rate.



1. Review of 2018

   Propylene production increased by 7% from 2017 and consumption increased by 9% supported by a high demand for propylene derivative product export.

2. Outlook for 2019

   Assuming a 100% operating rate, propylene production in 2019 is expected to be 2,934,000 tons, supported by demand from downstream market, especially PP and cumeme.

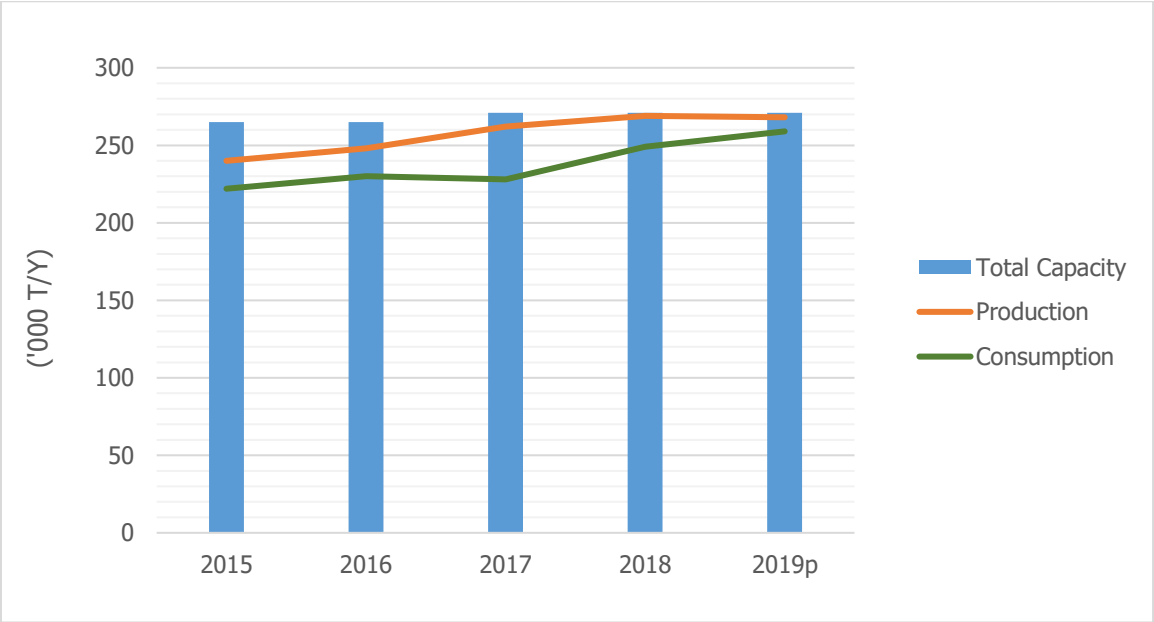
Capacity, Production and Consumption of Olefins: Butadiene

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	265	265	271	271	271
Production	240	248	262	269	268
Consumption by Derivative Prod.	222	227	228	249	259*
Export	80	59	65	65	
Import	13	12	14	5	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from SBL, ESBR, BR, NBL and ABS/SAN (assumed 100% ABS) production, which is projected by assuming 90%, 90%, 90%, 90% and 80% operating rate, respectively.



1. Review of 2018

   Butadiene production increased by 3%, whist consumption increased by 9% from the previous year, supported by an increase in demand for its derivative products for automotive manufacturing.

2. Outlook for 2019

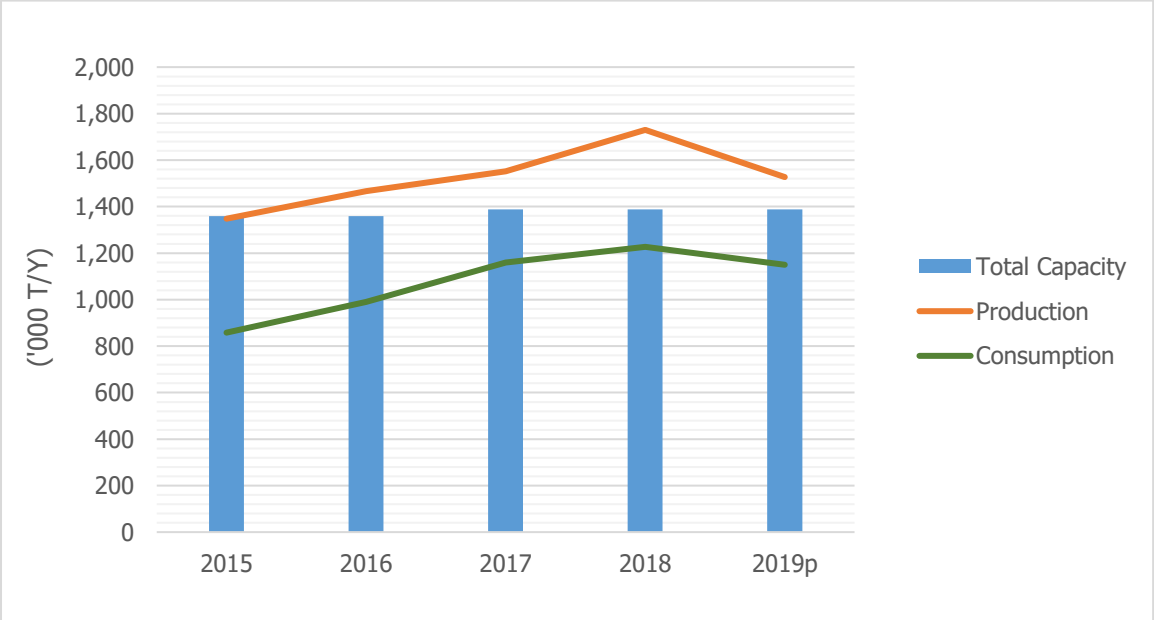
   Butadiene production is estimated to remain at the same level as 2018, whilst consumption is estimated to increase by 4%, at the assumed operating rate of butadiene derivatives.

Capacity, Production and Consumption of Aromatics: Benzene

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	1,359	1,359	1,388	1,388	1,388
Production	1,348	1,467	1,552	1,730	1,527
Consumption by Derivative Prod.	858	990	1,159	1,227	1,150*
Export	592	516	487	610	
Import	0	0	13	5	

Source: PTIT Industrial Survey, The Customs Department
Note: *Consumption netbacked from SM, cumene and cyclohexane production, which is projected by assuming a 97%, 97% and 95% operating rate, respectively.
'0' means below 500T/Y



1. Review of 2018

Benzene production was at 1,730,000 tons, an increase by 11% compared with that of 2017, supported by a significant increase in its derivative production including SM and cumene.

2. Outlook for 2019

At 110% operating rate, benzene production is expected to be 1,527,000 tons whilst demand for benzene is expected to be 1,150,000 tons at the above assuming operating rates for benzene derivative productions.

Capacity, Production and Consumption of Aromatics: Toluene

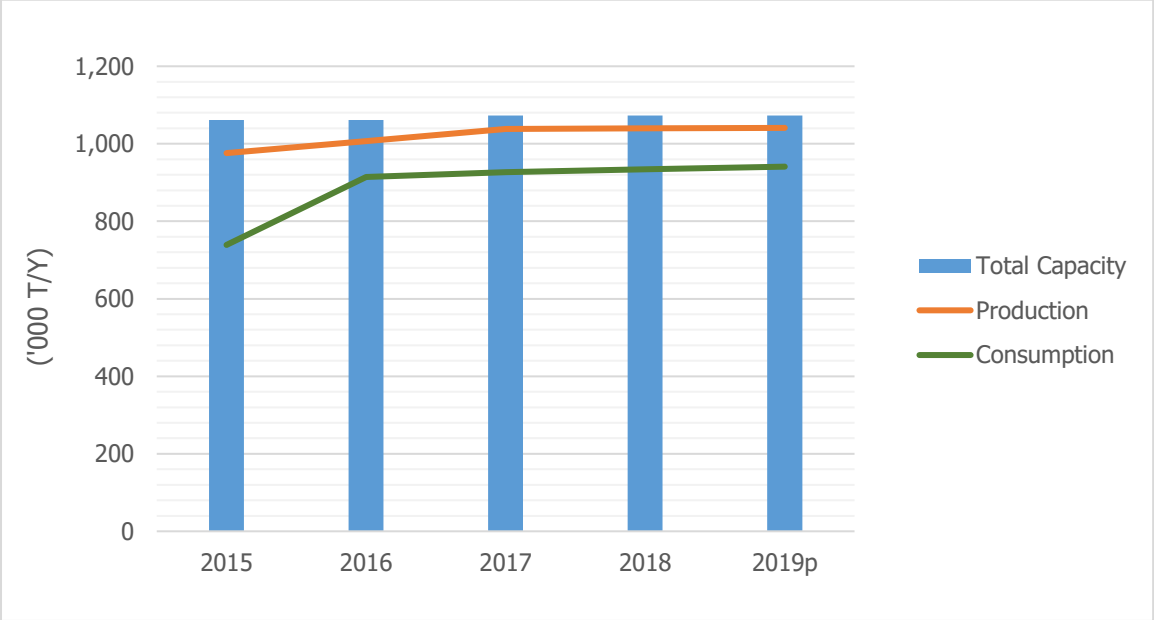
(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	1,061	1,061	1,073	1,073	1,073
Production	976	1,017	1,038	1,040	1,041
Consumption by Derivative Prod.	739	914	927	934	941*
Export	237	263	284	239	
Import	0	0	1	5	

Source: PTIT Industrial Survey, The Customs Department

Note: *Including consumption netbacked from benzene/xylene production, solvents, etc, which is projected by assuming a 98% operating rate

'0' means below 500T/Y



1. Review of 2018

   Toluene production slightly increased while consumption slightly increased by 1% following an increase in its derivative product. India, Vietnam and Indonesia are major export markets for toluene.

2. Outlook for 2019

   Toluene production in 2019 is expected to be fairly stable at 1,041,000 tons whilst demand for toluene is estimated to slightly increase at the assumed operating rate of 98%.

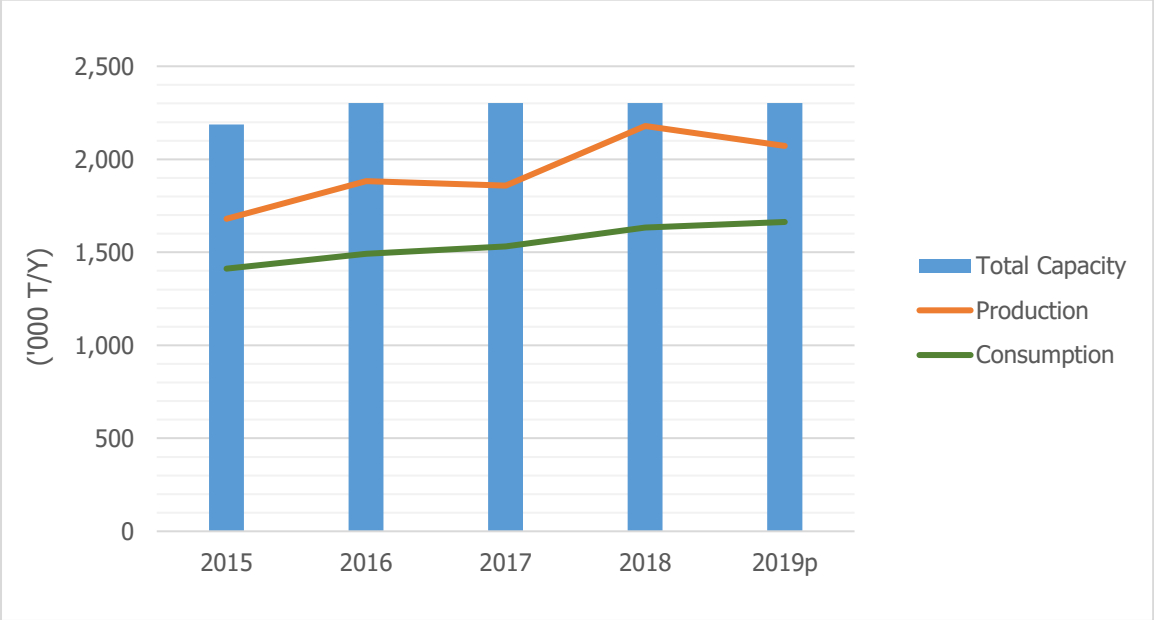
Capacity, Production and Consumption of Aromatics: P-Xylene

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	2,187	2,302	2,302	2,302	2,302
Production	1,680	1,883	1,858	2,179	2,072
Consumption by Derivative Prod.	1,412	1,492	1,531	1,633	1,663*
Export	443	505	456	1,007	
Import	142	54	122	212	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from PTA production, which is projected by assuming a 87% operating rate



1. Review of 2018

Thailand p-xylene production in 2018 significantly increased by 17% compared with that of the previous year. Domestic p-xylene consumption increased by 7% supported by a high demand for PTA production. Export was more than double from that of 2017 due to a strong demand from China.

2. Outlook for 2019

Assuming a 90% operating rate, Thailand p-xylene production is expected to be 2,072,000 tons in 2019 whilst p-xylene consumption is estimated to be 1,663,000 tons at an 87% operating rate of PTA.

Polyolefins Committee

II-2. Polyolefins Committee

Capacity, Production and Consumption of LDPE/EVA

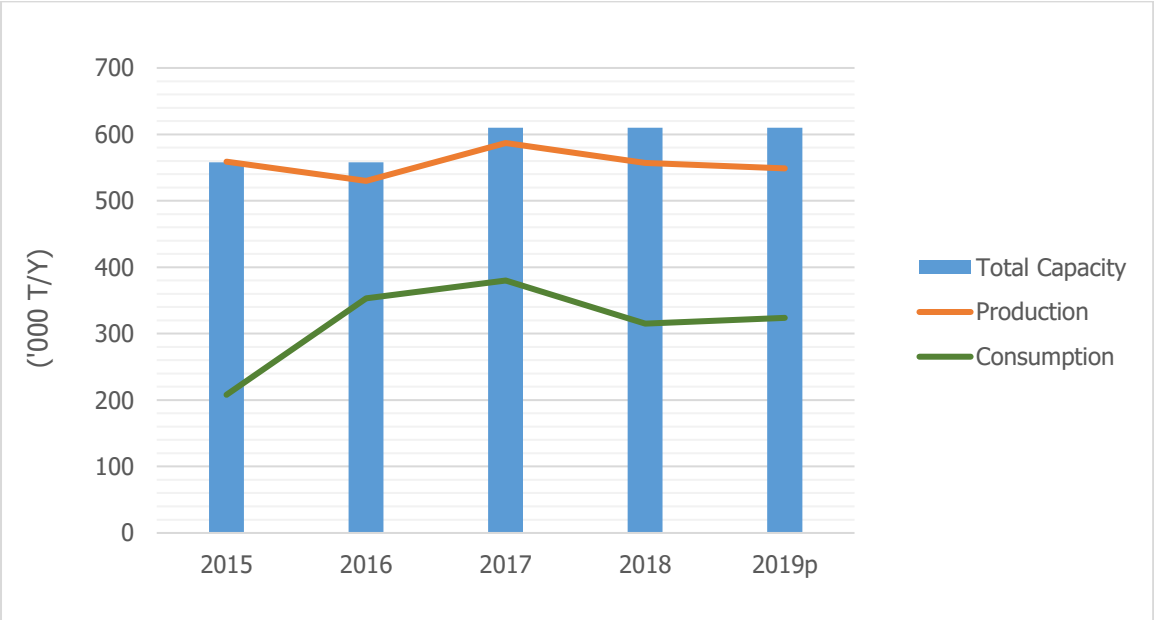
(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	558	558	610	610	610
Production	559	530	587	557	549*
Consumption**	208	353	380	315	324
Export	450	298	319	328	
Import	99	121	112	134	

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.

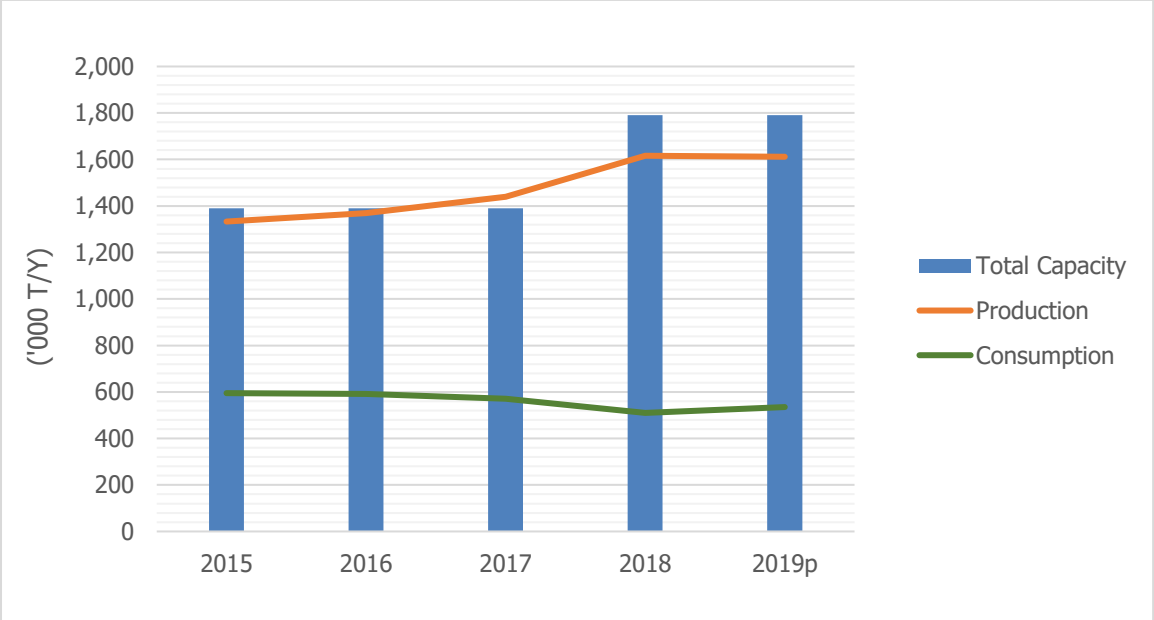


Capacity, Production and Consumption of LLDPE

(Unit:'000 T/Y)

	Historical				Estimated
	2015	**2016**	**2017**	**2018**	**2019**
Total Capacity	1,390	1,390	1,390	1,790	1,790
Production	1,333	1,370	1,439	1,616	1,611*
Consumption**	595	592	571	510	535
Export	920	971	1,073	1,314	
Import	179	193	205	207	

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.

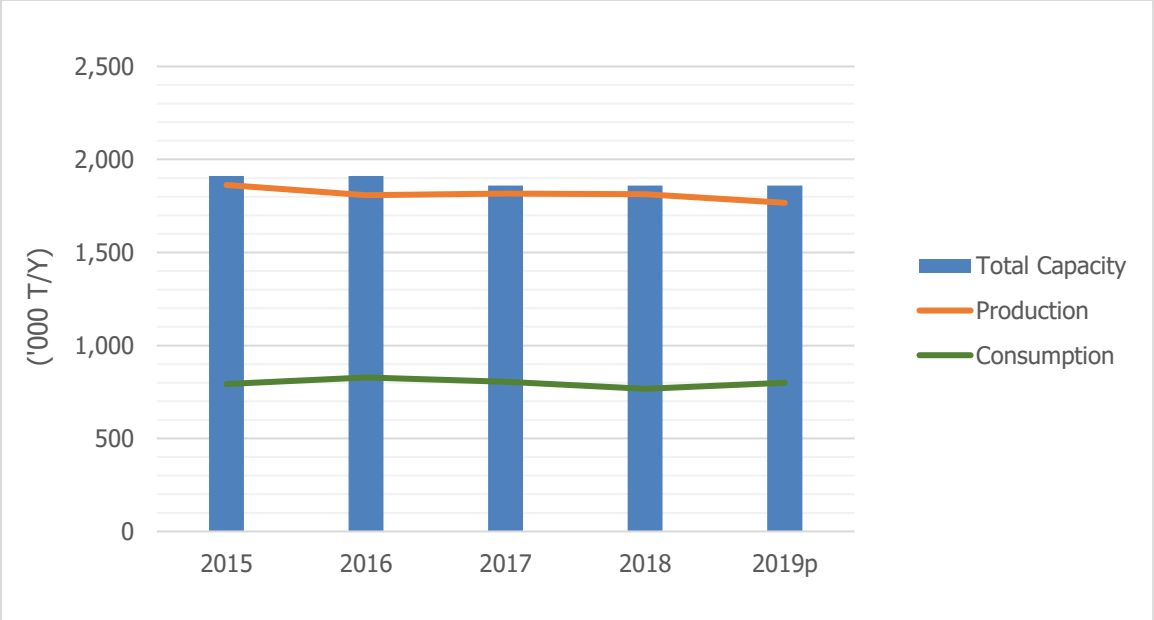


Capacity, Production and Consumption of HDPE

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	1,912	1,912	1,860	1,860	1,860
Production	1,863	1,808	1,817	1,813	1,767*
Consumption**	793	828	805	767	800
Export	1,205	1,125	1,167	1,190	
Import	135	145	155	144	

Source: PTIT Industrial Survey, The Customs Department
Note: *Projected production figures: assume 95% operating rate.
**Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.



1. Review of 2018

Polyethylene production increased by 4% from that of 2017 whilst consumption decreased by 9% as a result of contraction in plastic packaging manufacturing. Export volume of PE increased by 13% supported by a strong demand from China.

2. Outlook for 2019

At the assumed operating rate, Thailand polyethylene production is expected to slightly decrease by 1%. Domestic demand for PE resin is expected to increase by 4%, supported by an improvement in packaging manufacturing.

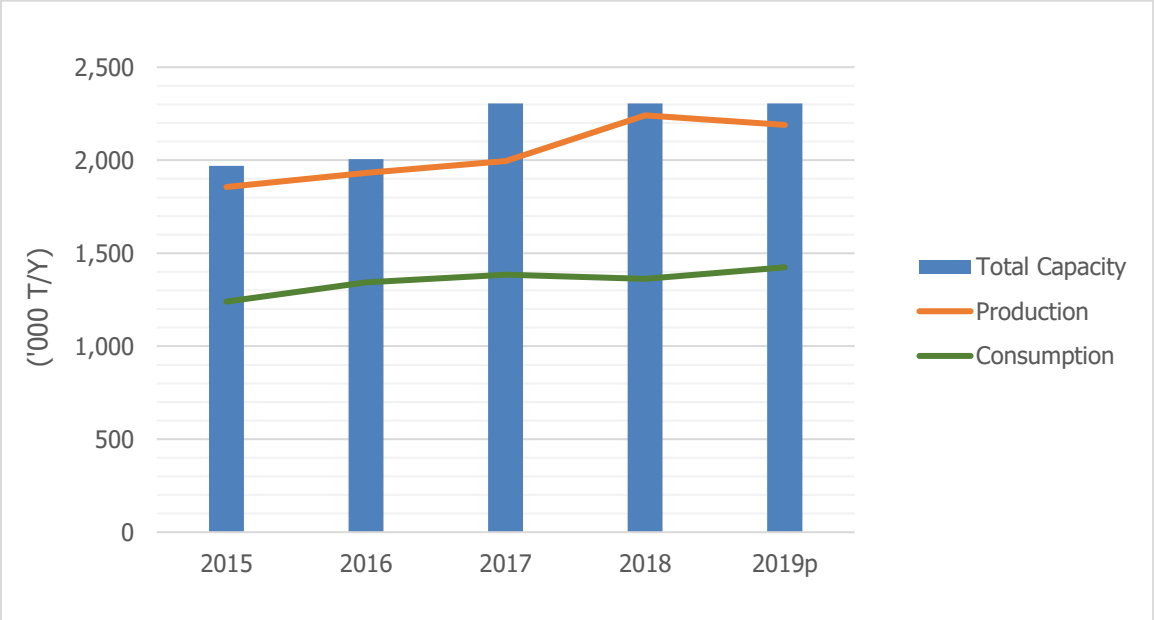
Capacity, Production and Consumption of PP

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	1,970	2,005	2,305	2,305	2,305
Production	1,856	1,931	1,996	2,241	2,190*
Consumption**	1,240	1,343	1,384	1,362	1,424
Export	856	858	887	1,122	
Import	240	270	276	243	

Source: PTIT Industrial Survey, The Customs Department

Note: *Projected production figures: assume 95% operating rate.
**Some consumption figures are deviated from normal calculation (Production + Import – Export) because of its inventory change.



1. Review of 2018

Polypropylene production in 2018 increased by 12% whilst polypropylene consumption slightly decreased by 2%. Polypropylene export significantly increased by 26% due to a strong demand from China and Indonesia.

2. Outlook for 2019

Polypropylene consumption is projected to increase by 5%, supported by a strong demand from automotive and packaging industry.

Styrenics Committee

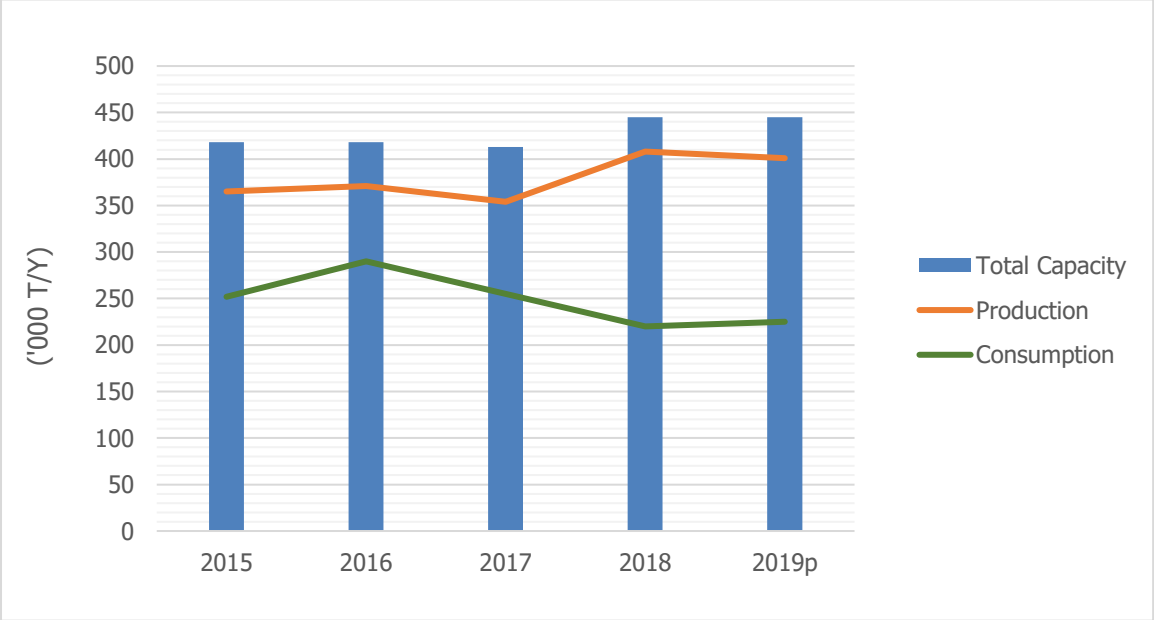
II-3. Styrenics Committee

Capacity, Production and Consumption of PS/EPS

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	418	418	413	445	445
Production	365	371	354	408	401*
Consumption by Derivative Prod.	252	290	255	220	225
Export	162	170	186	276	
Import	48	89	87	88	

Source: PTIT Industrial Survey, The Customs Department
Note: *Projected production figures: assume 90% operating rate



1. Review of 2018

Domestic production of PS/EPS in 2017 increased by 15% whilst domestic consumption decreased by 14% following a weak demand from electrical appliances manufacturing. PS/ESP export increased by 48%, with China as the major export destination.

2. Outlook for 2019

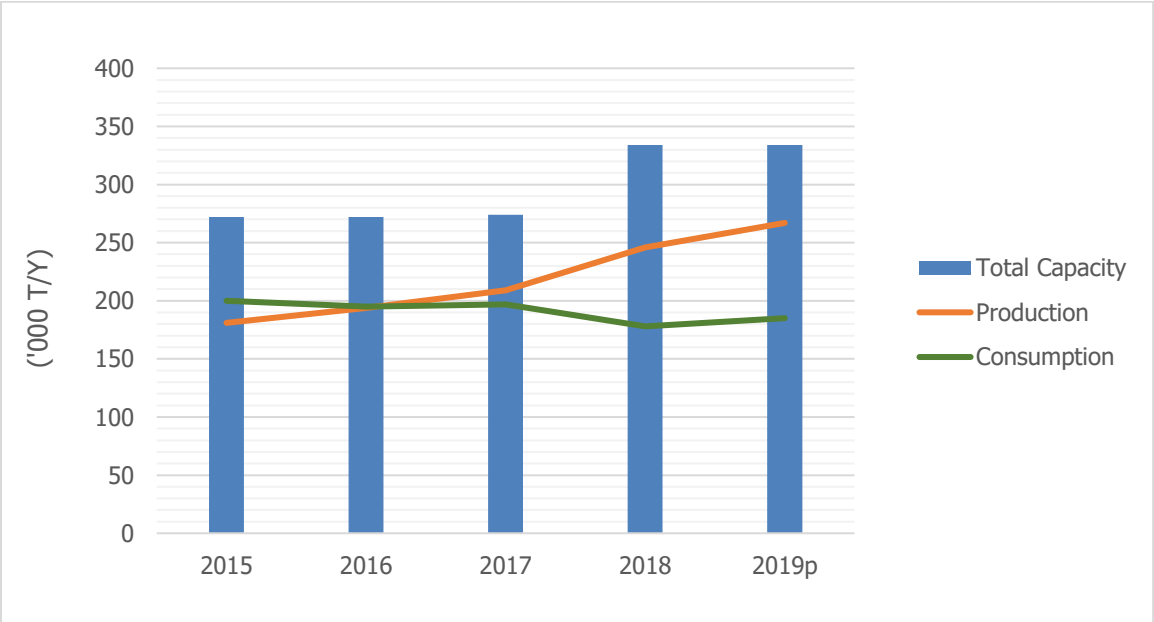
PS/EPS production is estimated by assuming a 90% operating rate while domestic consumption is projected to slightly increase from an improvement in demand in end-use markets.

Capacity, Production and Consumption of ABS/SAN

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	272	272	274	334	334
Production	181	194	209	246	267
Consumption	200	195	197	178	185*
Export	135	167	176	228	
Import	154	168	164	159	

Source: PTIT Industrial Survey, The Customs Department
Note: *Projected production figures: assume 80% operating rate



1. Review of 2018

   Domestic ABS/SAN production increased by 18% compare with the previous year, whilst consumption decreased by 10%. ABS/SAN export increased by 29% from that of 2017 due to a strong demand from China.

2. Outlook for 2019

   Domestic ABS/SAN production is estimated by assumed an 80% operating rate, whilst consumption is projected to grow at 4%, supported by automotive manufacturing.

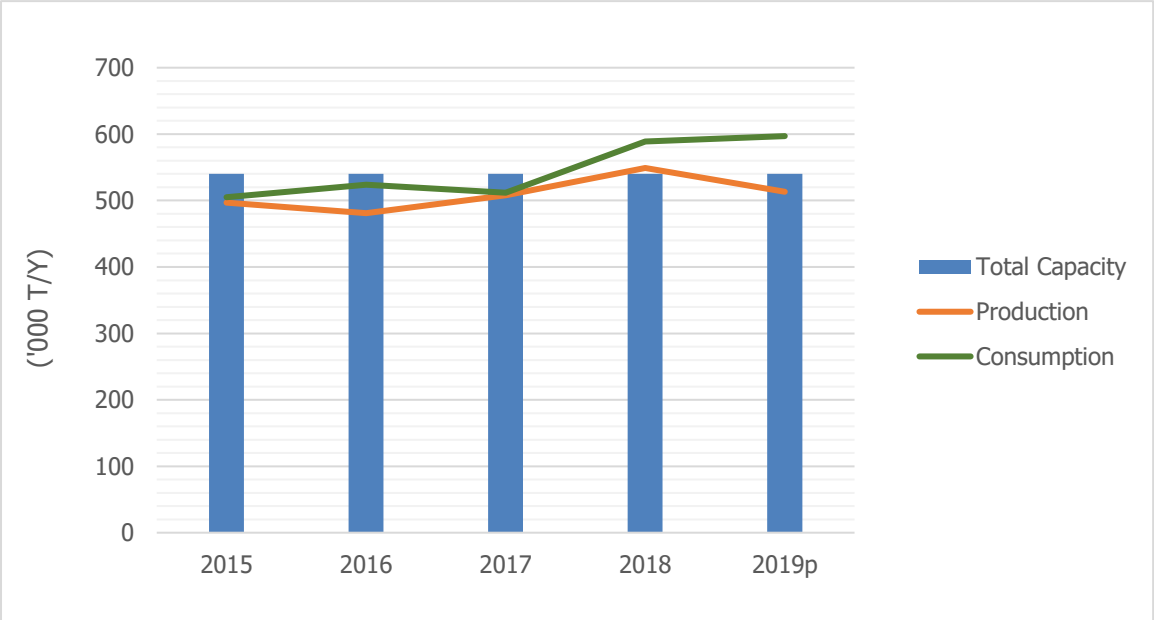
Capacity, Production and Consumption of SM

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	540	540	540	540	540
Production	497	481	508	549	524
Consumption by Derivative Prod.	505	524	512	589	597*
Export	53	15	33	15	
Import	81	90	88	64	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from PS+EPS, ABS/SAN (assumed ABS 100%), SBL and SBR production, which is projected by assuming a 90%, 80%, 90%, 90% operating rate respectively.
'0' means below 500 T/Y



1. Review of 2018

   SM production increased by 8% from last year. SM consumption increased by 15% as a result of the increase in its derivative productions.

2. Outlook for 2019

   Assuming a 97% operating rate, SM production is expected to decrease to 524,000 tons/year whilst consumption is estimated to slightly increase, supporting by demand from its derivative production at the above assumed operating rate.

PVC Committee

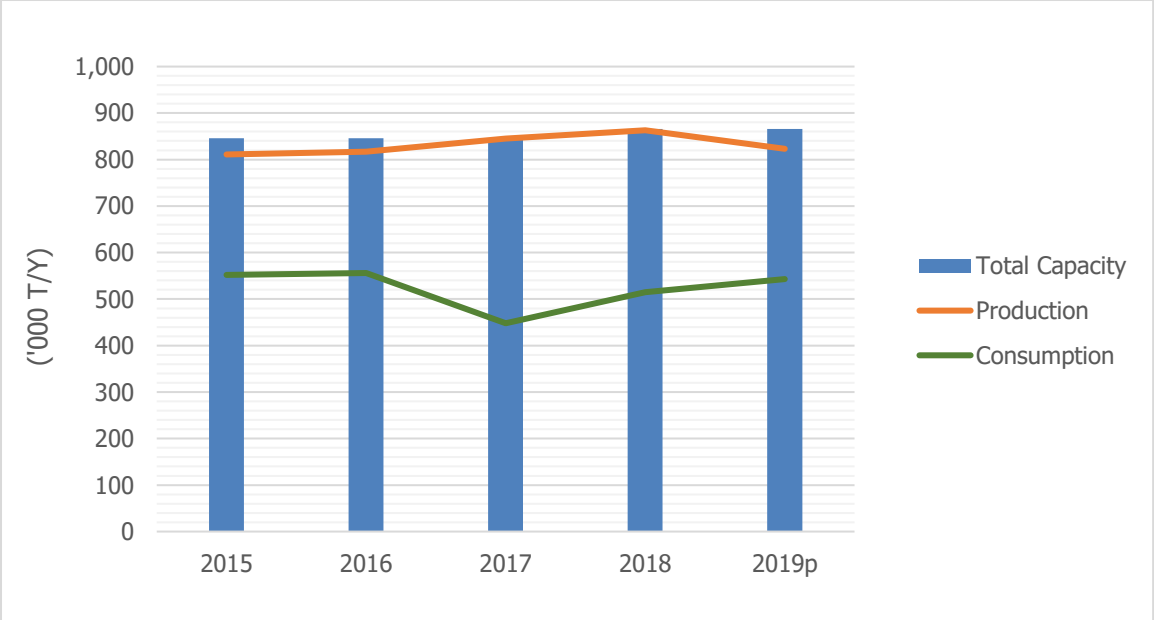
II-4. PVC Committee

Capacity, Production and Consumption of PVC

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	846	846	846	866	866
Production	811	817	845	863	823*
Consumption	552	615	448	515	543
Export	373	366	524	437	
Import	113	164	126	89	

Source: PTIT Industrial Survey, The Customs Department
Note: *Projected production figures: assume 95% operating rate



1. Review of 2018

Thailand's PVC production in 2018 increased by 2% from that of 2017. PVC consumption increased by 15% as a result of public investment in the country infrastructure.

2. Outlook for 2019

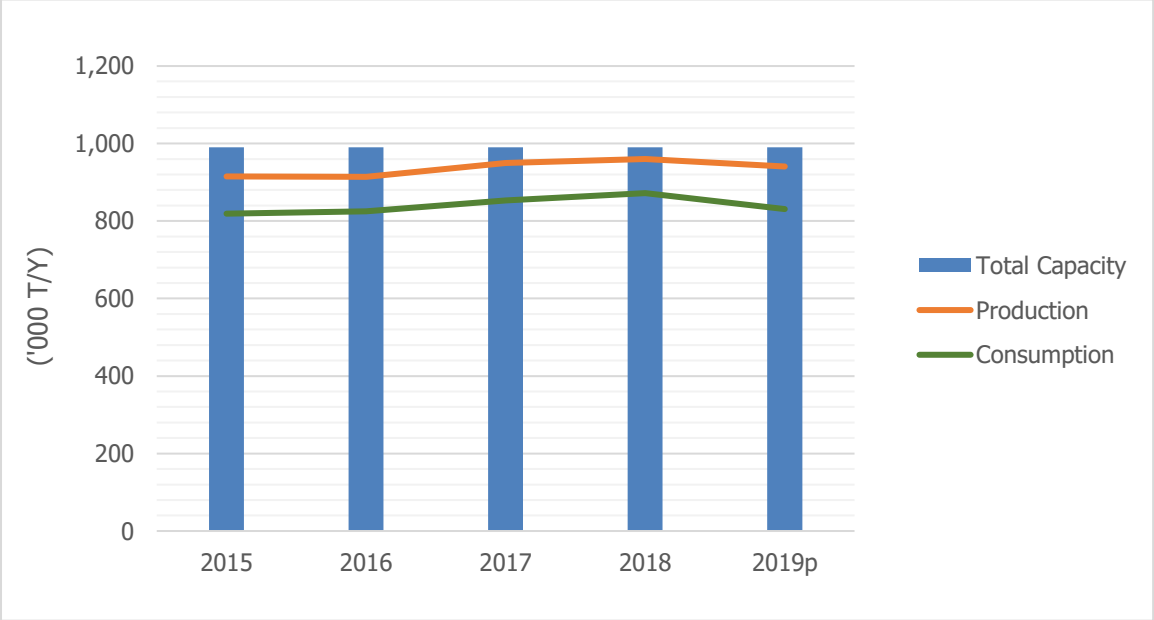
Thailand's domestic PVC production is projected by assuming a 95% operating rate, whilst consumption is estimated to increase by 5%, supported by further public investment in infrastructure.

Capacity, Production and Consumption of VCM

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	990	990	990	990	990
Production	915	914	950	960	941
Consumption by Derivative Prod.	819	825	853	872	831*
Export	86	96	112	103	
Import	0	0	0	0	

Source: PTIT Industrial Survey, The Customs Department
Note: *Consumption by derivative netbacked from PVC production, which is projected by assuming a 95% operating rate.



1. Review of 2018

Thailand's VCM production in 2018 slightly increased by 1% whilst its consumption increased by 2% following PVC production. VCM export volume decreased by 8%.

2. Outlook for 2019

Assuming a 95% operating rate, VCM production is expected to decrease to 941,000 tons/year whilst consumption is estimated to decrease following PVC production which is assumed a lower operating rate.

Synthetic Rubber Committee

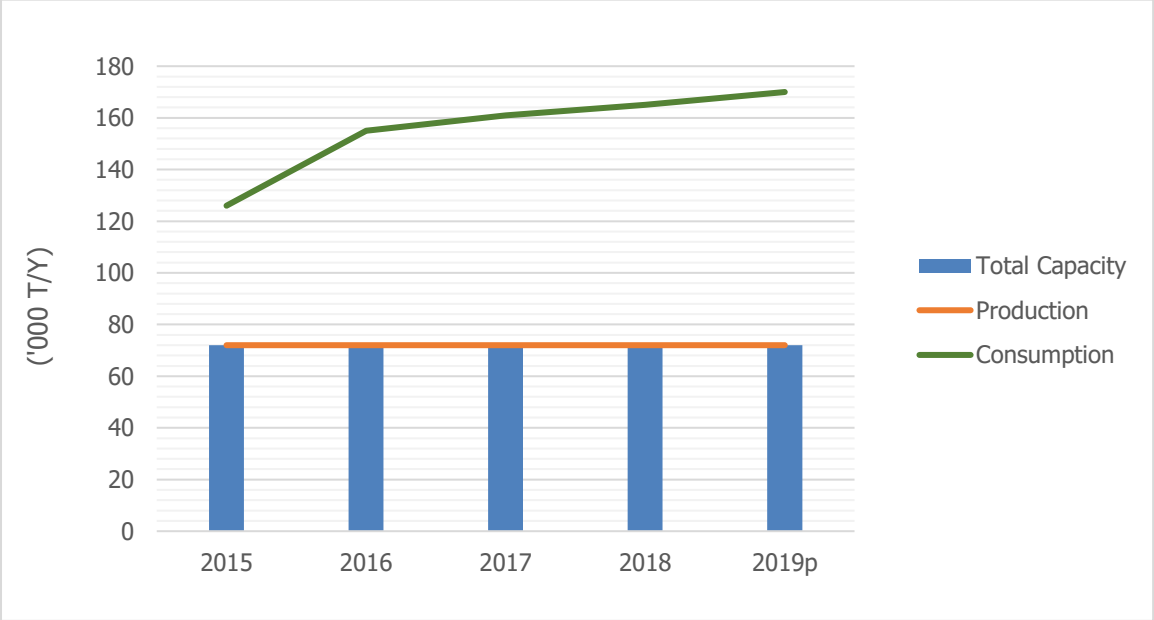
II-5. Synthetic Rubber Committee

Capacity, Production and Consumption of ESBR

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	72	72	72	72	72
Production	72	72	72	72	72*
Consumption**	126	155	161	165	170
Export	46	32	33	32	
Import	100	115	122	125	

Source: PTIT Industrial Survey, The Customs Department
Note: *Projected production figures: assume 100% operating rate
**Some consumption figure is different from calculation
(Production + Import – Export) due to inventory change.



1. Review of 2018

ESBR production was still close to its production capacity in 2018. Domestic consumption increased by 2% supported by a strong demand from automotive sector.

2. Outlook for 2019

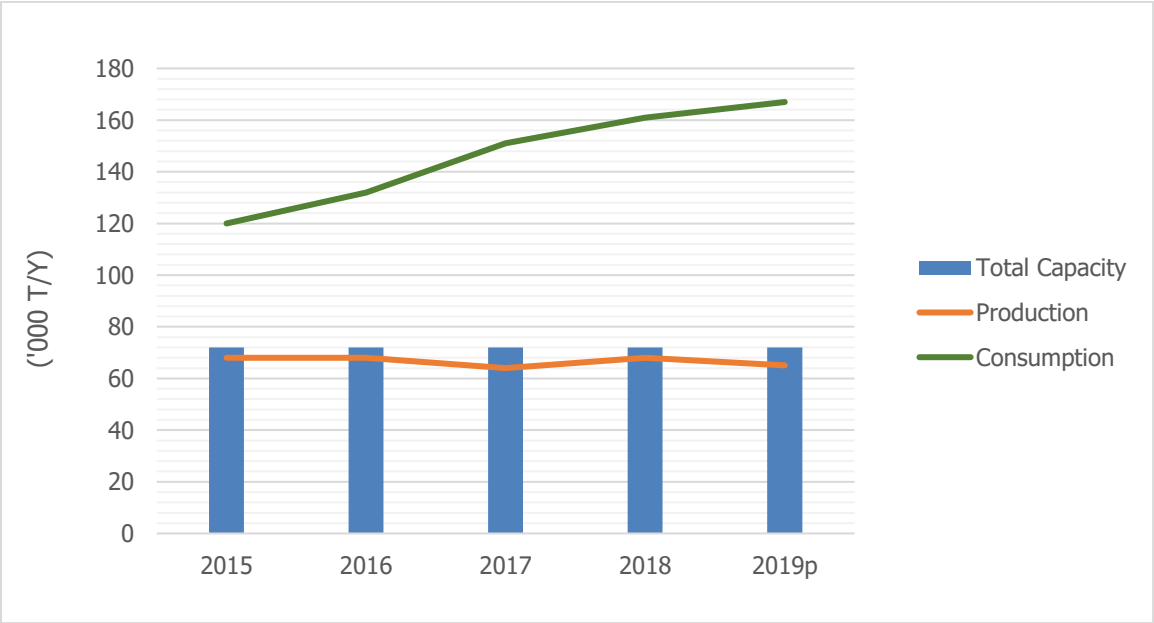
ESBR domestic consumption is expected to increase by 3% in 2019, supported by the automotive manufacturing.

Capacity, Production and Consumption of BR

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	72	72	72	72	72
Production	68	68	64	68	65*
Consumption**	120	132	151	161	167
Export	40	41	36	36	
Import	92	105	123	128	

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 2018

   BR production and domestic consumption of BR increased by 6% compared with that of the previous year as a result high domestic demand from automotive sector.

2. Outlook for 2019

   Domestic BR consumption is expected to grow by 4%, supported by a strong demand from automotive industry.

Synthetic Fiber Raw Materials Committee

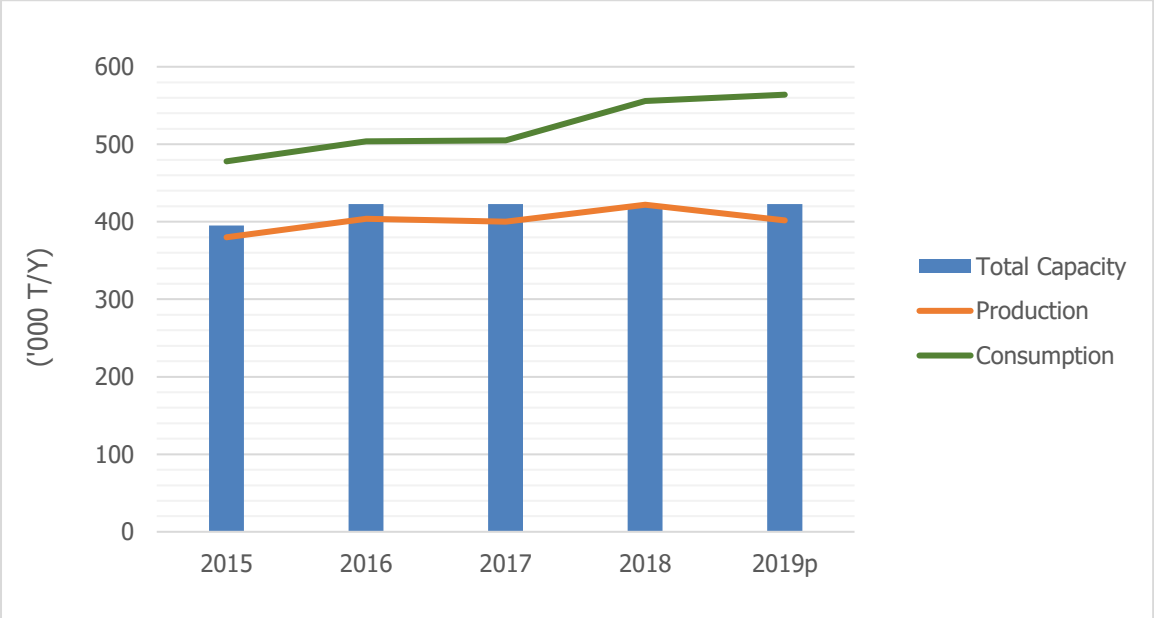
II-6. Synthetic Fiber Raw Materials Committee

Capacity, Production and Consumption of Ethylene Glycol

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	423	423	423	423	423
Production	380	404	400	422	402
Consumption*	478	490	505	556	564
Export	65	22	32	21	
Import	183	139	144	143	

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 2018

MEG production increased by 5%. Whilst its consumption significantly increase by 10% compared with the previous year, due to a strong domestic demand from PET production, and PET demand by textiles production.

2. Outlook for 2019

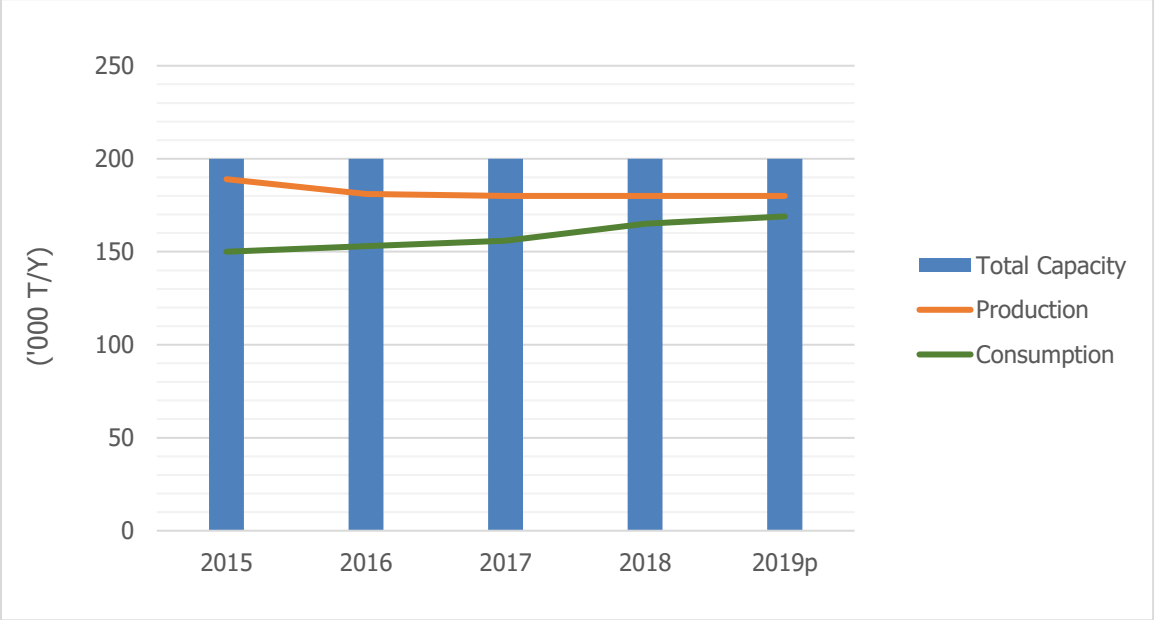
In 2019, MEG consumption is forecasted to slightly increase, following its derivative production which is assumed at 90% operating rate.

Capacity, Production and Consumption of Acrylonitrile

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	200	200	200	200	200
Production	189	181	180	180	180
Consumption by Derivative Prod.*	150	153	156	165	169
Export	56	53	45	53	
Import	34	26	13	14	

Source: PTIT Industrial Survey, The Customs Department
Note: *Consumption netbacked from ABS/SAN and acrylic fibre production with an assumed operating rate of 80% and 90%, respectively.



1. Review of 2018

Thailand's ACN production in 2018 remained at the same level as that of 2017. Domestic consumption increased by 5% due to the increase in ABS/SAN production.

2. Outlook for 2019

ACN production is estimated to remain unchanged in 2018, whilst domestic ACN consumption is expected to increase by 2% following an increase in ABS/SAN production.

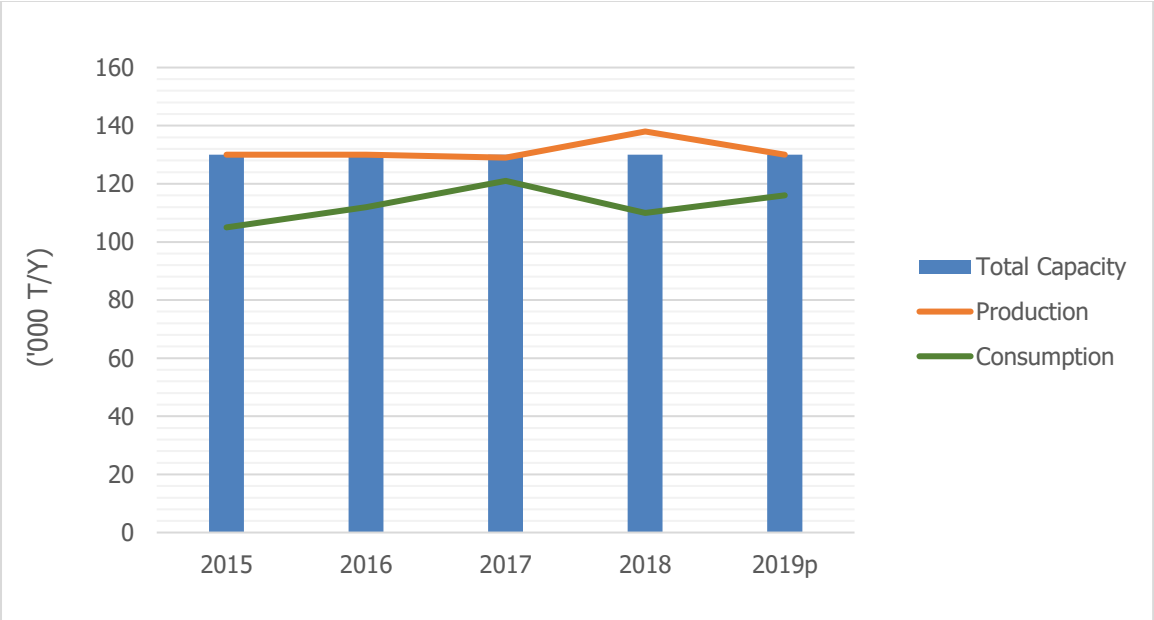
Capacity, Production and Consumption of Caprolactam

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	130	130	130	130	130
Production	130	130	129	138	130
Consumption by Derivative Prod.*	105	112	121	110	116
Export	27	27	18	31	
Import	7	6	10	3	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption is netbacked from Nylon 6 production, which is projected by assuming a 75% operating rate.



1. Review of 2018

   Domestic production of caprolactam in 2018 increased by 7%. Although domestic consumption contracted by 9%, high demand from export markets in Vietnam, Taiwan and India have made up.

2. Outlook for 2019

   Caprolactam production is estimated to be at 100% operating rate, whilst its consumption is expected to slightly increase by 2% in 2019, with Nylon 6 still being the key market for carprolactam.

Capacity, Production and Consumption of Terephthalic Acid

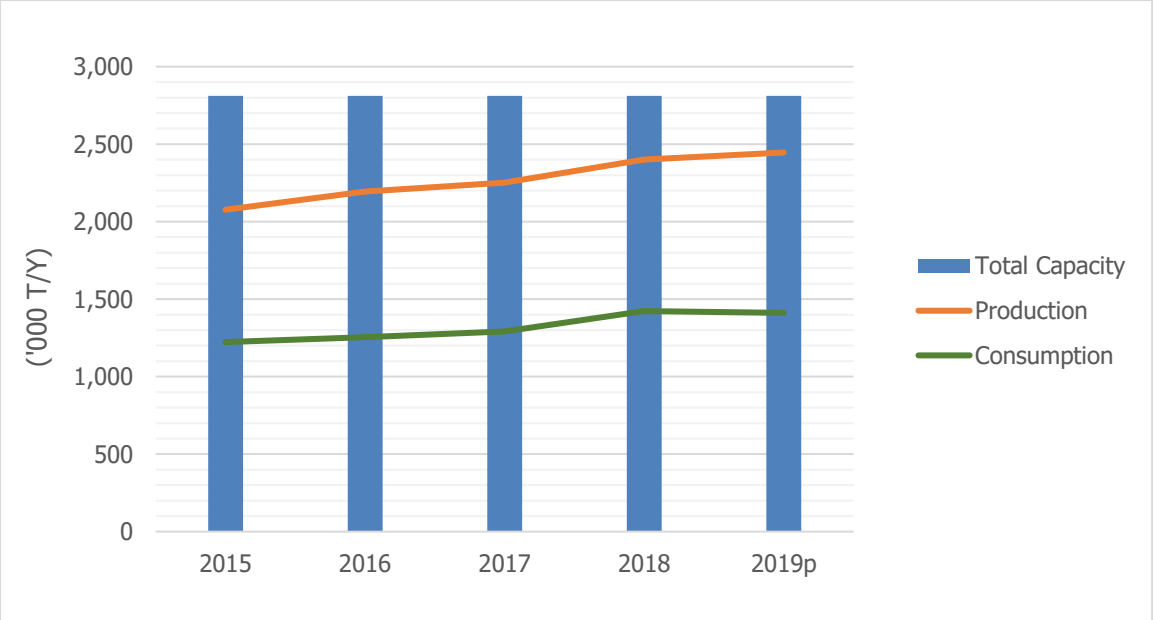
(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	2,811	2,811	2,811	2,811	2,811
Production	2,077	2,194	2,251	2,401	2,446
Consumption by Derivative Prod.	1,223	1,254	1,291	1,423	1,443*
Export	854	940	960	978	
Import	0	0	0	0	

Source: PTIT Industrial Survey, The Customs Department

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

'0' means below 500T/Y



1. Review of 2018

   Thailand's PTA production increased by 7%, supported by a strong polyester's demand in both domestic and regional markets especially China, Vietnam and India.

2. Outlook for 2019

   In 2018, domestic PTA production is projected by assuming a 87% operating rate, whilst domestic consumption is expected to slightly increase.

Chemicals Committee

II-7. Chemicals Committee

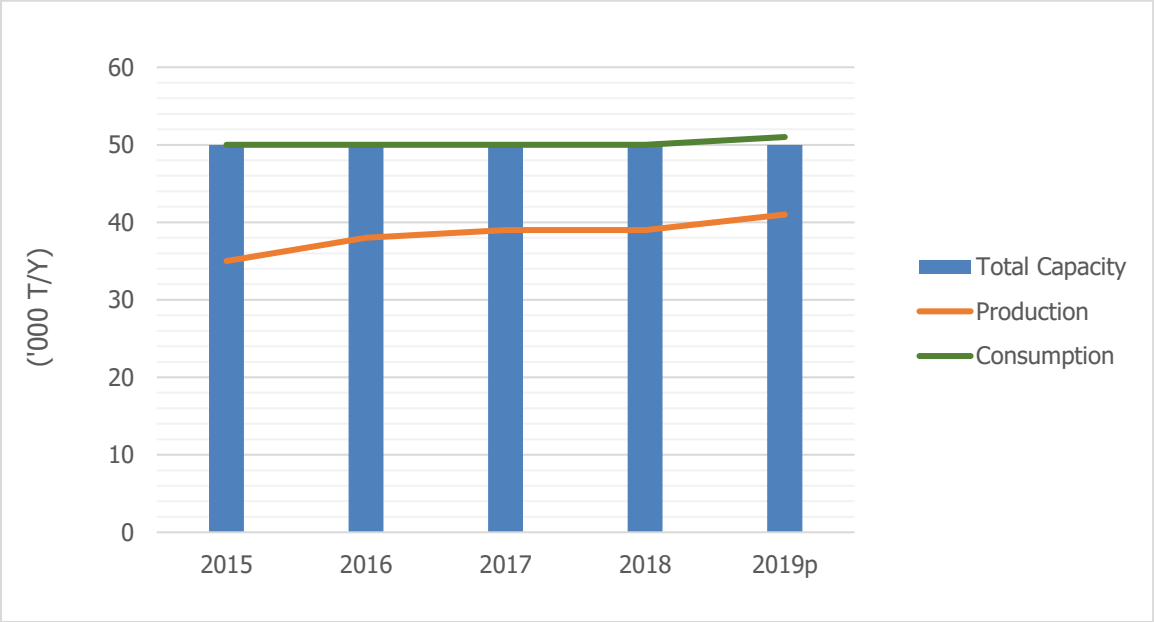
Capacity, Production and Consumption of Phthalic Anhydride (PA)

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	50	50	50	50	50
Production	35	38	39	39	41
Consumption by Derivative Prod.*	50	50	50	50	51
Export	19	21	24	19	
Import	24	31	31	28	

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%, 70% operating rate, respectively.



1. Review of 2018

   Domestic PA production and consumption remain unchanged in 2018 due to the stable demand of PA derivative products.

2. Outlook for 2019

   PA production in 2019 is projected by assuming a 80% operating rate, whilst domestic consumption is expected to slightly increase, supporting by demand for PA derivatives in construction industry.

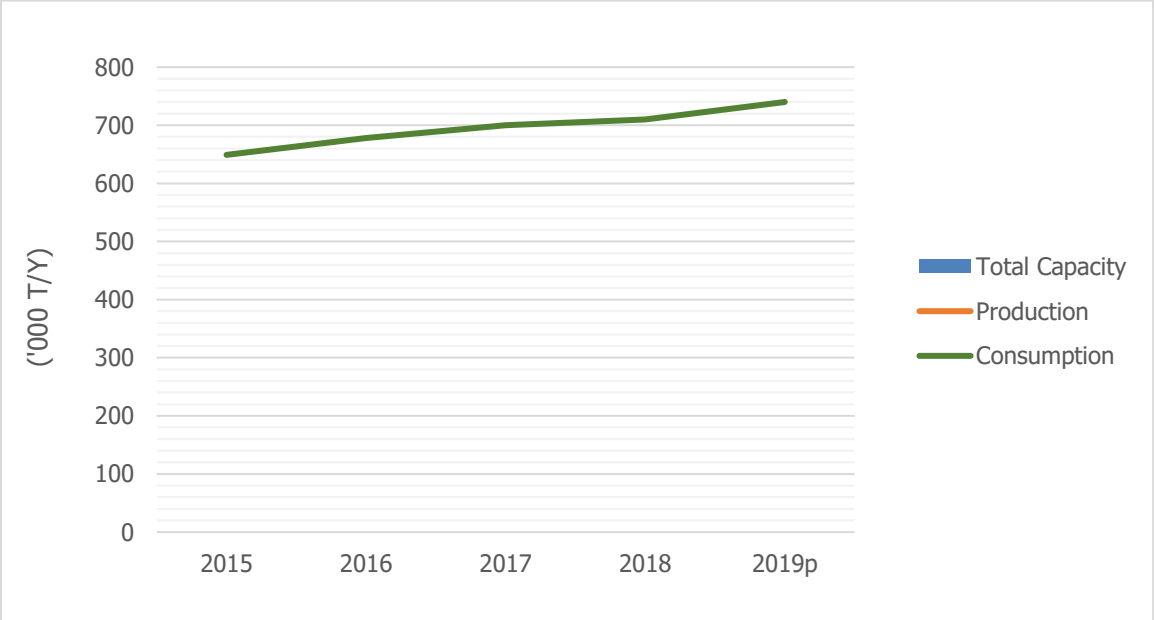
Capacity, Production and Consumption of Methanol

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity					
Production					
Consumption by Derivative Prod.*	649	678	700	710	740
Export	0	0	0	2	
Import	664	706	746	756	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from MTBE which is projected by assuming 100% operating rate, and MMA, POM and formaldehyde and other solvents production, which is projected by assuming 90% operating rate.



1. Review of 2018

Domestic consumption of methanol slightly increased by 1%. Although methanol demand from biodiesel production, which used crude palm oil and methanol in transesterification process for biodiesel production, was still strong, methanol demand for MMA production decreased.

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

2. Outlook for 2019

Methanol consumption in Thailand is expected to increase by 4%, supporting by a continued growth of biodiesel usage in blending diesel oil for transportation, and other derivative productions which are projected at the above operating rate.

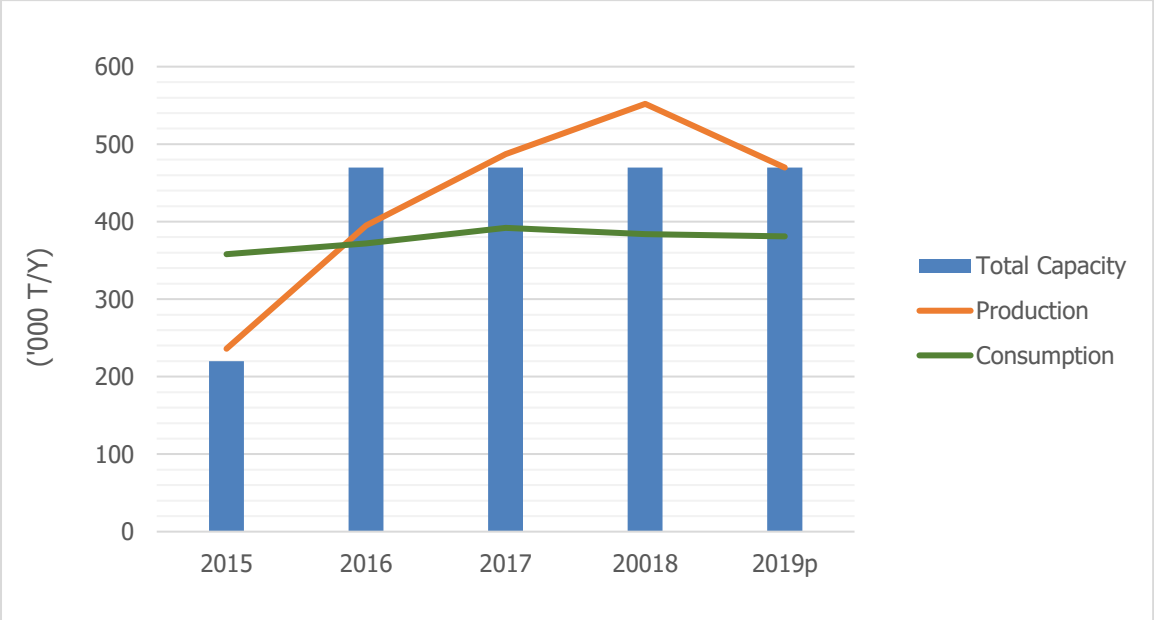
Capacity, Production and Consumption of Phenol

(Unit:'000 T/Y)

	Historical				Estimated
	2015	2016	2017	2018	2019
Total Capacity	220	470	470	470	470
Production	236	381	487	552	470
Consumption by Derivative Prod.*	358	372	392	384	381
Export	49	120	158	227	
Import	138	88	73	41	

Source: PTIT Industrial Survey, The Customs Department

Note: *Consumption netbacked from bisphenol A and phenolic resin production, which is projected by assuming a 97% and 80% operating rate, respectively.



1. Review of 2018

Domestic phenol production significantly increased by 13% whilst domestic phenol consumption slightly decreased by 1%. Phenol export jumped by 44% from that of 2018 due to a strong demand from India and China.

2. Outlook for 2019

Phenol production is projected by assuming a 100% operating rate, whilst phenol consumption is expected to slightly decrease at the above assumed operating rate for phenol derivatives.