

# THE GCC PETROCHEMICAL AND CHEMICAL INDUSTRY

Facts and Figures 2017







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# EXECUTIVE SUMMARY

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The performance of the GCC chemical industry has improved in 2017 on all fronts: in revenue, employment, production capacity and in exports. Production capacity in 2017 reached 166.8 million tons, up by 7% YoY, with expectations of further growth in 2018 to 170.9 million tons. GCC overseas production capacity reached 18.6 million tons with facilities in North America, Europe and Asia. While Asia is a main export market for GCC producers, the GCC has been actively investing in increasing overseas production, with about half of total overseas production capacity currently in Asian countries.

Revenue growth in 2017 was 17% YoY, the fastest rate since 2011. Looking at revenue composition, the majority is credited to polymers which accounted for 42% (or USD 35.3 billion), followed by value added chemicals accounting for 34% (or USD 28.9 billion).

Supported by the upturn in global growth, GCC chemical trade rebounded in 2017 as well, increasing at a rate of 5% during 2017. This follows weak trade flows experienced during 2013-2016, with GCC chemical trade volume only growing at a low rate of 0.3% per year. In 2017 global trade grew by 4.7%, its strongest in six years. This was primarily driven by cyclical factors, including investment spending and higher commodity prices.

GCC chemical industry employment growth was 3% in 2017, reaching 166,000 people. The chemical industry has proved to be a leader for the integration of national citizens within the private sector, bridging the gap between the public sector and

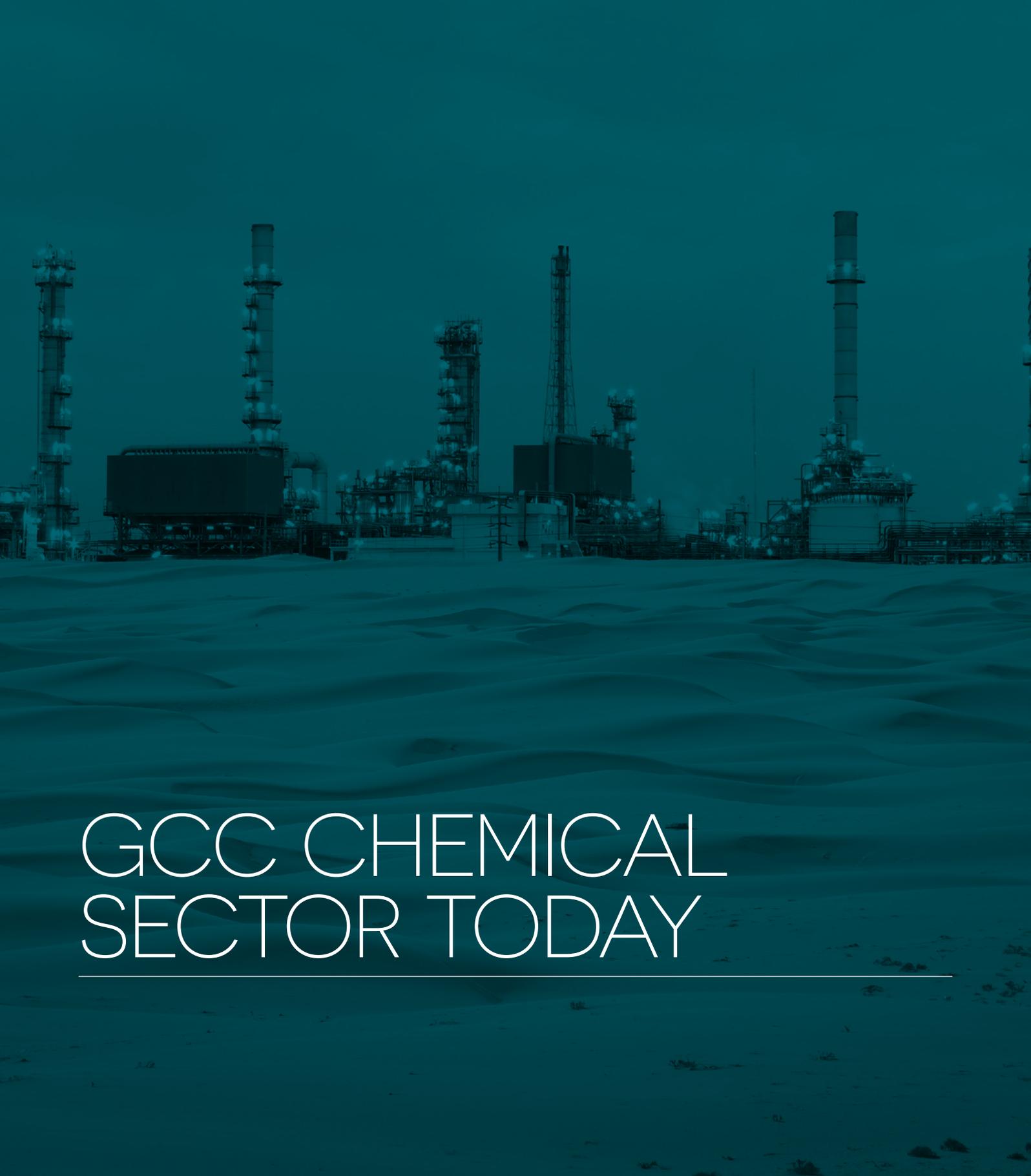
private sector's employment for nationals. Within GPCA member companies, more than half of employees are national citizens. While yearly figures fluctuate, the seven-year average (2010-2017) stands at 61%. This is three times that of manufacturing overall, where national citizens only constitute about 19% of total workforce.

The GCC chemical industry is projected to grow by 3.4% per year over the next decade (2017-2027), driven by investment activity on the back of rising export demand. In Saudi Arabia, the heartbeat of the GCC chemical industry, the forecast for production capacity is expected to continue to rise at a rate of 2.7% per year to 147.5 million tons by 2027. In the short term, Saudi Arabia is expected to add 3% of production capacity in 2019, reaching 120.8 million tons.

The GCC chemical industry continues to create value within existing production by introducing new product slates. Over the next decade more than 20 new products will enter production, providing new solutions to customers. Half of these new product lines are performance and value added chemicals, which have the potential for higher revenue generation and further value creation within the region.

Looking ahead, circular economy is gaining importance and digitalization will lead to changes in all aspects of the industry operations. These are two core topics that will shape the chemical industry within the next decade.





# GCC CHEMICAL SECTOR TODAY

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# ECONOMIC CONTRIBUTION

“ *The manufacturing and chemical sectors are an integral part of GCC economic transformation and diversification strategies* ”

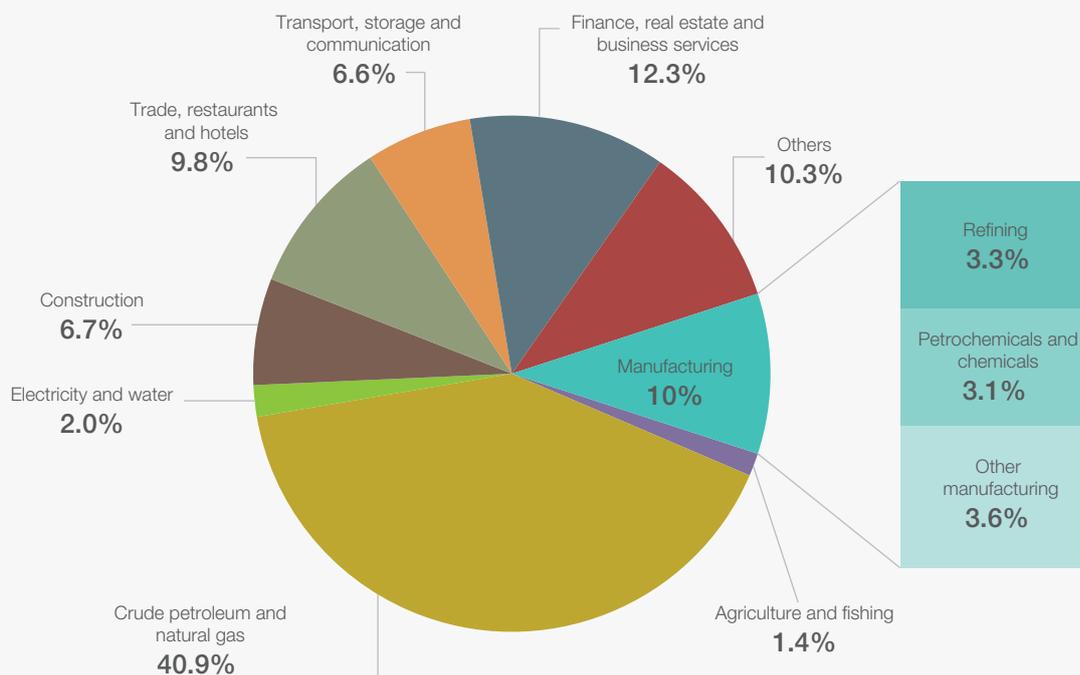
*In 2017, the GCC chemical industry contributed 31% to the manufacturing sector’s value added, which is the second highest among all other sectors, after refining which contributed 33%*

Economic activity across the GCC during 2017 was affected by crude oil production cuts and short-term effects of fiscal adjustment. The IMF reported a net GCC GDP growth rate of just

0.5% in 2017, the weakest in several years, down from 2.5% in 2016. However, growth is expected to rebound to 2.1% in 2018. The recent recovery in oil prices, the result of the OPEC and non-OPEC production cut agreement, suggests that economic growth among GCC member states should resume in 2018-2019, with aggregate growth for the region likely to expand by 2.1% and 2.7%, in 2018 and 2019 respectively.

The transition to a more diversified economy in the GCC is gaining momentum. Following the collapse of oil prices in 2014, GCC states committed to ambitious plans to transform their economies through diversification, private sector development, and public sector reform. By outlining national and economic visions, GCC countries aspired to construct more competitive economies that are diversified away from hydrocarbons. The manufacturing and chemical sectors are integral in these diversification efforts. In 2017, the manufacturing sector was one of the key non-oil sectors in the region and represents 10% of real GDP and 17% of non-oil GDP. There is still scope for development to match that of the global average, especially within industrialized countries. On the global level, manufacturing averages at 16% of GDP,

**GCC GDP by economic activities, 2017**



Source: GCC National Statistics, IMF, World Bank, GPCA analysis, 2018  
 Note: GDP at 2010 constant prices

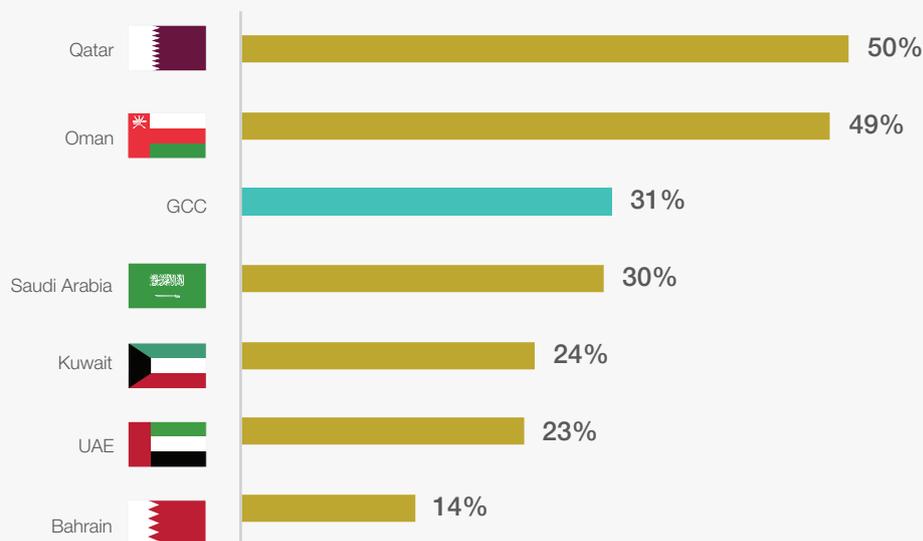


and in industrialized countries up to 20%. Nevertheless, GCC's manufacturing value added growth of 2.6% per year has outpaced the world's 2%.

In 2017, the GCC chemical industry contributed 31% to manufacturing value added, which is the second highest contribution among all other sectors, after refining with 33%. While this is the overall trend within the GCC, individual countries have different breakdowns. In Qatar and Oman, the chemical sector is significantly larger than refining. In Qatar, chemicals' contribution to manufacturing is the highest with 50%, followed

by refining with 14%. In Oman, the chemical sector contributed almost half (49%) to manufacturing, followed by the refining sector (3.2%). The opposite holds true for the UAE and Kuwait, where refining is the largest manufacturing industry, with 41% and 33% contribution respectively. While the chemical sector added 23% and 24% respectively. In Saudi Arabia and Bahrain, the refining and chemical sectors' value added are relatively similar, with about 30-31% contribution in Saudi Arabia and 14-15% in Bahrain. With these statistics, GPCA aims to highlight the extent of influence of the chemical sector on GCC manufacturing and the importance of developments taking place within the industry.

### Contribution of chemical industry to manufacturing value added by country, 2017



Source: GCC National Statistics, IMF, World Bank, GPCA analysis, 2018



## TRENDS IN THE GCC CHEMICAL SECTOR

“ *The GCC chemical industry entered a new era of development, riding high on investments in production of performance polymers and value added chemicals* ”

*72% of new products introduced over the past decade are performance polymers and value added chemicals*

Performance of the GCC chemical industry improved in 2017, due to the increase in output and rise in global demand. Production capacity in 2017 reached 166.8 million tons and is expected to reach 170.9 million tons in 2018. The GCC accounts for about 6.6% of global chemical production capacity and grew at 8.3% CAGR between 2007-2017. With a similar growth rate of the previous decade (1997-2007), the industry continues to expand at an upward trajectory. However, growth is only one aspect of development in the region. The structure of the industry has evolved, including the emergence of new technologies and product lines and therefore changes in capabilities. These new product segments included performance polymers and value added chemicals, which registered high growth, demonstrating a turning point for the industry. GCC petrochemical players are in a strong position to access commodity chemicals, which serve as raw material for more advanced high value products. Such products proved to generate higher revenue, and more importantly, enable high value

**GCC chemical industry growth  
YoY and CAGR (2007-2017)**



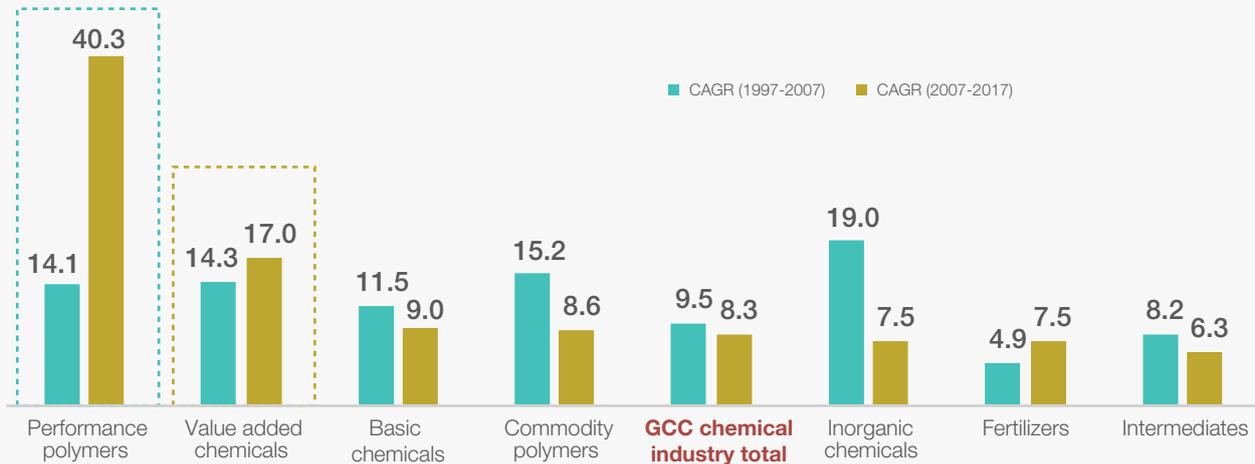
Source: GPCA analysis, 2018

downstream derivatives, an area that the GCC is continuing to diversify into.

Saudi Arabia and the UAE have started to move into developing new slates of chemical products by making significant investments in large scale petrochemical projects to produce differentiated and

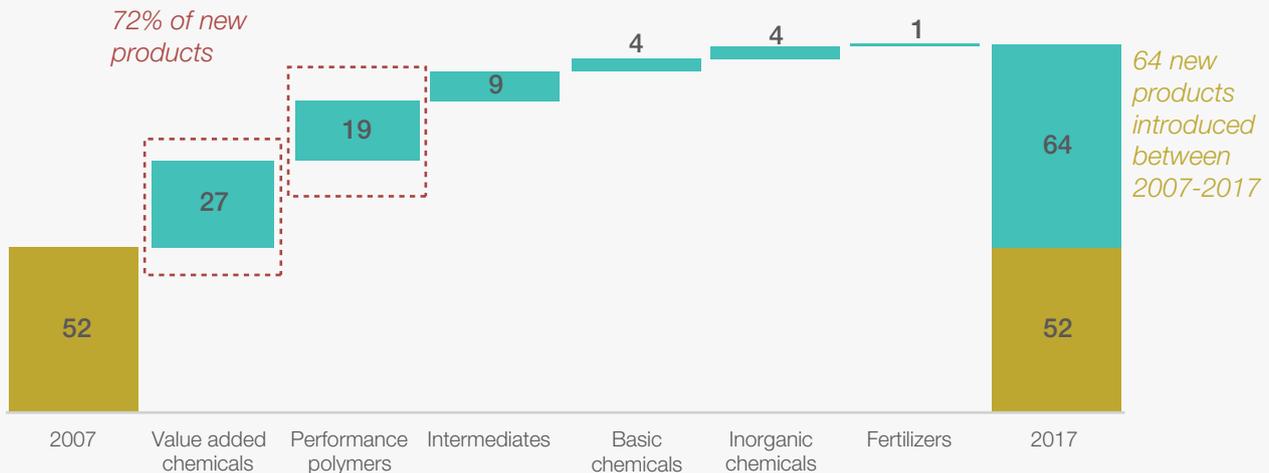
high value chemicals. This shift is not without its challenges. GCC producers must meet profitability targets, while matching national governments' diversification and job creation agendas. Further, marketing these products is more complex and requires closer collaboration with customers, especially those in Asia.

### GCC chemical industry growth evolution by segment, %



*Note: Value added chemicals are products produced in the next steps of chemical process after intermediates. They are produced in smaller scale and are used in the downstream industry. Growth is calculated based on production capacity.  
Source: GPCA analysis, 2018*

### Product additions in GCC chemical industry by segment 2007-2017



Source: GPCA analysis, 2018



## ALTERNATIVE FEEDSTOCKS AND INTEGRATED PROJECTS

GCC producers are adjusting their refining and petrochemicals portfolio, identifying opportunities to enhance integration throughout the downstream value chain. The region has started to leverage heavier feedstocks such as LPG and naphtha for more diversification. With access to large scale, mix-feed crackers,

the region will be better positioned to respond to shifts in market dynamics.

Refining and petrochemical integration has its competitive and sustainable advantages. The integrated facilities offer the opportunity to minimize energy costs by synergizing power, steam, process water and in hydrogen transfers. An integrated complex has higher overall revenue than a standalone refinery due to the net-increase in petrochemical volume from the integrated complex. Integrating a mixed-feed ethylene plant with a refinery can lead to a range of new building blocks for petrochemicals, which increases the potential for diversified industries. Recent developments in this area in the region and overseas include:

Project	Location	Description	Status
SABIC / Saudi Aramco - Crude Oil-to-Chemicals Plant (COTC)	Yanbu, Saudi Arabia	Integrated complex	Feasibility study has commenced
Orpic – Liwa Plastics Industries Complex	Sohar, Oman	Integrated polyolefins complex	Construction ongoing
ADNOC – Ruwais Integrated Refining and Petrochemicals Hub	Ruwais, UAE	Largest integrated refining and petrochemical hub	Announced
Saudi Aramco / Total – Jubail Petrochemicals Plant	Jubail, Saudi Arabia	Integrated refinery and petrochemicals plant	Announced
Kuwait Integrated Petroleum Industries Company (KIPIC) - Al Zour Petrochemicals Complex	Al Zour, Kuwait	Integrated refinery and petrochemicals plant	Prequalification of contractors has commenced
Duqm Refining and Petrochemicals Plant	Duqm, Oman	Integrated refinery and petrochemicals plant	Construction of refinery plant has commenced
IOCL / BPCL / HPCL / Saudi Aramco / ADNOC – Ratnagiri Refining and Petrochemicals Plant	India	Integrated refinery and petrochemicals plant	MoU and framework agreement has been signed

# GCC CHEMICAL PRODUCTION OVERSEAS

“ Overseas production is expected to continue to grow by at least 7.6% per year during the next decade

GCC overseas chemical investments are focused on wide variety of products that allow companies to access new markets and technologies

On a global level, large chemical companies were expanding by investing in production facilities in emerging markets. GCC companies were no exception. In 2017, GCC overseas production

capacity reached 18.7 million tons with facilities in North America, Europe and Asia. With established relationships in Asia, this region has been a target destination for the GCC overseas investments and currently about half of total overseas capacity is located there. By 2027 capacity will reach 23 million tons, representing nearly 60% of GCC total overseas output.

To date, GCC overseas chemical investment has been led by the largest country in the region in terms of chemical output – Saudi Arabia. The country’s overseas production grew by 6.4% per year over the 2007-2017 period and this trend is set to continue in the following decade. By 2027, Saudi Arabia’s overseas capacity will reach 34 million tons, growing by 8.3% per year and will account for almost 90% of GCC total overseas capacity.

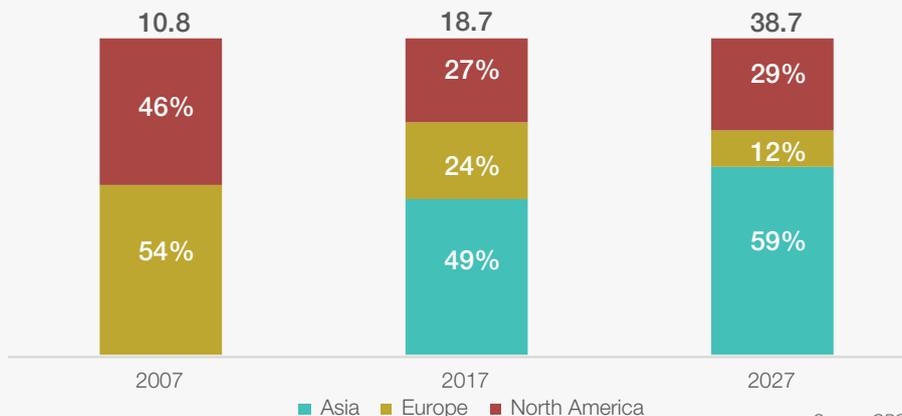
In terms of chemical products, GCC overseas chemicals investments initially focused on securing ways to supply intermediate products but have now expanded to include a wider variety of products that allow companies to access new markets and technologies. The integrated refinery and petrochemical complexes overseas are a growing development for national oil companies seeking a secured market for their crude oil supply and adding further value to production.

Overseas chemical production capacity by GCC producers (million tons)



Source: GPCA analysis, 2018

Overseas chemical production capacity by GCC producers according to the region (million tons)



Source: GPCA analysis, 2018



# REVENUE

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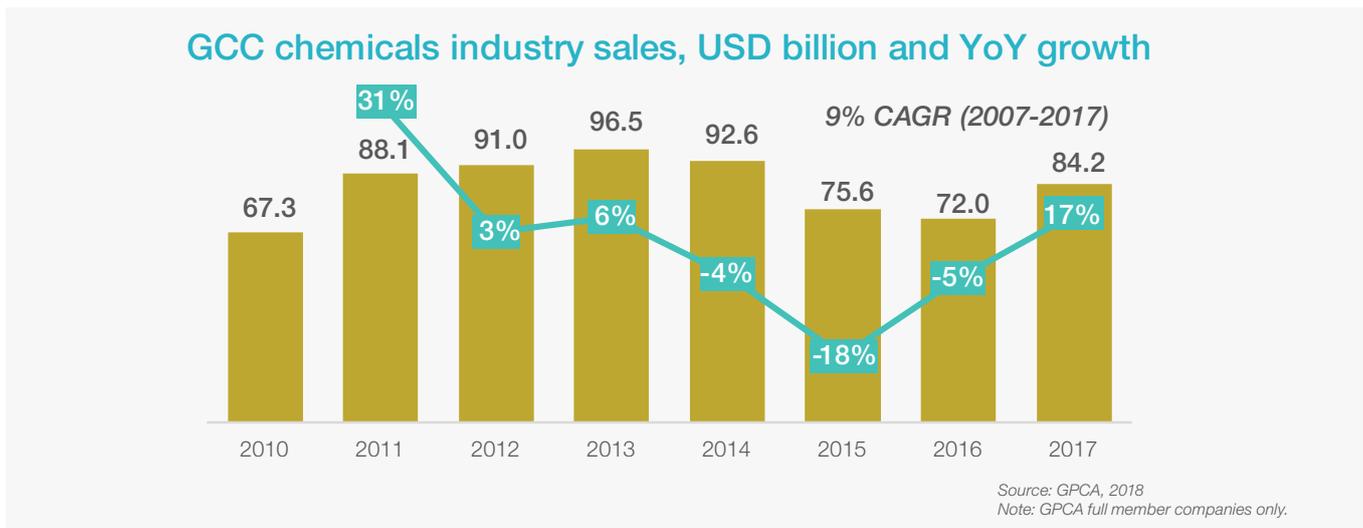
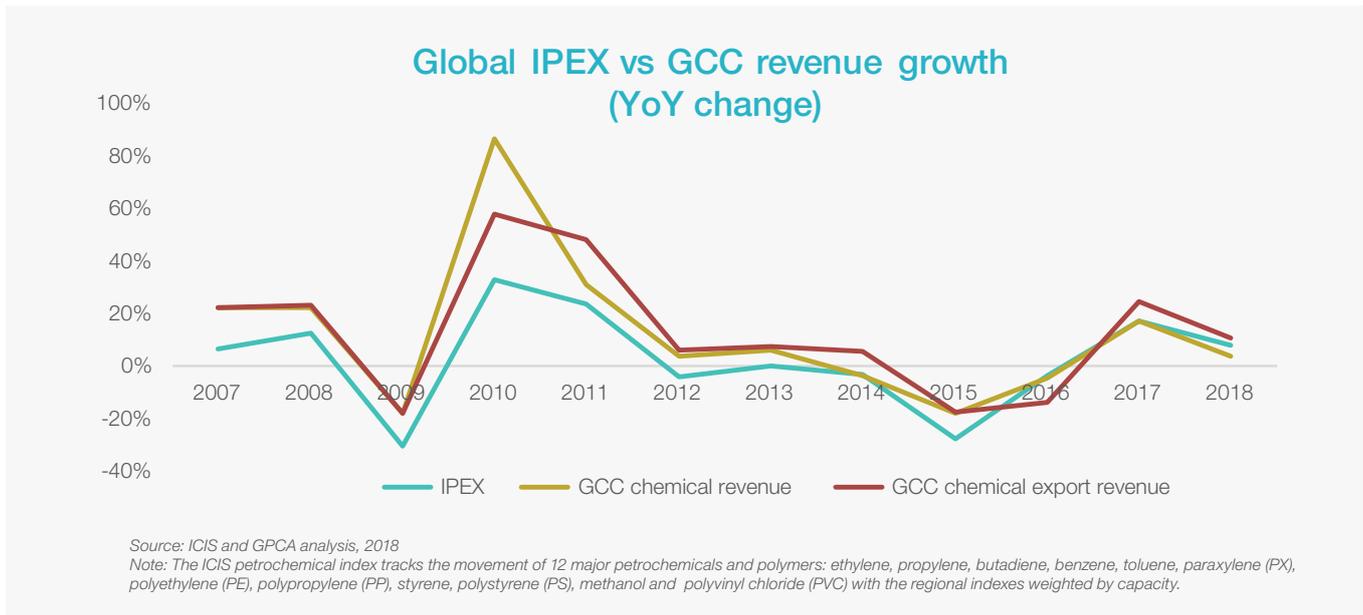


# REVENUE GROWTH AND TRENDS

“ Revenue of the GCC chemical industry increased by 17% in 2017 YoY, higher than 9% CAGR (2007-2017)

Robust sales growth was driven by improved commodity prices and stronger export markets

In 2017, the GCC chemical industry grew by 17% YoY, the fastest growth rate since 2011. This was a recovery year for the industry with revenue performing well in most product segments. Chemicals commodity prices play a major role in revenue developments. There is strong correlation in historical growth of ICIS Global Petrochemical Index (IPEX) with GCC chemicals revenue growth. According to IPEX, average prices of 12 major petrochemicals and polymers in 2017 increased by 17%, compared with a 4% decline in the previous year. Improvement was driven by higher crude oil prices and stronger markets in the US, Europe and Asia. In 2018, IPEX index has already registered a growth of 8% over 2017 average prices, giving an optimism towards 2018 results.



## REVENUE BY SECTOR

“Growth engines of GCC chemicals revenue are polymers and value added chemicals which accounted for 76%”

Looking at the composition of the revenue, the majority is attributed to the sales of **polymers** which accounted for 42% or USD 35.3 billion, followed by value added chemicals with USD 28.9 billion representing 34%. Analysis shows that polymers had experienced improving fundamentals in 2017, which lifted revenue by 20% compared with 2016. Similarly, **value added chemicals** ended 2017 on high note with 19% growth, making strong contribution to the industry’s overall revenue. The GCC’s range of new products continued to grow as they become incorporated into more customer brands. This unlocks opportunities for faster revenue expansion in 2017 and beyond as the industry is encouraged by business trends and expectations of further recovery.

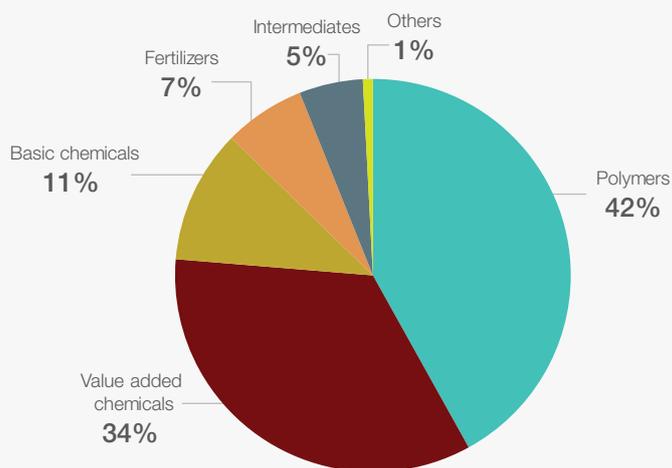
Fragile environment in the **basic chemicals** segment resulted in a modest growth. While GCC managed to stay afloat with revenue stable in 2017, the contribution from this segment to the overall basket was lower. Most basic chemicals sales are generated by methanol which is one of the major products exported from the region. Trends in methanol markets will directly affect performance

of the GCC basic chemicals segment. Although methanol pricing in 2017 was volatile, the yearly average was stronger than in 2016 supported by demand for methanol in traditional application markets.

The **fertilizers** segment has achieved growth for the first time since 2013. In 2017, GCC fertilizer revenue increased by 16% supported by the new production output which saw an increase of 9% YoY. While previous years were impacted by depressed and volatile fertilizer markets, 2017 rebounded driven by increased agricultural production. Although demand for fertilizers has also increased, supply was high restricting prospects for prices to rise to the levels experienced earlier. At the same time, the GCC has substantially expanded production of phosphate fertilizers by 21% in 2017, consolidating its leadership position, particularly in Asia. More diversified product portfolio will allow the GCC fertilizer industry to avoid volatility on price movements of nitrogen fertilizers.

Lastly, the **chemical intermediates** segment achieved excellent performance supported by a solid environment in customer industries, who purchase intermediates for their downstream operations. In 2017, the GCC intermediates segment achieved revenue of USD 4.4 billion, 5% of industry’s total. Sales increased for the first time since 2012, driven by improved commodity prices in addition to higher output volume.

GCC chemicals sales by sector, 2017 total USD 84.2 billion



Source: GPCA, 2018  
Note: GPCA full member companies only.

# REVENUE BY COUNTRY

“ Saudi Arabia returned to growth in 2017, with 19% increase in revenue, which significantly lifted the entire GCC region

UAE had the second growth market in the GCC with 17% increase in revenue



GCC revenue growth follow trends set by **Saudi Arabia** which accounts for 78% of industry's total. In 2017, Saudi Arabia returned to growth and saw revenue increase by 19% reaching USD 65.8 billion,

sending positive waves to the entire region. The polymers and value added chemicals segments are particularly significant for revenue generation in Saudi Arabia and the entire region. Their combined share accounts for 80% of Saudi revenues and 63% of GCC.



**Qatar's** chemicals revenue improved by 8% in 2017 to USD 6.4 billion, returning to growth for the first time in four years. While this is a positive turn in trend, it is still below the industry's average

of 17% in 2017. Most of Qatar's revenue is generated through petrochemicals which represent 76% of country's total. Qatar's fertilizer segment is the second largest in the region in terms

of output and revenue generation. In 2017, Qatar fertilizer sales returned to growth of 12%, following a 27% decline in 2016.



The **UAE's** chemical industry has been demonstrating positive revenue growth at a 22% CAGR per year for the seventh consecutive year, reaching a new high of USD 5.1 billion. The UAE, the region's second largest producer of polymers, heavily relies on this segment for revenue generation. They represent almost 90% of sales, followed by fertilizers with 8% share.

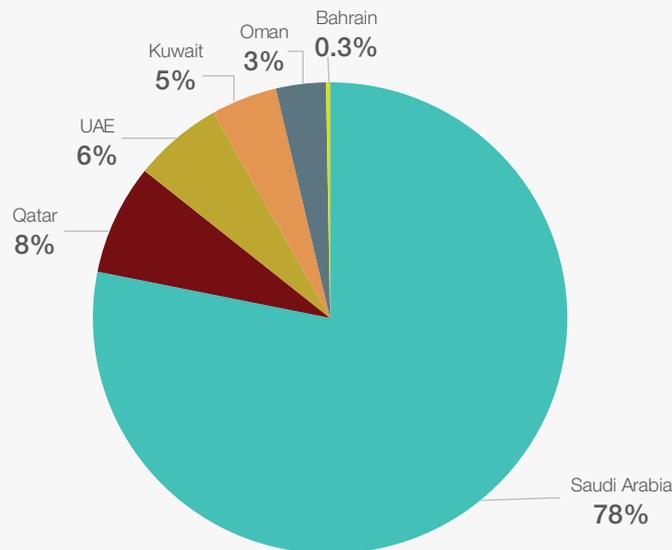


Polymers are a driving force of revenue growth in **Kuwait** as well, accounting for 58% of the country's chemical sales of USD 3.8 billion in 2017. Kuwait's polymer producers generated 13% more in sales, compared with the previous year and made a sizable impact on the industry's performance. At the same time, the industry has greater growth potential as on the regional level the polymer segment grew by 20%. Kuwait's fertilizer segment which represents 20% of the country's physical output, generates only 7% of sales, with revenue growth of 18% in 2017.



**Oman and Bahrain** represent 3% and 0.3% of regional sales respectively. While growth has returned in these countries too, the drivers vary. In Oman, revenue is driven by basic chemicals and polymers, in Bahrain driven by fertilizer segment. Fertilizers are big in Oman too, accounting for half of the physical output, with a revenue contribution of only 20%.

GCC chemicals sales by country, 2017 total USD 84.2 billion



Source: GPCA analysis, 2018  
Note: GPCA full member companies only.



# EMPLOYMENT

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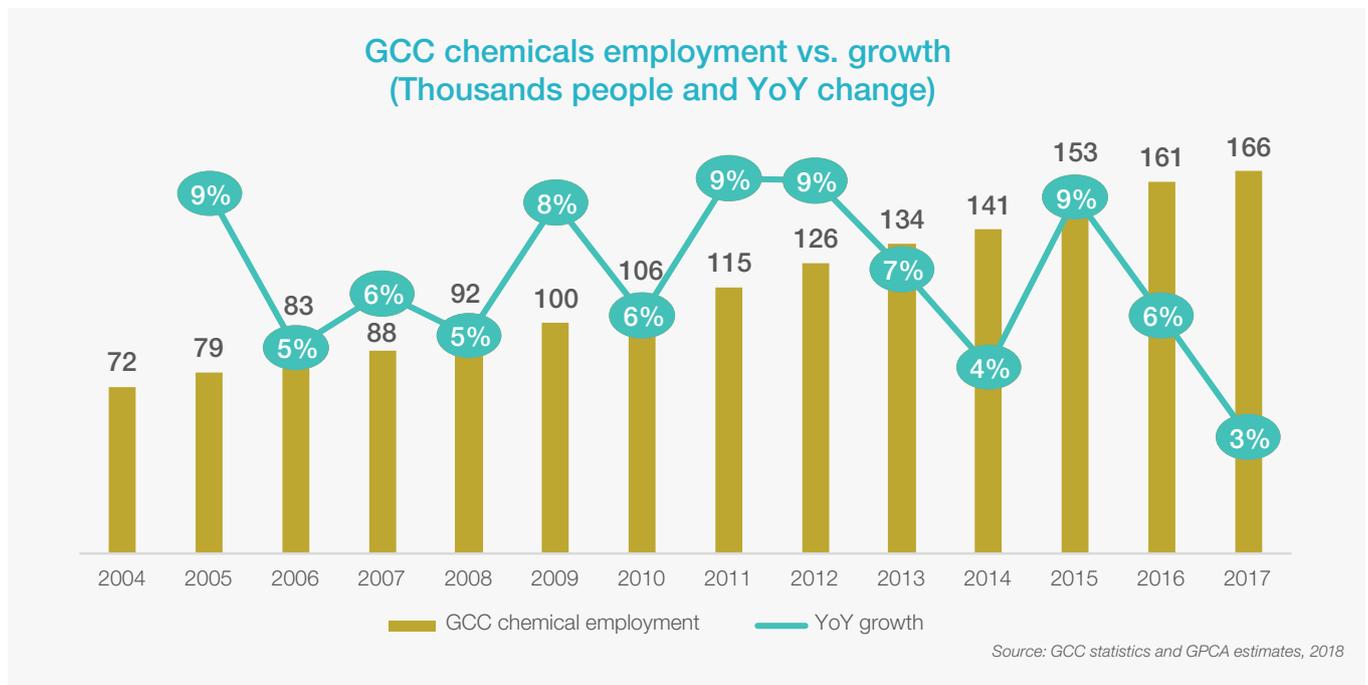


## CONTRIBUTION TO JOB CREATION

“The chemical sector is one of the leading sources of direct and indirect employment in the GCC with direct employment growth of 6.6% per year during 2007-2017

With changing nature of manufacturing and continuous introduction of new technologies and digitalization, the profile of the workforce continues to evolve requiring higher level of education and training

The GCC chemical industry is one of the most knowledge intensive industries in the manufacturing sector. With a high degree of capital intensity, the industry is one of the key manufacturing industries in terms of employment. Historically, growth has been accompanied by expanding employment which grew by 6.6% per year over the past decade, reaching 166,000 people. Due to the rapidly changing nature of the industry, the continuous increase in automation of production processes, technological intensification and requirement for technical service provided to customers, the industry requires new and more highly developed skills and educated workforce. These changes are reflected in increasing skills requirements for manufacturing workers. Within GPCA member companies, about 51% of employees are engaged in manufacturing itself as engineers and maintenance workers. As the industry continues to introduce technological innovations, the profile of the workforce will evolve and require higher levels of education and training than ever before. The remaining 49% of employees within GPCA member companies are engaged in administration, sales and marketing, supply chain and R&D activities.





## INTEGRATION OF LOCAL TALENT

**“ In 2017, workforce nationalization was 58%, triple of that in manufacturing where overall nationals constitute only 19% of the total workforce**

*The chemical industry is increasing the employment of national citizens by 6% per year, providing a platform for integration of national citizens in private sector*

GCC countries made tremendous progress in building up production capacity and creating job opportunities over the past decades. To sustain the momentum, GCC countries need to look at how citizens and young people are engaged in the chemical industry. The industry has proved itself as a platform for integration of national citizens in the private sector, bridging the gap between the public sector and private sector's employment for nationals. Within GPCA member companies, more than half of employees are national citizens. While yearly figures fluctuate, the seven-year

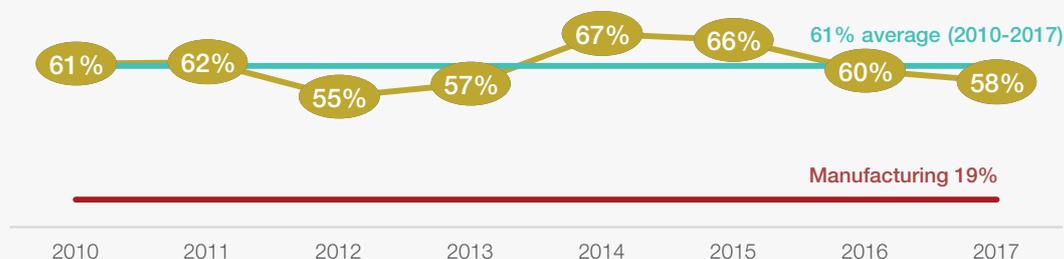
average (2010-2017) stands at 61%. This is triple of that registered for manufacturing overall where national citizens constitute about 19% of total workforce.

Saudi Arabia is the largest GCC country by population and is the biggest employer in the region. Saudi Arabia represents 70% of employees in the GCC chemical industry and nationals represent 61% of employees within GPCA member companies in Saudi Arabia. This is triple of that in manufacturing, where nationals account for 23% of the total workforce. With this GPCA members are far ahead of their counterparts within manufacturing in attracting citizens.

In Qatar, only about 5% of national citizens are employed in the private sector, resulting in subsequent low rates of Qatarization in manufacturing and chemical industries. Within the manufacturing sector, only 2% of all employees are national citizens. Within the petrochemical sector, as reported by GPCA member companies, the Qatarization rate reached 21%, which is ten times higher than in manufacturing. Moreover, nearly 60% of all Qatari citizens employed in the manufacturing sector are in fact employed within petrochemical companies. With particularly low levels of Qataris in the manufacturing sector, we see the current levels of Qatarization in the petrochemical sector as an excellent achievement.

UAE nationals make up less than 27% of the total population and so the country's economy and business environment rely heavily on

**Workforce nationalization, GPCA members**



Source: GPCA questionnaire, GPCA analysis, 2018

expatriates. Most UAE nationals are attracted to, and are employed in, the public sector. In the UAE manufacturing sector, Emirati citizens represent 2.3% of the total workforce, while GPCA member companies have reported 37% Emiratisation rate. This is once again an example of excellent achievement by GPCA member companies in attracting and retaining national citizens.

Similarly, to other GCC states, most Kuwait citizens seek and find employment in the public sector, whereas private businesses hire mostly expatriates. According to national statistics, Kuwaitis constitute 3% of the total workforce in the manufacturing industry, as per the required quota determined by the government. At the same time, GPCA member companies reported 60% nationalization rate in 2017, much higher than the required quota in manufacturing.

The labor market in Oman has been significantly less impacted by foreign labor than in other GCC states. Nevertheless, Oman also has a quota system in place depending on the industry. Within the industrial sector, the quota set is 35%, much higher than in other GCC states. Once again, GPCA member companies have outperformed the quota requirement by reaching 76% Omanization rate in 2017. This is also the highest among other GCC countries.

In Bahrain, the public sector became the prime employer for Bahraini nationals, like in many other GCC states. As per the private sector, only 15% of the workforce is represented by Bahraini citizens. In the latest available data reported by the Bahrain statistics department, national citizens in the manufacturing sector account for 19%, while GPCA member companies in Bahrain have achieved a nationalization rate of 75%, one of the highest rates among other GCC countries.

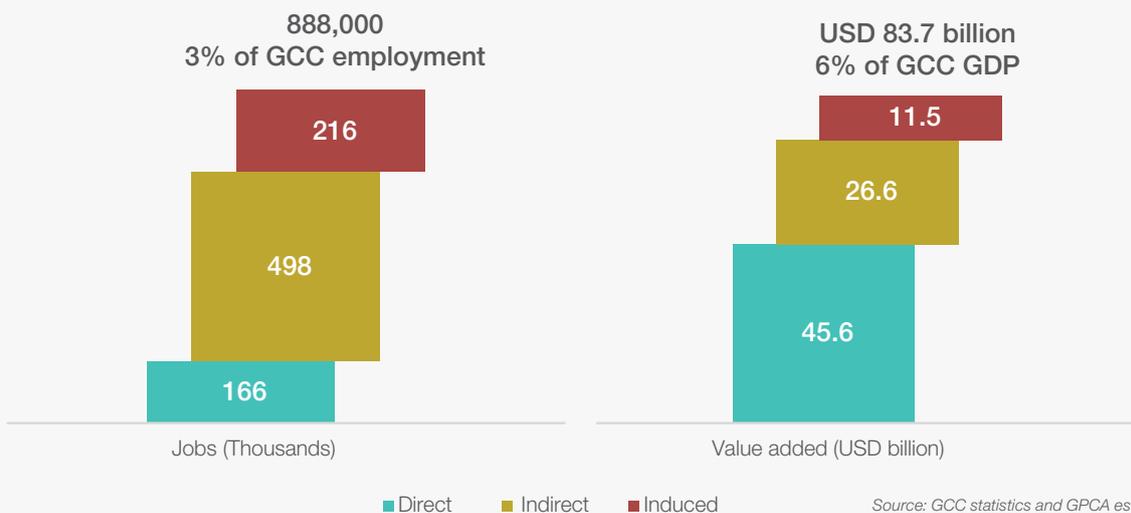
## INDIRECT IMPACT

“ Considering the full range of impact, the GCC chemical industry supports about 6% of GCC GDP (either directly or indirectly), playing a vital role in supporting economic growth and employment

*The chemical industry supports up to 880,000 direct and indirect jobs, which account for 3% of total employment in the GCC*

The GCC chemical industry's impact (direct, indirect, and induced) is estimated at USD 83.7 billion, equivalent to 6% of regional GDP in 2017, making a sizable impact in terms of value creation and employment opportunities. Directly, the industry employs over 166,000 people and over 498,000 are employed indirectly within other industries. GPCA estimates that 18% of those indirect jobs are in the manufacturing sector, 17% in trade and retail and 7% in transportation. 216,000 jobs are induced, meaning they are supported by the chemical industry's employees who make purchases of goods and services for their own consumption. Overall, direct, indirect and induced jobs represent 3% of total employment in the GCC.

### GCC chemical industry impact, 2017



# INTERNATIONAL TRADE

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## GCC CHEMICAL EXPORTS

“GCC chemicals export reached 70.3 million tons in 2017, up by 5% driven by rising demand across the globe and capacity expansion at home

*GCC chemicals exports revenue increased to USD 55.6 billion in 2017, up from USD 44.0 billion the year before. The additional exports revenue generated in 2017 was partly due to higher commodity prices during the same year*

GCC chemicals trade rebounded in 2017, expanding at a pace of 5% during the year. This follows weak trade flows during 2013-2016, with GCC chemicals trade volume growing at a low 0.3% per year. This follows the global trade pattern. In 2017 global trade expanded by 4.7%, its strongest in six years. This was primarily driven by cyclical factors, including investment spending and higher commodity prices.

The recovery of international trade was accompanied by a pickup in the world industrial output and a rise in the ‘Global Manufacturing Purchasing Managers’ Index to a six-year high. Demand for international freight and container shipping also gained momentum in 2017, amid stronger export orders. Following the trend, the GCC chemicals export revenue increased by 24% YoY, reaching USD 55.6 billion. Dollar values on international trade flows are strongly influenced by exchange rates and commodity prices. As reported by WTO, after five years of decreasing or stagnating commodity prices, 2017 showed a price increase for various commodities. However, despite those increases, price levels for most of the products remained under 2010 levels. Based on ICIS IPEX index, chemical prices reached about 75% of 2010 levels.

GCC exports stand to increase due to the US-China trade war, as China will be looking to other producers for chemical imports in order to meet growing demand, with the GCC well positioned to fill this gap. Additionally, the GCC continues to invest in regional production capacity, continuing to stimulate exports from the region.

**GCC chemicals export (2007-2017), million tons and USD billion**



Source: United Nations, GPCA analysis, 2018  
Note: 2016 data revised, 2017 is preliminary

# GCC EXPORT BY PRODUCT SEGMENT

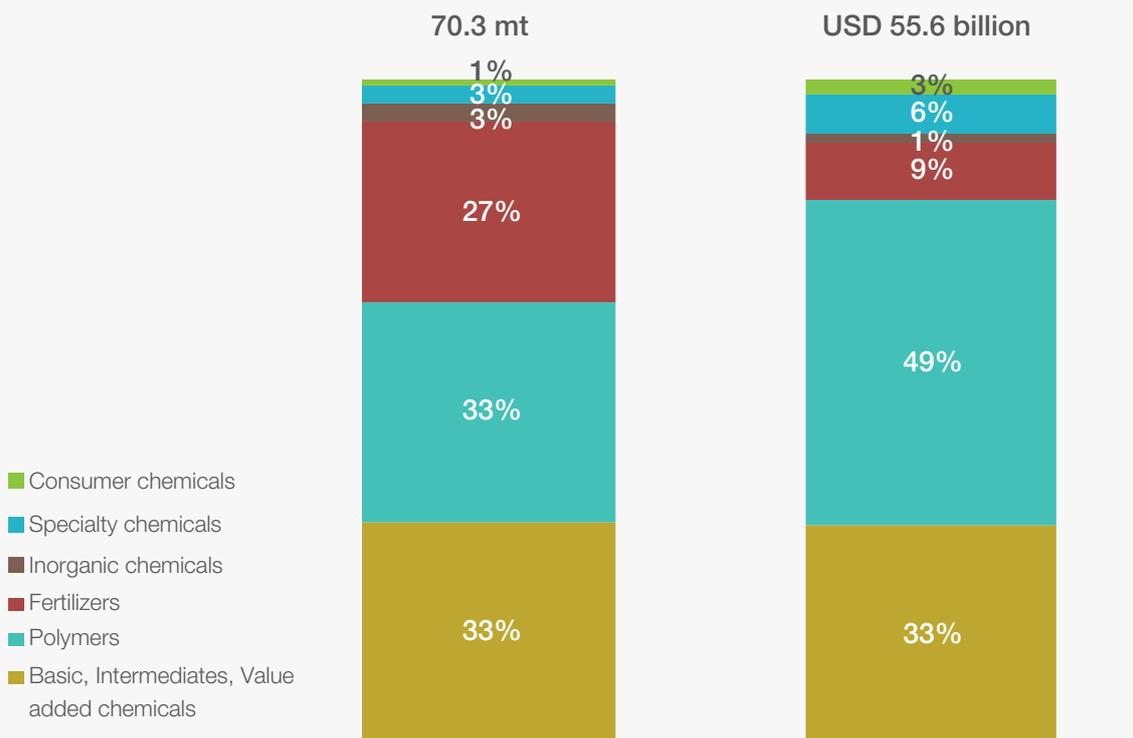
**Petrochemicals (intermediates, basic chemicals and value added chemicals)** is a dominant product segment in the GCC chemicals export, as in production output. While they account for more than half of total production capacity, they represent one third of GCC exports. GCC producers exported 23.5 million tons of petrochemicals, up by 3.1%, breaking a trend of declining export volume between 2013 and 2016. Export revenue from this segment has rebounded strongly as well to USD 18.3 billion, up by 46% in 2017 YoY. Nevertheless, it was not enough to reach levels experienced during high performance years during 2011-2014, when export revenue ranged around USD 22 billion.

**Polymers** export from the GCC is the fastest growing segment among others and highest contributor to chemicals export revenue. Between 2007 and 2017, polymers export volume grew by 12%

per year, twice as fast than the industry's overall. In 2017 alone, polymers export increased by 4%, reaching 23 million tons. In USD value terms, export turned positive as well with an increase of 19% in 2017 after a steep decline in 2015 and 2016. Polymers have the highest contribution to chemicals export revenue generating 49%, while volume represents only one third. Looking ahead, with continuous capacity additions and export orientation of the industry, the current dynamics is expected to continue in the coming periods.

**Fertilizers** made a substantial positive contribution to GCC exports in 2017, adding 27% in volume or 18.9 million tons. Recovering from negative growth in 2016 as external demand decelerated, 2017 returned to a growth trajectory. However, despite their solid share in the volume of exports, fertilizers represent only 9% in export revenue, posing concerns over the potential of the fertilizer industry to generate solid earnings. Revenue per ton of fertilizers export is almost 80% lower than of polymers. Regardless of economics, the fertilizer industry makes a profound impact on a global level, supplying important nutrients and supporting food production.

## GCC chemicals export by product segment, 2017



Source: United Nations, GPCA analysis, 2018  
 Note: 2017 is preliminary.



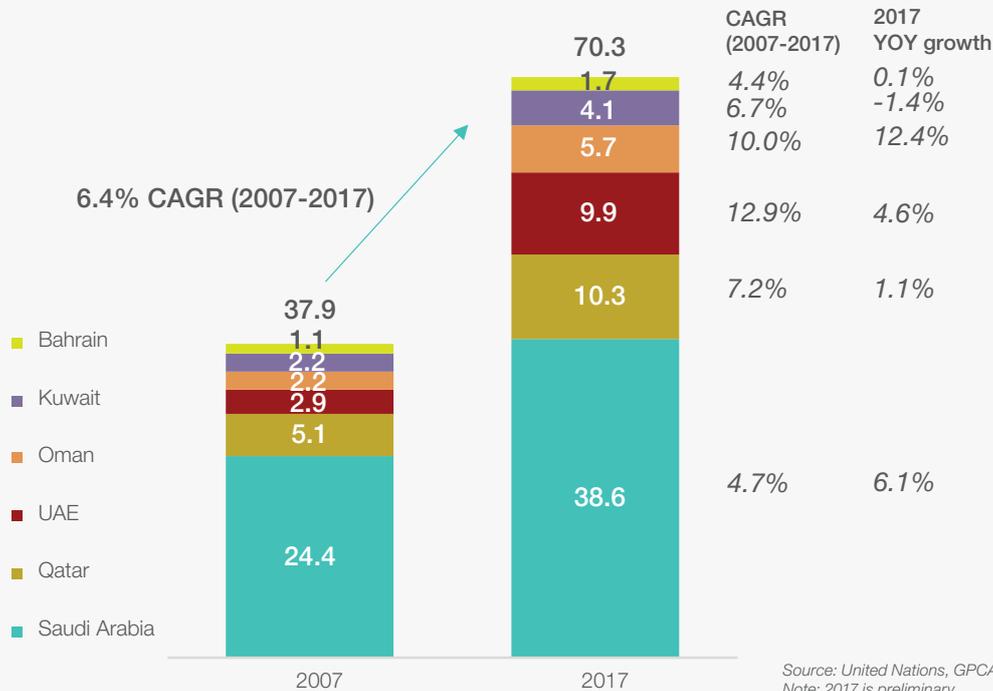
## GCC EXPORT BY COUNTRY

Looking at country breakdown in the GCC chemicals exports, the gap between Saudi Arabia and the rest of the region is persistent: Saudi Arabia represents more than half of all GCC exports, while the other five countries represent the rest. This divide is even more impressive when considering export revenue. In 2017, Saudi Arabia accounted for 61% of the region's export revenue of USD 55.6 billion, a trend which has prevailed over the past decade.

UAE stands out among the GCC countries for gaining better position in terms of market share. Over the past decade, the UAE has improved from 12% in 2007 to 17% in 2017. While in volume terms, the UAE stands in line with Qatar (14-15%), the country's share in the export revenue is significantly better than that of Qatar, thanks to its product mix with exports consisting mostly of polymers and petrochemicals.

On the growth front, the same suspects continue to outperform the regional overall growth. In 2017, Saudi Arabia, the UAE and Oman performed better or in line with GCC growth of 5% YoY.

### GCC chemicals export by country (million tons)



## GCC EXPORT BY DESTINATION

**“ Despite competition, Asia remains the largest trading partner for the GCC, followed by Europe, while South America was the biggest growth market**

Asia remains a top destination for GCC chemicals export, accounting for 64% of total export volume in 2017, or almost 45 million tons. Asia is also responsible for 2017 growth, driving more than 60% of export surplus this year. With this dominance, Asia is a single region determining the growth trajectory of GCC export. The second largest exporting markets are Western Europe (10%) followed by Africa, South America and North America with about 6-7% share each.

Focusing on Asia, preliminary data shows that petrochemicals (basic, intermediates, value added chemicals) represent 40% of GCC exports to this region, followed by polymers (30%) and fertilizers (24%). Among them, the highest growth in 2017 was registered within the fertilizer segment, with physical volume shipments increasing by 19% YoY, driven by volume export increase

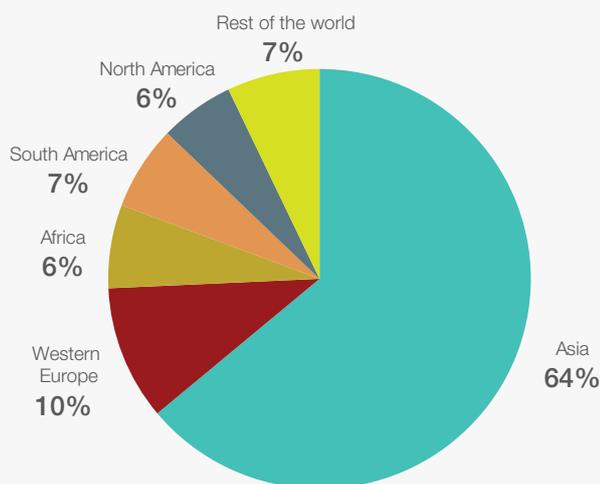
from Saudi Arabia. Within the polymer segment, export to Asia grew by 7% in 2017, slightly higher than total export growth to Asian countries.

Europe is still the GCC's second largest trading region, despite its own vibrant domestic industry. Exports to Europe remain at 7.3 million tons, while export revenue has grown by 28% to USD 7.8 billion. The region's share in GCC exports remained at about 10% in volume terms. Two product groups represent the lion's share of GCC exports to Europe – polymers and petrochemicals (54% and 40% respectively).

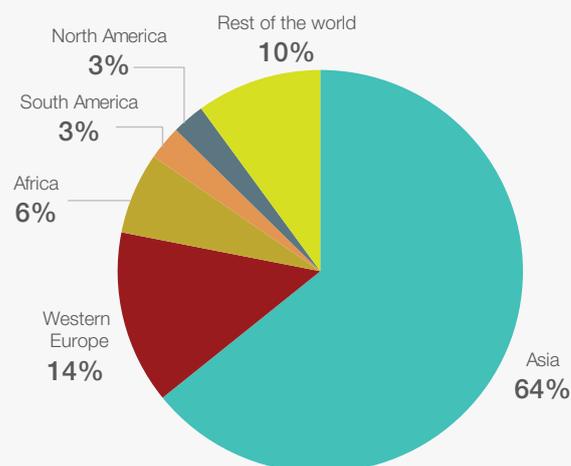
North America has traditionally been an export market for the GCC fertilizer industry. Only 4 million of chemical products were exported to North America in 2017, and 79% are fertilizers. Dominance of fertilizers in GCC exports to this region remains relatively the same over time: a decade ago they accounted for 70%.

South America proved to be the big growth market for GCC chemicals. While this region only represents a minor share, the consistent growth of exports to South American countries, has lifted their share from 1% a decade ago to the current 7%. This growth was driven by the fertilizer industry which accounts for 89% of GCC exports to South America.

**GCC chemicals export by regions  
2017 total 70.3 million tons**

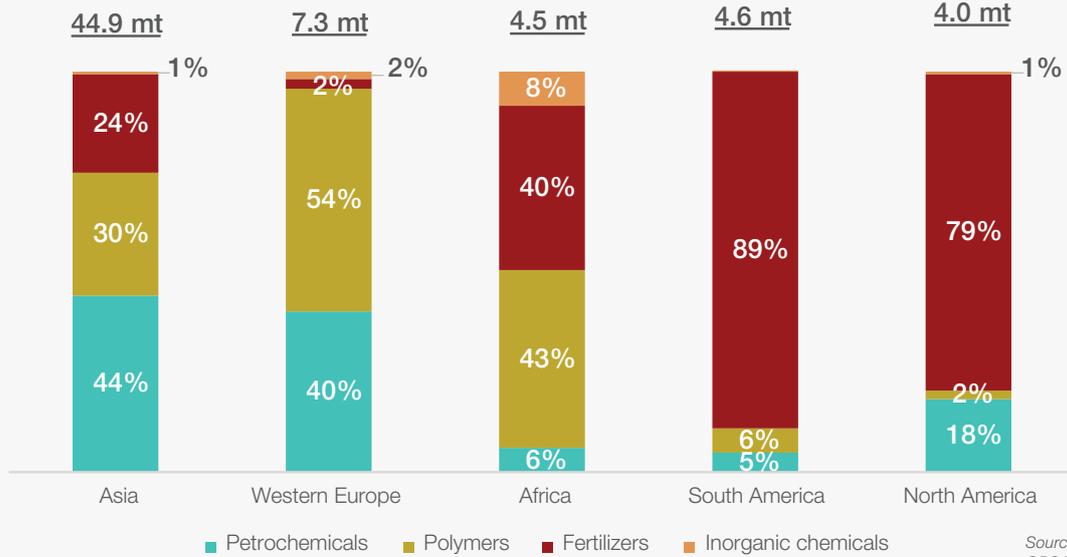


**GCC chemicals export by regions  
2017 total USD 55.6 billion**



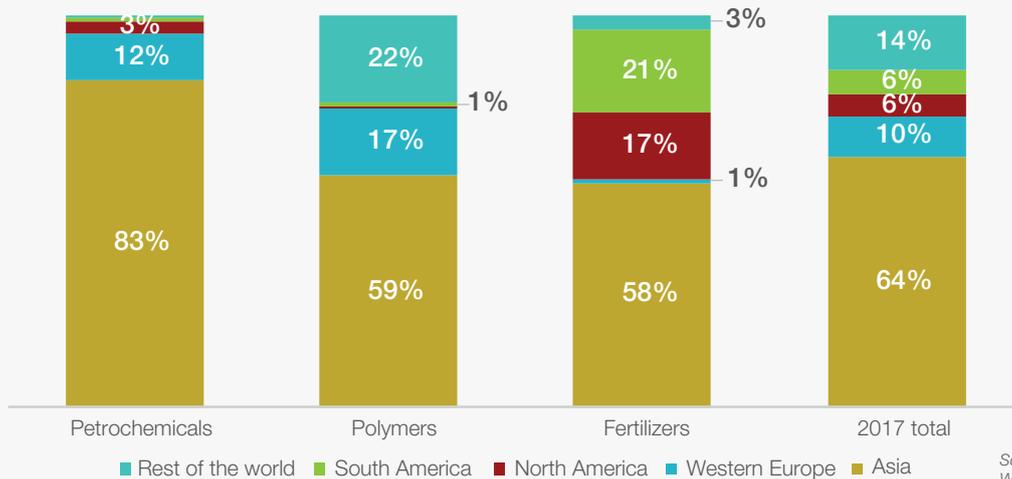
Source: United Nations, GPCA analysis, 2018  
Note: 2017 is preliminary.

## 2017 GCC chemicals export by regions and product segment



Source: United Nations, GPCA analysis, 2018

## Composition of key export markets by product segment, 2017



Source: United Nations, WTO, GPCA analysis, 2018

## TRADE OUTLOOK

Looking ahead, trade is expected to experience a moderate growth in both 2018 and 2019. The major source of uncertainties includes the ongoing international political tensions and spreading protectionist measures, which have potential to pose a setback to recovery of global trade. The decisions of the United States to renegotiate the North American Free Trade Agreement (NAFTA), and to reassess the terms of its other existing trade agreements could lead to escalation in trade barriers. Uncertainty surrounding UK's negotiations for Brexit may also undermine the global trade outlook through deterioration in business confidence in Europe. US-China trade war continues to escalate, with the third round of

tariffs being implemented from both sides. Chemicals and polymers are all impacted within the second and third rounds and rates will jump again by 1 January 2019 unless there is an agreement resolved.

The chemicals trade performance in 2019 is also dependent on continued growth within customer industries and commodity prices. For the GCC, as commodity exporters, the rise in global commodity prices will support growth in export revenues. As reported by the World Bank, crude oil prices are expected to average USD 72 per barrel in 2018 and USD 74 per barrel in 2019. The growth of the petrochemical industry has long been intertwined with that of crude oil and rising crude oil prices will drive up market prices for many downstream chemical intermediates and plastics.

# GCC'S POSITION GLOBALLY

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# GCC'S SHARE IN CHEMICAL OUTPUT

**“ The GCC’s share in global petrochemical capacity has more than doubled since 2000 to 6.6% in 2017**

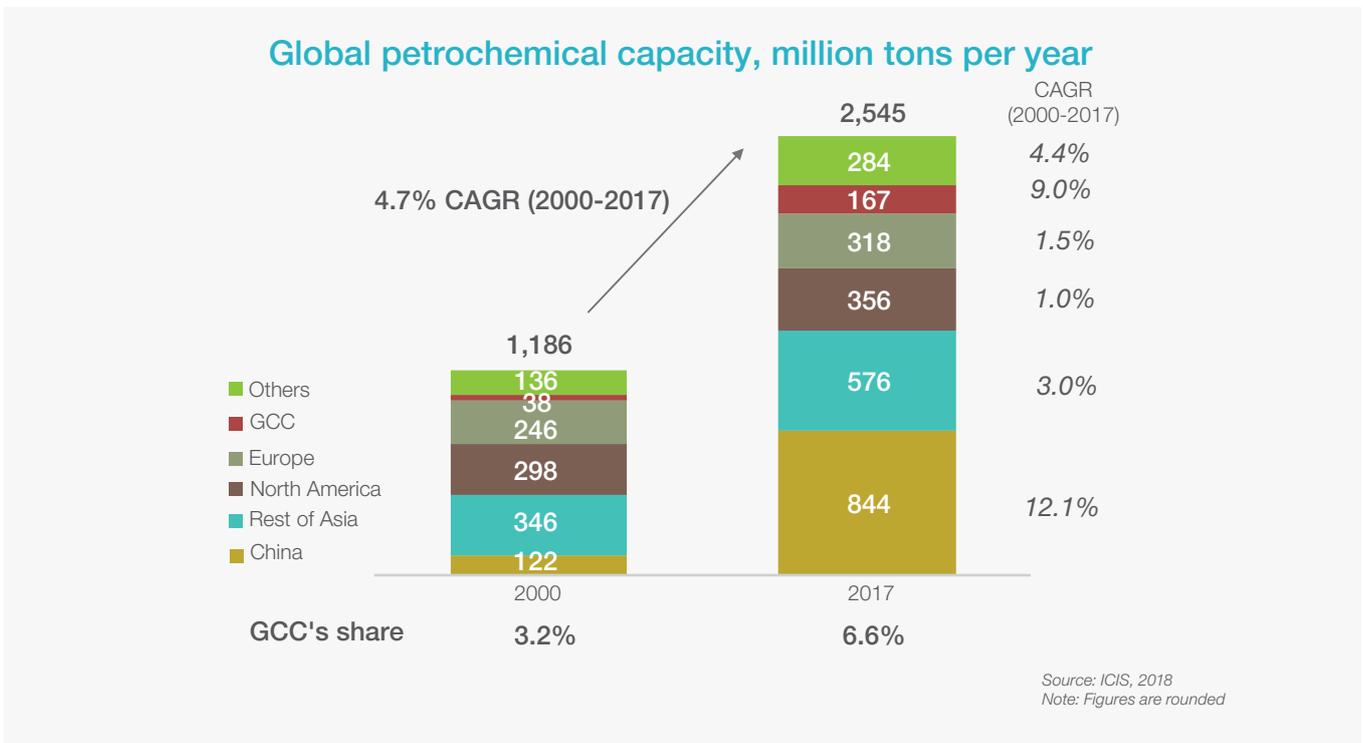
**China leads the global industry, representing 37% a staggering progress from 10% in 2000, while North America and Europe are losing their positions**

Global petrochemical capacity grew by 4.7% per year since 2000 and was driven largely by Asia (and China in particular), which was responsible for 70% of capacity additions between 2000-2017. The figures tell a story of continued growth by Chinese industries with production capacity surging at a 12.1% CAGR during this period. With such speed of growth, China leads the global industry, representing 33% of global industry, a staggering progress from 10% in 2000. This is one single market which has gained a big market share advantage.

Like China, the GCC was also able to gain momentum, increasing its market share from 3.2% in 2000 to 6.6% in 2017. As discussed in earlier chapters, GCC chemical output is largely driven by Saudi Arabia, which now accounts for 4.4% of the global market share.

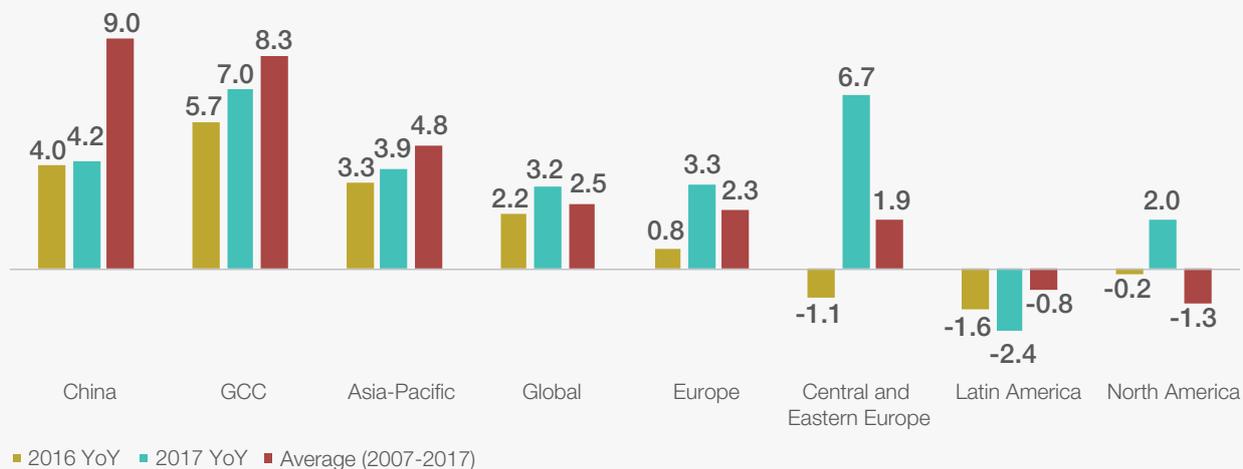
While Asia and the GCC have led growth over the past two decades, North America remains the second largest producer globally, representing 14% of chemical output. Although it could not keep the pace of growth, North American share globally has dropped from 25% in 2000. Similarly, a declining market share trend has touched Europe, which has lost about 8% market share since 2000 landing at 13% in 2017. In the future, as the US boosts its shale gas production, growth of the US domestic chemical industry could uplift the North American position globally again.

From a 2017 growth perspective, the GCC had the highest rank among other competing regions. With 7% growth, the GCC has outpaced China where production increased by 4.2% and Asia-Pacific with 3.9% growth.





### Growth of chemical industry by region, %



Source: American Chemistry Council, GPCA analysis, 2018

## GCC'S SHARE IN CHEMICALS REVENUE

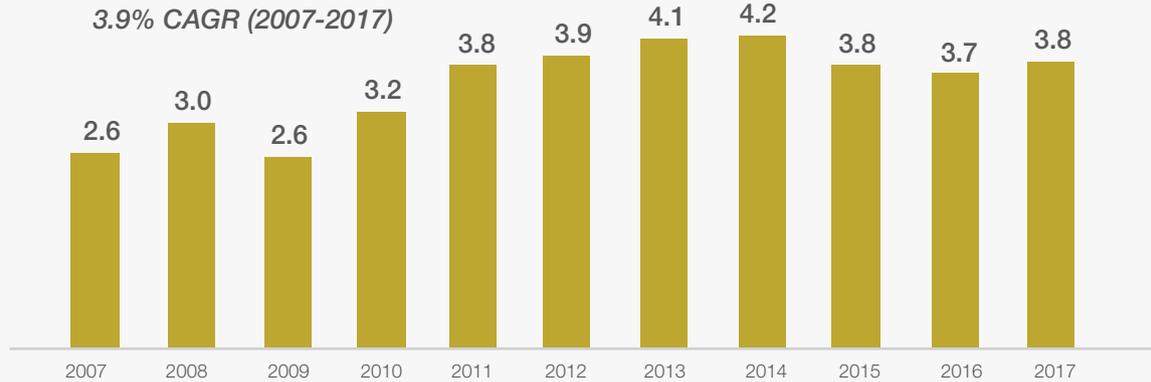
“The global chemical industry generated revenue of USD 3.8 trillion in 2017, up by 4.6% from a year ago, led by Asia and the EU

GCC's share in global revenue continues to evolve; in 2017 it accounted for 2.2%, up from 1.4% a decade ago

The latest figures from the European Chemical Industry Council (Cefic) indicate that 2017 was a year of strong growth for major producers. After a challenging year in 2016, chemical companies have benefited from the improvement in oil and commodity prices during 2017. The global chemical industry achieved revenue of USD 3.8 trillion in 2017, an increase of 4.6% from the year before. This is the first shift in declining or sluggish dynamics since 2013.

Apart from Africa, most regions recorded an increase in chemicals revenue in 2017. Growth in the GCC of 17% in 2017 was the most impressive, compared to other regions. As highlighted by GPCA last year, there is still scope for further improvement, given that the GCC is a major player in global chemicals trade. With the future diversification of the industry, there is strong potential for the region to improve its position globally. Currently, GCC accounts for 6.6% of global production capacity, while its share in sales remains modest, at 2.2%.

## Global chemicals revenue, USD trillion



Source: European Chemical Industry Council (Cefic) Chemdata International, GPCA analysis, 2018

## 2017 global chemicals revenue by region

Region	USD million	Share
Asia (excluding GCC)	2,290,004	59.6%
EU28	599,629	15.6%
NAFTA	573,987	14.9%
Rest of Europe	123,593	3.2%
Latin America	120,029	3.1%
GCC	84,199	2.2%
Africa	32,356	0.8%
Oceania	20,532	0.6%
<b>World</b>	<b>3,844,329</b>	<b>100%</b>

Source: European Chemical Industry Council (Cefic) Chemdata International, GPCA analysis, 2018

## Chemicals revenue growth by region, %



Source: European Chemical Industry Council (Cefic) Chemdata International, GPCA analysis, 2018  
Note: Growth is based on revenue measured in USD.



# FUTURE OUTLOOK

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The GCC chemical industry is an important driver of growth within GCC manufacturing. However, continuing to fulfil this role in the long term will require additional efforts. Like all industries, the chemical sector is facing strategic and structural challenges. Circular economy is gaining an importance and digitalization will lead to changes in all aspects of industry operations. These are two core topics which will shape the industry in the following decade and beyond. While the GCC region is not yet under regulatory pressure like other regions (i.e. Europe), companies should take a proactive approach to seek opportunities which would make it possible to meet possible future regulatory demands.

## GCC CAPACITY FORECAST

**“ The GCC chemical industry is forecasted to grow by 3.4% per year over the next decade, driven by capacity additions in Saudi Arabia, while other countries are fighting for market share**

With a growth rate of 8.3% over the past decade, the GCC chemical industry is set to grow by 3.4% per year over the next decade (2017-2027), driven by investment activity on the back of rising export demand. In Saudi Arabia, the heartbeat of the GCC

chemical industry, the future forecast is for chemical production capacity to continue to rise by 2.7% per year to 147.5 million tons by 2027. In the short term, Saudi Arabia is expected to add 3% in 2019, arriving at 120.8 million tons.

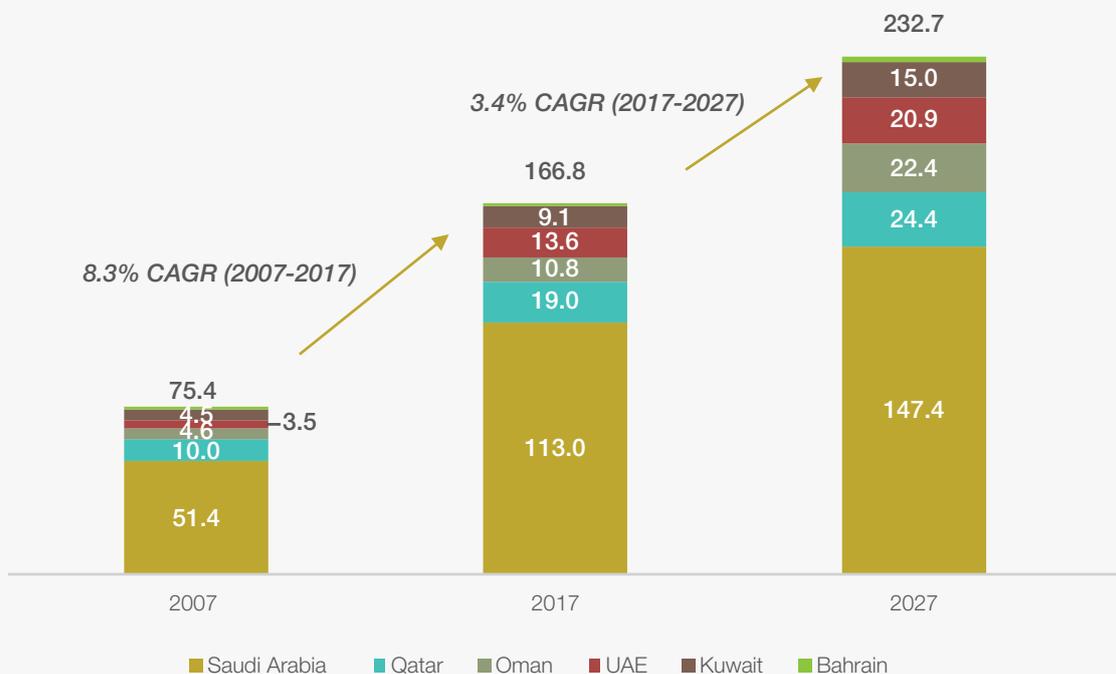
The second growth country is Oman which will account for 18% of total capacity addition between 2017 and 2027. This will help Oman to increase its regional share from the current 6% by 4 percentage points by 2027 when the country’s production capacity will reach 22.4 million tons.

Despite uncertainties, Qatar is expected to remain one of the largest producers in the region, accounting for about 11% market share. In the near term, Qatar’s chemical industry will grow by 1% in 2018 and 2019; accelerating growth over the following years will lead to an average 2.6% annual growth rate between 2017-2027.

As we stand today, the anticipated growth rate for the UAE chemical industry is 4.4% per year throughout 2017-2027. However, with ADNOC’s expansion strategy focused on tripling petrochemical output by 2025, we can expect new project announcements. This will improve the industry’s future growth and its position in the region.

GCC countries will continue to expand their production capacity including traditionally smaller producers like Bahrain. Over the next decade, the growth pattern will change upwards, with about a 6.6% annual growth rate which will help the country to keep its market share consistent with current levels.

### GCC chemical production capacity by country (million tons)



### 2017-2027 capacity additions by country (million tons)



Source: GPCA analysis, 2018



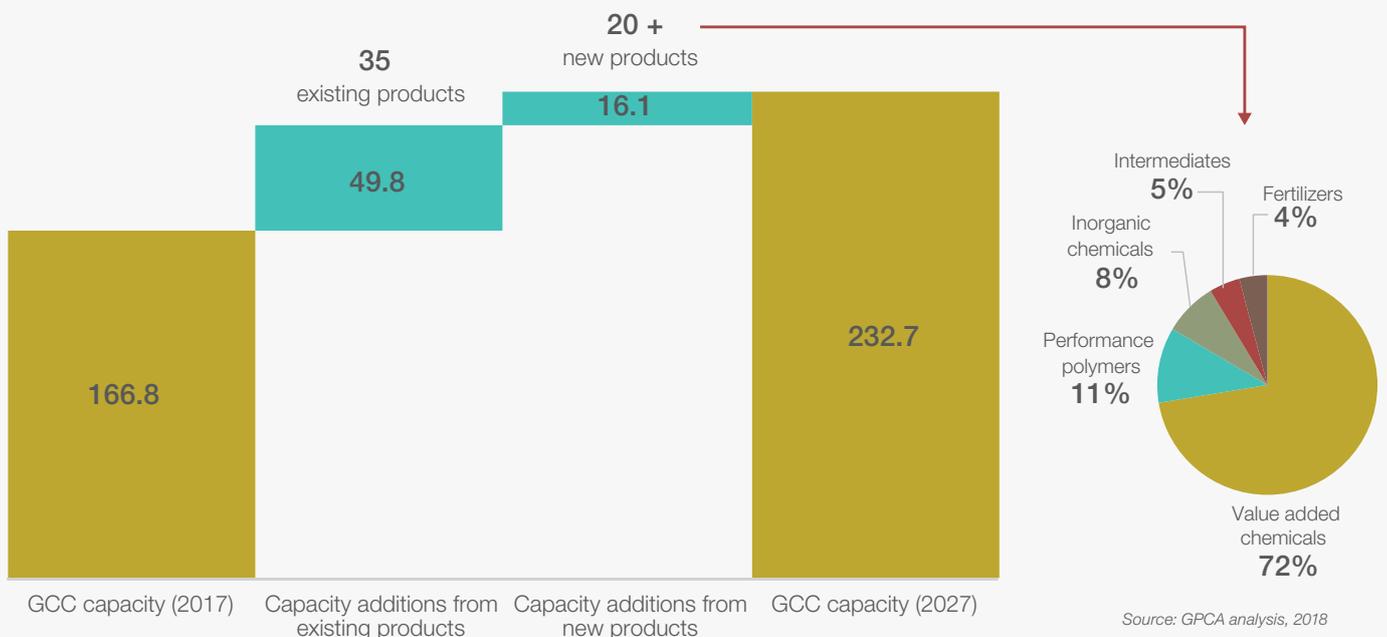
## DIVERSIFICATION FORECAST

The GCC chemical industry continues to create value within existing production by introducing new product lines. Over the next decade, more than 20 new products will enter production, providing new solutions to its customers. Half of those new product lines are performance and value added chemicals, which have the potential for further value creation in the region. Companies understand that they can no longer depend on volume to drive growth, which leads to gradual structural changes. In volume terms, new products will

add about 16.1 million tons, representing 24% of total capacity additions. In the mix of new products value added and performance polymers account for 84% of capacity additions. It is important to mention, that these are currently known expansion plans and there is strong expectation for new project announcements in the coming years.

Significant new capacity will be added within existing product lines. About 49.8 million tons are expected to come on stream from 35 products currently in operation in the GCC. Again, around one third of these capacities, or 37%, will come from polymers (commodity and performance polymers) and value added chemicals segments, while another 37% from base chemistry business (basic chemicals and intermediates).

### Product and capacity additions in GCC chemical industry (2017-2027)



The Gulf Petrochemicals and Chemicals Association (GPCA) represents the downstream hydrocarbon industry in the Arabian Gulf. Established in 2006, the association voices the common interests of more than 250 member companies from the chemical and allied industries, accounting for over 95% of chemical output in the Gulf region. The industry makes up the second largest manufacturing sector in the region, producing over USD 108 billion worth of products a year.

The association supports the region's petrochemical and chemical industry through advocacy, networking and thought leadership initiatives that help member companies to connect, to share and advance knowledge, to contribute to international dialogue, and to become prime influencers in shaping the future of the global petrochemicals industry.

Committed to providing a regional platform for stakeholders from across the industry, the GPCA manages six working committees - Plastics, Supply Chain, Fertilizers, International Trade, Research and Innovation, and Responsible Care - and organizes five world-class events each year. The association also publishes an annual report, regular newsletters and reports.

For more information, please visit [www.gpca.org.ae](http://www.gpca.org.ae)

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