



Islamic Republic of Iran



National Export Strategy 2021-2025

Petrochemicals Strategy

Building on Iran's natural assets and industrial strengths to supply global markets



This Petrochemicals Strategy was developed as part of the National Export Strategy of Iran on the basis of the process, methodology and technical assistance of the International Trade Centre (ITC) within the framework of its Trade Development Strategy programme.

ITC is the joint agency of the World Trade Organization and the United Nations. As part of ITC's mandate of fostering sustainable development through increased trade opportunities, the Research and Strategies for Exports section offers a suite of trade-related strategy solutions to maximize the development pay-offs from trade. ITC-facilitated trade development strategies and roadmaps are oriented to the trade objectives of a country or region and can be tailored to high-level economic goals, specific development targets or particular sectors, allowing policymakers to choose their preferred level of engagement.

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Islamic Republic of **Iran**
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FOREWORD

BY THE MINISTRY OF INDUSTRY, MINE, AND TRADE

Non-oil exports have become increasingly important to Iran in recent years. Increasing international trade is not only a means of boosting economic growth and the nation's welfare, but also contributes to strengthening international relations and the stabilization of economic and political affairs by paving the way for reinforcing friendly relations based on mutual interests with a wide range of trade partners. Trade is one of the most important forms of exchange between countries and fostering this will lead to connections such as foreign investments, scientific and technical exchanges, and cultural relations, all of which will contribute to the country's growth and prosperity in all respects. Hence, expanding trade would provide a basis for development in other areas of cooperation and is of great importance from this perspective. In addition to substantial investment to expand export potential, growing foreign trade requires strategic targeting as well as addressing constraints. In this context, Iran's Trade Promotion Organization developed a National Export Strategy (NES) with the support of the International Trade Center (ITC) that has similar experience in designing NES in more than 50 countries. The strategy is going to cover general trade-related factors such as ensuring export quality that is relevant to the export of all goods. It also addresses a number of sector-specific strategies in form of independent strategies. All activities in the framework of designing strategies have led to diagnosing sets of plans of actions in order to tackle issues and problems to facilitate export procedures.

The plan of actions indicated in the strategies will be implemented by I-TPO in close collaboration with national stakeholders during the next 5 years and I-TPO will enjoy ITC support during the implementation period.

I would like to thank each and every entity from the private sector, distinguished exporters as well as managers and exports from various ministries and institutions who have contributed to the development of the NES and sincerely appreciate their contributions. Also, the initiative would not be successful without supports from the European Union and the ITC. We hope all contributors to the designing of the NES would continue their support to the I-TPO during the course of implementation of the recommended actions so that we achieve the goals of this strategy in practice and we witness the export promotion of non-oil exports in our country.

Ministry of Industry, Mine, and Trade

FOREWORD

BY IRAN'S TRADE PROMOTION ORGANIZATION

The ITPO signed a Memorandum of Understanding with the International Trade Centre (ITC) in 2016 in order to benefit from its expertise in expanding non-oil exports. One of the most important clauses of this MOU concerned the development of the NES. Implementation of the memorandum materialized after the European Union (EU) made a fund available for the ITC to provide technical assistance to ITPO in 2018. The NES development process started at the beginning of the Iranian year 1398 (April 2019), enjoying the technical assistance of the ITC as well as the contribution of international experts. The result of the 1.5 years of cooperation is now being presented to you.

The following points as regards these documents are worth mentioning:

- The NES has been developed in collaboration with the public and private sectors, relying on the expertise of the ITC. In fact, public and private stakeholders in each sector were consulted by the experts of the ITC in the process of designing the NES and, therefore, the results are agreed upon by these entities. Reaching such a consensus on non-oil exports is unprecedented and thus the proposed plans of actions in the NES are of great importance.
- Around 500 key participants from the production and export sectors of the country have been consulted by the expert group of the ITPO and the ITC during the process of NES preparation.
- While proposed solutions envisaged in the document address Iran's specific problems, they also make use of worldwide experience and international expert's viewpoints.
- Independent International consultants have been consulted in addition to the ITC experts and their views have been reflected in the documents.
- International experts' field visits to production and export chains and sites played a key role in understanding the current situation and designing the NES.
- The implementation of planned activities of the NES will take several years and require the support of the ITC and international experts.
- Through the process of the NES development in each sector, a set of reviews, consultation with stakeholders, and also field visits were organized and strategic objectives were set in order to address problems and remove constraints at the first step; then, operational objectives were set under each strategic objective; after that, relevant activities were designed under each operational objective; and finally, a leading entity and its partners were listed for each activity. More than 350 actions have been designed in total. We expect that non-oil exports to be revolutionized as a result of the implementation of this plan of action. More information regarding the NES and expert recommendations are listed in the following table:

Sectors	Strategic Objectives	Operational Objectives	Activities
Fruits and Vegetables	3	11	47
Medicinal Herbs	3	13	40
Tourism	3	11	41
ICT	3	15	50
Auto parts	3	8	29
Petrochemicals	4	12	33
Trade information and Promotion	3	7	35
Quality Management	3	15	56
Entrepreneurship	3	10	28
Total	28	102	359

- The NES has been developed with the goals of:
 - » Fostering coherence and coordination between stakeholders at the sectoral and national levels;
 - » Elaborating a comprehensive approach to removing constraints and expanding exporting in priority sectors;
 - » Identifying and addressing exporters' needs for support services;
 - » Supporting the SMEs throughout the export process;
 - » Providing necessary training in priority sectors with the support of national and international experts;
 - » Developing export promotion and branding;
 - » Making effective use of ICT in export-oriented marketing; and
 - » Identifying and assigning appropriate entities for the implementation of the designed activities in the NES.

The design of the NES would not have been possible without the support of the ITC and its experts, who have experience in designing export strategies in more than 50 countries. The NES is also the result of cooperation between representatives of 17 national ministries and various organizations and stakeholders with mandates related to the promotion of non-oil exports. This collaboration benefitted the design of the NES. Also, the process

enjoyed the network and sincere cooperation of Iran's Chamber of Commerce, Industry, Mine, and Agriculture in inviting the private sector to participate in consultation meetings and as a result, a large number of the private sector and associations' representatives and a variety of stakeholders were engaged. None of this would have taken place without the support of the EU and its work on "Trade for All" that is promoting economic and trade relations between countries as the best way to secure worldwide stability and peace.

Therefore, the ITPO, for its part, appreciates all entities and individuals who contributed to the designing of the NES. We hope to be privileged to have support from all actors in the implementation phase of the NES. Like the designing of the document that has resulted from the contribution of a wide range of national and foreign institutions and individuals, its implementation also could not happen without relying on all of those actors. Therefore, the ITPO, during the implementation phase, will seriously maintain and strengthen the established mechanisms and networks built during the course of the NES development. We hope that this move proves to be a big step towards the promotion of the non-oil export of the country and contributes to the improvement of the Iranian nation's living standards.



FOREWORD

BY THE INTERNATIONAL TRADE CENTRE



Iran's place between east and west has long put it in a pivotal position in global trade. With natural resources, a rich tourism offer, high-quality agricultural products and a well-rooted manufacturing industry, the country is well positioned to take the next step toward greater trade-led growth.

The country has the potential to leverage its assets to become a centre of innovative digital solutions. With its highly-educated and productive labour force and investment attractiveness Iran could position itself to be a major exporter to markets across the region and around the world.

These strengths have been cultivated in a challenging external context. But there have also been clear domestic constraints which have contributed to impeding the realization of Iran's potential for growth. However, the need to build greater economic resilience, especially with the impact of global pandemics, has taken centre stage.

Against this backdrop, Iran has developed its new National Export Strategy (NES). The document reflects a growing consensus on the need to focus on trade-led growth to complement domestic resilience.

Trade-led success will require consistent and organized efforts. In developing the strategy, key actors have acknowledged the need to tackle the private sector's critical challenges. The NES proposes tailored solutions and leverages the country's strengths and competitive advantages.

During the consultations for this NES, all stakeholders recognized the need for further policy convergence and stronger coordination at the level of institutions if the country was to move forward. This coherence is at the core of the NES – joining forces toward a shared vision and making strategic choices that further develop the economy. The NES provides a framework for setting priorities, coordinating action and defining concrete steps. It was designed through analysis and consultation involving hundreds of voices from across the public and private sectors and input from international market experts.

The International Trade Centre (ITC) commends the leadership of the Ministry of Industry, Mine and Trade, the Iran Trade Promotion Organization and applauds the enthusiastic involvement of the private sector in the design of this strategy. ITC will continue to support Iran to ensure that the objectives of the NES are attained rapidly to support greater inclusive, sustainable, and resilient development.

Finally, ITC wishes to thank the European Union for its support to this initiative as part of its EU-Iran Trade Development project.

Pamela Coke-Hamilton
Executive Director of the International Trade
Centre

A handwritten signature in black ink, appearing to read 'P. Coke-Hamilton'.

ACKNOWLEDGMENTS

The Petrochemicals Strategy forms an integral part of the Islamic Republic of Iran's National Export Strategy (NES). It was developed under the aegis of the Islamic Republic of Iran and the leadership of the Ministry of Industry, Mine and Trade (MoIMT) and the Trade Promotion Organization of Iran (ITPO). This strategy was elaborated thanks to the technical assistance of the International Trade Centre (ITC) and falls under the framework of the project "European Union (EU) – Iran Trade Development: Trade-Related Technical Assistance, capacity building, and value chain development for inclusive and sustainable trade-led growth in Iran".

The document benefited particularly from the inputs and guidance provided by the sector stakeholders that steered the formulation of the strategy, namely:

Institutions / Natural and Legal Persons
Ministry of Industry, Mine and Trade
<ul style="list-style-type: none"> • Deputy of Industries • ITPO's Desk for Petrochemical Products • Institute for Trade Studies and Research
Petrochemicals Commercial Company
Bureau of Downstream Industries Development- National Petrochemical Company
Iranian Oil ,Gas and Petrochemical Products Exporters' Union
Association of Petrochemical Industry Company
Iranian Polymer Association
Representatives of companies active in Petrochemical sector

Technical support and guidance from ITC was rendered by the following people:

Name	Designation	Organization
Trade Strategy team		
• Ms. Barbara Oliveira Ramos	Chief, Research and Strategies for Exports	ITC
• Mr. Anton Said	Head, Trade Development Strategies Programme	ITC
• Mr. Eric Buchot	Senior advisor	ITC
Assisted by:		
• Mr. Derek Carnegie	International consultant	ITC
ITC local team		
• Mr. Mirhadi Seyedi	ITC representative in Iran	ITC
• Mr. Majid Bahrami Forouzan	ITC representative in Iran	ITC
• Mr. Mehdi Yaghoubi	Media support consultant	ITC

NOTE TO THE READER

The Iran NES was developed on the basis of a participatory approach, during which more than 400 Iranian industry leaders, small business owners, farmers and public sector representatives held consultations to reach consensus on key sector competitiveness issues and priority activities. These inclusive consultations were held in Tehran and in some sector-specific regions, including Kerman, Yazd and Isfahan.

Besides in-depth research and value chain analysis, these consultations were complemented by:

- **Factory visits where supply chain assessments** were carried out to gain further knowledge on key issues such as quality procedures, technical skills, lean management, quality of raw materials and access to markets, etc.
- **Interviews with domestic, regional and international buyers** to guide the NES with strategic insights and market intelligence as well as buyers' requirements in terms of quality standards, food safety, packaging, buying cycles, distribution channels and prices, etc.

The NES is aligned with existing national and sector-specific plans and policies and builds on ongoing initiatives in areas related to private sector development, regional integration, investment and economic empowerment of youth. Equally importantly, the NES initiative already accommodates budgeting to support implementation of critical pilot activities identified during the design process. This will ensure that impact and momentum are generated from early on, and support further resource mobilization and confidence-building.

The principal outputs of the Iran NES design initiative are endorsed, coherent and comprehensive export strategy documents with a five-year detailed plan of action (PoA) and implementation management framework. These documents include:

- I. A main NES document, which contains trade support functional strategies, offering critical support across value chains and acting as enablers for sector development;
- II. Individual NES priority sector strategies packaged as separate documents, but in alignment with the main NES findings and overarching strategic objectives.



NES Iran

Main NES document including trade support functional strategies:

- Quality management
- Trade information and promotion
- Entrepreneurship

Individual NES priority sector documents:

- Fruits and vegetables
- Medicinal herbs
- Information and communication technology (ICT)
- Tourism
- Petrochemicals
- Automobile parts

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ACRONYMS AND ABBREVIATIONS

ITC	International Trade Centre
MFN	Most-favoured-nation
NES	National Export Strategy
SMEs	Small and medium-sized enterprises



EXECUTIVE SUMMARY

Iran's large petrochemical sector has the potential to further expand its exporting by leveraging the country's resource endowments and industrial capacities. While sanctions have been particularly problematic for the sector's export prospects, steps can be taken to reduce the uncertainties arising from this situation. This sector strategy document is intended to review and inform stakeholders of recent trends in the petrochemical sector, its strengths and potential, and the main challenges it faces.

Global production of petrochemicals is growing, with new producers emerging and new sources of demand arising in emerging economies. At the same time, the increased attention being paid to the sector's environmental impact will affect its future growth, as will the short – and long-term changes to supply and demand brought by the COVID-19 pandemic. This context presents both challenges and opportunities to established producers such as Iran.

It is a relatively high-productivity sector, with its competitiveness supported by a combination of natural assets and exogenous factors. These include access to raw materials, a strategic location and strong domestic demand; sector organization factors, such as its established and growing industrial capacity, supportive policy environment and strong fundamentals to attract investment; and human and technology factors, such as the pool of experienced labour and higher education capacities.

These strengths have supported the sector's development and its potential for further export-led growth. Chemicals and petrochemicals and related products account for a large share of manufacturing output and employment, as well as exports. Organic chemical exports were worth \$4.1 billion in 2018, representing 13.6% of total non-fuel exports, with most of this destined for the People's Republic of China, the United Arab Emirates and the Republic of India. In addition, plastic exports

totalled \$5.6 billion and fertilizers exported totalled \$843.7 million, or 18.4% and 2.8% of non-fuel exports, respectively.

The total export potential in the chemicals sector is estimated to be \$6.4 billion, with another \$6.7 billion in export potential in rubber and plastics. Export potential for chemicals is greatest in East Asian markets (with \$875 million in untapped export potential), followed by those of South Asia and the Middle East. Realizing the full export potential of the chemicals sector would create an estimated 51,000 new jobs and improve output in related sectors.

Multiple fundamental constraints complicate the achievement of this potential, however. Factors limiting the ability of firms to compete internationally include the need for upgrading and diversification of production in the sector and the domestic regulatory framework, which has little transparency and can foster inefficiencies. The scope for connecting firms to markets and investors is constrained by the management of the effects of sanctions, which have increased uncertainty, as they have complicated trade. The potential to change and improve the sector's prospects is affected by the need for new sources of investment to be identified and attracted, the underdevelopment of downstream petrochemical activities, the concentration of production among a small number of firms, and the need to mitigate the sector's environmental impacts.

The implementation of the petrochemicals sector strategy will help to address these constraints and to direct the sector towards a future with improved exporting through enhanced product quality and price competitiveness, diversified production across the value chain, and the creation of new opportunities for inclusive and sustainable growth. The strategy is thus framed by the vision of ["Building on Iran's natural assets and industrial strengths to supply global markets"](#), as will be realized through its four strategic objectives.



Strategic Objective 1: Manage trading relationships to succeed in an uncertain and changing external environment

The significant challenges posed in the immediate period by sanctions and over the longer term by increasing international competition. Actions to be taken under this strategic objective include the identification of means to mitigate the effects of sanctions in international trade and reduce uncertainty in order to encourage investment. Domestic market opportunities are also to be identified and built on.

Strategic Objective 2: Support institutional and policy reform to broaden production opportunities

Effective and efficient regulation is needed to best leverage the strengths and competitive advantages of Iran's petrochemicals sector. The strategy will identify potential areas of policy reform to be considered, including regarding the use of cluster policies and special petrochemical zones (SPZs), and fostering of linkages and productivity spillovers beyond these zones. Regulatory barriers limiting opportunities for smaller firms and new entrants will be addressed to encourage the growth of these producers and to allow for greater dynamism in the sector. Institutional capacities to support these firms and their exporting will also be developed.

Strategic Objective 3: Facilitate investment and access to finance for growth and diversification

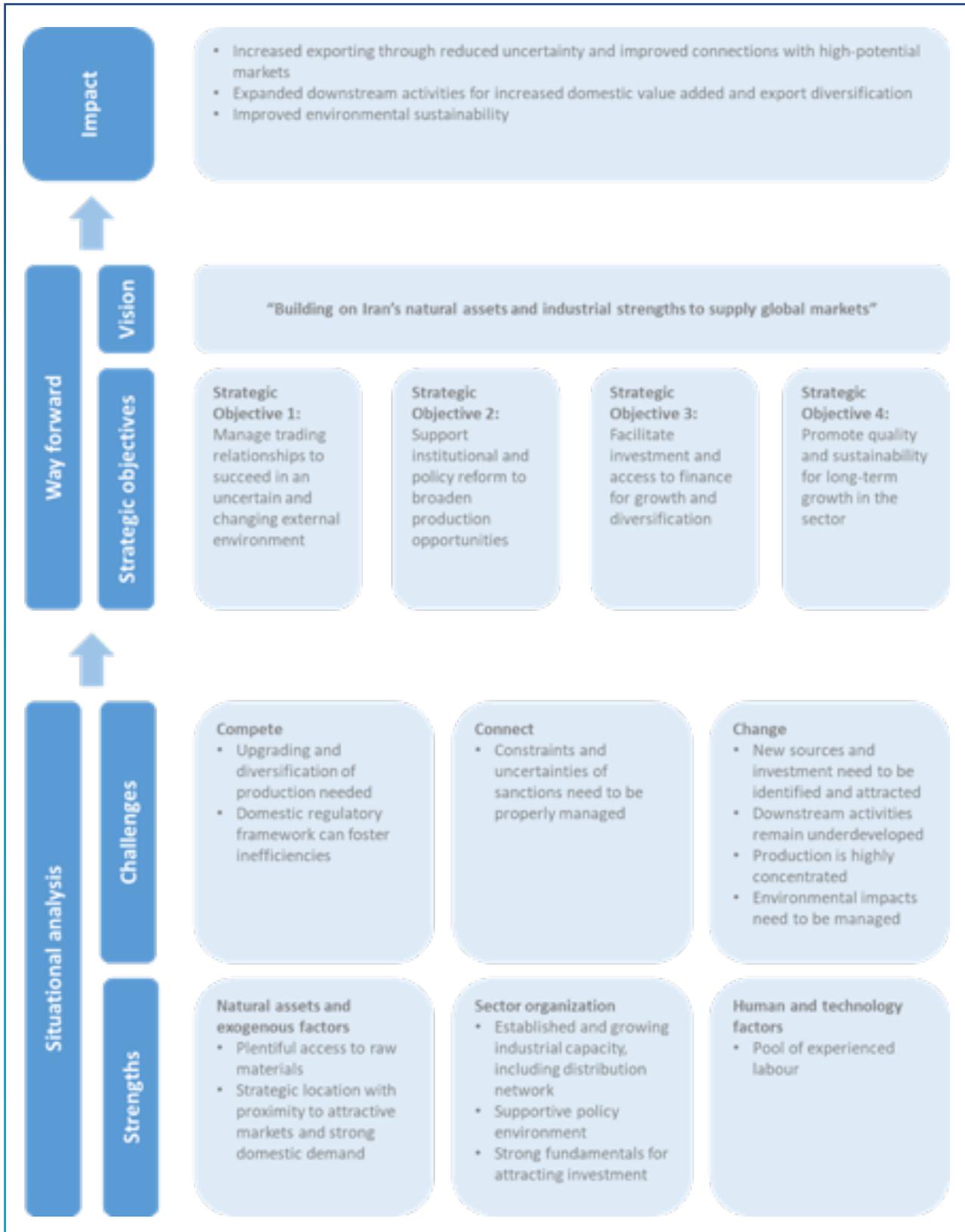
Improving investment and access to finance is critical to the sector's future. Targeted investment promotion activities for the sector will be implemented through the strategy to attract investment and maximize its associated benefits for the sector's development as a driver of export growth. Improved access to alternative sources of financing will also be developed in order to support small and medium-sized enterprises (SMEs) in leading diversification and the expansion of downstream activities in particular. Actions will also be implemented that encourage increased innovation in the sector.

Strategic Objective 4: Promote quality and sustainability for long-term growth in the sector

Quality and environmental considerations will need to be managed. The further development of capacities for quality management through the strategy will help to ensure the export success of petrochemical commodities while also supporting diversification into more specialized products. At the same time, the development of standards could be used to manage environmental impacts. New means of fostering investment in environmental safeguards and innovation would help to mitigate environmental impacts, ensure the sector's long-term sustainability, and open new export opportunities in markets with relevant mandatory and voluntary standards.

The theory of change underlying the strategy is summarized in Figure 1.

Figure 1: Sector strategy theory of change





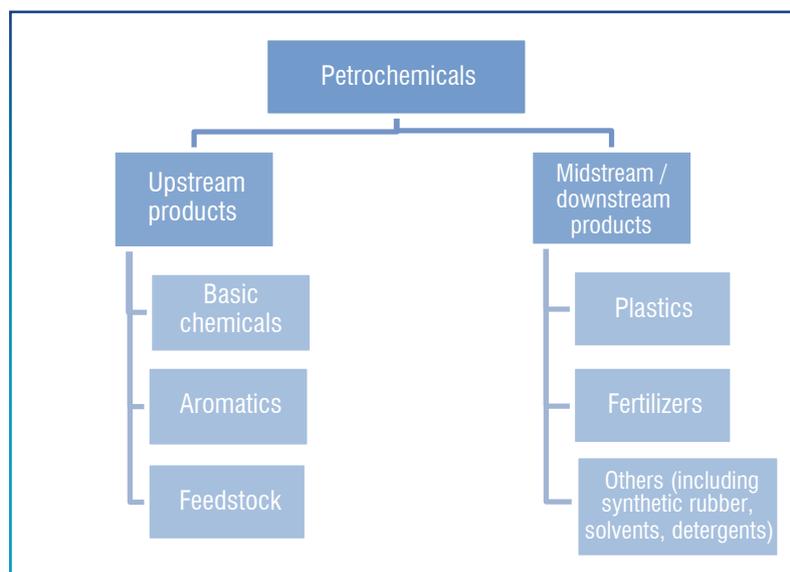
GLOBAL TRENDS IN SUPPLY AND DEMAND



- What major trends are shaping the global supply of and demand for petrochemicals?
- What are the most important external factors for the strategy to navigate in order to best position the Iranian sector for success in international markets?

Though mostly concentrated in basic chemicals and feedstock, the output of the Iranian petrochemicals sector includes a range of upstream products –basic chemicals, aromatics, feedstock and fertilizer– and midstream polymers (Figure 2).

Figure 2: Petrochemicals sector product map



Source: ITC.

The global petrochemical sector is a major area of the global economy producing components for a wide range of everyday products, including plastics, rubber, synthetic textiles, solvents, detergents and fertilizers. Seven primary chemicals (ammonia, methanol, ethylene, propylene, benzene, toluene and mixed xylenes) form the basis of the sector (Table 1). Among the key plastic resins (polyethylene terephthalate, polyvinyl chloride and polypropylene):

- Ethylene, and mixtures of benzene, toluene and the mixed xylenes (BTX) are used to produce polyethylene terephthalate (PET), which is used in packaging;
- Ethylene, propylene and BTX are all used in polyvinyl chloride (PVC), which is primarily used in construction;
- Propylene is used in polypropylene (PP), which is used in packaging, construction, transportation, consumer goods, electrical products, and industry, among other areas.

Table 1: Primary chemicals and their uses

Ammonia	Methanol	High-value chemicals (HVCs)	
		Ethylene and propylene (light olefins)	Benzene, toluene and mixed xylenes (BTX aromatics)
<ul style="list-style-type: none"> Converted to urea to be used in nitrogen-based fertilizers Industrial applications 	<ul style="list-style-type: none"> Used in the production of other chemicals, including formaldehyde (used in the production of plastics, paints and textiles) 	<ul style="list-style-type: none"> Used in the production of polymers to manufacture plastics 	<ul style="list-style-type: none"> Used in health and hygiene, food processing, transportation, information and communication technology (ICT) and other manufacturing sectors

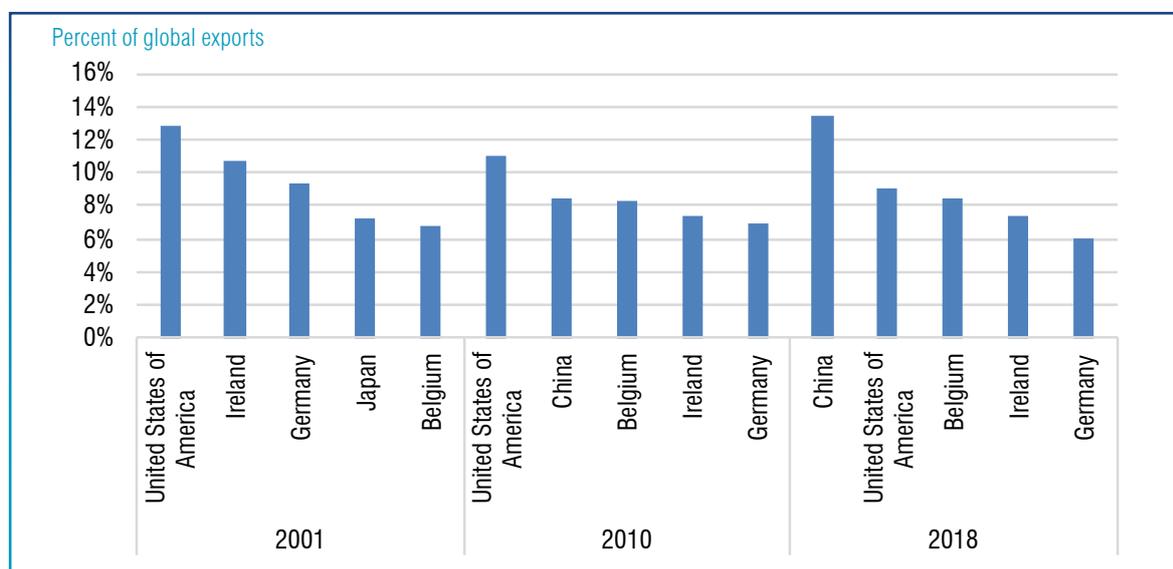
Source: International Energy Agency (IEA). *The Future of Petrochemicals: Towards more sustainable plastics and fertilisers* (2018).

Global demand for petrochemicals is growing; in recent decades, total production of plastic has grown faster than other bulk materials such as steel, cement or aluminium. Changing patterns of production and consumption nevertheless impose challenges for the sector's future.

While the United States of America, the Kingdom of Belgium, Ireland, and the Federal Republic of Germany remain in the top five largest global exporters of organic chemicals, there has been significant change in global trade in 2001–18 (Figure 3). In particular, China has grown rapidly to become the world's largest exporter of organic chemicals; in 2001, it accounted for just 3.1% of

global exports, though this increased to 13.4% by 2018. China's largest exports are of cyclic hydrocarbons; acyclic alcohols and their halogenated, sulphonated, nitrated or nitrosated derivatives; and acyclic hydrocarbons, with most of its sales made to the Republic of Korea, the Kingdom of Saudi Arabia, and Japan.

In 2001–18, the greatest increases in global export shares in plastics were made by China (8.7%), Saudi Arabia (2.3%) and the Republic of Korea (1.8%). China also led growth in this period in the share of global fertilizer exports (9.4%), followed by the Kingdom of Morocco (3.1%) and the Russian Federation (2.9%).

Figure 3: Top five global exporters of organic chemicals

Source: ITC, Trade Map.

Production patterns may change further in the near future. Increased production of shale gas is lowering petrochemical production costs in the United States and attracting investment. Within the region, the State of Kuwait and the United Arab Emirates are growing in importance as producers, driven by new investment in petrochemical projects.

Patterns in demand are also likely to shift in the future. China was also a major source of growth in global

import demand in 2001–09, as its share of global imports increased by 4.3% (Table 2). India also saw strong growth, with a 1.8% increase in its import share, with continued growth in 2010–18 of 0.9%. Increasing demand for petrochemical products is also anticipated in emerging economies around the world as incomes rise and middle classes expand, creating demand for various consumer goods.

Table 2: Top 10 countries by growth in share of global petrochemical imports

Percentage point change in share of global imports

Ranking	2001–09		2010–18	
1	China	4.3	India	0.9
2	India	1.8	Germany	0.8
3	Russian Federation	0.5	Viet Nam	0.7
4	Turkey	0.5	United Arab Emirates	0.5
5	Viet Nam	0.5	United States of America	0.4
6	Pakistan	0.5	Poland	0.3
7	Poland	0.4	Indonesia	0.3
8	Belgium	0.3	Iraq	0.2
9	Brazil	0.3	Mexico	0.2
10	Korea, Republic of	0.2	Philippines	0.2

Note: Petrochemical imports are calculated as the sum of imports of organic chemicals, fertilizers and plastics.

Source: ITC, Trade Map.

In addition to market considerations, increased attention is being paid to how the growth of petrochemical production and use will affect the environment. Under a baseline projection by the International Energy Agency, global water pollution from the global chemical sector is expected to increase to 89% above 2017 levels by 2050 and global CO₂ emissions are projected to increase by 32% in the same period. Petrochemicals are set to account for more than one-third of the growth in oil demand to 2030, and nearly half to 2050. These considerations will affect the sector's future development.

Since early 2020, these longer-term global trends have been overshadowed by the effects of the COVID-19 pandemic, which will be experienced in several phases. Lockdowns and social distancing measures have directly affected production, by shutting down plants and slowing output. Disrupted supply chains have further challenged the sector, as sourcing

inputs has become more challenging and orders from customers have been cancelled or delayed.

As the pandemic continues, it will continue to pose challenges as it also increases demand for a number of outputs from the petrochemicals sector. The global petrochemicals sector is highly involved in the public health sector, including through providing disinfectants to medical suppliers, producing active pharmaceutical ingredients, supplying plastic resins for medical and protective equipment, producing polypropylene fibres for face masks, producing chemical supplies for waste water treatment, and managing the transport of industrial waste. Indeed, members of the European Chemical Industry Council have responded to the pandemic and economic crisis in a number of ways, including by shifting production towards needed goods and establishing funds to mitigate negative economic consequences for those working in the sector (Table 3).

Table 3: Sector responses to COVID-19 in selected European countries

Country	Example responses
The French Republic	Emergency production lines and new plants for the production of alcohol-based solutions for hand sanitizer have been established by several producers, and production of components for breathing apparatus increased.
Germany	Printed medical equipment produced by several suppliers' adapted production lines to create hoses and other parts for respirators, and established an online platform for the emergency supply of hospitals and others with disinfectants.
Russian Federation	Solidarity fund launched to provide financial support to employees and dependents.
Spain, the Kingdom of	Raw materials were provided for the production of face masks and other personal protective equipment.
Turkey, the Republic of	A solidarity fund was launched to provide financial support to employees.
United Kingdom of Great Britain and Northern Ireland	Raw materials are being shifted towards the production of medical visors, and production of hand sanitizer is being expanded.

Source: European Chemical Industry Council (CEPIC).



After the health crisis has passed, its economic impacts will likely continue to be felt for some time, through depressed and changed demand in international markets. Enhanced competitiveness and flexibility will, therefore, be key for the sector in the long run.



The strategy will need to prepare the Iranian petrochemicals sector to manage and navigate ongoing changes in the global sector and international markets, including the emergence of new competitors and sources of demand, in addition to the increasing importance of environmental considerations. Navigating the COVID-19 pandemic and associated economic crisis will require enhanced competitiveness and flexibility in the sector. Iran's strengths as an established low-cost and adaptable producer will, therefore, need to be leveraged.

THE POTENTIAL TO EXPAND EXPORTING AND PREPARE FOR A MORE COMPETITIVE FUTURE



- What factors have driven the sector's success and should be leveraged in the strategy?
- How has the petrochemical sector contributed to Iran's economic growth and export diversification?
- What potential is there in further developing petrochemical exports?

The strong productivity and competitiveness of Iran's petrochemicals sector is supported by a combination of natural assets and exogenous factors, sector organization factors, and human and technology factors. These strengths have supported the sector's important direct

and indirect contributions to growth and exporting. The sector also has the potential to grow through exporting, which will also create opportunities for employment and positive spillovers in other areas of the Iranian economy.

Natural and cultivated strengths have supported growth and provide the basis for the sector's future

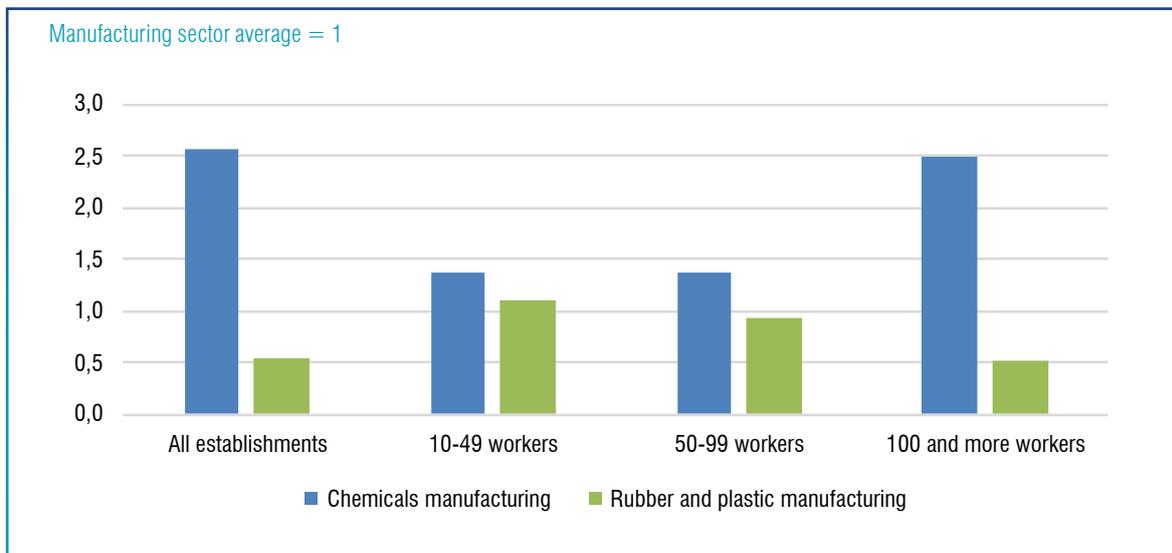
Chemical production is a relatively high-productivity manufacturing sector

The petrochemical sector provides the feedstock materials of a range of manufacturing sectors, including consumer products and in industrial activities. Iran is a particularly large producer of methanol and urea, as well as olefins, including ethylene and propylene.

The chemicals sector has significantly higher productivity than the manufacturing sector average (256.5% of the manufacturing average), though the related, but much smaller rubber and plastic manufacturing sector has lower value added per worker (55.1% of the manufacturing average) (Figure 4). In absolute terms, larger establishments in both sectors are the most productive, while relative productivity decreases with establishment size in rubber and plastic manufacturing.

‘ We are a globally competitive industry. The raw inputs, the technology, the skills – they are all here.’

Figure 4: Value added per worker by establishment size



Source: Statistical Center of Iran.

Iran possesses a number of inherent and cultivated strengths that have fuelled the development of the petrochemical sector

The competitiveness of the petrochemical sector is founded on strengths and competitive advantages arising from Iran’s natural assets and other factors exogenous to the sector itself, sector organization factors, and human and technology factors (Table 4). Natural and exogenous factors include both supply – and demand-side factors: access to raw materials and the country’s

strategic locale and proximity to markets. Sector organization factors are related to the existing and growing industrial capacity for production and distribution, government policies, and fundamentals for attracting investment. The principal human and technology factors are experienced workers in the sector.

The sector’s strengths support its competitiveness home and abroad, as well as its dynamic potential for the development of high-value differentiated products in forward sectors, and adding value through specialized products, innovation in materials and processes, design, moulding, branding and marketing.

Table 4: Strengths and competitive advantages in petrochemical production

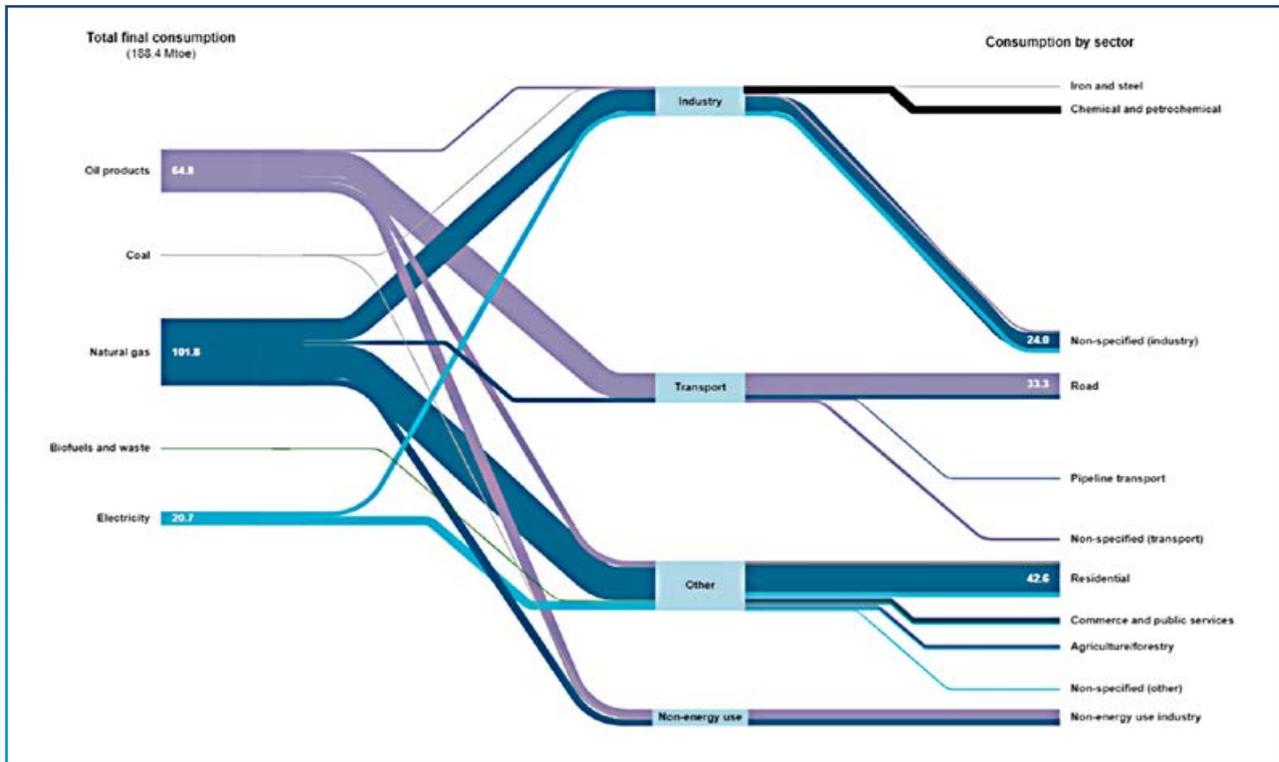
Natural assets and exogenous factors	Sector organization	Human and technology factors
<ul style="list-style-type: none"> • Plentiful access to raw materials • Strategic location with proximity to attractive markets and strong domestic demand 	<ul style="list-style-type: none"> • Established and growing industrial capacity, including distribution network • Supportive policy environment • Strong fundamentals for attracting investment 	<ul style="list-style-type: none"> • Pool of experienced labour

Reliable access to oil and gas is a fundamental strength

Iran’s large and low-cost natural assets are perhaps the greatest strength of the country’s petrochemical sector, as it has the world’s 2nd largest proven natural gas

reserves and 4th largest proven oil reserves. The stable supply of feedstock (i.e. methane, ethane, propane, butane, liquid petroleum gas, natural gas liquids and naphtha) helps to keep capacity usage and competitiveness high. Natural gas is particularly important to the sector; it consumes 9.5 millions of tons of oil equivalent (Mtoe) per year, a sizeable share of the 101.8 Mtoe annual output (Figure 5).

Figure 5: Energy final consumption by sector



Source: International Energy Agency.

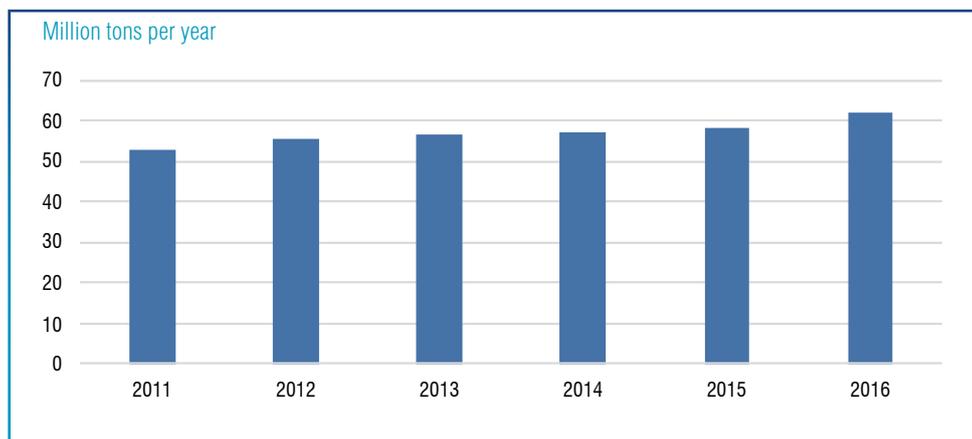
Iran's strategic location and domestic markets favour the sector's growth

Exporting has allowed for rapid growth, but is not the only way to expand. Domestic demand is promising as well. Both will be key in future.'

Iran's strategic location is a significant strength for a sector in which high transportation costs make regional trade particularly important. It borders or is very close to most of its major export markets – the United Arab Emirates, India, the Republic of Iraq, the Islamic Republic of Afghanistan, and the Sultanate of Oman – and is well suited to maritime trade with more distant markets.

Growing domestic demand is also expected to help drive growth in the sector over the longer term, as downstream industries continue to expand in serving local and foreign markets.

Figure 6: Petrochemical production capacity (2011–16)



Source: National Petrochemical Company.

Policies and planning are supporting growth in the sector

The opportunities present in the sector have been recognized and supported by the government. The Sixth National Development Plan targets an increase of petrochemical production capacity to 120 million tons by 2021, representing a significant increase from the 62

million ton capacity at the beginning of the plan's period in 2016. The plan outlines 30 petrochemical and upstream projects with a total value of \$39.8 billion, with a combination representing a similar product mix to that of the industry in the present.

Incentive programmes to attract investment in the sector to expand capacities and upgrade existing facilities include the Direct Taxation Act (2016), Law for the Targeting of Subsidies (2009), special petrochemical zones investment incentives, and Foreign Investment Promotion and Protection Act (FIPPA) (Table 5).

Table 5: Examples of investment incentives relevant to the petrochemical sector

Incentive programme	Notes
Direct Taxation Act (2016)	Article 132 stipulates that income from industrial production and mining is tax exempt for a set period determined by location and establishment date. Foreign companies making brand products in cooperation with domestic partners are entitled to additional tax deductions if they meet exporting requirements.
Law for the Targeting of Subsidies (2009)	Industry, refineries and petrochemical plants received raw materials at a discounted price, amounting to a maximum of 65% of the export price at the Persian Gulf source, excluding transportation costs, for a 10-year period.
Special petrochemical zones investment incentives	Firms in special petrochemical zones are eligible to take advantage of benefits and special rules on duties and tariffs, foreign direct investment (FDI) and ownership, entry visas, profits, capital flows, value added and income taxes, and banking and foreign exchange.
Foreign Investment Promotion and Protection Act (FIPPA)	Protections for foreign investors include guaranteed compensation in case of nationalism and expropriation, equal treatment of foreign and domestic investors, free capital and currency gains movement, and ability of firms involved in joint ventures to own land.

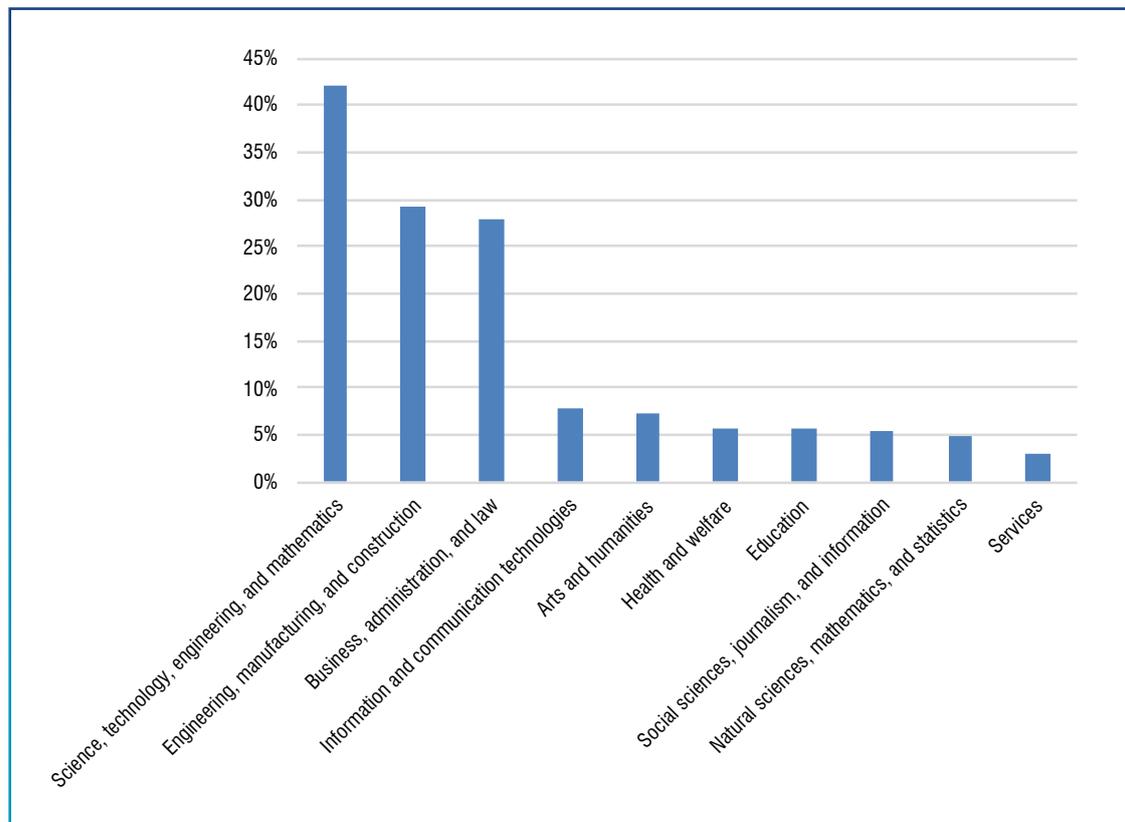
Source: Ministry of Industry, Mine and Trade.

The sector's strong fundamentals attract investment

The petrochemical sector's strong fundamentals make it attractive to investment, though the current environment may discourage potential investors in the short term, with domestic banks providing some of the needed capital in this period.

Investors have shown continued interest in the sector despite the current constraints, and are likely to take advantage of additional openness and opportunities in future.



Figure 7: Tertiary education graduates by subject area (2017)

Source: United Nations Educational, Scientific and Cultural Organization (UNESCO).

Petrochemicals has proven to be an important export sector

Petrochemicals are a major export sector

‘Diversification through petrochemicals is very promising, and could offer the chance to leverage our strengths in building new sectors.’

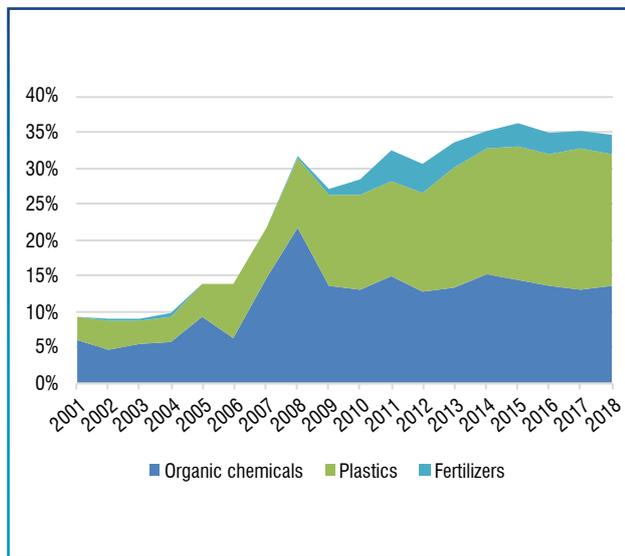
Chemicals and petrochemicals and related products account for a large share manufacturing output and employment. Combined value added in the chemicals sector and rubber and plastic sector represented 29.4% of the manufacturing total in 2014/15, with 26.7% of this combined total originating in the chemical sector. The

199,571 workers in these sectors represented 15.2% of the manufacturing total.

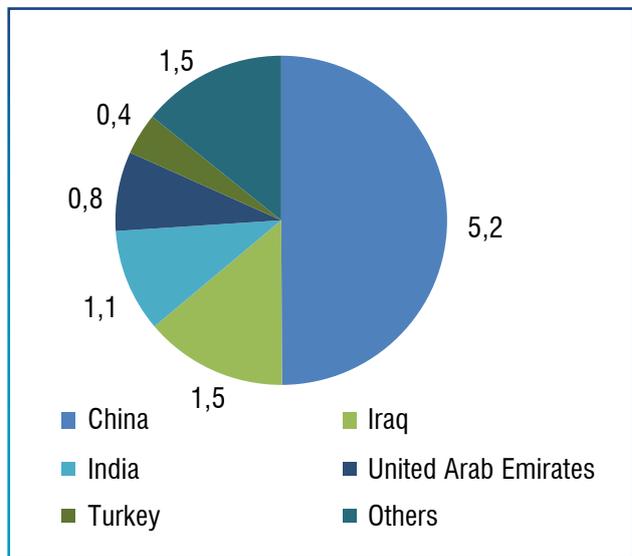
Organic chemical exports were worth \$4.1 billion in 2018, representing 13.6% of total non-fuel exports. Major organic chemical export products include acyclic alcohols, cyclic hydrocarbons and acyclic hydrocarbons. Combined with plastics and fertilizers exports, the other major categories of petrochemical products, Iran exported \$10.5 billion in 2018 (Figure 8). Approximately half of this was destined for China, though Iraq, India, the United Arab Emirates and Turkey are also important markets.

Figure 8: Petrochemical exports (2001–18)

Percent of non-fuel exports (2001–18)



USD billions (2018)

**Note:** HS 27 excluded from total value of goods exports.**Source:** ITC, Trade Map.

The five most important organic chemical export products (methanol; ethylene; cyclic hydrocarbons; hydrocarbons, acyclic, unsaturated; and furaldehyde) together accounted for 82.9% of sector exports in 2018 (Table 6). China, India and the United Arab Emirates are particularly important destination markets for these products, purchasing a combined total of \$3.5 billion.

Plastics and fertilizers exports are highly concentrated by product. Most (61.9%) plastics exports consist of polymers of ethylene, which is mostly exported to China. Fertilizer exports consist almost entirely of mineral or chemical nitrogenous fertilizers and are mostly exported to India and China.

Table 6: Top organic chemical export products and destination markets (2018)

Product	HS code	Export value (USD million)	Top export markets	Share of product exports
Methanol	290511	1,350.0	1 China	64.5%
			2 India	64.5%
			3 Italy	28.3%
Ethylene	290531	835.8	1 China	96.8%
			2 India	1.8%
			3 Turkey	0.4%
Cyclic hydrocarbons	290290	552.8	1 United Arab Emirates	63.7%
			2 Afghanistan	12.9%
			3 Iraq	10.4%
Hydrocarbons, acyclic, unsaturated	290129	545.5	1 United Arab Emirates	64.8%
			2 China	22.7%
			3 Oman	10.2%
Furaldehyde	293212	157.6	1 United Arab Emirates	39.4%
			2 China	23.1%
			3 Iraq	19.1%

Source: ITC, Trade Map.

The petrochemicals sector has the potential to contribute to exporting, growth and job creation

There is the potential for further development of exporting

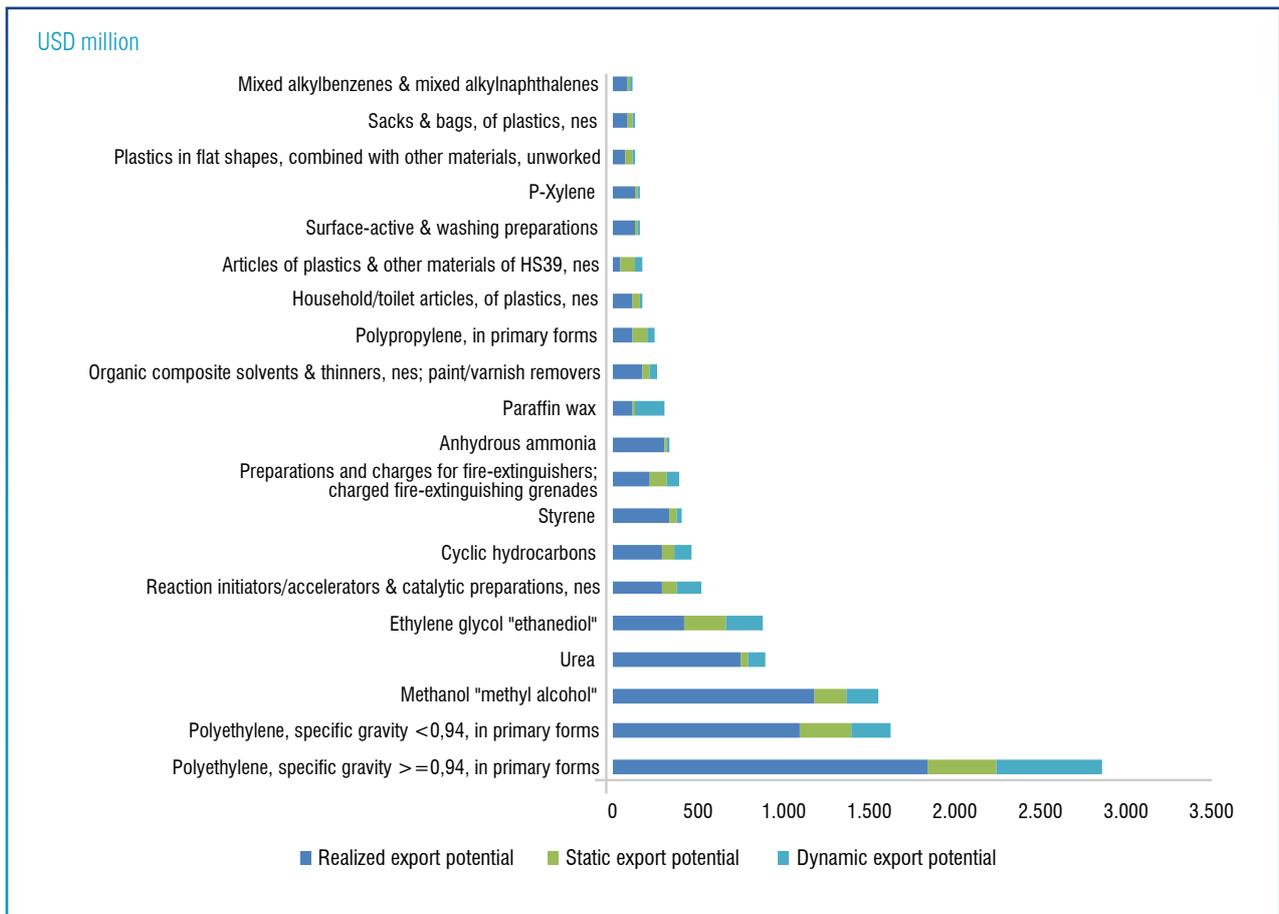
The inherent and developed strengths that make the Iranian petrochemical sector competitive also support its potential for further growth and improved dynamism.

The top 20 petrochemical products in terms of export potential have considerable untapped potential to expand through trade (Figure 9). The most important

products are polyethylene (with a total export potential of \$4.5 billion), methanol (\$1.6 billion), urea (\$897 million) and ethylene glycol (\$872 million).

The total export potential in the chemicals sector is estimated to be \$6.4 billion, with another \$6.7 billion in export potential in rubber and plastics. Export potential for chemicals is greatest in East Asian markets (with \$875 million in untapped export potential), followed by those of South Asia and the Middle East. Approximately half of unrealized potential is estimated to be due to trade frictions and the other half the potential arising from expected future economic growth.

Figure 9: Export potential of top petrochemical products, by destination market



Source: ITC.

Realizing the sector's full potential would drive job creation and produce positive spillovers in other sectors

Plastics, fertilizer, textiles – outputs from the chemicals sector feed into all areas of manufacturing and beyond.’

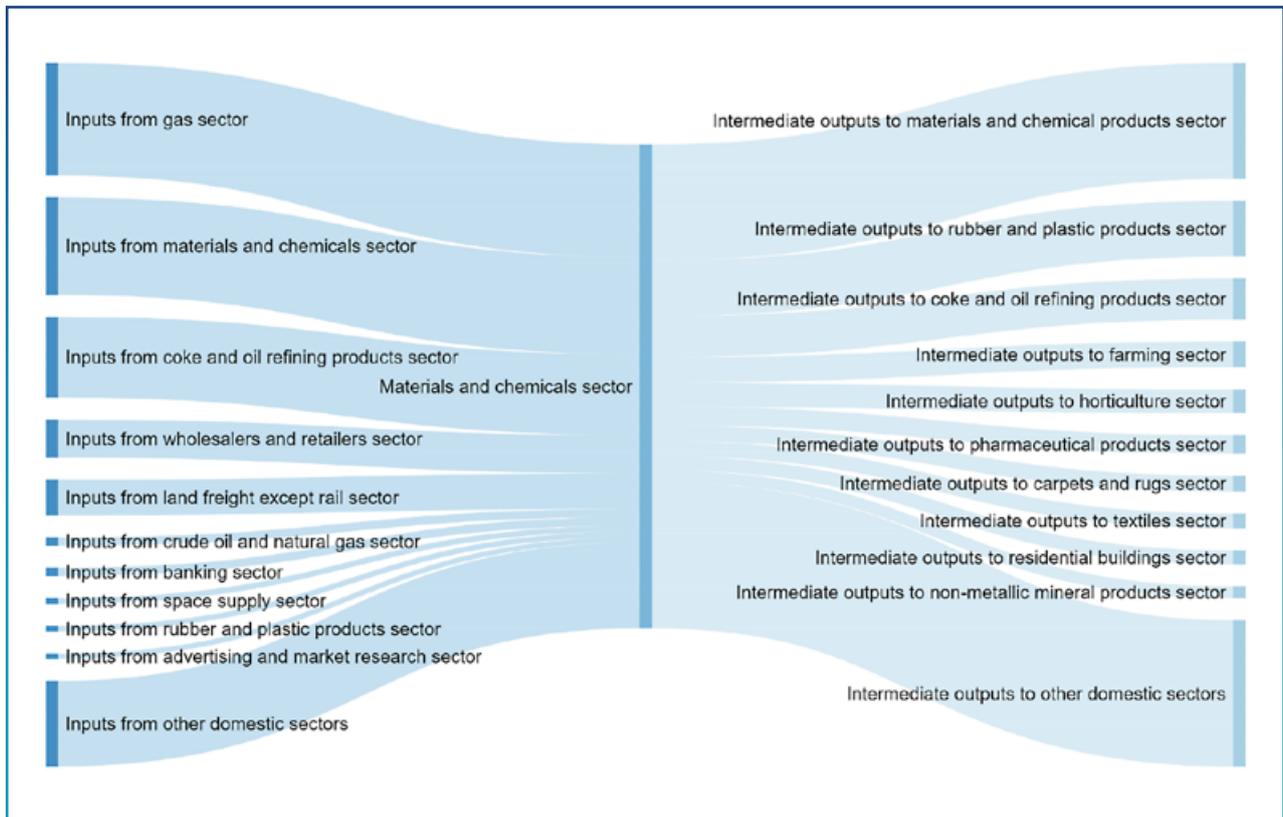
In addition to the potential of the petrochemical sector to grow through exporting, it has the potential to contribute to broader development goals through

employment generation, improvements in value added, and enhanced competitiveness.

Realizing the full export potential of the chemicals sector would create an estimated 51,000 new jobs and improve output in related sectors. The creation of a more dynamic sector could also create horizontal productivity spillovers in other areas of the economy.

The sector is well connected to a number of other domestic sectors through the use and supply of inputs (Figure 10). Most domestic inputs to the materials and chemicals sector come from the gas sector, other materials and chemicals firms, and petroleum coke and oil refining products. In turn, the biggest consumers of its outputs and intermediate inputs are other materials and chemicals sector firms, the rubber and plastics products sector, and the coke and oil refining products sector.

Figure 10: Materials and chemicals sector domestic intermediate inputs and outputs



Source: Statistical Center of Iran.

Note: Total value of domestically sourced inputs is not equal to the total value of intermediate outputs used domestically, due to imports, exports and outputs used by final consumers, among other discrepancies.



The petrochemicals sector has demonstrated strong performance, as driven by a combination of natural and cultivated factors. The remaining potential of the petrochemicals sector to contribute to exporting –and to help in achieving development goals beyond the sector itself– is supported by these factors as well. The strategy will need to leverage these strengths in addition to confronting the main constraints faced.

CURRENT CONSTRAINTS TO INTERNATIONAL COMPETITIVENESS



- Which malleable constraints are most important for the strategy to address, due to their effects in holding back the potential of the Iranian petrochemicals sector?

Despite the sector’s strength and potential, a number of challenges are faced. Unleashing the potential of the petrochemicals sector through trade will require that the root causes of major challenges are identified and solutions developed. Fundamentally, these issues arise from constraints on the capacities of the sector to compete in the present, connect through accessing and using information and knowledge, and change

by adapting to changing conditions and opportunities. Specifically, the Iranian petrochemicals sector has been held back by the need to upgrade and diversify production, domestic regulation, the effects of sanctions on trade and production, underinvestment, the underdevelopment of downstream activities, production concentration, and the sector’s environmental impacts (Table 7).

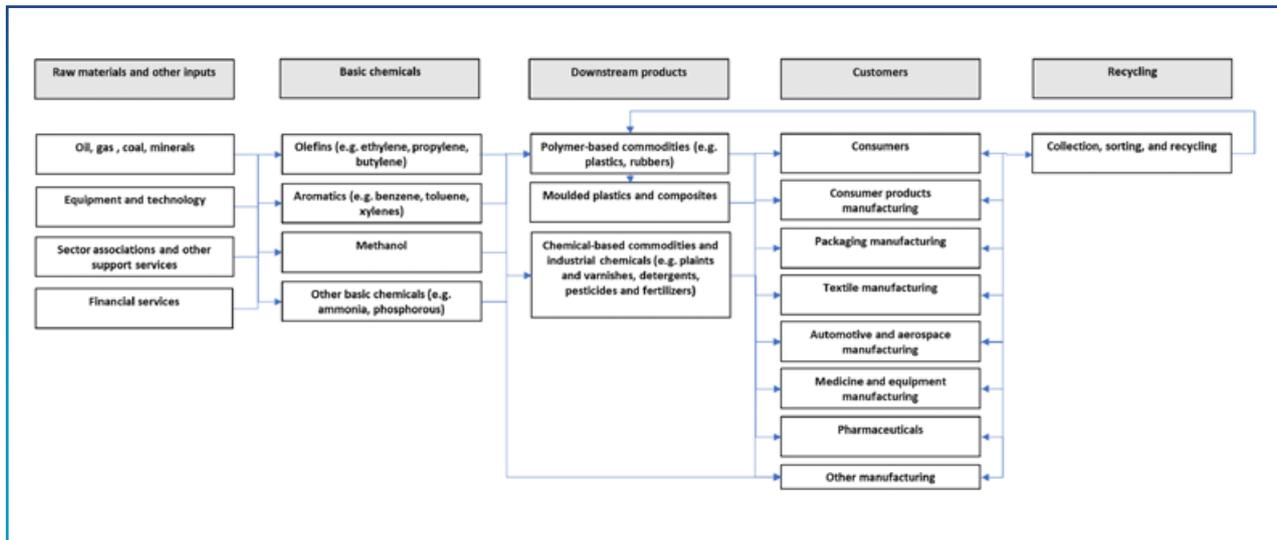
Table 7: Competitiveness constraints

Compete	Connect	Change
<ul style="list-style-type: none"> • Upgrading and diversification of production needed • Domestic regulatory framework can foster inefficiencies 	<ul style="list-style-type: none"> • Constraints and uncertainties of sanctions need to be properly managed 	<ul style="list-style-type: none"> • New sources of investment need to be identified and attracted • Downstream activities remain underdeveloped • Production is highly concentrated • Environmental impacts need to be managed

The Iranian petrochemicals sector’s value chain involves a number of different stakeholders (Figure 11). In addition to raw materials, the production of basic chemicals relies on inputs of equipment and technology and services provided by sector associations and other forms of support, and the financial sector. Basic chemicals produced include olefins, aromatics, methanol, and other basic chemicals, which are, in turn, used in the production of polymer-based commodities, moulded plastics and composites, and chemical-based commodities and industrial chemicals. The sector’s customers and clients include final consumers directly purchasing goods, the manufacturers of consumer products, packaging producers, textile manufacturers, pharmaceuticals, and other manufacturing activities. Following their use, many petrochemical products can be recycled and incorporated in the production of new materials.



Figure 11: Iran's petrochemicals value chain



Improved productivity and quality are needed to compete internationally

Relevant operational objectives:

- 3.3. Encourage investment in new technologies, products and processes
- 4.1. Strengthen quality management systems

‘With the changes being seen globally and the challenges faced domestically, it is becoming increasingly clear that the future of the industry will have to include the expansion of specialized products.’

While demand is expected to increase for key petrochemical products and their derivatives –including ethylene, propylene, and aromatics– recent and anticipated expansions in production capacity will increase supply in the coming years, especially as a result of investment in the United States and China. China has expanded production to supply its growing demand and the recent increase in US shale gas production has lowered costs for its petrochemical sector. The United States now hosts approximately 40% of global capacity in ethane-based petrochemical production.

Although producers are increasingly interested in higher-value products and are pursuing mergers and acquisitions to improve profitability, there is a risk of excess supply increasing international competition as prices are driven down. In addition to longer-term trends driven by supply-side factors, the near-term depressed oil prices may undercut the competitive advantages of Iranian producers.

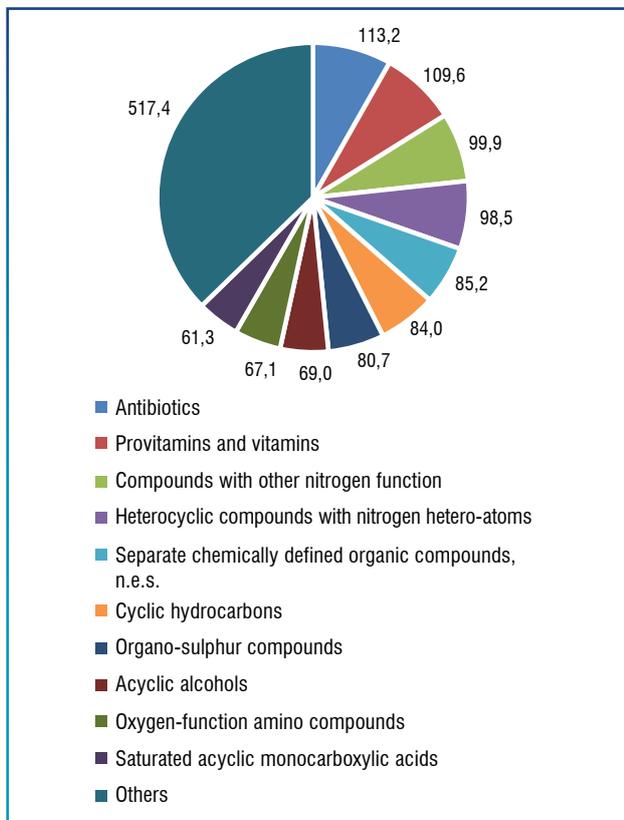
Competition in destination markets is already increasing, with the result of reducing Iran's market share in major markets. In the five years from 2013 to 2018, Iran's share of organic chemical imports in its top three export destinations (China, the United Arab Emirates and India) declined by 1.1%, 5% and 0.7% respectively.

Iran's imports are also growing. The value of organic chemical imports totalled \$1.4 billion in 2018, representing 3.4% of the total value of imports (an increase from 2.1% in 2010). Medicinal products –antibiotics (8.2%) and provitamins and vitamins (7.9%)– are the biggest import product categories, and most imports originate in China (28.6%), the United Arab Emirates (19.4%) or India (12.5%) (Figure 12). In the same time period, imports of plastics declined slightly as a share of total imports, to 3.1% in 2018, as did the share for fertilizers, to 0.5%.

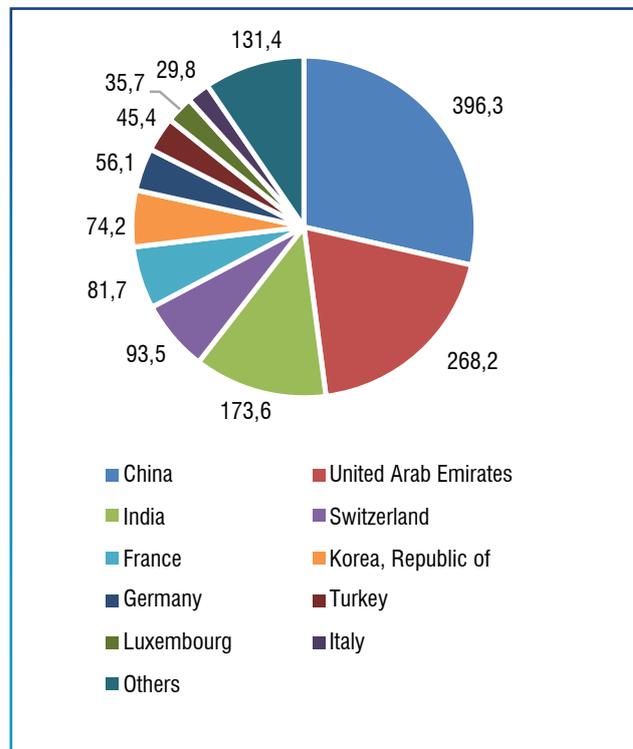
This environment highlights the cost and quality issues challenging the competitiveness of Iranian production. The use of older and less flexible production methods contributes to elevated costs. Improvements in quality –especially of graded products such as polyethylene– and quality management systems could also be made.

Figure 12: Organic chemical imports (2018)

Imports by product, USD million



Imports by county of origin, USD million



Source: ITC, Trade Map.

Domestic regulation hinders market forces from fostering improved competitiveness

Relevant operational objectives:

- 2.1. Strengthen public–private dialogue and design effective regulation for a dynamic sector
- 2.4. Build institutional capacities for regulatory implementation

In addition to more general regulatory issues in the Iranian economy, the petrochemical sector faces a number of sector-specific controls that may affect competitiveness by interfering with the effects of market pressures.

Much of the petrochemical sector is regulated by the Ministry of Petroleum, which is responsible for setting feedstock prices, issuing investment licences (except for downstream projects), issuing approval notes to ensure feedstock provision for downstream activities and determining the base prices of products sold on the Iran Mercantile Exchange (IME). The downstream sector is regulated by the Ministry of Industry, Mine and Trade, with the ministry issuing investment licences and setting prices in this area of the sector. Prices on the exchange are set by the Competition Council, whose members are appointed by the two ministries.

There is no overarching industrial policy for the sector. Lacking this framework, interventions made in the sector have had negative effects on its competitiveness. Price-setting introduces market distortions such as encouraging the production of gas-based petrochemicals. Inefficiencies may also be created by this regulatory approach. Prices can differ among similar products depending on whether or not they are sold on the IME – though most products are required to be sold on the exchange – including export products. Differing rules by stage of production can pose challenges for integrated and other producers.

The constraints and uncertainty of sanctions have not yet been properly managed

Relevant operational objectives:

- 1.1. Position petrochemical exports to succeed in international markets
- 1.2. Manage constraints to trade for reduced uncertainty

In particular, while access to international markets is constrained, the development of opportunities in the domestic market will also need to be considered as a source of potential growth.

Attracting additional investment to reach goals set for the sector's growth will be complicated by remaining barriers

Relevant operational objectives:

- 3.1. Attract new investment in the sector

‘Planning and investment are too challenging in the current environment – too much is unknown and it is better to wait for the time being.’

While barriers to international financial flows and transportation currently pose serious challenges to the export prospects of the Iranian petrochemicals sector, these challenges are not insurmountable. The re-imposition of sanctions by the United States in November 2018 initially offered sufficient ambiguity on the types of petrochemicals that would not be affected to allow exporting to continue, though occasionally with additional precautions taken to avoid difficulties or detection. Cash transactions with non-US dollar currencies, barter, and the use of middlemen and cargo redistribution were all used in petrochemical trade.

However, in June 2019, restrictions were tightened by the US Treasury to extend the coverage of the sanctions to business transactions with the Persian Gulf Petrochemical Industries Company (PGPIC), the country's largest holding group, including its 39 subsidiary companies and foreign-based sales agents.

Measures to circumvent the effects of sanctions on the sector have continued to be employed. According to the PGPIC, these measures have been successful in allowing production and exporting to continue. However, sanctions have limited opportunities from petrochemical exporting, forming the most pressing challenge facing the sector by cutting off many exporting opportunities and making investment in the sector less attractive as a result of the complex and uncertain environment.

More generally, barriers to trade and underdeveloped trading relationships with high-potential partners further constrain exporting from the sector and may, in particular, impede the diversification of exporting of new products.

‘It is clear that investment is needed, but where will the capital come from in the short run? In the long run? These are the questions that need answers.’

Significant increases in investment are needed to support planned growth in the sector, as well as needed quality improvement and diversification. Additional sources of financing will need to be cultivated to fund the \$39.8 billion cost of the 30 petrochemical and upstream projects outlined in the Sixth National Development Plan. A more open trading environment would also provide an opportunity for retooling and re-vamping existing operations, further increasing needed investment. The technologies and know-how that accompany inflows of foreign investment are sorely needed as well.

Historically, the sector has been a major site of investment. The chemical sector attracted 11.6% of investment in manufacturing sectors in 2017/18, and the rubber and plastics sector attracted an additional 6.9% (Figure 13).

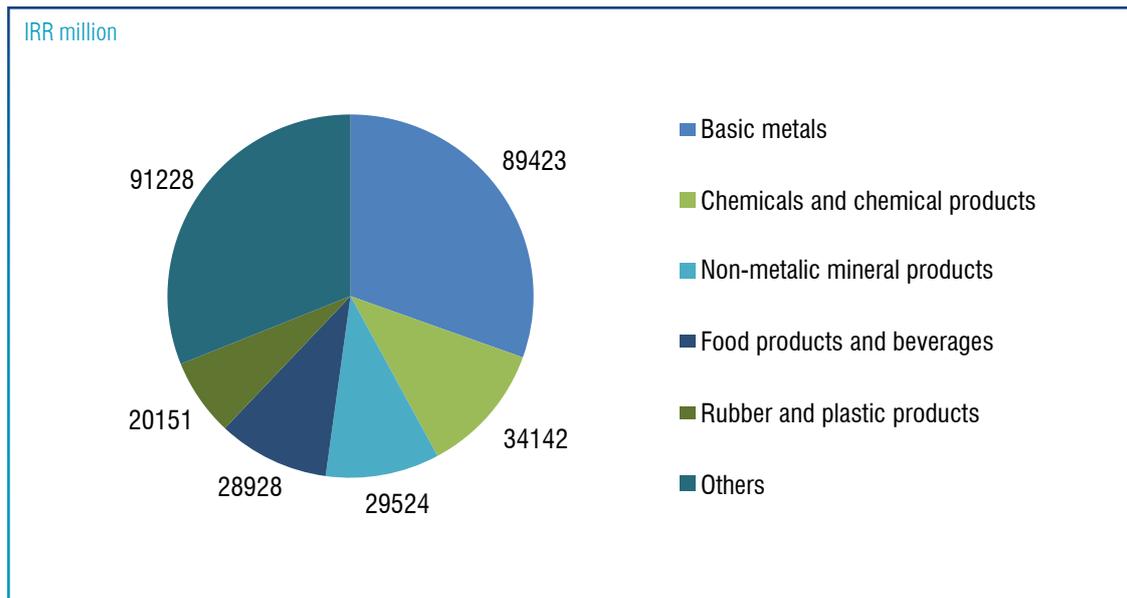
While the sector has the potential to be attractive to investors due to its strong fundamentals, there are hurdles to investment that will need to be addressed to realize this potential. Generally, limitations on foreign investment, such as restrictions on land ownership by foreign firms, hinder foreign direct investment (FDI). Opportunities remain for increased private sector involvement in the sector, though a gradual approach to reform is needed.

The negative effects of these general constraints on investment may be exacerbated in the petrochemicals sector by the uncertainties being faced. The

considerable extent of product market regulation in the sector can be a discouragement to investors, however. Plus, despite recent privatization initiatives, most firms are not fully privatized and the National Petrochemical Company (NPC) retains a significant role in management and regulation. The conditions offered to special

petrochemical zone (SPZ) investors help to overcome some investment barriers, but there is a need to ensure that the zones contribute to capacity building among domestic firms and to see how successes in these zones can be replicated across the country through broader reforms.

Figure 13: Share of investment in manufacturing sectors



Source: Statistical Center of Iran.

Midstream and downstream activities in the sector are underdeveloped

- Relevant operational objectives:
- 2.2. Foster efficient and productive clusters
 - 2.3. Enhance technical and business skills for growth and diversification
 - 3.3. Encourage investment in new technologies, products and processes

Commodity products account for most production and exports, meaning that there are opportunities to develop more advanced and specialized products, as declining international commodity prices resulting from international competition have reduced value added in the sector.

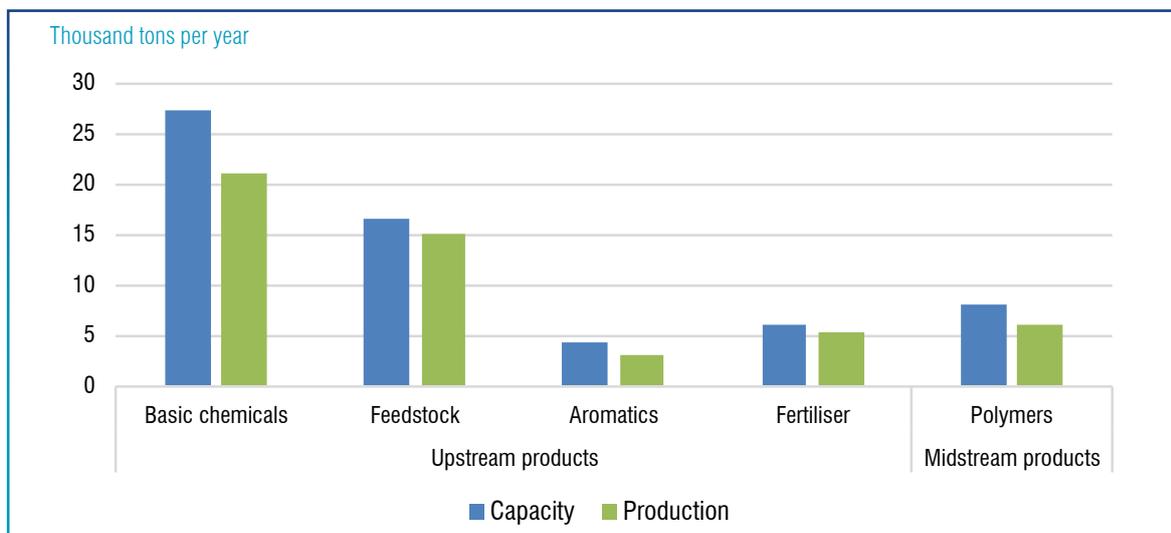
Basic chemicals and feedstock account for approximately 70.5% of value added in petrochemicals and a large share of capacity and production volume (Figure 14). Higher-value-added products are often derivatives

such as aromatics, while midstream polymers remain a relatively small area of production.

The further development of downstream and related sectors, such as plastics, tyres and textiles, is also promising, as these products embody additional value added and significant potential in Iran remains untapped. As these activities are connected more closely to consumers, there are opportunities for specialization and branding.

However, developing these activities has proven difficult in the face of the lack of competition in upstream sectors and lack of reliable access to high-quality inputs. There has been a lack of coherent policy support and little value chain integration.

The lack of dynamism in the sector has slowed its diversification. Downstream firms are more likely to be SMEs that often face financial constraints that limit investment. This represents a lost opportunity, as increasing international competition in the commodity market means that there will be additional external pressure to maintain export value. There is, therefore, a need to improve supply of raw materials for downstream activities, strengthen production capacities among these firms, and further develop export opportunities for these products in key markets within the region and beyond.

Figure 14: Petrochemical capacity and production by category (2016)

Source: Ministry of Industry, Mine and Trade.

A concentrated sector limits opportunities and competitiveness

Relevant operational objectives:

- 2.1. Strengthen public–private dialogue and design effective regulation for a dynamic sector
- 2.2. Foster efficient and productive clusters
- 3.2. Improve access to finance

The sector is concentrated around a few firms; high degrees of concentration can limit competitive pressures within the sector, limit productivity growth through firm dynamics, and discourage innovation by more flexible entrants without established investments in older technologies.

The National Petrochemical Company (NPC), which was founded in 1964, is owned by the government as a subsidiary of the Iranian Ministry of Petroleum and runs several subsidiary companies of its own in the sector. Smaller firms are relatively less important sources of employment in the chemicals sector. With 68.2% of the 134,724 chemical sector workers being employed by large establishments with 100 or more workers, the chemical sector is more biased toward large establishments than the manufacturing sector as a whole (where 58.7% of workers are employed by such establishments) (Table 8).

Technologies used in petrochemical production, which tend to feature significant economies of scale, foster this bias toward large firms. Downstream sectors tend to offer more opportunities for SMEs. Smaller firms are relatively more important in rubber and plastic manufacturing. Only 40.1% of establishments in this sector had 100 or more workers in 2016/17.

Table 8: Employment by sector (2016/17)

	Total employment	Percent of total sector employment		
		Establishments with 10–49 workers	Establishments with 50–99 workers	Establishments with 100 and more workers
Chemical manufacturing	134 724	21.2%	10.6%	68.2%
Rubber and plastic manufacturing	104 422	41.6%	18.3%	40.1%
All manufacturing	1 788 651	28.7%	12.6%	58.7%

Source: Statistical Center of Iran.

The environmental impacts of the sector's growth will need to be properly managed

- Relevant operational objectives:
- 4.2. Implement standards for environmental protection
 - 4.3. Encourage investment in environmental sustainability

“ A greener sector is possible and could certainly be better for us in the long term.”

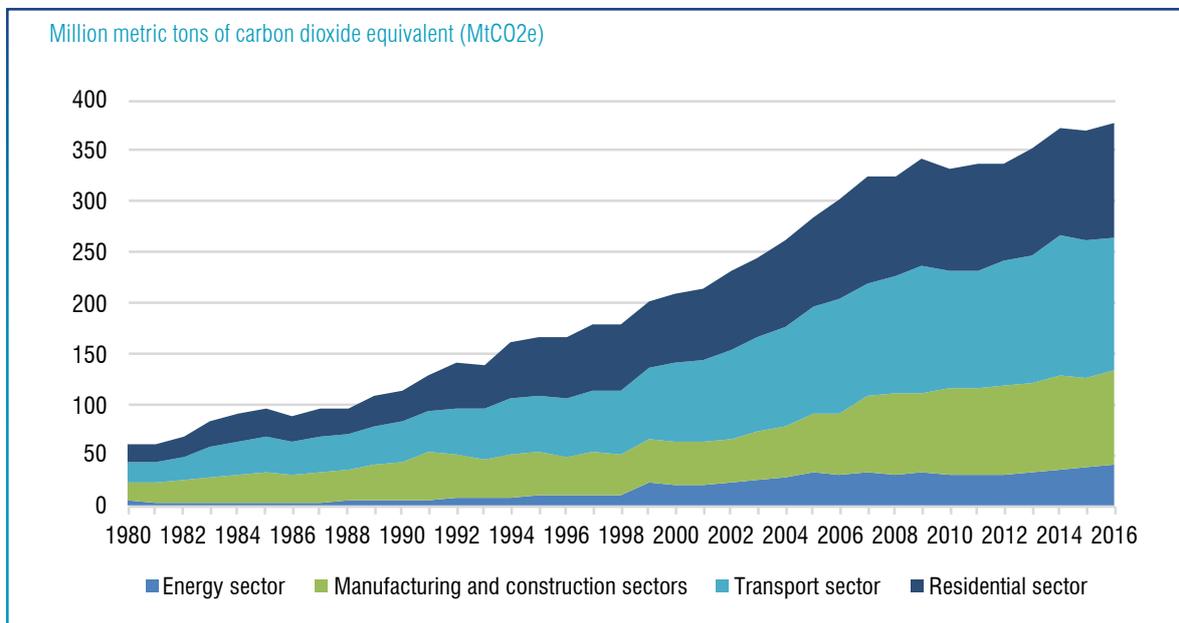
As in many other countries, the petrochemical sector is becoming an increasingly important consumer of oil and gas. Since 2000, natural gas consumption by the chemical and petrochemical sector has increased by

352.4%. This trend is being driven by increasing global demand for these products as improvements are made in the efficiency of energy use in other sectors.

The production, use and disposal of petrochemicals and downstream products poses a number of environmental challenges, however. Petrochemical sectors tend to produce fewer greenhouse gas emissions for the amount of fossil fuels they use, partly because some of these fuels are embodied in the final products of the sector and released when they are burnt or decompose. Nevertheless, with 91.5 million metric tons of carbon dioxide equivalent (MtCO_{2e}) greenhouse gas emissions in 2016, the manufacturing and construction sectors account for a significant share of Iran's total emissions (Figure 15). It has grown by 391.4% since 1980, with more rapid growth since the early 2000s, during which period it was the country's fastest-growing source of emissions.

Reducing the environmental impacts of production will require investment in cleaner technologies. These include relatively cost-effective options for carbon capture, usage, and storage and energy – saving catalytic processes.

Figure 15: Greenhouse gas emissions by selected sectors (1980–2016)



Source: International Energy Agency.



Constraints to the ability of Iran's petrochemicals exports to compete, connect and change internationally will need to be addressed by the strategy in order to realize the sector's potential. Taking action on these constraints will be relevant in the near term, under sanctions, and in preparing the sector for success in the longer term.



THE WAY FORWARD



- Where should the strategy direct the development of the petrochemicals sector?
- What actions are needed to achieve the strategy vision and what does this imply for trade with target markets?
- How can the strategy's implementation best be supported?

The petrochemicals sector strategy will work towards the implementation of a number of important reforms, with recognition of the unique constraints of the current situation and the possibility of facing a different external environment in future. The use of special zones and cluster policy to encourage more efficient centres of production could be considered, alongside efforts to upgrade and make more efficient use of existing

underused capacities. Improvements to quality, such as through the development and application of standards for producers, may be needed. Fostering a greater degree of dynamism and diversification among firms would bring benefits in the near term and longer term. Opportunities in diversification and the further development of downstream activities may also be important parts of the strategy.

Vision and strategic objectives

The vision summarizes the sector strategy's ultimate goals and purpose. The vision for the petrochemicals sector of "Building on Iran's natural assets and industrial strengths to supply global markets" highlights the strengths and competitive advantages of the sector and its potential to grow and diversify its exports, both in terms of products sold and markets reached.

This vision is to be realized through actions under four strategic objectives that address the key constraints identified as limiting the sector's potential by managing trading relationships, supporting institutional and policy reform, facilitating investment and access to finance, and promoting quality and sustainability for long-term growth in the sector.

Strategic Objective 1: Manage trading relationships to succeed in an uncertain and changing external environment

There are significant challenges posed in the immediate period by sanctions and over the longer term as a result of increasing international competition. Actions to

be taken under this strategic objective include the identification of means to mitigate the effects of sanctions in international trade and reduce uncertainty in order to encourage investment. Domestic market opportunities are also to be identified and built on.

Strategic Objective 2: Support institutional and policy reform to broaden production opportunities

Effective and efficient regulation is needed to best leverage the strengths and competitive advantages of Iran's petrochemicals sector. The strategy will identify potential areas of policy reform to be considered, including regarding the use of cluster policies and special petrochemical zones (SPZs) and fostering of linkages and productivity spillovers beyond these zones. Regulatory barriers limiting opportunities for smaller firms and new entrants will be addressed to encourage the growth of these producers and to allow for greater dynamism in the sector. Institutional capacities to support these firms and their exporting will also be developed.

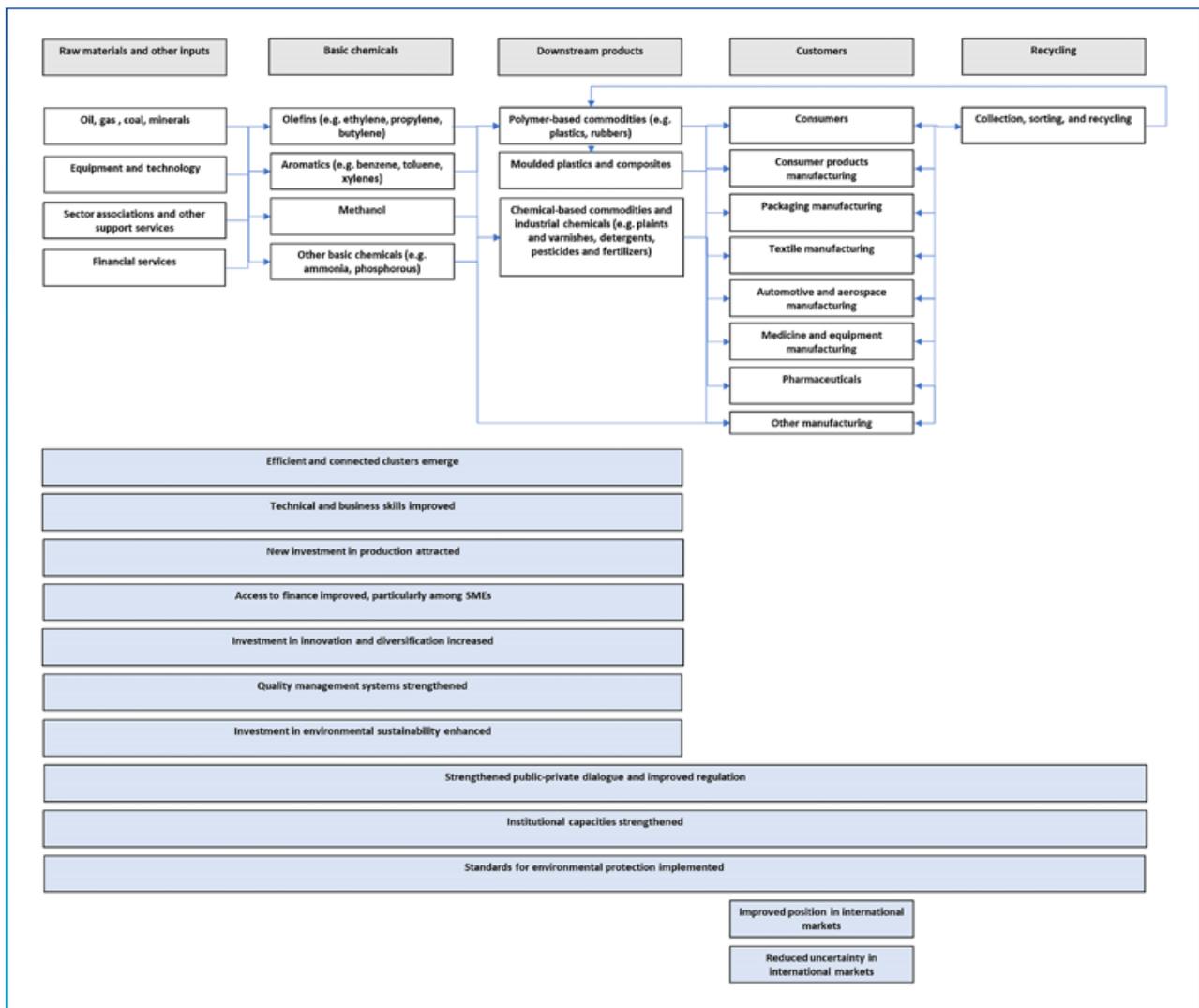
Strategic Objective 3: Facilitate investment and access to finance for growth and diversification

Improving investment and access to finance is critical to the sector's future. Targeted investment promotion activities for the sector will be implemented through the strategy to attract investment and maximize its associated benefits for the sector's development as a driver of export growth. Improved access to alternative sources of financing will also be developed in order to support SMEs in leading diversification and the expansion of downstream activities in particular. Actions will also be implemented that encourage increased innovation in the sector.

Strategic Objective 4: Promote quality and sustainability for long-term growth in the sector

Quality and environmental considerations will need to be managed. The further development of capacities for quality management through the strategy will help to ensure the export success of petrochemical commodities while also supporting diversification into more specialized products. At the same time, the development of standards could be used to manage environmental impacts. New means of fostering investment in environmental safeguards and innovation would help to mitigate environmental impacts, ensure the sector's long-term sustainability, and open new export opportunities in markets with relevant mandatory and voluntary standards.

Figure 16: Iran's future petrochemicals value chain



Target markets

Improvements to exporting will be made by reaching new markets and pursuing more intensive trade with existing partners. Based on their historical trading relationship with Iran and expectations of their future growth, China, India, Iraq, Turkey, Afghanistan and the United Arab Emirates are expected to be particularly important export markets for petrochemicals. Succeeding in these markets, however, will require exporters to adapt to anticipated changes in demand by understanding and responding to the trends shaping these markets.

CHINA: ADAPTING TO A LARGE AND CHANGING MARKET

China is the largest export market for Iranian organic chemicals. In 2018, \$2.2 billion, or 54.1% of total Iranian organic chemical exports were destined for China. Iran, however, accounts for just 3.3% of the \$67.4 billion Chinese import market, which is led by imports from the Republic of Korea, Saudi Arabia, and Japan. Most of Iran's exports to China are made up of acyclic alcohols and derivatives, acyclic hydrocarbons and cyclic hydrocarbons. Iran also exported \$2.9 billion in plastics – primarily polymers of ethylene – and \$171.7 million in fertilizers to China.

According to ITC estimations, there is \$1.6 billion in additional export potential for Iranian petrochemicals in the Chinese market. Of this, \$597.2 million would be realized through the amelioration of static trade frictions, and the remaining \$1.0 billion by taking advantage of growing demand in the market.

Acyclic alcohols are subject to 5.5% most-favoured-nation (MFN) tariffs, and acyclic hydrocarbons and cyclic hydrocarbons are both subject to 2% MFN tariffs, and various non-tariff measures (NTMs) apply to imports. Polymers of ethylene are subject to 6.5% MFN duties.

China is a massive market and the world's largest importer of petrochemicals. In 2018, its imports totalled \$67.4 billion in organic chemicals, \$2.7 billion in fertilizers, and \$74.9 billion in plastics.

While Chinese manufacturing growth has slowed, it remains a significant source of demand for plastics and other petrochemicals products. Continued economic growth will drive increasing demand for petrochemical products such as plastics and fertilizers in the near and long term. This will come from both the manufacturing sector and consumers. China's oil demand for plastic consumption is expected to be much greater than that for road passenger transport in 2050, partly as a result of anticipated improvements in vehicle efficiency.

Domestic competition is increasing too, however. China is home to a growing coal-based chemicals sector, taking advantage of its natural resources and becoming a unique user of technologies for producing chemicals such as methanol and ammonia with coal as a feedstock. While a shift away from coal-based chemical processes may occur in the future, the capacity of coal-based methanol-to-olefin production is expected to double between 2017 and 2025.

Iran accounts for a small share of the Chinese petrochemical import market – particularly in fertilizers – and thus has the room to grow exports even as domestic production is increased. An increased emphasis on quality among buyers in the Chinese manufacturing sector may increase competition with other producers, but also provides an opportunity for Iran to supply higher-quality and higher-value-added products.

INDIA: INCREASING DEMAND AND COMPETITION

India was the 2nd largest export market for Iranian organic chemicals in 2018. The \$598.5 million in exports made by Iran represented 2.7% of the Indian import market and 14.6% of total Iranian exports. Iran is the 10th largest source of Indian imports, which are led by China, the Republic of Singapore and the United States of America. Most of Iran's exports are accounted for by acyclic alcohols and derivatives, cyclic hydrocarbons and acyclic hydrocarbons. Iran also exported \$112.0 million in plastics – primarily polymers of vinyl chloride, ethylene and styrene – and \$351.4 million in fertilizers to India.

There is significant potential for further growth in petrochemicals exporting to India; addressing trade frictions could increase exports by \$296.9 million, and increased demand in the Indian market could raise exports by an additional \$428.4 million.

Among the major export product categories, acyclic alcohols are subject to 5%–7.5% MFN duties, depending on product; cyclic hydrocarbons are subject to 0%–2.5% MFN duties; and acyclic hydrocarbons are subject to 2.5% MFN duties. In addition, market access conditions include non-tariff measures (NTMs) on labelling and packaging, among other issues. Iran's exports of polymers of vinyl chloride, ethylene and styrene are subject to 7.5% MFN duties.

The packaging, agriculture, electronics and household manufacturing, and building sectors are the greatest sources of plastics consumption in India. Demand for petrochemicals and downstream products

is expected to continue growing. By 2050, India's per capita oil demand for plastic consumption is expected to be significantly higher than that for road passenger transport. At the same time, India is expected to grow its production capacity from its current share of just 4% of the global total, as domestic demand expands.

Continued cooperation with India in finding workarounds to the current sanctions will be critical in supporting the recovery of trade. However, Iran accounted for just 1.7% of Indian plastics imports in 2017 before its share declined further in 2018. Organic chemical exports have not been noticeably affected; Iran accounted for 2.5% of imports in 2017 and 2.3% in 2018.

Over the longer term, Iranian exporters can take advantage of growing demand to improve exports to India, though increasing competition – including from domestic producers – highlights the importance of product diversification as well. In addition to the products in which Iranian exports are already concentrated, India imports large amounts of heterocyclic compounds and saturated acyclic monocarboxylic acids and of polyacetals.

IRAQ: GROWING EXPORTS TO AN ESTABLISHED, BUT CHALLENGING MARKET

Iran is an important source of Iraq's organic chemical exports. In 2018, the \$138.0 million in exports from Iran to Iraq represented 58.5% of the latter's import market (and just 3.4% of Iran's exports in the sector). Most of these exports are accounted for by acyclic alcohols and derivatives, cyclic hydrocarbons and acyclic hydrocarbons. Iran also exported \$1.3 billion in plastics – led by household goods and plastic sheets – and \$46.6 million in fertilizers to Iraq.

Administrative and logistics challenges in accessing the Iraqi market can be significant. Time and costs for the border and documentary compliance of importing is higher than the regional average, and much higher than in advanced economies. Logistics performance is also much lower than regional and country income group averages. However, as a neighbour and major trade partner, Iranian firms are relatively more accustomed to doing business in Iraq, which has also continued to import Iranian petrochemicals despite the re-imposed sanctions on the sector.

Packaging accounts for more than half of Iraq's plastics consumption, and a significant share of demand also comes from the construction sector. Close to half is processed through extrusion, with significant shares processed through injection moulding, polyethylene terephthalate (PET) preform and stretch blow moulding, and blow moulding.

Addressing trade frictions and logistics challenges in supplying the Iraqi market should be a priority in improving exports. The estimated untapped petrochemical export potential is \$169.9 million, which is almost entirely (\$168.9 million) due to static potential held back by the presence of trade frictions. Closer cooperation with domestic buyers and distributors through cross-border associations could help in this, including in making the case for trade facilitation initiatives that reflect the sector's concerns.

TURKEY: INCREASING MARKET SHARE IN DOWNSTREAM PRODUCTS

Iran exported \$14.2 million in organic chemicals to Turkey in 2018, which represents a very small share of both the Turkish import market and Iranian exports. Turkey's biggest suppliers of imports are instead China, Saudi Arabia and Germany. By product category, Iran's biggest exports are compounds with other nitrogen function, acyclic hydrocarbons, and organo-sulphur compounds. Iran also exported \$322.0 million in plastics – mostly polymers of ethylene, propylene, and styrene – and \$92.0 million in fertilizers to Turkey.

It is estimated that petrochemical exports to Turkey could be increased by \$120.5 million by addressing trade frictions, and by a further \$150.4 million as a result of growing demand in the Turkish market.

Preferential tariffs provided for under the bilateral trade agreement between Iran and Turkey allow tariff-free access to the Turkish market for some Iranian exports of compounds with other nitrogen function and all organo-sulphur compounds. Otherwise, among the top export product categories, other compounds with nitrogen function are subject to 2.5% MFN duties and acyclic hydrocarbons have 0% MFN duties. No tariffs apply to Iranian exports of polymers of ethylene, propylene or styrene, under either the bilateral agreement or Turkey's MFN duties.

Trade with Turkey is further facilitated by the efficiency of importing; the time and costs of border and documentary compliance are often lower than in advanced economies. Logistics performance is generally close to, but below, regional and country income group averages.

Trade with Turkish buyers conducted in euros has continued since the re-imposition of sanctions affecting the Iranian petrochemical sector, with much of this occurring through the Port of Izmir and facilitating onward trade to other destinations.

Due to high demand and a limited domestic sector, polymers are largely imported into Turkey. In total, the country imported \$12.9 billion in plastics in 2018. Much of this is used in the packaging sector, along with textiles and consumer electronics and appliances. Foreign

suppliers have the scope to export directly to customers – particularly larger firms – or through local distributors.

Opportunities for Iranian exporters lie in taking advantage of growing demand and in increasing their limited market share in plastics and fertilizers. The annual Plast Eurasia international trade fair, held in Istanbul, provides an opportunity to connect with major participants in the sector. These connections may also be sought through the Turkish Plastic Industry Association (PAGEV).

AFGHANISTAN: IMPROVING EXPORTS THROUGH PRODUCT DIVERSIFICATION

The value of Iran's exports of organic chemicals in 2018 totalled \$83.4 million, mostly consisting of acyclic alcohols, which represented 85.9% of exports. Iran is the 3rd largest source of Afghanistan's imports in the sector, following China and India, though just 2.0% of Iranian exports go to Afghanistan. Iran also exported \$257.2 million in plastics – led by bags and packaging and plastic sheets – and \$37.4 million in fertilizers to Afghanistan.

The additional export potential of petrochemicals sold to Afghanistan is \$4.9 million left unrealized by trade frictions and another \$91.6 million expected to arise from growing demand.

Market access for acyclic alcohols, Iran's major organic chemical export to Afghanistan, is affected by the 5% general tariff applied on imports of these products. Administrative and logistics barriers to trade are a hindrance to efficient exporting to Afghanistan, though many Iranian exporters are familiar with these challenges. An established export market for Iranian products, buyers in Afghanistan have continued their imports from Iran despite sanctions. General tariffs of 1%–10% are applied to packaging and plastic sheets, depending on product type.

Despite its proximity, Afghanistan's imports from Iran are overshadowed by those from China and India, which also differ in their composition. Chinese imports have been largely in carboxylic acids with additional oxygen function and halogenated derivatives of hydrocarbons, while those from India have been separate chemically defined organic compounds and saturated acyclic monocarboxylic acids. Iran is already a leading exporter of plastics to Afghanistan, but diversification of exports among basic chemicals and midstream products could, therefore, open new export opportunities in the petrochemical sector.

UNITED ARAB EMIRATES: NEW CHALLENGES AND OPPORTUNITIES IN A NEIGHBOURING MARKET

In 2018, Iran exported \$803.7 million in organic chemicals to the United Arab Emirates. Most of this trade is

in acyclic alcohols (47.9%) and cyclic hydrocarbons (43.8%). This trading relationship is quite important to both countries; Iran is a major source of the United Arab Emirates' imports, and the United Arab Emirates market purchases 19.6% of Iranian exports. Iran also exported \$12.6 million in plastics – led by exports of polyacetals, other polyethers, and epoxide resins – and \$1.7 million in fertilizers to the United Arab Emirates.

There is an estimated \$98 million in potential exports left unrealized as a result of trade frictions, and another \$47.7 million in export potential expected to arise out of growing demand in the United Arab Emirates market.

Tariffs vary by product; acyclic alcohols are subject to 5% MFN duties, and there are no tariffs on cyclic hydrocarbons. Non-tariff measures (NTMs) applied include labelling and technical barriers to trade (TBT) requirements, among others. Iran's exports of polyacetals, other polyethers, and epoxide resins are subject to 5% MFN duties.

In comparison with the rest of the region, the time and cost of complying with border procedures and documentary requirements when importing are relatively light in the United Arab Emirates. Logistics performance exceeds regional and country income group averages. Furthermore, since the imposition of sanctions affecting petrochemicals trade, United Arab Emirates traders have proven to be appropriate middlemen in the re-export of Iranian products. These transactions often use United Arab Emirates dirhams and may take place through front companies.

The development of new petrochemical projects in the United Arab Emirates will increase competition in the United Arab Emirates market and in shared export markets. In particular, the Abu Dhabi National Oil Corporation (ADNOC) is constructing what is aimed to be the world's largest refining and petrochemical facility by 2025, and is investing in India and other rapidly growing markets in Asia.

Nevertheless, the small share of United Arab Emirates imports of plastics and fertilizers supplied by Iran suggests that there is room to expand trade by expanding the range of products exported. Iran accounted for less than 1% of the United Arab Emirates' \$4.9 billion in plastics imports in 2018.

There are opportunities to improve the market share for Iranian petrochemicals, particularly midstream and downstream products, in which it accounts for a very small share of total imports. Improved connections with traders and distributors would offer opportunities for Iranian petrochemical exports. The United Arab Emirates is a major re-export hub, playing a growing role in the re-export of plastics in particular.



PLAN OF ACTION

To achieve the vision and strategic objectives discussed, a robust, actionable and realistic strategic plan of action is required. This is provided below, and constitutes the heart of this strategy. The plan of action is structured along the four strategic objectives described above and their operational objectives. For each objective, the plan of action outlines detailed activities and their implementation modalities, which include:

- **Priority level:** Priority 1 being the highest and 3 the lowest.
- **Start/end dates:** The desired time-frame of the activity.
- **Reform or project:** Categorization of the type of activity.
- **Targets:** Quantifiable targets that allow monitoring of the activity from the implementation stage to completion.
- **Leading implementing partners:** One accountable lead institution per activity, which may have a technical role or only an oversight and coordination role.
- **Supporting implementing partners:** Any other institution that should be involved at any stage of the activity's implementation.



Strategic objective	Operational objective	Activity	Priority	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2021	2022	2023	2024	2025				
1. Manage trading relationships to succeed in an uncertain and changing external environment	1.1. Position petrochemical exports to succeed in international markets	1.1.1. Improve firm access to information on export opportunities through: <ul style="list-style-type: none"> Reviewing preferences and requirements available to Iranian exporters under current trade agreements and disseminating this information to firms Providing information to firms on market access, particularly in high-potential markets 	3					Project	<ul style="list-style-type: none"> Trade preference and requirement review document is completed and made available to firms Summary on accessing high-potential markets is made available to firms 	Iran Trade Promotion Organization and sector associations	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	
		1.1.2. Build capacities for exporting among firms – particularly SMEs – through workshops and online tools on the legal and technical aspects of trade, as well as the development of business relationships with customers	2					Project	<ul style="list-style-type: none"> Three workshops are held with diverse participation from the sector 	Iran Trade Promotion Organization and sector associations	Ministry of Industry, Mine and Trade	
		1.1.3. Promote Iranian petrochemical products in international markets through: <ul style="list-style-type: none"> Assisting Iranian firms to make connections with customers in high-potential markets In-market export promotion activities Collective marketing and collaboration on exporting through cooperation among firms 	3					Project	<ul style="list-style-type: none"> Two international trade missions benefiting the sector are made in high-potential export markets An international promotion campaign is designed 	Iran Trade Promotion Organization and sector associations	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	
1.2. Manage constraints to trade for reduced uncertainty	1.2.1. Leverage relationships with importers and sector associations in key export markets in working to establish trade and trade finance arrangements adapted to the constraints imposed by sanctions		3					Project	<ul style="list-style-type: none"> A plan is developed for facilitating trade and financial flows benefitting the sector with established trading partners 	Ministry of Foreign Affairs	Ministry of Industry, Mine and Trade	
		1.2.2. Establish a centralized reference on current and potential traders/importers in collaboration with active exporters	1					Project	<ul style="list-style-type: none"> A reference document is produced with private sector input and made available to firms as needed 	Iran Trade Promotion Organization and sector associations	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	
		1.2.3. Foster improved trading relationships for the sector and prioritize efforts to reduce tariffs on petrochemical exports to important markets	2					Reform	<ul style="list-style-type: none"> Priority trading partners for the petrochemicals sector are identified 	Ministry of Industry, Mine and Trade	Ministry of Foreign Affairs	

Strategic objective	Operational objective	Activity	Priority	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2021	2022	2023	2024	2025				
1. Manage trading relationships to succeed in an uncertain and changing external environment	1.2. Manage constraints to trade for reduced uncertainty	1.2.4. Develop alternative opportunities in domestic markets	2						Project	<ul style="list-style-type: none"> High-potential and underexploited domestic market opportunities are identified Promotion campaigns targeting potential clients are developed 	Iran Trade Promotion Organization and sector associations	Iran Trade Promotion Organization and sector associations
										Reform	<ul style="list-style-type: none"> Two consultations held with a diverse set of sector stakeholders on regulatory issues 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade
	2.1. Strengthen public-private dialogue and design effective regulation for a dynamic sector	2.1.1. Institutionalize relationships between regulators and sector associations for improved communication and enhanced transparency in governance	2						Reform	<ul style="list-style-type: none"> A formalized, transparent and inclusive mechanism for public-private dialogue and information sharing is established 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	Iran Trade Promotion Organization and sector associations
									Reform	<ul style="list-style-type: none"> One review meeting is held with representation from across the sector A summary of recommendations on improving access to raw materials is produced 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	Iran Trade Promotion Organization and sector associations
2. Support institutional and policy reform to broaden production opportunities	2.2. Foster efficient and connected productive clusters	2.2.1. Foster connections between special zones and the rest of the economy by: <ul style="list-style-type: none"> Reviewing policy discrepancies between special zones and the rest of the economy to identify opportunities for regulatory alignment Improving access to information on firm activities through firm directories, to reduce information and transaction costs 	2					Reform	<ul style="list-style-type: none"> A list of priority reforms and a plan for their implementation is produced with private sector input 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	Iran Trade Promotion Organization and sector associations	
									Reform	<ul style="list-style-type: none"> A review of policy discrepancies and plan for possible areas of harmonization is produced A new firm directory is produced and disseminated within the sector and to firms active in related areas 	High Council of Free Trade-Industrial Zones	Iran Trade Promotion Organization and sector associations

Strategic objective	Operational objective	Activity	Priority	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners	
				2021	2022	2023	2024	2025					
2. Support institutional and policy reform to broaden production opportunities	2.2. Foster efficient and connected productive clusters	2.2.2. Support the growth of productive regions of downstream petrochemical activity through a cluster policy that leverages strengths in upstream production, beginning with mapping of existing and nascent clusters	2						<ul style="list-style-type: none"> A detailed mapping for existing and nascent clusters is produced 	Ministry of Industry, Mine and Trade			
		2.3.1. Work in collaboration with firms to develop needed technical and business skills supporting the growth of new activities	2					Project	<ul style="list-style-type: none"> Four trainings on technical skills held, targeting workers and business leaders in the sector 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	Ministry of Education		
		2.3.2. Incorporate the development of essential skills for the sector in formal education programmes and raising awareness of career opportunities in the sector among graduates of engineering and other technical and applied science programmes	2					Reform	<ul style="list-style-type: none"> A proposal paper produced on incorporating sector-relevant technical skills in higher education, through either the introduction of new programmes and courses or addition of material to existing courses 	Ministry of Education	Ministry of Petroleum, and Ministry of Industry, Mine and Trade		
	2.3. Enhance technical and business skills for growth and diversification	2.3.3. Review rules related to the recruitment of international personnel in the sector, to facilitate knowledge and skill transfer	2.3.3. Review rules related to the recruitment of international personnel in the sector, to facilitate knowledge and skill transfer	3					Reform	<ul style="list-style-type: none"> A review of barriers to international recruitment of consultants and staff is produced, with private sector input A plan for implementing relevant reforms is produced 	Ministry of Industry, Mine and Trade	Iran Trade Promotion Organization and sector associations	
			2.4. Build institutional capacities for regulatory implementation	2.4.1. Conduct a review of institutional responsibilities for regulating the sector, particularly as divided between the Ministry of Petroleum and the Ministry of Industry, Mine and Trade, with the aim of identifying opportunities to merge and realign these responsibilities in order to foster improved vertical linkages and integration in the petrochemical supply chain	2.4.1. Conduct a review of institutional responsibilities for regulating the sector, particularly as divided between the Ministry of Petroleum and the Ministry of Industry, Mine and Trade, with the aim of identifying opportunities to merge and realign these responsibilities in order to foster improved vertical linkages and integration in the petrochemical supply chain	2				Reform	<ul style="list-style-type: none"> A review of regulatory responsibilities is produced, with an assessment of corresponding institutional capacities 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	Iran Trade Promotion Organization and sector associations
					2.4.2. Review regulators' internal division of responsibilities to improve efficiency and effectiveness	1				Reform	<ul style="list-style-type: none"> Internal reviews of responsibilities and organizational capacities are produced by the sector's main regulatory bodies 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	Iran Trade Promotion Organization and sector associations

Strategic objective	Operational objective	Activity	Priority	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2021	2022	2023	2024	2025				
3. Facilitate investment and access to finance for growth and diversification	3.1. Attract new investment in the sector	3.1.1. Establish a new programme within the Organization for Investment, Economic and Technical Assistance dedicated to attracting investment in the petrochemicals sector, including: <ul style="list-style-type: none"> • Developing a sector-specific value proposition for potential investors • Building profiles of potential investors to prioritize in targeting 	2					Reform	<ul style="list-style-type: none"> • A dedicated sector programme for attracting investment is established • Sector value proposition and list of potential investors is created 	Organization for Investment, Economic and Technical Assistance of Iran		
		3.1.2. Hold consultations with current and potential international investors in the sector on issues in the business environment to be addressed	3					Reform	<ul style="list-style-type: none"> • Two meetings with current and potential investors held, with summary documents produced and disseminated to interested 	Organization for Investment, Economic and Technical Assistance of Iran		
		3.1.3. Work with partner countries to develop and implement temporary instruments allowing for cross-border capital inflows	2					Reform	<ul style="list-style-type: none"> • A plan for alternative arrangements for cross-border capital flows to support investment in the sector is created 	Ministry of Industry, Mine and Trade	Ministry of Foreign Affairs	
	3.2. Improve access to finance	3.2.1. Hold consultations with petrochemical firms (with a particular emphasis on smaller firms in downstream activities) and financial institutions on how to improve SME access to finance, such as through loan guarantees and revised rules on collateral		2					Reform	<ul style="list-style-type: none"> • Two consultations on improving financial access are held 	Central Bank of Iran	Ministry of Industry, Mine and Trade
			3.2.2. Support the establishment of bulk purchasing schemes for smaller downstream firms to improve their access to inputs and manage costs	2					Project	<ul style="list-style-type: none"> • A bulk purchasing scheme for raw materials for downstream firms is established 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	
		3.2.3. Improve firms' access to information on fiscal incentives encouraging investment in innovative activities	2					Project	<ul style="list-style-type: none"> • Target summaries of information on incentive programmes are produced and disseminated to relevant firms 	Iran Trade Promotion Organization	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	

Strategic objective	Operational objective	Activity	Priority	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2021	2022	2023	2024	2025				
3. Facilitate investment and access to finance for growth and diversification	3.3. Encourage investment in new technologies, processes and products	3.3.1. Review, in consultation with sector representatives, barriers and obstacles to importing new equipment and machinery to facilitate new investment	2						Reform	<ul style="list-style-type: none"> A plan to address import barriers affecting production potential in the sector is produced, with private sector input 	Islamic Republic of Iran Customs Administration, Iran Trade Promotion Organization and sector associations	Ministry of Industry, Mine and Trade
		3.3.2. Reduce administrative barriers affecting the establishment of new firms, including through the introduction of a streamlined industrial registration system	3						Reform	<ul style="list-style-type: none"> A specific plan for administrative streamlining in the sector is produced, with private sector input 	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	Iran Trade Promotion Organization and sector associations
		4.1.1. Conduct a capacity assessment of the domestic organizations involved in quality management of petrochemicals products	2							Project	<ul style="list-style-type: none"> A review of quality management bodies involved in the sector is produced 	Iranian National Standards Organization
4. Promote quality and sustainability for long-term growth in the sector	4.1. Strengthen quality management systems	4.1.2. Encourage greater compliance with international quality standards and the requirements of high-potential export markets through information campaigns targeting firms	2						Project	<ul style="list-style-type: none"> Information and training materials on compliance are assembled and made available to firms Two open workshops are held 	Iranian National Standards Organization	Ministry of Industry, Mine and Trade, and Iran Trade Promotion Organization
		4.1.3. Sensitize firms to the importance of standards and quality certifications in expanding exporting and raising the value of exported products through awareness-raising campaigns, including online and print resources	1						Project	<ul style="list-style-type: none"> An awareness campaign is developed to reach firms in the sector 	Iran Trade Promotion Organization and sector associations	Iranian National Standards Organization

Strategic objective	Operational objective	Activity	Priority	Period					Reform or project	Targets	Leading implementing partners	Supporting implementing partners
				2021	2022	2023	2024	2025				
4. Promote quality and sustainability for long-term growth in the sector	4.2.1. Develop new environmental requirements and voluntary standards regarding production processes, products and value chains in consultation with petrochemical firms	2						Reform	<ul style="list-style-type: none"> A new set of environmental requirements is developed, with private sector input A new set of voluntary standards is developed under the leadership of the private sector 	Department of Environment, Iran Trade Promotion Organization and sector associations	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	
	4.2. Implement standards for environmental protection	1						Project	<ul style="list-style-type: none"> Multiple resources summarizing relevant environmental standards, targeting particular subsectors, are created An information and awareness campaign is created 	Iran Trade Promotion Organization and sector associations	Ministry of Petroleum, and Ministry of Industry, Mine and Trade	
	4.3.1. Review existing programmes that could be employed to provide financial incentives to petrochemical firms investing in efforts to improve their environmental sustainability and provide information to firms on accessing these forms of assistance	2						Project	<ul style="list-style-type: none"> A review of existing incentive programmes is completed A summary document is made available to firms in the sector 	Iran Trade Promotion Organization and sector associations		
	4.3. Encourage investment in environmental sustainability	2						Reform	<ul style="list-style-type: none"> A review of import barriers is completed and a reform plan is produced 	Islamic Republic of Iran Customs Administration, Iran Trade Promotion Organization and sector associations	Ministry of Industry, Mine and Trade	

GUIDELINES ON STRATEGY IMPLEMENTATION

The objective of Iran's Petrochemicals Strategy is to create an enabling environment for petrochemicals production and processing to realize its potential and contribute to the country's exporting, growth and industrial development. Achieving this ambitious objective will depend on the industry's ability to implement the activities defined in this strategy.

It is the translation of priorities into implementable projects that will contribute to achieving the substantial increase in export competitiveness and in export earnings envisaged under the strategy. These will be driven by reforming the regulatory framework, optimizing institutional support to exporters and strengthening firms' capacities to respond to market opportunities and challenges. Allocation of human, financial and technical resources is required to efficiently coordinate, implement and monitor work on the strategy.

Successful execution of activities will depend on stakeholders' abilities to plan and coordinate actions in a tactical manner. Diverse activities must be synchronized across public and private sector institutions to create sustainable results. Therefore, it is necessary to foster an adequate environment and create an appropriate framework for the strategy's successful implementation.

Key to achieving the targets will be coordination of activities, monitoring progress and mobilizing resources for implementation. To that effect, industry representatives recommended that an advisory committee of public sector and business representatives for the petrochemicals sector be rapidly established, operationalized and empowered. The advisory committee is to be responsible for overall coordination, provision of policy guidance and the monitoring of industry development along the strategic orientation.

It is recommended that the advisory committee be empowered to meet quarterly and to implement the following functions:

- Create a shared understanding of key market challenges and opportunities facing the sector;
- Set goals and targets that, if achieved, will strengthen the sector's competitive position and enhance Iran's overall capacity to meet the changing demands of markets;
- Propose key policy changes to be undertaken and promote these policy changes among national decision makers;
- Support the coordination, implementation and monitoring of activities in the sector by the government, business, institutions or international organizations to ensure alignment to goals and targets, as required to contribute to resource identification and alignment.

As part of the overall trade policy and NES design process, it has been recommended that an inter-ministerial and multisectoral business council be organized and structured to address overall challenges and opportunities to Iran's trade performance. It is recommended that chairs of advisory committees, such as that for the petrochemicals sector, be members of the council to consult on key trade thematic areas ranging from policy to regulations and trade negotiations.

The presence of the advisory committee to oversee the strategy's implementation is a key success factor, but it is not sufficient to effectively fulfil its assigned functions. The strategy's success depends on business sector support and participation in implementation, proactive networking and communication, and resources for implementation (Table 9).



Table 9: Key success factors for effective implementation

Factor	Details
Business sector support and participation in implementation	<p>The business sector clearly expressed its willingness to contribute, directly or in partnership with public institutions, to the implementation of the strategy. Their implementation efforts can range from providing business intelligence to institutions to contributing to project design, promotion and branding, or policy advocacy, etc. In brief, the business sector's practical knowledge of sector operations is essential to ensuring that the strategy remains aligned to market trends and opportunities.</p>
Proactive networking and communication	<p>The key implementing institutions detailed in the plan of action (PoA) need to be informed of the content of the strategy and the implications for their programming during its implementation period. This networking and communication is essential to build further ownership and to provide institutions with the opportunity to confirm the activities they can implement in the short to long term. It will be important for the members of the advisory committee and other institutions to reach out to relevant institutions nationally to create awareness and support for the development of the petrochemicals sector.</p>
Resources for implementation	<p>The advisory committee, in collaboration with other institutions, will need to leverage additional support for efficient implementation. Effective planning and resource mobilization is indispensable in supporting strategy implementation. Resource mobilization should be carefully planned and organized.</p> <p>As the petrochemicals sector is a priority of the NES, the government should define annual budget allocations and supports to drive the industry growth. This commitment will demonstrate clear engagement towards strengthening the sector and will encourage private partners to support development. In addition to national budget support, resource identification will require the effective targeting of foreign investors in line with the strategy's priorities. Investment flows to Iran should also be considered as a valuable driver of strategy implementation and overall industry development.</p> <p>The various implementation modalities detailed will determine the success of the strategy's implementation. However, high-level support from the government, in collaboration with strong championship by the business sector, will be the real driver of successful strategy implementation.</p>

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