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INDUSTRIAL DEVELOPMENT ORGANIZATION

Progress by innovation

Industrial Policies for Economic Diversification in Qatar

A Research and Policy Agenda

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This report was jointly prepared by the United Nations Industrial Development Organization (UNIDO) and Earthna Center for a Sustainable Future, a member of Qatar Foundation.

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Note on UNIDO

UNIDO works to enhance domestic institutional capacity globally by providing expertise in cleaner technologies, fostering digitalization linked to Industry 4.0, and promoting technological sovereignty. These efforts directly contribute to SDG 9: Industry, Innovation and Infrastructure, and support UNIDO's strategic priorities: climate action, innovation, and sustainable supply chains. This includes limiting climate breakdown through renewable energy and energy efficiency, supporting fair and sustainable supply chains, and ending hunger by reducing post-harvest losses and developing agribusiness value chains. All three priorities promote job creation and are underpinned by innovative financing mechanisms and partnerships with multilateral donors such as the Green Climate Fund, Global Environment Facility, Development Finance Institutions (DFIs), and traditional UNIDO donors. Cross-cutting themes, including industrial policy advisory services, technology and knowledge transfer, research and statistics, digitalization, investment promotion, skills development, the circular economy, and women's economic empowerment, further reinforce UNIDO's impact. The organization's project experience demonstrates the effectiveness of integrating green industrial policies within broader national frameworks. To illustrate this approach, the report includes an annex featuring the Senegal case.

Note on Earthna

Earthna Center for a Sustainable Future (Earthna) is a non-profit policy, research, and advocacy organization, established by Qatar Foundation to promote and enable a coordinated approach to environmental, social, and economic sustainability and prosperity. Earthna is a facilitator of sustainability efforts and action in Qatar and other hot and arid countries, focusing on sustainability frameworks, circular economies, energy transition, climate change, biodiversity and ecosystems, cities and the built environment, education, ethics, and faith. By bringing together technical experts, academia, government and non-governmental organizations, businesses and civil society, Earthna fosters collaboration, innovation, and positive change.

Using their home - Education City - as a testbed, Earthna develops and trials sustainable solutions and evidence-based policies for Qatar and hot and arid regions. The organization is committed to combining modern thinking with traditional knowledge, contributing to the well-being of society by creating a legacy of sustainability within a thriving natural environment.

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Key messages

1 **A broad research program is needed to provide evidence for the design of an appropriate industrial policy in Qatar.** Designing appropriate industrial policy requires a strong evidence base and further research to understand the local context and achieve diversification and structural transformation. Inquiry is needed into productivity, skill requirements, and labor migration patterns to support future needs. Research should also explore integrating green and blue economy principles and identifying specific policy packages and governance reforms relevant for long-term impact in Qatar.

2 **Align industrial policies to existing national strategic frameworks and embed them in future strategies.** Industrial policies must align with the Qatar National Vision 2030 (QNV2030) and the Third National Development Strategy (NDS3). This alignment supports the transformation into a knowledge-based, competitive, and sustainable growth model. Policies should be embedded in future strategies, while ensuring coherence, green structural transformation, and climate-conscious sustainable development principles are incorporated.

3 **Target investments and capacity building into new innovation-led sectors, such as climate technology.** Target investments and capacity building into new innovation-led sectors, such as climate technology, to enable necessary diversification and innovation-driven upgrading. Qatar's commitment to emission reduction positions, low-carbon industries and clean technologies are key enablers. Critical areas include developing a hydrogen production base and expanding Carbon Capture and Storage (CCS) infrastructure, to decarbonize manufacturing and enhance global competitiveness.

4 **Strategically support export- focused sectors that align with the needs of growing economies across the Global South.** Industrial policies should strategically support selective, export-oriented cluster development that leverages Qatar's strengths in logistics and global connectivity. This focus aligns with the needs of growing economies across the Global South, where Qatar is an active investor in development finance. This includes pursuing strategic manufacturing growth, particularly in sectors like pharmaceuticals, in regions across Africa and Asia.

Executive summary

Industrial policies remain a critical driver for structural transformation, diversification of exports, enhanced productivity, and fostering innovation. This is especially important for Gulf Cooperation Council (GCC) countries, which are heavily dependent on oil and gas export revenues for economic growth. Qatar stands at a pivotal juncture in its economic development with the launch of its Third National Development Strategy (NDS3) aimed at achieving its Qatar National Vision 2030 (QNV2030), and more recently, the Qatar National Environment and Climate Change Strategy (QNECC), which feeds directly into Qatar's latest Nationally Determined Contribution (NDC). Qatar is pushing forward a bold economic diversification agenda anchored in a targeted industrial strategy, namely Qatar's National Manufacturing Strategy. Combined, these strategies aim to reduce reliance on hydrocarbons, strengthen the energy sector, establish a global logistics hub, boost the manufacturing and tourism industries, and respond to regional and global megatrends through adopting sustainable industrial growth pathways. Although Qatar has made substantial progress in building world-class infrastructure and human capital, challenges remain. Examples include limited non-hydrocarbon export dynamism, regulatory trade barriers, non-hydrocarbon foreign direct investment (FDI), and crowding out by the public sector.

Qatar's NDC commitment to a 25% reduction in emissions by 2030 positions low-carbon industries, clean technologies, and blue economy solutions as key enablers of its diversification goals.[1] This Report explores how Qatar can design action-oriented industrial policies, building on an existing and evolving industrial base, new development and manufacturing strategies, and benefitting from the income of its vast natural resources. Unlike the case of undiversified developing countries, where resource scarcity often hinders structural transformation and productivity growth, Qatar is in a unique position to invest in capabilities that can trigger rapid change. In the presence of political will, industrial policy can enable Qatar to transition toward a more diversified, competitive, and climate-compatible sustainable economy.

This Report presents the case for industrial policy to achieve economic diversification in Qatar aligned with QNV2030 and NDS3. The core objective of both is to transform Qatar into a knowledge-based economy, moving away from hydrocarbon dependence toward a more competitive, productive and sustainable growth model. This transition must incorporate principles of green structural transformation and climate-conscious sustainable development. Modern industrial policies must be holistic, they must address material welfare and evolving demands for clean air, social equity and long-term sustainability. Industrialization is a powerful tool for poverty reduction and climate action, especially when aligned with low-carbon technologies and other sustainable practices.[2] This is particularly urgent as climate change introduces increased uncertainty. Designing industrial policy around the expectation of future global decarbonization is crucial for local industry competitiveness, evidenced by global initiatives like the United States' Inflation Reduction Act (IRA) and the European Union's Carbon Border Adjustment Mechanism (CBAM).

Qatar is a high-income, resource-rich economy dominated by its vast natural gas reserves that account for the majority of government revenue, GDP and export earnings. Historically, Qatar's industrial landscape has centered on heavy industry using natural gas as feedstock, such as petrochemicals, fertilizers, steel and aluminum. Despite strategic diversification efforts, structural change has been limited: the manufacturing sector's direct contribution to GDP has remained consistently around 10% for the past two decades, lower than successful industrializing nations in Asia. Furthermore, diversification toward manufacturing remains inadequate and the oil and gas sector maintains its dominance in the economy. State-owned enterprises dominate the strategic manufacturing sector (refining, petrochemicals, metals), while private sector participation is weak and over 90% of export revenues originate from the strategic manufacturing sector.

However, Qatar has made substantial investments in building an enabling environment, including institutions for research and development (R&D), such as Qatar Foundation (QF) and Qatar Research Development and Innovation Council (QRDI).[3] Regulatory measures, including liberalized foreign investment laws and the establishment of Free Zones, aim to foster a competitive business environment. The Qatar Investment Authority (QIA) and Qatar Development Bank (QDB) together act as catalytic investors, supporting local startups and SMEs, often through Shariah-compliant and green financing.

For Qatar, the path forward involves embedding industrial policy within the NDS3 framework, focusing on selective, export-oriented cluster development that leverages Qatar's strengths in logistics and global connectivity.[4] This requires prioritizing innovation-driven industrial upgrading, institutional reform (including strengthening regulatory consistency and private-public partnerships) and expanding the role of catalytic funds like QIA and QDB to support new industrial firms and small and medium- scale enterprises (SMEs). Critical areas for exploration include developing a hydrogen production base and expanding CCS infrastructure to decarbonize manufacturing, positioning Qatar as a potential global leader in low-carbon product exports. Finally, addressing human capital constraints through a dual-track labor policy, combining aggressively improving education for nationals and simplifying procedures to attract global talent are essential for achieving the required green structural transformation.

"This Report presents the case for industrial policy to achieve economic diversification in Qatar aligned with QNV2030 and NDS3."

1 Qatar's diversification journey

Qatar's diversification agenda stems from its long-term blueprint, the Qatar National Vision 2030 (QNV2030), which aims to transform the country into a knowledge-based economy. As articulated in the third National Development Strategy (NDS3), this requires transitioning away from hydrocarbon dependence toward a more productive, competitive, and sustainable growth model. This aligns with UNIDO's emphasis on "green industrial transformation" and Earthna's vision of climate-conscious sustainable development.

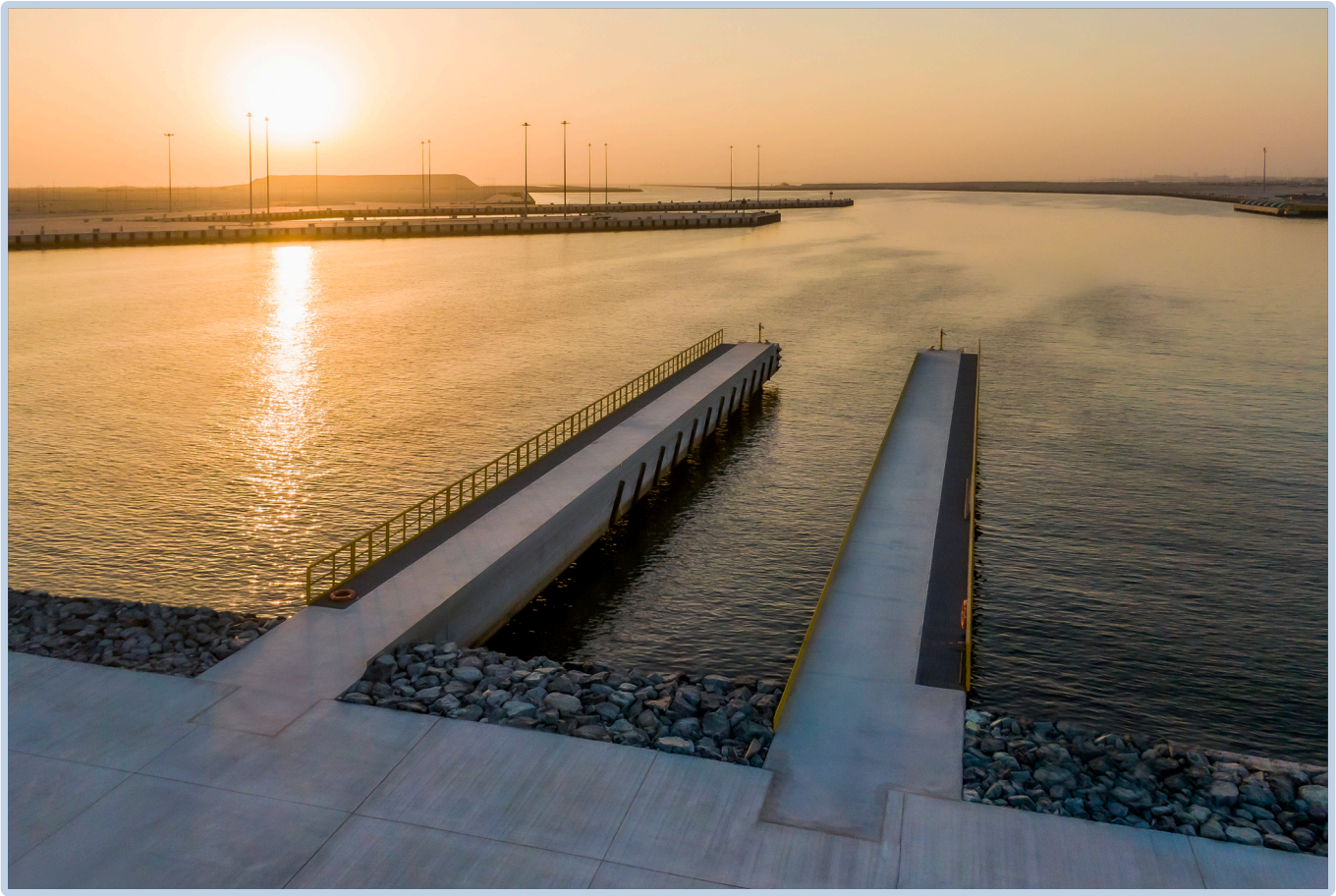
Traditional[5] economic models emphasize material welfare and prosperity. Within these models, the welfare or satisfaction of individuals derives from the consumption of goods and only considers material consumption, where it is assumed that more consumption leads to higher levels of welfare. One possible outcome of this theoretical approach – higher consumption for better welfare- is significant environmental degradation and dangerous levels of greenhouse gas emissions that have led to increases in global mean temperatures at an unprecedented rate. Therefore, based on this theoretical foundation, it follows that industrial policies that increase and diversify the production of goods and services, and thus enhance productivity and competitiveness, would be sufficient for improved welfare. However, such business-as-usual approaches are no longer sustainable. Climate change requires that we rethink economic growth and development, and acknowledge that citizens today, in addition to goods and services, demand clean air and water, social equity, and the security afforded by long-term sustainability. Therefore, industrial policies need to become more holistic to cater to these evolving demands and address the underlying drivers of climate change.

Moreover, the increased uncertainty introduced by climate change requires that industrial policies are designed for a low-carbon future. As countries strive to meet climate commitments while remaining competitive in the global economy, industrial policy has seen a recent resurgence[6]. For example, one of the objectives of the United States' Inflation Reduction Act (IRA) of 2022 is to boost domestic clean energy production to increase competitiveness in the global economy. Similarly, the European Union's Carbon Border Adjustment Mechanism (CBAM) protects local industry from imports from regions with less stringent environmental and climate policies. This trend is likely to continue, with China and ASEAN countries expected to implement similar policies in the future. In this context, any national industrial policy must be designed around the expectation of future global decarbonization for local industry to remain competitive.

This does not mean that industrial strategies should not aim for productivity growth and fostering a competitive environment. On the contrary, in addition to structural transformation, these remain fundamental pillars of economic development. Instead, what this means is that industrial strategies today should aim for green, equitable, and sustainable structural transformation and productivity growth.

Structural transformation and productivity growth tend to go hand-in-hand. Economies that manage to start a process of producing more technologically sophisticated products and services (and thus attain higher value-added production) also achieve higher levels of productivity.[7] For many developing countries, resource constraints are an obstacle to the implementation of industrial policies along the lines described above. Qatar, with its rich endowments of fossil fuels, is in a unique position to manage diversification away from a focus on natural resource exports and into manufacturing, and a green economic transition.

Manufacturing plays a pivotal role in economic diversification due to its capacity to generate productivity spillovers, create quality jobs, and foster innovation. Industrialization is a powerful tool for poverty reduction and climate action, especially when aligned with low-carbon technologies and sustainable practices.[8] Moreover, SDG 9, focused on industry, innovation, and infrastructure, acts as a key enabler for nearly all other Sustainable Development Goals, reinforcing the strategic importance of manufacturing in unlocking inclusive and resilient development pathways.[9]



2 Qatar's economy

Qatar's economy is dominated by the hydrocarbon sector. It is one of the world's most resource-rich and high-income economies. In recent years, strategies have been drafted to direct efforts towards structural transformation aimed at diversification and sustainability, primarily guided by the Qatar National Vision 2030 (QNV 2030) and the subsequent National Development Strategies (NDS).

The foundation of Qatar's economic success is its vast natural gas reserves, the third largest globally, and its position as a leading exporter of Liquefied Natural Gas (LNG). Petroleum and natural gas account for the majority of government revenue, gross domestic product (GDP) and export earnings. The state-owned company, Qatar Energy (QE), recently announced plans to expand LNG production to 140 million tons per annum by 2030. These plans will ensure the oil and gas sector's dominance in the economy in the short- and medium-term.

Qatar's industrial landscape has historically been centered on heavy industry that uses natural gas as a feedstock. For example, there are major production facilities of petrochemicals and fertilizers, often as joint ventures with international partners; and there is a significant production capacity of steel and aluminium. However, Qatar's latest National Development Strategy (NDS3) and National Manufacturing Strategy present plans for a more dynamic and diversified economy driven by developments in knowledge and innovation ecosystems. The non-hydrocarbon sector is the focus of new development plans, as Qatar strives to diversify its economy away from oil and gas, and has shown strong growth, particularly driven by significant public infrastructure investments in the decade leading up to the 2022 FIFA World Cup. Key non-hydrocarbon sectors and diversification clusters experiencing significant expansion include: finance and insurance; tourism and the food sector; logistics and transport; education and health; technology and digitalization.

Some structural reforms, including liberalized foreign investment laws allowing up to 100% foreign ownership in some sectors and labor market reforms, have been implemented to attract foreign direct investment and foster a competitive business environment. Investment is also channeled through the Qatar Investment Authority (QIA), one of the world's largest sovereign wealth funds, which invests nationally and globally, often in technology, infrastructure, real estate, the financial sector, media and telecommunications and liquid securities. The goal, as outlined in NDS3, is to transition from public-sector-led growth to a model driven by the private sector and sustained by high-productivity, non-hydrocarbon activities.

3 Industrial development in Qatar

Globally, industrial policy gained momentum immediately after the Second World War, with strong government intervention leading to increased provision of public goods and services and rapid technological progress.[10] However, industrial policies in countries of the Gulf Cooperation Council (GCC) appeared almost three decades later. There are several reasons for the delay in the development of industrial policy in Qatar and the region. Following independence, GCC countries focused on expanding oil production to develop the infrastructure and institutions to provide basic goods and services. Moreover, the 1970s were a turbulent period, characterized by several events with global ramifications, such as nationalizing and consolidating the ownership of oil companies in GCC countries, the Arab oil embargo, and volatility in global oil prices.

The first oil boom and bust cycle exposed Qatar and GCC countries to the vulnerabilities introduced by reliance on natural resource exports. Since independence, Qatar has realized the importance of diversifying its revenue base and reducing fiscal dependence on fossil fuels. Qatar started developing basic industries focusing on cement (1969), large-scale fertilizer plants (1970), and established the first industrial city in 1973 to coordinate, streamline, and scale-up industrial processes (IDTC, 1981). Qatar's key competitive advantage - availability of cheap energy and feedstock - led to the development of energy-intensive industries, such as steel and petrochemical plants. The high oil prices in the 1970s and surplus revenue further fueled industrial development (MoEI, 2007).

Although industrial policy was overshadowed by the immediate pressures of oil revenue management and geopolitical shifts, discourse on developing an industrial base has been gathering momentum. The Gulf Organization and Industrial Consulting (GOIC) was formed in 1976, headquartered in Doha, and aimed to promote industrial cooperation among GCC countries by developing joint industrial companies and learning from the best policies. Moreover, the foundational document of the GCC countries – the Unified Economic Cooperation Agreement of 1981 – states that countries must "Coordinate industrial activities, formulate policies and mechanisms which will lead to industrial development and the diversification of their products on an integrated basis".[11]

The first unified industrial strategy was developed in 1985 and revised in 1998 (GCC Secretariat, 1998). The central theme of this strategy was to provide a framework for creating a conducive environment for industrial growth, including elements such as incentives, easy access to capital, minimizing regulations, and encouraging private sector participation and providing subsidized inputs (electricity, water, and energy feedstock). The strategy had several concrete goals: increasing industrial growth to achieve double the value addition for each decade, increasing the industrial workforce by 75%, and building a solid base for industrial research and development. The strategy was designed to encourage the localization of industries in underdeveloped areas.[12] The calls for a Unified Industrial Policy have not ceased since the 1980s (GCC Secretariat, 1998). The

reality, however, remains different, with the manufacturing share of total GDP remaining consistent over time and a lack of export diversification persists. Recently, the GOIC[13] and the Qatar Chamber of Commerce[14] continued the call for the development of a Unified Industrial Policy on different and often uncoordinated occasions.

Given the broader historical context of industrial policies in the Gulf region, it is crucial to understand how Qatar navigated its industrial development journey, marked by key milestones and strategic shifts. In 1998, Qatar developed an Industrial Development Strategy with a strong focus on maximizing production of raw and intermediate materials and increasing the share of manufacturing in total GDP. Another salient feature of this Strategy was the pursuit of higher environmental standards and fulfillment of the voluntary requirements of the Kyoto Protocol of 1997.

The Department of Industrial Strategy, part of the then Ministry of Energy and Industry, set out to develop natural gas production and focused on oil refining, petrochemicals, and the energy-intensive metals sector. This is a distinct shift from previous strategies that were much more focused on developing diversified industrial sources and specialized areas with strong research and development.[15] This is likely due to the limited success in achieving previous goals, lack of a critical mass, a small domestic market, and a lack of competitive edge in global markets, whether in terms of prices and/or technological development.

Qatar's first and successive National Development Strategies (NDS) advocated for developing a competitive manufacturing sector, but the goals and sectoral focus remained ambiguous (MDPS, 2011, 2018; PSA, 2024).[16]

In 2024, the Ministry of Commerce and Industry released the Qatar National Manufacturing Strategy 2024-2030, which resurrected the old idea of building a "high-value, diversified industrial sector" but with modest targets.[17] Additionally, the Strategy traverses a familiar path focusing on existing sectors, such as petrochemicals, metals, and building materials, with the exception of pharmaceuticals. The Strategy has nine key initiatives addressing multiple aspects of industrial development, such as the Fourth Industrial Revolution, skills development, research and development, and environmental sustainability. However, the details of how to achieve these objectives remain unclear. This highlights the difficulty and long-term horizon required for achieving diversification in the economy.

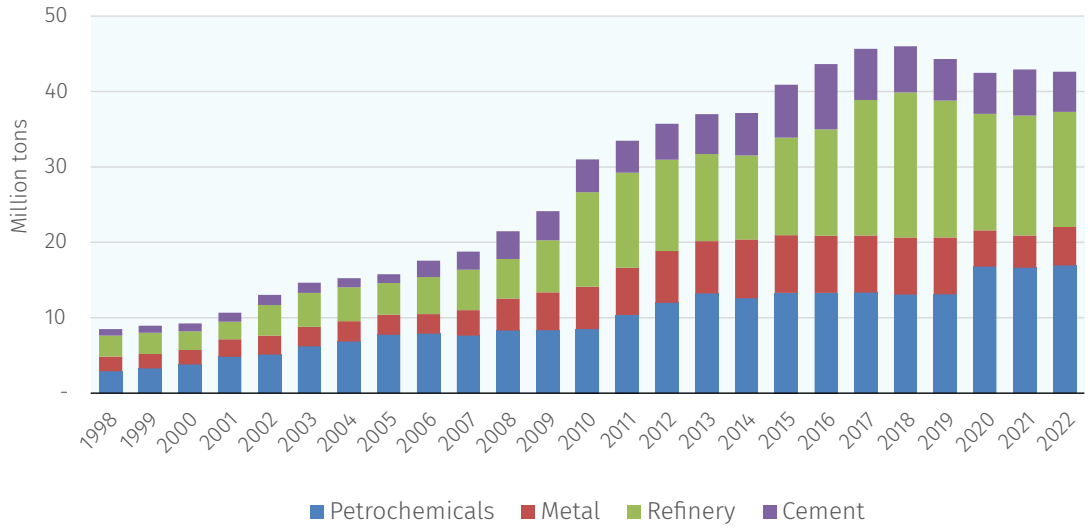
Beginning in 1995, a series of laws and regulations were developed and revised to meet evolving business needs by simplifying the rules and procedures of registration, foreign direct investment, intellectual property, governance, and corporate taxation (Table 1). Over the last decade, Free Zones have been established to attract investment and technology firms with favorable taxes, duties, and regulatory systems for business registration and operation. Another important initiative was the establishment of Qatar Industrial Development Bank with a capital of QR 200 million, which was later increased to QR 1 billion in 2006 as a part of a restructuring and rebranding process that created the Qatar Development Bank (MoEI, 2007; QDB, 2024).[18] This marked a new shift in mandate from a focus on the industrial sector to general support for small- and medium-sized projects to expand private sector activity. The success of QDB in achieving the desired goals is yet to be seen.

Tab. 1 Laws and regulations for private sector development[22]

Laws	Key activities
Commercial Companies Law (No. 11 of 2015)	Regulates the formation, management, and dissolution of companies
Commercial Law (No. 27 of 2006)	Covers commercial contracts, merchant obligations, and trade operations
Intellectual Property Law (No. 9 of 2002)	Safeguarding trademarks, trade names, and industrial designs
Tax Law (No. 21 of 2009)	Outlines corporate tax obligations
Law No. (34) of 2005 on Free Zones (amended in 2017)	Enable investors to benefit from economic incentives

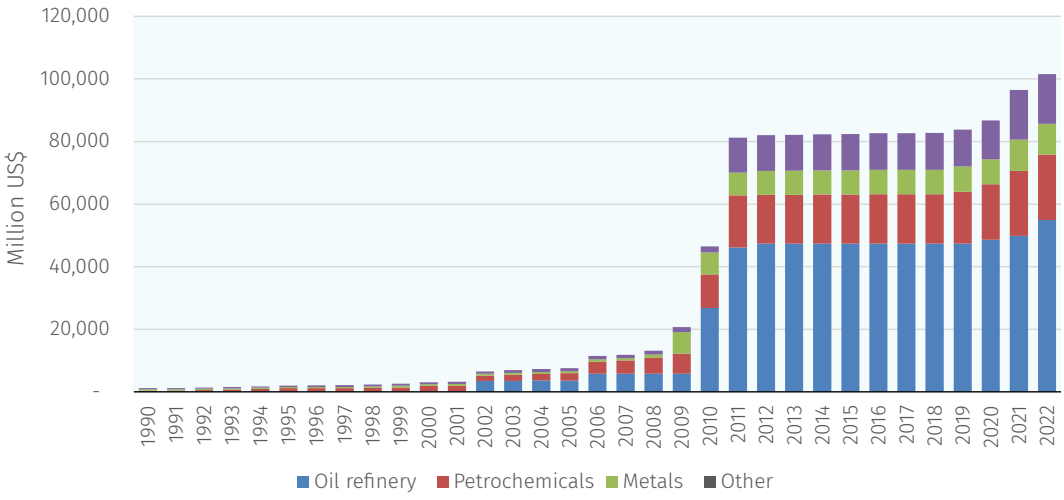
It is important to divide Qatar's manufacturing sector into two – a strategic[19] and a peripheral one.[20] Qatar's manufacturing output from the **strategic sectors increased from 8.4 to 42.6 million** tons between 1998 and 2022 (Figure 1). Refining and petrochemicals have seen a significant increase over time, with further expansion of petrochemical projects planned for the next three years.[21] Steel and cement production have declined since 2020 because of weak demand and a reduction in the construction sector as major infrastructure for the World Cup 2022 was completed and delivered. Aluminum production has remained constant since its inception. Petrochemicals, aluminum and a substantial share of refinery products are exported to the global market, whereas steel and cement are consumed domestically. Despite an increase in the total volume of production, energy-intensive and export-oriented products, such as petrochemicals and fertilizers, account for the largest share of manufacturing output. The manufacturing sector has high import dependence on labor, technology and raw materials, with the obvious exception of energy resources.

Fig. 1 Total production from the manufacturing sector for the period 1998 to 2022.[23]



State-owned enterprises dominate the strategic sector, whereas private sector participation remains weak in the peripheral sector. Using commercial credit as a proxy indicator to illustrate private sector participation, between 1984 and 2022, domestic commercial credit averaged between 1 to 5% of total commercial credit across all the sectors. This is significantly lower when compared to Oman, Saudi Arabia and the UAE (GOIC, 2023). Figure 2 illustrates the investments in industrial firms over the last three decades: investments in the strategic sector accounted for 85% of total investments in 2022, and the remaining manufacturing sub-sectors received an average of 15%. There was a significant increase in investments from 2010 onwards. Whether this was due to different or comprehensive reporting metrics or whether there was an actual increase in investments is difficult to ascertain. The labor force in the industrial sector increased ninefold between 1990 and 2022, and the most notable increment is seen in the non-metallic sector, basic metals, refining and petrochemicals (PSA, 2023).

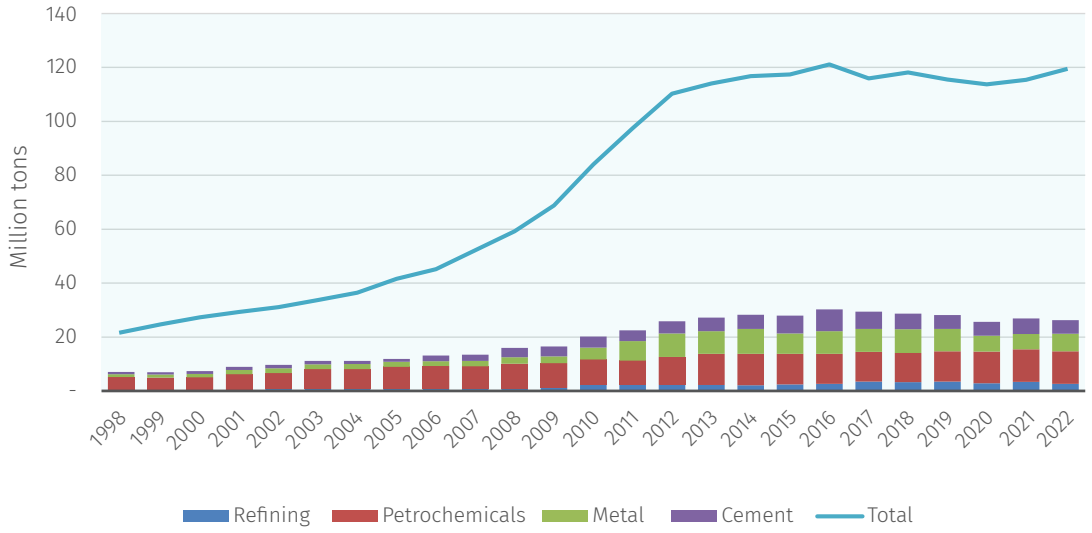
Fig. 2 Investments in the industrial firms in Qatar for the period 1990 to 2022.[24]



There is no data on research and development spending in the manufacturing sector, and patents from the industrial sector are insignificant. This indicates a potential development gap in the state-led manufacturing sector. Export data reveals that over 90% of export revenues come from refining, petrochemicals, metals and cement, demonstrating that diversification is yet to be achieved in Qatar's industrial development journey. Exports from peripheral sectors remain weak and volatile, contributing to less than 2% of total foreign merchandise exports (PSA, 2023).

Between 1998 and 2022, greenhouse gas emissions from the manufacturing sector increased nearly fourfold, from 7 to 26 million tons, reflecting an average annual growth rate of 5% (Figure 3). Despite this increase, the **sector's share of total emissions declined from 32% to 22%**, partly due to rising emissions from other sectors, such as natural gas, utilities, and construction.[25] Notably, the emission intensity of key sub-sectors, such as petrochemicals and metals, has decreased significantly since the 2010s. This progress is attributed to the replacement of outdated boilers and turbines, reductions in flaring, improved energy efficiency, and adoption of new technologies, including advanced aluminum smelters. The prospects for decarbonizing the manufacturing sector are challenging and require substantial investments in technologies such as electrification of production processes, blue and green hydrogen, carbon capture and storage, energy efficiency and renewable energy.

Fig. 3 Greenhouse gas emissions of the manufacturing sector for the period 1998 to 2022.



Source: Mohammed et al, 2025[26]

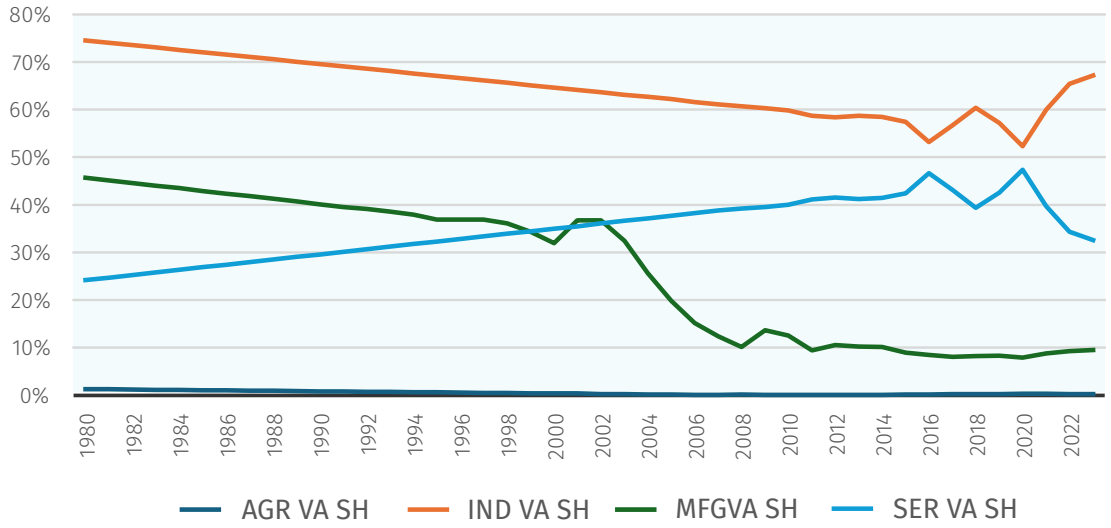
Structural transformation in Qatar

Qatar's structural change story concerns the industry and service sectors, and within industry, the role of manufacturing is key. Output shares in manufacturing show a dramatic decline since 2000. While this development is not aligned with the government's manufacturing vision, accelerated growth in the services sector – including finance, hospitality and media – may still be a valuable form of diversification, although for reasons other than productivity growth. Moreover, the growth in the service sector at the expense of manufacturing is likely to have negative impacts on the country's innovation and technology upgrading. In the long-term, these trends would direct investment towards the oil and gas sector. The direct contribution of manufacturing to GDP has remained around 10 % over the past two decades, which is significantly lower than that of successful industrialization examples found in Asia for non-resource rich economies. For example, the average industry share of GDP in Japan, China and South Korea ranges between 27% to 36%.[27] Similarly, the share of employment in the manufacturing sector in Qatar has also remained stable at 10% for most of the time period under review, with a slight decline in the most recent decade.

"Successful diversification requires a plan, as manifested by an industrial strategy that sets realistic and evidence-based goals, together with an industrial policy that sets a path for how to attain them."

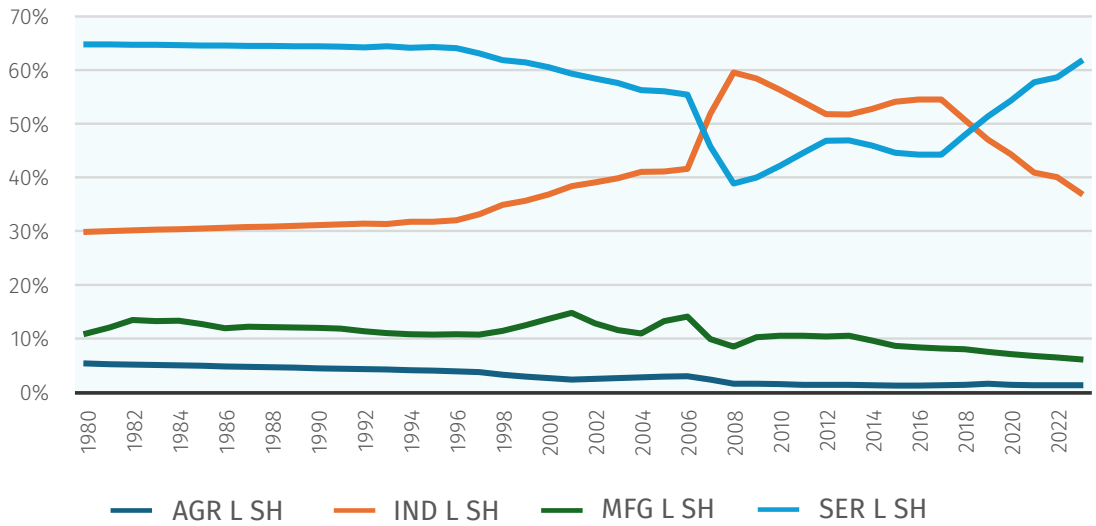
Industry share of GDP decreased from 1990 to 2016, whereas service sector share of GDP increased during the same period. In 2016, there was a reversal of trends, when significant investment was made in infrastructure in preparation for the World Cup, industry share of GDP increased at the expense of services. **Today, the contribution of industry to GDP is 70% and the service sector share is 30%** (Figure 4). However, within industry, manufacturing accounts for 10% only. Until 2008, employment share figures did not match the output share. In 2008, there was a reversal in the trend, where the employment share of the service sector went

Fig. 4 Qatar output shares of GDP 1990 – 2023



Note: AGR VA SH = agriculture value-added share in GDP; IND VA SH = industry value-added share in GDP; MFG VA SH = manufacturing value-added share in GDP[32]

Fig. 5 Qatar employment shares of total employment 1990 – 2023



Note: AGR L SH = agriculture employment share in total employment; IND L SH = industry employment share in total employment; MFG L SH = manufacturing employment share in total employment; SER L SH = service employment share in total employment[33]

from about 40% to 60% today (Figure 5). For industry, the opposite happened: employment share in industry changed from 60% to slightly less than 40%. More detailed analysis of labor distribution in the economy would shed light on these trends and allow for advanced planning for labor needs to achieve structural transformation.

Given the lack of structural transformation in the direction of manufacturing, and the dominance of the oil and gas sector, Qatar's plans to diversify into manufacturing are well-founded. Successful diversification requires a plan, as manifested by an industrial strategy that sets realistic and evidence-based goals, together with an industrial policy that sets a path for how to attain them.

Recent progress

Innovation is a fundamental driver of economic diversification and a key enabler of a knowledge-based economy.[28] Qatar has made substantial investments in building an innovation ecosystem over the past decade that includes investments in institutions for research and development, such as Qatar Foundation, of which Earthna and the Center for a Sustainable Future are members, the Qatar Research Development and Innovation Council (QRDI), Qatar Science and Technology Park, Hamad Bin Khalifa University and several other academic and research centers.

Recent initiatives, such as the QIA's launch of a $1 billion venture capital program funds targeting of local and regional startups, and regulatory measures to streamline Government to Business G2B services and SME financing, together demonstrate alignment with these strategic objectives. This is complemented by a growing ecosystem focused on creating an environment conducive to SMEs and private sector development, including the QRDI-funded Alchemist Doha accelerator, Qatar Development Bank's Startup Qatar investment program and TASMU accelerator. In addition, regulatory improvements have been highlighted by foreign investors. According to a recent conducted by EY, 81% of interviewees highlighted that strengthening transparency and regulatory efficiency constitutes the most critical measure to enhance Qatar's investment landscape, followed by improvements in procedures for resolving business disputes and insolvencies (50%), access to finance (25%) and protection of minority stake investors (13%).[29]

On access to capital, challenges stem from the high-interest rate environment, lower risk appetite of banks, and restrictions on issuance of financial instruments in foreign currencies. However, recent government initiatives, like the Third Financial Sector Strategic Plan, focus on expanding access to finance, especially for SMEs and start-ups, alongside digital payment systems and innovative banking products.[30] As of 2024, Islamic finance accounts for 27% share of total financial sector assets,[31] which is integrated into all these areas as a cross-cutting theme, aimed at providing clear direction, supporting the development of innovative Islamic products, and promoting awareness of Islamic financial services. Qatar Development Bank (QDB) primarily focuses on financing and supporting SMEs and start-ups through direct loans, credit guarantees, green financing, and providing initial working capital for Shariah-compliant SMEs. These are crucial for economic diversification and job creation in the country.

In addition to strengthening its domestic financial ecosystem and supporting SME growth, Qatar has emerged as an increasingly active investor in development and access to finance for the Global South, leveraging both public and private institutions. Qatar's sovereign wealth fund, the QIA, has partnered with leading global entities to finance large-scale renewable energy projects in Africa, notably through joint ventures with Enel Green Power that deliver hundreds of megawatts of clean energy in South Africa. In 2022, Qatar pledged $200 million to climate adaptation efforts in vulnerable African countries and further contributed to the Virunga Africa Fund I, a $250 million initiative supporting social services and innovative private sector growth

across Africa. Through its development financing arm QDB and other private actors, Qatar supports access to funding for SMEs and startups, including tailored international partnerships and new products targeting emerging market needs. These efforts are accompanied by active participation in South-South cooperation forums, technical assistance and capacity-building, potentially positioning Qatar's investments as a catalyst for supporting innovative finance and sustainable development in the Global South.

4 Case studies of successful industrial policies

This section presents international case studies of ongoing green transitions with an intended long-term impact aimed at structural economic transformation with a specific focus on success stories and improvements at the institutional level.

Norway: Looking beyond renewables to a complete systems transition to low- carbon pathways

With an abundance of hydro and bio-resources, Norway has become a global leader in the adoption of renewable energy. Due to the interconnected grid infrastructure in the region, Norway's renewable resources have proven to be beneficial to other Scandinavian countries and Europe. The dominance of renewable energy in Norway's power sector and Norway's position as a global leader in the deployment of electric vehicles are due to deliberate and targeted policies. Norway has managed to transition a significant share of its transport sector towards zero-emissions vehicles through various tax incentives and emission regulations. In addition, over the last couple of decades, Norway has committed to developing globally leading infrastructure for Carbon Capture and Storage (CCS).[34]

The Norwegian Government's main climate policy instruments include emissions pricing, strict requirements in public procurement, and targeted financial support mechanisms. Norway's Climate Action Plan for 2021–2030 commits Norway to reducing greenhouse gas emissions by at least 50–55% by 2030 (compared to 1990 levels) and to becoming a low-emission society by 2050. These goals are supported by annual emissions budgets and close alignment with EU climate legislation, ensuring consistency and accountability across sectors.

A cornerstone of Norway's approach is its long-standing CO_2 tax, first introduced in 1991, which, together with participation in the EU Emissions Trading System (ETS), ensures that roughly 85% of the country's total emissions are subject to a carbon price. The ETS coverage is complemented by a high standard carbon tax applied to most non-ETS sectors, reinforcing broad-based incentives to cut emissions. In addition, Norway has adopted a range of regulatory measures, including a ban on the use of mineral oil for heating buildings and biofuel blending mandates for both road transport and aviation. These policies collectively support a rapid shift toward low- and zero-emission energy systems.

Norway is also a global leader in the adoption of electric vehicles. Key instruments include: zero-rating of value-added tax (VAT) on zero-emission vehicles since 2001 (with VAT now only applied above a price threshold), long-term exemption from the one-off registration tax and road usage taxes, and a registration tax design that heavily penalizes high-emission internal combustion engine vehicles. Complementing these fiscal measures, Norway has also introduced phased regulations requiring that all new publicly procured passenger cars, vans, and city buses be zero-emission vehicles, ensuring that the public sector leads by example in the transition to clean transport. Likewise, under its Northern Lights project, Norway has been able to develop and implement the first full-scale CO2 capture unit for a cement plant, transport the CO2 and sequester it under the North Sea. This has been a national priority, and one that required a whole- of- government strategy and commitment. Action on this has spanned over two decades, moving from early policy design to action. After initial plans, drawn up at the turn of the century, it was only in 2025 that the Northern Lights project started. With an annual capture of approximately 400,000 tons of CO2, Norway has

been able to demonstrate that CCS, at industrial scale, is technically feasible and can potentially produce carbon-neutral cement. Norway plans to scale up the sequestration facility and enhance the commercial viability of the project by importing CO2 from around the world for sequestration through its Longship Project.[35]

The government's Green Industrial Initiative, launched in 2022 and updated in 2023 with Roadmap 2.0, outlines nine priority sectors, including offshore wind, hydrogen, batteries, maritime industry, CO_2 management, bioeconomy, process industry, manufacturing, and solar industry and almost 150 measures to accelerate green value creation.[36] The initiative is backed by record private investments, strengthened international partnerships (with EU, Germany, US), and a whole-of-government approach to industrial transformation.

Investments in CCS and related infrastructure have generated significant employment. Construction and operation have increased demand for specialized skills, providing Norwegian suppliers and technology sectors with highly marketable expertise. These large-scale efforts are a valuable demonstration of commitment to clean energy technologies development and targeted policy intervention. Given the nature of the long-term commitment, across different governments and different ministries, with the priority for an all of economy approach these projects exemplify how robust institutions, cross-sectoral planning and public investment are contributing to the success of Norway's ambitious climate strategy, and how these same factors can catalyze structural change and foster the development of new economic and industrial ecosystems in the transition to a low-carbon future.

Brazil's Green Transformation: Leveraging institutional synergy and renewable leadership for structural economic transformation

Brazil's experience shows that ongoing green transitions can drive structural economic transformation when ambitious targets, inter-institutional coordination, and robust enforcement are matched by the steady phase-out of fossil fuel dependence and implementation of broader industrial policies.

One of the most illustrative examples of Brazil's progress is the Green Resilient Model Cities Program launched in 2025.[37] This ambitious national initiative engages 50 municipalities across the country to implement tailored climate mitigation and adaptation strategies. Backed by partnerships with organizations like C40 Cities and the Global Covenant of Mayors (GCoM), the program has prioritized technical support, peer learning, and inter-institutional alignment. Crucially, it brings together federal ministries, such as the Ministries Environment, Cities, and Science and Technology to coordinate urban transformation at scale. This reflects a broader shift in Brazil toward a more integrated and collaborative institutional framework.

Brazil's energy transition also stands out globally. The country now draws nearly 90% of its electricity from renewable sources, one of the cleanest power mixes among G20 nations.[38] The country has set a renewable capacity target of 217 gigawatts by 2030, a growth of 12% when compared to 2023. The share of renewables over the total capacity installed in Brazil is one of the highest in the world.[39] These developments have had transformative effects on key industries. For example, access to low-cost renewable power has enabled Brazil to produce some of the world's most affordable green steel, making it more competitive in a potentially global decarbonized economy. At the same time, Brazil recommitted to its more ambitious Nationally Determined Contributions (NDCs) under the Paris

Agreement and is actively working to update its National Climate Change Policy with binding sectoral targets through to 2035.

Brazil's industrial policy focused on integrated infrastructure and innovation planning that prioritizes nature-based solutions and green technology.[40] These goals have been advanced mainly through incentive-based measures such as concessional credit from the Brazilian Development Bank (BNDES), public procurement for green technologies, and support for R&D partnerships and innovation clusters in renewable energy and bioeconomy sectors. Regulatory elements exist, but enforcement is uneven, and the overall approach remains geared toward mobilizing investment through positive incentives.[41] Drawing from international experience, Brazil is leveraging green fiscal reforms to reduce emissions while simultaneously enhancing economic growth, boosting export competitiveness, and creating jobs in emerging green industries.

Lessons for Qatar

The success stories of Norway and Brazil underscore several key lessons. Strong and adaptive institutions are essential to guide structural change. Effective multi-level governance and inter-institutional coordination ensure policy coherence and accelerate implementation. International partnerships and technical cooperation play a pivotal role in enhancing national capacities and de-risking investment. Finally, sustained investment in skills, infrastructure, and innovation is critical for maintaining competitiveness in emerging, green and health-related industries.

For Qatar, these lessons point towards a unique opportunity for defining a bold industrial policy vision that positions the country as a global leader in the next generation of sustainable industries. By leveraging its resource base and strategic location, Qatar can scale up clean technology industries, invest in circular economy solutions, and establish robust financing mechanisms to crowd-in private capital. Supporting development of a hydrogen production base and expansion of CCS infrastructure present a unique opportunity to decarbonize manufacturing industry with blue and green hydrogen. It would also increase competitiveness of industrial products on the global market in the context of existing and upcoming carbon border adjustment schemes. White spaces include fostering resilient pharmaceutical and health industries to strengthen regional self-reliance. Drawing on international best practices and partnerships, Qatar can build the requisite institutional and industrial foundations for achieving long-term economic diversification, while contributing to global sustainable development objectives.

5 Challenges to a successful industrial policy in Qatar

Qatar's economic trajectory, encapsulated in the Qatar National Vision 2030 (QNV 2030) and the recent Third National Development Strategy (NDS3), represents a strategic, state-led imperative to diversify away from hydrocarbons. Industrial policy, in this context, moves beyond simple import substitution to focus on developing competitive, specialized, knowledge-based clusters with an export orientation. However, implementing such policies in a high-income, resource-intensive context faces significant economic, social and political challenges that must be navigated.

Economic challenges

One fundamental economic challenge stems from the very nature of the rentier state economy and the "resource curse" phenomenon. The availability of abundant, low-cost natural gas creates a natural comparative advantage for capital-intensive, downstream industries (chemicals, petrochemicals, metals) and discourages the development of more complex, higher value-added manufacturing.

First, crowding out and resource allocation poses a major risk. State-backed industrial projects, while driving initial growth, can inadvertently crowd out private sector initiatives by dominating access to finance, infrastructure and skilled labor. Moreover, the selection of industries for support (vertical industrial policy) is susceptible to incomplete information, which increases the risk that the government directs resources to sectors far from Qatar's current capabilities or supporting firms that lack potential for long-term competitiveness. If targeted sectors fail to generate sufficient productivity gains, the fiscal cost of sustained subsidies or support could ultimately undermine overall economic welfare.

Second, certain policies may have created a kind of structural constraint, leading to low productivity growth. For example, decades of relying on a large, low-wage expatriate workforce may have kept labor productivity growth subdued by keeping production at low capital and technology intensity. The NDS3 aims for a 2% annual increase in labor productivity, which necessitates a shift from low-wage, low-skill business models to high-skill, technology-intensive operations. This requires widespread, continuous investment in human capital and a successful implementation of labor market policies to attract and retain high-skilled expatriate talent, even as Qatar simultaneously pursues "Qatarization" (nationalization of the workforce).

Social and socio-political challenges

The implementation of industrial policy inevitably intersects with Qatar's unique social contract and demographic structure. One social challenge is the reliance on a pervasive welfare state fostered by high resource rents. Qatari citizens enjoy state benefits and preferential access to highly paid, stable public sector jobs. Over time, these trends may reduce the incentive to pursue careers in new, riskier private-sector industrial clusters. The success of NDS3's goal to make Qatari citizens and the private sector the engine of growth is conditional on a shift towards private-sector employment and entrepreneurship among nationals. This is likely to be a long and complex process.

The prioritization of nationals in the labor market is not unique to Qatar, or the GCC. The United Kingdom, European countries and the United States have similar institutional processes that favor nationals over the expatriate labor force. But while this prioritization is a social and national security imperative, it often creates a tension with the economic goals of industrial policy. This is especially true in Qatar due to the demographic structure of the population. Economic diversification relies on attracting and retaining both local and global expertise to manage high-tech industries. To avoid skilled-labor shortages and ensure the competitiveness of advanced industrial clusters, education, training and hiring practices must align with industrial development strategies and market demand.

Politically, industrial policy requires a high degree of institutional capacity and governance to set realistic and attainable targets, monitor developments and ensure alignment with long-term development ambitions. Despite government initiatives to reduce red tape and strengthen the business environment, overcoming bureaucratic barriers and ensuring regulatory consistency remains a challenge for entrepreneurs.

6 Policy areas for further exploration to embed industrial policies in the NDS3 framework

Sustainable industrial development must align with NDS3 and should inform future development strategies. Partnering with international specialized agencies can support Qatar in developing appropriate policies, accessing technical cooperation across different sectors and creating a supportive environment for economic diversification in targeted sectors like manufacturing and logistics. In this context, it is also worth considering the role of targeted investment in research, development and innovation as a driver of industrial upgrading, decarbonization and diversification. Innovation systems, whether sectoral, national, or technical are essential for unlocking productivity.[42]

Qatar's NDS3 offers a strategic platform for embedding industrial policies that support economic diversification and sustainable growth. To effectively leverage this framework, industrial policy must be designed to be selective, collaborative, and institutionally robust, capable of guiding transformation beyond resource-based development. A key pathway involves fostering innovation-driven industrial upgrading. Targeted investments in invention and innovation can catalyze productivity growth and support the emergence of competitive sectors such as manufacturing, logistics and health, areas already emphasized within NDS3. Innovation systems, whether sectoral, national or technological, play a critical role in enabling sustainable industrial transformation. The integration of structured innovation frameworks, such as ISO56001, and broadening the mandate of dedicated innovation councils, such as QRDI, can enhance policy coherence and stimulate Total Factor Productivity (TFP) growth. Aligning these mechanisms within NDS3 would strengthen Qatar's capacity to transition toward a knowledge-based green economy. By aligning industrial policy with innovation and diversification goals, Qatar can build a resilient economic structure that is responsive to global shifts and capable of generating sustainable, long-term prosperity.

A stronger focus on nature-based solutions – such as mangrove restoration, green infrastructure and sustainable water management and reuse – can enhance resilience and sustainability. Qatar's ability to invest in long-term capacity-building is a strategic asset that can be leveraged to create a comparative advantage and position it as a model for innovation-led, sustainable development.

Finally, pursuing strategic manufacturing growth for export and investment into the Global South, particularly in sectors like pharmaceuticals in Africa and Asia, adds another layer to an export-focused industrial policy. One potential approach could be to establish a center of excellence for Green and Blue Economy integration, potentially co-hosted by Earthna, UNIDO, and the Ministry of Commerce and Industry, to provide a focused, knowledge-based foundation for such an integrated policy.

This final section presents some areas for further research and exploration to support the development of an industrial policy aimed at economic diversification in Qatar.

Selective and export-oriented cluster development

Qatar's strategy, as outlined in NDS3, should concentrate on specific diversification clusters – such as advanced manufacturing (low-carbon metals, chemicals), digital and IT services, logistics and financial services, thus forming a solid foundation. Successful implementation demands an industrial policy that prioritizes sectors that offer higher long-term complexity and productivity gains while leveraging Qatar's inherent strengths in logistics and global connectivity. Crucially, new industries should be oriented towards export markets and must therefore be globally competitive. The policies needed to ensure the development of these industrial clusters must incorporate stringent accountability mechanisms, clear exit criteria and sunset clauses to prevent the creation of perpetually uncompetitive, subsidy-dependent industries.

Further research and inquiry are needed to understand the pathways for integrating green and blue economy principles and positioning industrial policy as part of climate policy. This would require leveraging Qatar's natural resources and unique characteristics to support industry decarbonization, enabling export-oriented production of low-carbon products to countries with carbon border adjustment policies. Adaptive industrial strategies must align with Qatar's emissions reduction targets, focusing on innovation-driven clusters like blue ammonia, low-carbon logistics, and eco-tourism, which simultaneously reduce environmental footprints while generating jobs and exports.

Institutional reform and Public-Private Partnerships (PPP)

NDS3 emphasizes cultivating an enabling environment for businesses and private capital. Embedding industrial policy successfully requires strengthening regulatory consistency. This involves streamlining business processes and ensuring that the implementation of new foreign ownership laws and PPP frameworks is transparent, efficient, and consistent across all government agencies. The establishment of a PPP Unit and the momentum behind the Government Excellence pillar (NDS3 Pillar 7) are essential steps. Leveraging local capital and expanding the financial sector is crucial. Entities like the Qatar Investment Authority (QIA) and the Qatar Development Bank (QDB) play catalytic roles in supporting private sector growth. While QDB focuses on providing early-stage and high-risk capital to SMEs in strategic sectors, QIA uses its investment capacity and partnerships to attract private and foreign investment into priority areas of the national economy, indirectly supporting new ventures. Their remit should be considered for expansion to support new industrial firms.

To maximize the impact of these reforms, there must be policy coherence and institutional innovation across government departments. Successful diversification necessitates the integration of climate priorities into industrial policies through robust cross-sector collaboration, enhanced institutional regulatory transparency and data-driven decision making. The challenge is to understand what existing evidence and country experiences are relevant for Qatar, and what policy packages and governance reforms will have the most impact in the short- and long-term.

SME growth and ecosystem development

A thriving SME ecosystem is indispensable for industrial diversification, innovation, and local value creation. A vibrant SME sector diversifies the economy, generates employment and enhances economic resilience. Nurturing this ecosystem requires broadening access to finance, simplifying licensing and regulatory procedures and establishing sector-specific incubators and accelerators, while active partnerships with universities and research centers can fuel innovation. In addition, regulatory improvements have been highlighted by foreign investors. With regards to access to capital, challenges stem from the high-interest rate environment, lower risk appetite of banks and restrictions on issuance of financial instruments in foreign currencies.

Further research is needed to understand how support for, and investments in SMEs and innovation in manufacturing and strategic sectors can be aligned with national climate objectives. New NDC-linked investments such as QIA's venture capital fund and specific SME financing tools – can act as a catalyst for private-sector growth, especially in high-potential areas like cleantech, agri-tech and digital maritime services. Exploring methods to align SME investments and catalytic funds directly with Qatar's environmental commitments and national climate strategies will ensure this growth is sustainable and contributes to the country's diversification and climate goals.

Integrated human capital and labor reform

Managing the delicate balance between labor market policies and the skill requirements of emerging industries is critical. The Future-Ready Workforce pillar of NDS3 (Pillar 3) must be fully integrated into long-term economic strategies. This can be theoretically achieved through a dual-track labor policy. One track involves improving and broadening education for nationals (especially in science, technology, engineering and mathematics (STEM)) to create a strong national skill base to satisfy potential demand for high-skilled roles within new industrial clusters. This could have a specific focus on increasing private sector participation among the national workforce to ensure resilience and the benefits of diversification are broadly distributed. The second track would involve aggressively attracting and retaining global talent through simplified residency systems, visa and labor policies.

The Qatar Research Development and Innovation Council has set out a talent program that aims to develop, attract and retain a strong base and a strong pipeline of research talent in Qatar — both local and international. This includes scientists, engineers and researchers, with the aim of building a local integrated innovation ecosystem for diversified economic growth.

Further research is needed to understand the success of these strategies, once implemented, and how best to achieve a broad local and expatriate skill base that can deliver the necessary structural transformation. Moreover, a deeper understanding of the labor market – including labor productivity across sectors, the level of skills and labor migration – is needed to design context-specific, appropriate industrial policies for the short- and long-term.

Annex I: The case of Senegal

The Senegal case exemplifies how industrial policy can be applied to the health sector by aligning pharmaceutical production with national development goals and international standards. Through regulatory strengthening, technology transfer, and workforce development. The initiative creates an enabling environment for local manufacturing while fostering public-private partnerships and investment incentives.

Strengthening the production of vaccines and pharmaceuticals in Senegal

The Government of Senegal's ambition to strengthen national pharmaceutical and vaccine production is part of broader efforts to reduce reliance on imports and ensure equitable access to essential health products.[43] A key government initiative, supported by UNIDO, brings together local manufacturers and the Institut Pasteur de Dakar under a common vision for the industry, aligned with international Good Manufacturing Practices (GMP) standards.[44] Key policy interventions included the development of a national GMP roadmap, operational efficiency enhancements through lean manufacturing and quality management training, and facilitation of technology transfer agreements for local production of priority medicines. The initiative also supports strategic policy reforms, feasibility assessments for new manufacturing facilities, and the upgrading of existing capacities, including serialization, energy, and water optimization.

Leveraging UNIDO's normative approach, there was a focus on strengthening regulatory governance, GMP quality systems and technical standards, technology transfer and workforce and skills development. In parallel, the industrial policy dimension emphasizes strategic alignment with national industrial development goals, the promotion of public-private partnerships (PPPs), business linkages, and the creation of an enabling environment for local industry development to ensure the commercial viability of pharmaceutical manufacturing. All local and international stakeholders who are involved in policymaking play a central role in this transformation by shaping a coherent regulatory and industrial policy framework that supports local production, incentivizes investment and ensures alignment with regional and international standards. Their leadership is critical in driving reforms, mobilizing resources, and fostering collaboration across public and private stakeholders. Through this comprehensive approach, Senegal is positioning itself as a sustainable regional hub for pharmaceutical and vaccine production, while also demonstrating the effectiveness of strategic partnerships with international specialized agencies for advancing both industrial development and public health outcomes.

This approach strengthens local manufacturing ecosystems through three pillars: Coordination (diagnostics), Regulation (adherence to international standards like GMP), and Production (modernization, Pharma 4.0). UNIDO's approach exemplifies how international cooperation effectively deepens domestic capacity for a just green industrial transition through integrated policies that balance environmental sustainability, economic growth, and social equity.

Endnotes

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