Oman's Shift to a Post-Oil Economy

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Abstract Oman's economy has grown dramatically since 1970. Until recently, however, Oman's economic progress has been largely driven by the wealth generated from oil export revenues. Despite historical attempts to diversify the economy away from oil, the state budget has remained dominated by oil export revenues, accounting for 84.3% of total government revenue in 2014 and 68.2% in 2016. Without successful development of alternative sources of income and reduced dependence on oil, Oman's economy will remain highly vulnerable not only to the fall in oil prices but also to other challenges including increasing domestic demand for energy, as well as the effects of climate change on both oil and non-oil economic sectors. This chapter provides policy recommendations that can help overcoming structural challenges and tapping into the opportunities to achieve the goals of economic diversification and shifting towards a post-oil economy.

Keywords Oman · Economic diversification · Post-oil · Oil prices · Climate change

1 Introduction

Economic development in Oman started when Sultan Qaboos assumed power in 1970. The discovery of oil reserves in the 1960s and the revenues gained from their export have significantly contributed to Oman's economic development. Despite many attempts to diversify the economy away from high dependence on a single source of income, the dependence on oil export revenues as a main source of income has continued until recently, accounting for 84.3% of total government revenue in 2014 and 68.2% in 2016, due to a drop in oil prices post mid-2014 (World Bank 2019).

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H. Miniaoui (ed.), *Economic Development in the Gulf Cooperation Council Countries*, Gulf Studies 1, https://doi.org/10.1007/978-981-15-6058-3_7

Without successful development of alternative sources of income and reducing dependence on oil, Oman's economy will remain highly vulnerable not only to a fall in oil prices but also to challenges arising from increasing domestic demand for energy, as well as economic effects of global climate change mitigation measures. Rising domestic energy demands, if not met with new supplies, will divert natural gas allocated for exports to local use, lowering revenues from natural gas exports and necessitating costly import options. Global climate change mitigation measures, especially those associated with reducing fossil fuel consumption and enhancing energy efficiency and self-sufficiency, present an additional threat to Oman's economy similar to that of oil price shocks, and thus could impose direct economic losses (Al-Sarihi 2019).

The Omani government is not unaware of the aforementioned challenges, especially the economic vulnerability to oil prices and the domestic increase in energy demands. In fact, Oman was the first Gulf country to pursue long-term economic development plans for implementation on a 5-year cyclical basis, with the first 5-year plan implemented in 1976 through 1980 (Allen and Rigsbee 2000). The first 5-year plan focused mainly on building infrastructure, schools, hospitals and major governmental institutions. The impulse to diversify the economy away from solely depending on oil began in the 1990s due to the first incident of oil prices falling, which led to unprecedented deficits in the state budget. Therefore, the preparation of the fifth 5-year plan (1996–2000) was driven by governmental intent to broaden Oman's economic base through developing and diversifying non-oil sectors, enhancing the role of the private sector in economic development, and empowering the country's human capital. However, the rise of oil prices post-2002 slowed down such economic diversification efforts.

The fall in oil prices in 2014, along with accumulated issues of unemployment, has renewed the urgency to diversify the sources of income. Initiated in 2016, The National Program for Enhanced Economic Diversification (TANFEEDH) aims to accelerate the process of economic diversification through the implementation of the ninth 5-year plan (2016–2020) and achieve the goals set by Oman Vision 2020. Along with austerity measures such as removal of fossil fuel subsidies, the introduction of taxes and cutting employees' annual increments, the TANFEEDH program targeted the development of five economic sectors: manufacturing, logistics, tourism, finance and employment. To facilitate its implementation, the formulation of the TANFEEDH program involved inputs from different societal segments including the private sector and governmental entities as well as citizens.

Oman's economy has indeed improved drastically since 1970. However, it has been largely dependent on oil revenues. Despite governmental attempts to decouple the economic development from oil revenues between 1996 and 2020, the ambitious economic diversification objectives, including human resource empowerment, promoting the role of the private sector in the economy, as well as enhancing the growth of non-oil economic sectors, are yet to fully materialize. Given the rise of climate action ambitions, especially post-2020, continuous dependence on oil export revenues is no longer a safe pathway for Oman even if the oil prices rise again (Al-Sarihi 2019). This chapter concludes with policy recommendations that can help

overcoming structural challenges and tapping into the opportunities to achieve the goals of economic diversification and shifting towards a post-oil economy.

2 The Discovery of Oil and Gas and the Shaping of Oman's Economy

Like its neighboring countries of the Gulf Arab states, oil and gas wealth has played a significant role in Oman's economic development. The success of Oman's economy has been rooted to its petroleum and natural gas export revenues. The commercial production of oil in Oman has been key to funding state-sponsored developments, including basic infrastructure such as the building of transportation infrastructure, schools, hospitals and telecommunication systems, and the introduction of electricity services in the country. This activity fostered steady economic growth and greatly improved the standard of living (MOG 2013).

Commercial production of oil started in 1962 when, after 37 years of intensive oil exploration activities, the Petroleum Development Company discovered commercially-viable oil reserves in the Yibal field; this find was followed by discoveries in the Natih and Fahud fields in 1963 and 1964, respectively (van Scherpenzeel 2000), which were followed by several more oil discoveries. The first oil cargo was exported in 1967 and this was followed by the discovery of natural gas in 1978, which shifted attention to increasing investment in the gas sector. This, in turn, shifted the local energy sector away from oil to meet increasing local demand for power generation, water desalination and export contract commitments (MOG 2013).

Oman's crude oil production grew steadily from 283,000 barrels per day in 1980 to 955,000 barrels per day in 2000, albeit with some periods of shrinking production. For instance, after peaking at 955,000 barrels per day, production in the following years fell, to 710,000 barrels a day in 2007, which was nearly the number in 1990. In 2011, Oman produced 884,900 barrels per day, which accounted for a more than 24% increase over the previous four years from the 2007 minimum (NCSI 2015) (Fig. 1).

This increase in oil production and export was accompanied by an expansion of the gross domestic product (GDP) per capita by an average of 9.7% between 1966 and 1990 (World Bank 2015). Since then, Oman's economy has been heavily reliant on oil and gas export revenues, which contributed 81.1% of the country's gross export revenues in 2012 and a significant part of its GDP, increasing from 41.9% of GDP in 1991 to more than 50% in 2011, and still just under 50% in 2014 (NCSI 2012). Meanwhile, non-oil revenues contributed 48% of the GDP in 2011 and 60% in 2014 (NCSI 2015) (Fig. 2).

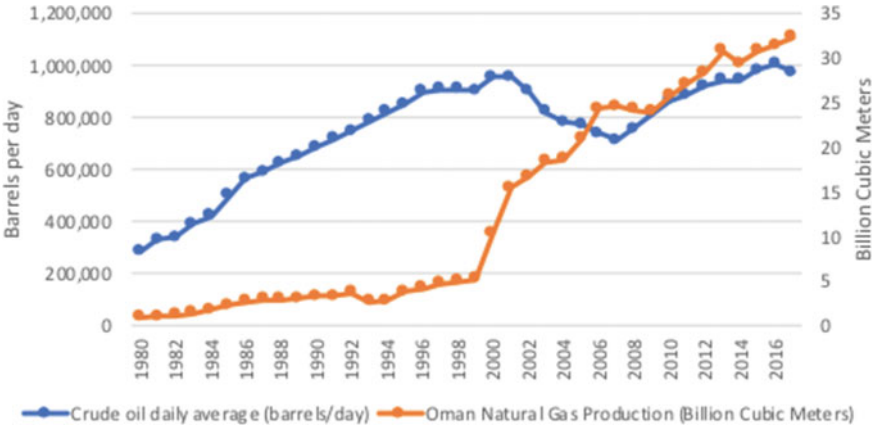

Fig. 1 Oil and gas production in Oman (1980–2017). *Source* NCSI (2012) and BP (2018)

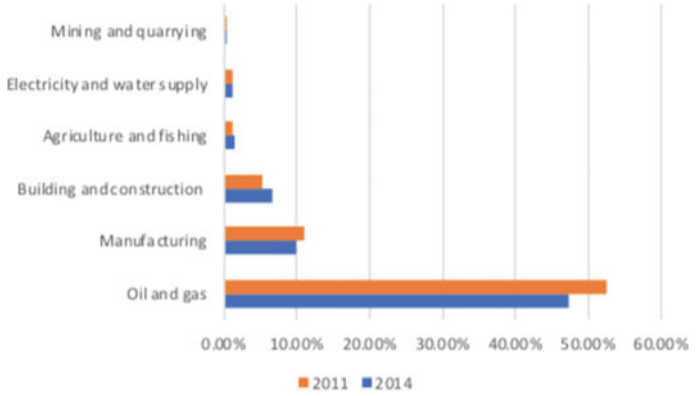

Fig. 2 Share of economic sectors in Oman's GDP in 2011 and 2014. *Source* NCSI (2015)

3 The Need to Shift Towards a Post-oil Economy

Being highly reliant on oil, Oman's economy will remain highly vulnerable not only to a fall in oil prices but also to challenges associated with limited oil and gas reserves, increasing domestic energy demand, as well as the potential economic effects of climate change.

3.1 Limited Oil and Natural Gas Resources

In comparison to its neighboring countries, Oman hosts the smallest hydrocarbon reserves, export stocks and revenues in the GCC.

Oman had total proven reserves of 5.4 thousand million barrels of oil as at the end of 2016, and 24.9 trillion cubic feet of natural gas as at the end of 2016 (BP 2018). Oman's 5.4 billion barrels of proven oil reserves rank 7th in the Middle East and 23rd in the world. Iran holds the largest natural gas reserves in the Middle East region, with 1183 trillion cubic feet, followed by Qatar with 858.1 trillion cubic feet, as at the end of 2016. The reserves in Saudi Arabia, United Arab Emirates, Iraq, Kuwait, Oman, Yemen, and Bahrain are far less than those in Iran and Qatar; the three smallest reserves are those of Oman, at just 24.9 trillion cubic feet, followed by Yemen and Bahrain, at 9.4 and 5.8 trillion cubic feet, respectively (ibid). On the other hand, Saudi Arabia holds the largest oil reserves in the region, with 266.5 billion barrels, followed by Iran, Iraq, Kuwait, and UAE, each with over 97 billion barrels as at the end of 2016. Qatar, Oman, and Yemen have the smallest oil reserves in the region, standing at 25.2, 5.4, and 3 billion barrels, respectively (BP 2018). Accordingly, Oman has very small oil and gas reserves compared with other countries in the region, which creates inevitable uncertainties with regards to Oman's future energy supplies and revenues.

Oman's crude oil reserve to production ratio (R/P ratio) is equal to 14 years and its natural gas R/P ratio is equal to 27 years (IRENA 2016). In fact, Oman has already started to import natural gas from Qatar via the Dolphin pipeline system, beginning in 2008 (EIA 2013).

3.2 Oil Price Shocks

Uncertainties associated with small oil and gas reserves go hand in hand with oil price shocks. Like other Gulf Arab states, Oman has a narrow export profile: in 2015, oil and natural gas accounted for 50% of total exports in Bahrain, 89% in Kuwait, 62% in Oman, 82% in Qatar and 78% in Saudi Arabia (World Bank 2015). Oil and gas export revenues have continued to generate significant economic wealth in Oman, accounting for 56% of GDP in Oman in 2014 (EIA 2013b). This heavy economic reliance on hydrocarbons export revenues makes Oman's economy highly vulnerable to changes in oil prices.

The impact of oil price shocks can be exemplified by the slump in oil prices in mid- 2014. This resulted in a direct reduction in oil contribution to the total GDP by around 50% for the UAE, 80% for Bahrain, 30% for Kuwait, 40% for Oman, 75% for Qatar and 40% for Saudi Arabia between 2013 and 2015 (World Bank 2015). It had also a significant adverse impact on Oman's state budget. The budget deficit grew dramatically (by 32%) between 2015 (2500 million Omani Rial) and 2016 (3300

million Omani Rial) due to the prolonged period of falling oil prices that began in mid-2014 (PWC 2016).

3.3 Climate Change

While not a major contributor to global total greenhouse gas (GHG) emissions, Oman is ranked among the highest in the world in per capita carbon emissions (World Bank 2013b), ranked 13 among the top world carbon emitters on a per capita basis.

Consumption of hydrocarbon resources to meet increasing domestic energy needs has contributed significantly to Oman's total carbon emissions. Oman's electricity consumption, like other neighboring Gulf countries, has exceeded the world average (3104 kWh per capita) but also surpassed the level of some major industrial countries such as the UK (5407 kWh per capita), and that of other developing countries such as India (765 kWh per capita) and China (3762 kWh per capita) (Hertog and Luciani 2009). In 2013, the per capita electricity consumption exceeded 10,000 kWh per capita for all Gulf Arab states and while Oman and Saudi Arabia showed lower levels of energy consumption compared to their neighbors, they still exceeded the world's average, accounting for 5981 kWh per capita and 8741 kWh per capita, respectively. Oman's total CO_2 emissions have increased by a factor of 5, from a total of 11.9695084 $MtCO_2$ in 1990 to 65.1766135 $MtCO_2$ in 2014 (World Resource Institute 2014).

Moreover, being highly reliant on oil export revenues, Oman's economy is exposed to the outcomes of climate change mitigation measures aiming to keep the rise in global temperature at a (relatively) safe level of no more than 2 °C higher than pre-industrial levels. Global action to cut greenhouse gas emissions, 56.6% of which were made-up of CO_2 from fossil fuel use (Barker et al. 2007: p. 28), through policies aiming to reduce fossil fuel consumption could impose direct economic losses on Oman (Manley et al. 2017; IEA 2018). Reduced demand for oil exports due to advanced climate action creates an additional economic challenge for Oman, which is already vulnerable to the physical impacts of climate change associated with increases in average surface temperature, reductions in annual precipitation, extreme weather events, and sea-level rise (Al-Sarihi 2018).

4 Early Stages of the Oil Era 1970–1995

4.1 Preparatory Stage 1970–1975

In July 1970, Sultan Qaboos assumed power in Oman. This was nearly eight years after Oman's oil production became commercial for the first time, before which Oman lacked nearly all features of modern development. Before Sultan Qaboos came to

power, Oman had only three schools and a few miles of paved roads, presenting a huge economic and development challenge to the new ruler. Yet, oil export revenues, which at that time provided nearly 100% of the government income, offered a huge opportunity for the new Sultan to shape the country's political and economic structures. Given the size of the challenge, a formal phase of development did not start until 1976 and the period between 1970 and 1976 was a preparatory stage with no formal implementation or development. The main focus of this period was on improving oil production, as the early years of Qaboos' reign were difficult ones in terms of Oman's oil production. Only five years after first exporting oil, Oman's oil exports declined to below 300,000 barrels per day. Most efforts thus were concentrated towards enhancing oil production as well as governance. For instance, in 1967, Petroleum Development Oman (PDO) was founded, and in 1973–74, in the wake of the oil boycott and nationalization of oil companies, Oman managed to acquire 60% of the PDO company ownership, with Shell owning 34%, Total 4% and Partex 2%. While efforts to improve and increase oil production have continued throughout Oman's economic development journey, 1976 was the first year for formal development and implementation (Allen and Rigsbee 2000).

4.2 Initiation and Implementation of 5-Year Plans 1976–1995

Starting from 1976, the Omani government commenced formal implementation of development programs through the use of 5-year plans. The first 5-year plan was implemented in 1976 and covered the period through 1980.

Benefiting from oil revenues, the initial phase of development between 1976 and 1996 focused mainly on developing infrastructure for transportation, health care, human resources, water and electricity, financial institutions and banks, and governmental institutions. The first public university, Sultan Qaboos University, was opened in 1986, starting with only 500 students but growing to enrolling over 10,000 students in later years. Industrial development barely existed before 1976. In 1975, only ten industrial units existed in Oman. The initiation of a Ministry of Commerce in 1974 and the promulgation of an Industry Organization and Encouragement Law in 1978 helped to tackle many impediments that challenged the development of the private sector including the shortage of capital and the general lack of expertise. The opening of the Oman Development Bank in 1977 helped to address the shortage of capital, although it initially focused on supporting large-scale industrial projects, with secondary interests in medium-sized agriculture, fishery and manufacturing projects (Allen and Rigsbee 2000). Examples of government-sponsored industrial estates included Rusail (formally opened in 1984), Sohar (oppened in 1992), Raisut (oppened in 1994) and Nizwa (oppened in 1994).

In 1978, a new Ministry for Water and Electricity Regulation was established to extend the construction of power stations to areas beyond the capital city, including building a 250 MW station to serve the Rusail industrial estate, the 26.5 MW Wadi Al Jizzi station serving the residential sector, and a 53 MW station serving a copper

refinery and Sohar. Another 22 locations outside the capital city were also supplied with about 27 MW by diesel-powered generation plants (Allen and Rigsbee 2000). A national grid was developed in the 1990s connecting the capital city with other distributed generation plants.

Such accelerating development was slowed down in the fourth 5-year plan (1991–1995). The government delayed the implementation of some projects as it was unable to finance developments because of the slump in oil prices in the late 1990s. Accordingly, the government decided to take a different approach to financing developments in the fifth 5-year plan (1996–2000).

5 The Rise of Economic Diversification Ambitions and Vision 2020 (1996–2020)

The fifth 5-year plan (1996–2000) was motivated by the wish not only to sustain the economic growth and improve the living standards of Omani citizens but also to diversify the sources of income and reduce the dependence on oil as a main source of income. The fifth 5-year plan was the first to articulate the economic diversification ambitions through Vision 2020.

In 1996, Oman Vision 2020 was approved by Sultan Qaboos via a royal decree for implementation by the Supreme Council for Planning. Oman Vision 2020 was formulated around three pillars: reducing dependence on oil export revenues through economic diversification, enhancing the role of the private sector in economic development and developing human capital (SCP 1996). Vision 2020 aimed to continue building upon the previous 5-year plan but also to overcome the challenges that emerged as a result of oil price fluctuations, population growth and the increasing number of job seekers.

6 Successes and Failures of Vision 2020

The agenda of Vision 2020 was promising and timely, to move from an oil-dependent economy towards a knowledge-based economy. This section explores the question: to what extent has Oman managed to achieve its Vision 2020? To do so, progress in achieving each of the three Vision 2020 pillars, i.e. human resources development, economic diversification, and private sector development, is analyzed within the timeframe 1996–2020.

6.1 Human Resources Development

Oil wealth has enabled state spending on public sector jobs but has not promoted productivity or made use of national labor force resources, which has created mounting pressure and saturation in public sector employment. State spending on public sector jobs has been highly focused on education, health, administrative jobs in the ministries and governmental authorities, and the oil and gas sectors, with an allocation of around 3.6% of GDP to public wage bills. Public spending in the public sector, however, has weakened the growth and diversity of the private sector because an economy reliant on oil has no need to create other industries or a manufacturing tradition, and instead jobs are limited to the tertiary sector (services). Such service jobs are extremely low-level (lower wages and longer working hours) compared to the public sector jobs and therefore not desirable to the local population. Such conditions led to importing lower-wage expatriate labor to fill service sector jobs, creating little incentive to diversify the private sector, and therefore few opportunities and an unattractive working environment for the increasing numbers of graduates who specialize in, for example, natural science, arts, social science, agricultural science and economics.

Vision 2020 aimed to increase employment in both private and public sectors. Although the national unemployment rate was recorded at just 1.8% in 2018, the figure was 5.4% for people between the ages of 15 and 24, with women in this age bracket experiencing an unemployment rate of 13.8% (NCSI 2019).

The number of Omani employees in the private sector rose by 138% between 2003 and 2010. However, much of the progress was reversed by the policies undertaken post-2011. The announcement of 35,000 new public sector jobs in the spring of 2011 reportedly led 30,000 Omanis to resign from private sector employment that year (Ulrichsen 2016).

Also, post-2011, as a result of government pressure to build up local talent, oil and gas companies across Oman have ramped up the In-Country Value (ICV) Blueprint Strategy to generate job and training opportunities, develop a robust and skilled local supply chain, and invest in the growth of Omani small and medium-sized enterprises (SMEs). The approach is in line with the 2012 ICV initiative launched by the MOG to promote the employment and training of Omanis, as well as investments in fixed assets and locally sourced goods and services. Petroleum Development Oman (PDO), in particular, has played a prominent role in the generation of job and training opportunities in Oman (Oxford Business Group 2019).

The above overview of Oman's labor market shows that the creation of jobs in the country remains unsustainable and highly linked to the fluctuation of oil prices, which does not only lead to put pressure over state budget at times of low oil prices but also trigger social unrest. The latter is especially reinforced by the lack of strategic reforms of labor market and training measures, which have been associated either with unprecedented domestic social unrest or based on ad hoc basis.

6.2 Diversification of Revenue Sources

Vision 2020 aimed to reduce the oil sector's share of Omani GDP from 41% in 1996 to 9% in 2020 while raising the share of gas and the contribution of non-oil sectors from under 1 to 10% and from 65 to 81%, respectively. In 2018, the oil sector contribution to Oman's GDP remained nearly the same as it was in 1996, accounting for 40.8%. Also, by 2018, the share of the non-oil sectors in GDP increased only slightly compared to 1995, accounting for 66.6% (NCSI 2019).

Most of the progress in Oman's economic diversification, although largely related to oil prices recovery, has been associated with expansion of downstream oil industries, investments in ports, industrial estates and free industrial zones, as well as some tourism mega-projects.

6.2.1 Ports and Petrochemical Industries

Oman's oldest refinery, at Mina Al Fahal near Muscat, was followed by the launch of Sohar refinery in 2006 in Sohar, which recently underwent a multibillion-dollar refurbishment and expansion in order to be equipped to process 198,000 bpd of crude, providing a 70% boost to output, with capacity for more than 13 m tonnes per year of finished products (Oxford Business Group 2018), and to add a slate of new refined oil and petrochemicals products at Sohar, including motor fuels and refined petroleum products. A new steam cracker and petrochemicals project in Sohar, the Liwa Plastics Industry Complex, has also been developed to enable Oman to produce polyethylene for the first time. Further, in 2017, Oman's existing refineries at Sohar and Mina Al Fahal were linked by the 280-km-long Muscat Sohar Product Pipeline Project which began commercial operations as a two-way multi-product pipeline in October 2017, to ultimately supply more than 50% of the sultanate's fuel through a new oil product storage and distribution terminal in Al Jefnain. The pipeline is the first of its kind to be constructed in Oman and meets several strategic needs, including increased safety and efficiency of fuel distribution, removing the need for shipping refined products. The pipeline also provides a higher supply capacity of aviation fuel via direct pipeline to Muscat International Airport.

In addition to the two existing refineries at Mina Al Fahal and Sohar, in April 2017, a joint-venture deal signed between Oman Oil Company and Kuwait Petroleum International to develop the country's third 230,000-bpd refinery at Duqm, 600 km south of Muscat in the Al Wusta region. The new refinery is expected to commence commercial operations in 2021. In addition to its investment in Duqm, Oman Oil Company is also enhancing existing and future downstream industries in the Governorate of Dhofar by investing in Oman's first liquefied petroleum gas (LPG) extraction plant in the Salalah Free Zone, expected to commence operations in 2020. Once the Salalah LPG plant is operational, LPG will be shipped to markets primarily in the Indian subcontinent from a dedicated export jetty at the Port of Salalah. Revenues from the

export of the plant's 300,000-tonne LPG output are projected at $200 m per year (Oxford Business Group 2019).

6.2.2 Renewable Energy

Furthermore, the decline in oil revenues in recent years as well as the growing demand for energy at the domestic level have inspired a new logic for reform in Oman's oil and gas sector, and increased support for alternative solutions, such as the uptake of renewable energy sources. Oman's official objective for renewable energy as laid out in Oman Vision 2020 was to source 10% of consumed energy from renewables by 2020. Oman's total installed renewable electricity capacity has increased from 1 MW in 2014 to 8 MW in 2018 (IRENA 2019). Apart from renewable energy investments in the electricity sector, the PDO has made steady progress in adopting large-scale renewable energy projects, such the 7-MW Miraah project and the 1021-MW solar thermal facility, in order to produce 6000 tonnes of steam for enhanced oil recovery purposes, saving 5.6 trn British thermal units of natural gas each year, which is equivalent to the amount of gas needed to provide electricity to 209,000 Oman residents. That is along with other online projects such as the development of a large solar panel project in Duqm to manufacture panels for power plants and residential buildings to generate around 1000 MW of energy per annum and boost the economy via export sales revenue, with 400 MW of installed capacity in the first phase of its operations.

6.2.3 Private Sector

Vision 2020 seeked to enhance the role of the private sector in Oman's economy by developing small and medium-sized enterprises, public-private partnerships (PPPs) and improved investment conditions. However, most of the expansion of the private sector, inspired by the 2014 fall in oil prices, has been translated into merging some state units and public offerings of state energy assets in electricity and oil and gas sectors. In 2019, Oman Oil Company (OOC) and Oman Oil Refineries and Petroleum Industries Company (ORPIC) were merged, integrating nine core businesses under a new brand identity called 'OQ' (Times of Oman 2019). Further, in December 2019, the Omani government's holding company for electricity sector entities, Nama, sold a 49% stake in the Oman Electricity Transmission Company to China's State Grid for $1 billion. Nama controls a number of other electricity providers within Oman, many also slated for partial privatizations, including an expected sale of Muscat Electricity Distribution Company in 2020. Oman's oil minister has also announced the intention for an initial public offering of 20–25% of shares in the state-owned Oman Oil Company (Karen 2019). Future plans include seeking to open prominent state-owned enterprises such as the Oman Tourism Development Company, Oman Food Investment Holding Company, Electricity Holding Company, Oman Global

Logistics Group and Oman Oil Company to private sector investment (Oxford Business Group 2019). This approach is consistent with the 2019 privatization (Decree No. 51/2019) and public-private partnership law (Decree No. 52/2019).

7 Vision 2040: Handovers and Lessons from Vision 2020

While Vision 2020 succeeded in improving the GDP on a per capita basis as well as improving the overall economic growth compared to 1995, there remain many avenues that require further improvement in order to fully achieve its main objectives, especially enhancing the role of the private sector in economic development and job creation, as well as decoupling the state expenditure from oil prices.

In 2015, through the engagement of relevant stakeholders such as government, private enterprise and public services, the Omani government initiated a process to put forward an economic vision for 2040. In implementing the Vision 2040, Oman's main priority is to continue diversifying its economic activities and establish an economic environment where dependence on hydrocarbon products is kept at a very limited level. Oman Vision 2040 was formulated around four main themes: 'a society of creative individuals', 'competitive economy', 'governance and institutional performance', and 'environmental and natural resources' (Oman Vision 2040, 2019). Aiming to adopt an economic development model along these lines, Oman aims to stand out in fields such as production, industry, tourism, trade, mining and port management. However, Oman will not succeed in achieving its Vision 2040 targets if structural challenges accumulated from previous development stages are not well addressed. These include:

Support Vision 2040 with an implementation plan. No vision will translate into a reality without a feasible and implementable plan or concrete strategy. The lack of an implementation plan to support Vision 2020 objectives was one reason behind the slowdown in achieving those objectives. A follow-up system that ensures the achievement of Vision objectives is key.

Continue human resource development. As the focus is on transforming the economy from a hydrocarbon-based one to a low-carbon, knowledge-based economy, with greater expansion of the private sector, it is important to equip citizens with suitable training and skills. Investment in human capital should not be limited to post-school levels, rather new knowledge and an entrepreneurial mentality and skills need to be integrated into the educational system at all levels. Importantly, educational curricula, if needed, should be updated and aligned with the new economy's requirements and realities.

Remove barriers to the private sector. Economic diversification will not be fully achieved through government intervention alone. Further engagement of the private sector and small and medium enterprises is key. The oil era has weakened the private sector by reinforcing the many institutional barriers that confront start-ups

and entrepreneurs. Despite efforts to empower the private sector, the public sector has dwarfed the contribution of the private sector in Oman's economic growth. The introduction of the 2019 privatization law (Decree No. 51/2019) and public-private partnership law (Decree No. 52/2019) is critical to boosting the role of the private sector in Oman.

Factor climate risks and opportunities into economic planning and development. Oman has been one of the first Gulf states to introduce environmental legislation to ensure that its economic development is not at the expense of its environment and natural ecosystems. Since the impacts of climate change go beyond the physical impacts in oil-producing countries like Oman, climate mitigation and adaptation efforts need to be taken a step further by ensuring that climate risks and opportunities are factored into development of all sectors, including the financial sector.

Encourage further involvement of women in the economy. It has become evident that enhancing gender diversity in the workplace can bring different skills and perspectives to the workplace and improve the economic[1] performance of the state or corporation. In 2018, unemployment rate of women between the ages of 15 and 24 was 13.8%. While Oman is one of the Gulf countries to adopt gender-sensitive policies, training and awareness programs as well as enabling flexible working arrangements can encourage further participation of women in the labor market.

8 Conclusion

Oman's economy has grown dramatically since 1970. Until recently, however, Oman's economic progress has been largely driven by the wealth generated from oil export revenues. Aware of economic vulnerability to oil price shocks, governmental efforts to broaden Oman's economic base and minimize the dependence on oil have been put in place since 1996 through Oman Vision 2020. While the government has succeeded in broadening the economic base through the expansion of oil downstream industries, development of ports, and logistics, many of these developments have largely relied on state investment, which in turn has continued to rely on oil export revenues. The role of the private sector in Oman's economic development has remained modest and unemployment rates have remained high. The latter challenges have been inherited by Oman's newly released Vision 2040. The success of Vision 2040 will largely depend on serious consideration of lessons learned from Vision 2020 and on adopting a feasible implementable plan, with a clear system of measurement, reporting and verification as a policy measurement tool to ensure achievement of the Vision objectives. Importantly, Oman will not succeed in broadening its economic base if structural challenges accumulated from previous development stages are not well addressed. This chapter suggests addressing those structural challenges systematically from three angles:

- **Address external economic shocks**. Given decades of high economic reliance on oil export revenues, Oman's economy is highly vulnerable to oil price shocks and changes in global oil demand. Diversifying revenue sources away from oil would require deep consideration of the challenges facing domestic and foreign investment environments. Also, the country can tap in its potential to establishing new areas of economic activities such as renewables. Importantly, diversifying revenue sources should not be at the expense of environment and should factor external risks such as the effects of international policy efforts to address climate change and global public perceptions of fossil fuels and their derivatives.
- **Introduce reforms to existing economic regime structure**. The economic structure conducive to diversifying revenue sources has been in place for decades. However, the over-reliance on oil revenues, especially at times of high oil prices, have weakened efforts towards empowering non-oil sectors and have shifted attention away from structural challenges such as those associated with efficiency in public expenditure and unemployment. Structural reforms are a necessity across all economic sectors including fossil fuel subsidies, labor-market, education system, and financial sector framework and investments. Pursuing such structural reforms should take into consideration the intersections between challenges facing different economic sectors such as the skills gap between education system graduated and labor market needs.
- **Support national innovation system**. To create economic competitiveness beyond oil markets, it is essential for a country to support innovations at the national level. Like its neighboring GCC states, Oman's R&D investment averages 0.3% of the GDP, compared with 2–3% in industrialized countries. Most large Omani firms do not have in-house R&D and new technologies are mainly introduced through joint-ventures with international partners. Oman should tap into its local talent and incentivizes national innovation across its firms, R&D entities, and academia, while making sure to define channels and networks that enable scaling up and transformation of innovations into commercial products.

References

Allen, C. H., & Rigsbee, W. L. (2000). *Oman under Qaboos: From coup to constitution 1970–1996*. London, UK: Frank Cass Publisher.

Al-Sarihi, A. (2018). *Prospects for climate change integration into GCC economic diversification strategies*. LSE Middle East Centre paper series (20). London, UK: LSE Middle East Centre, Kuwait Programme.

Al-Sarihi, A. (2019). *Challenges to maximizing renewables in Oman's energy mix*. Washington, DC: The Arab Gulf States Institute in Washington.

Barker, T., Bashmakov, I., Bernstein, L., Bogner, J. E., Bosch, P. R., Dave, R., Davidson, O. R., Fisher, B. S., Gupta, S., Halsnæs, K., Heij, G. J., Kahn Ribeiro, S., Kobayashi, S., Levine, M. D., Martino, D. L., Masera, O., Metz, B., Meyer, L. A., Nabuurs, G. -J., Najam, A., Nakicenovic, N., Rogner, H. -H., Roy, J., Sathaye, J., Schock, R., Shukla, P., Sims, R. E. H., Smith, P., Tirpak, D. A., Urge-Vorsatz, D., Zhou, D. (2007). Technical summary. In: B. Metz, O. R. Davidson, P. R. Bosch,

R. Dave, L. A. Meyer (Eds.,) *Climate change 2007: Mitigation. Contribution of working group III to the fourth assessment report of the intergovernmental panel on climate change.* Cambridge United Kingdom and New York, NY, USA: Cambridge University Press.

BP. (2018). *Statistical review of world energy*. Available from: bp.com/statisticalreview. Accessed January 05, 2020.

EIA. (2013). *Oman. U.S. energy information administration*. Available from: https://www.eia.gov/beta/international/analysis.cfm?iso=OMN. Accessed December 16, 2019.

Hertog, S., & Luciani, G. (2009). *Energy and sustainability policies in the GCC*. Kuwait programme on development, governance and globalisation in the Gulf States (6). London, UK: London School of Economics and Political Science.

IEA. (2018). *Outlook for producer economies 2018*. Paris: International Energy Agency.

IRENA. (2016). *Renewable energy market analysis: The GCC region*. Abu Dhabi, UAE: International Renewable Energy Agency.

IRENA. (2019). *Renewable energy market analysis: GCC 2019*. Abu Dhabi, UAE: The International Renewable Energy Agency.

Karen, Y. (2019). *Sell-off in Oman reveals privatization with regional characteristics.* https://www.al-monitor.com/pulse/originals/2019/12/sell-off-oman-privatization-mideast.html#ixzz6A9swFs3q Al-Monitor.

Manley, D., Cust, J., & Cecchinato, G. (2017*). Stranded nations? The climate policy implications for fossil fuel-rich developing countries*. Oxford Centre for the Analysis of Resource Rich Economies, Working Paper 34, University of Oxford, Oxford, UK.

MOG. (2013). *Brief history of the oil and gas sectors*. Muscat, Sultanate of Oman: Ministry of Oil and Gas.

NCSI. (2012). *Statistical year book*. Muscat, Oman: National Centre for Statistics and Information.

NCSI. (2015). *Statistical year book*. Muscat, Oman: National Centre for Statistics and Information.

NCSI. (2019). *Statistical year book*. Muscat, Oman: National Centre for Statistics and Information.

Ollero, A. M., Hussain, S. S., Varma, S., Peszko, G., & Al-Naber, H. M. F. (2019). *Economic diversification for a sustainable and resilient GCC*. Gulf Economic Update; no. 5. Washington, D.C.: World Bank Group.

Oman 2040. (2019). *Oman vision 2040*. Available from: https://www.2040.om/en/#Oman2040. Accessed January 5, 2020.

Oxford Business Group. (2019). *Revenue generated from Omani hydrocarbons to increase in 2018*. Available from: https://oxfordbusinessgroup.com/overview/powering-ahead-new-developments-come-stream-revenues-generated-hydrocarbons-are-set-pick-2018. Accessed January 5, 2020.

PWC. (2016). *2016 Oman State budget. Economic development in Oman from tax and legal services Middle East*. Available from: https://www.pwc.com/m1/en/tax/documents/2016/oman-2016-budget-newsalert.pdf. Accessed December 28, 2019.

SCP. (1996). *Oman vision 2020. Supreme council of planning. Sultanate of Oman*. Available from: https://www.scp.gov.om/en/Page.aspx?I=14. Accessed January 5, 2020.

Times of Oman. (2019). *Oman oil, Orpic Group integrate core businesses under a new brand 'OQ'* https://timesofoman.com/article/2404693/Oman/Oman-Oil-Orpic-Group-integrate-core-businesses-under-a-new-brand-OQ

Ulrichsen, K. C. (2016). *The politics of economic reform in Arab Gulf States*. James A. Baker III Institute for Public Policy of Rice University.

van Scherpenzeel, E. (2000). *Oman then and now*. SPB Academic Publishing.

World Bank. (2013b). *World development indicators. 2013. CO_2 emissions (metric tons per capita)*. Available from: https://data.worldbank.org/indicator/EN.ATM.CO2E.PC. Accessed December 22, 2019.

World Bank. (2015). *Oil rents (% of GDP)*. Available from: https://data.worldbank.org/indicator/NY.GDP.PETR.RT.ZS. Accessed December 8, 2019.

World Bank. (2019). *Economic diversification for a sustainable and resilient GCC*. Washington, DC: World Bank Group.
World Resource Institute. (2014). *CAIT—Country greenhouse gas emissions data: Oman*. Available from: http://cait.wri.org/profile/Oman. Accessed November 22, 2019.