

## Bulletin on the State of the Environment report in Qatar

The State of environment report provides an assessment for the state of Qatar and uses a globally agreed framework in the approach of this report. The State of environment report is first of its kind in Qatar and it includes multiple chapters dealing with the basic environmental components and related topics and issues that some of them are related to the basic environmental fields, namely: air, land, groundwater, marine environment, and waste. While the rest of the chapters focus on the issues related to the environment which needed to be addressed to achieve sustainable development goals. However, each chapter includes an introduction, objectives and state of the environment based on global indicators, that measures or governance their effectiveness as well as proposals to address issues while presenting scenarios. The State of environment report contains useful data for making rational decisions based on information and bridging knowledge gaps and Formulation of strategies and action plans to improve environmental sustainability. While a large part of the contents of this report is technical. However, the efforts have been made to provide a compilation of knowledge and interpretation of data to make it available to policy makers and to the stakeholder public.

Human activities exert pressures on the environment either directly or indirectly, and it is logical to study what drives these pressures and their nature related to the environmental field at a specific time and the extent of these impacts and initiatives taken and response to (DPSIR approach). As this is an orderly procedure for sustainable development of the environment, this practical framework that based primarily on human interaction with the environment and administrative efforts in this regard. The harsh climatic conditions and human-induced climate change have also been given the necessary attention. However, there are complex links between natural

factors and the environmental conditions resulting from human interaction, which have been highlighted where it is possible to respond to them either by mitigation or adaptation.

In each chapter, consists of international thematic assessments “Drivers-Pressures-State-Impact-Response” (DPSIR). Which includes extensively, and the indicators that selected used internationally. Moreover, (DPSIR) approach is a practical tool that allows to explain the environmental situation by determining the nature and level of human interaction with it. Furthermore, the report contents are helpful in environmental research priorities in various areas such as: accuracy environmental monitoring systems, biodiversity, environmental tipping points, water security, marine food security, reducing carbon emissions from industries, renewable energy, and the impacts of Climate change and adaptation.

### **Report contents:**

#### **Chapter 1: Land and Inland Water**

The State of Qatar is considered an arid region and the land areas consist of dry sand, sand dunes and scarce vegetation. It is considered that the land is completely heterogeneous and has distinctive features, flat arid areas, sand dunes of land or marine origin, salt pans (sabkha), mangrove forest, intertidal and Rawda consists of fine soil and rain-washed litter. This is considered the best naturally occurring well-drained sandy-loamy soil in Qatar. Human activities such as residential and industrial areas, infrastructure areas and other activities cover a large part of the Qatari territory. The farms devoted to agricultural activities also represent a percentage of land use and land cover within Qatar. Surface water bodies include natural sabkhas, which are natural swamps and artificial lakes and there is no natural rivers or lakes in Qatar. There are many protected areas in Qatar, Mostly, these are ecologically sensitive habitats and are intensively used by the wildlife. This measure has helped in conservation of precious land, groundwater, desert vegetation and wildlife and offsetting desertification

while enabling the country to fulfill its obligations towards biodiversity conservation.

The Government developed policies and invested heavily to ensure supply of safe drinking water to all its residents by massive desalination. Groundwater abstraction is being carried out mainly for agriculture. In terms of potable water supply and sanitation, Qatar has been able to meet the international indicators which must be considered, the priority of drinking water should also be directed to the integrated management of water resources.

Public gardens receive special interest. As new gardens are being opened, the old ones are being renovated to increase the green spaces and aesthetic value. This has encouraged people to embrace healthy lifestyles and has also contributed to enhancing the quality of the environment. Qatar is going ahead with plans to extend green space, improve the park environment and modernize the management to increase their recreational value. Most of the parks and green spaces are irrigated using modern system devices and are being brought under radio control, although the traditional methods are still under operation. Flora used in public parks and gardens belongs to 5 categories: palm trees, ornamental trees, ornamental shrubs, fruitful trees and shrubs and native varieties.

Qatar National Vision 2030 recognizes the needs to preserve and protect biological diversity and balancing development with environmental protection. In addition, the rare animals which the government is making effort to protect and recognizing the importance of establishing animal habitats to preserve biodiversity. Moreover, Qatar has given due attention to demarcating protected areas and there are 11 protected area covering an area of 2,742.41 square kilometers, representing 23.59% of the total area of the state of Qatar.

## Chapter 2: Marine environment

Marine environment of Qatar supports biodiversity, fisheries, trade, transport, recreation, and oil and gas industries. The marine area is three times the country's land area and the increasingly important ecosystem services, so there is much at stake in protection of this vast resource. From ecological and economic perspectives, monitoring the health of our marine resources is important for understanding the impacts and devising effective response. therefore, some indicators that reflect the overall state of the environment have been used. The criteria guiding their selection are relevance, interpretability, data availability, accuracy, and consistency selected for this report biodiversity indicators, fisheries indicators, and water quality indicators. Their rationale in describing the quality of marine environment has been elaborated in detail.

An outlook for improving governance of marine environment in Qatar is greater emphasis on conserving marine natural resources. These nature-based solutions can be applied without delay and are cost-effective besides having many other advantages accruing from improved resilience of the vast marine ecosystem. A healthy ocean ecosystem of Qatar is a very important asset for meeting the challenge posed by climate change. Given the desert landscape of the country, the blue carbon stocks in the form of mangroves and seagrasses and other marine critical habitats deserve priority. Ecosystem approach to managing marine environment is the most rational way forward in terms of sustainability of services we derive from it for the welfare of society.

## Chapter 3: Air Quality

Ambient air quality data monitored at various locations in Qatar was used to determine the Air Quality Index (AQI) compliant with the US-EPA procedure, which included the measured gases such as (SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, CO) and PM<sub>10</sub>. The Data indicate that the country suffers from high concentrations of particulate matter concentrations due to different wind regimes and

meteorological conditions in the region. As for the rest of the values, they fall within the limits of the national reference standard. In conclusion, the continuous measures taken in public transport and strict checks on fuel combustion in vehicles aim to reduce harmful emissions.

#### **Chapter 4: Energy and Industry**

Qatar's economy heavily depends on energy resources and the linked industries. The country produces and exports crude oil, natural gas, natural gas liquids, liquefied gas, gas-to-liquids, refined products, high-value-petrochemicals, and fertilizers. Qatar is the world's largest exporter of liquefied natural gas. Investment in production of high-value commercial substances and diversification, and incorporation of environmental compatibility have paid rich dividends. Initiatives are being taken in Qatar for effecting changes in the energy systems. These are directed at reduction in greenhouse emissions lessening of carbon footprint consistent with the sustainable development goals. Visionary government policies have contributed to a great extent in insulating the country from price volatility in the global market. This has helped continued development despite downturn in hydrocarbon value in the market. Because of some major natural limitations, the country has to mobilize more resources towards environmental mitigation through reduction of carbon dioxide emissions by way of energy efficiency, use of green technologies in energy production and devising long-term plans for a decisive shift in the path of clean energy.

#### **Chapter 5: Society, Culture & Education**

Qatar has undergone an unprecedented development post-independence in socio-economic landscape and educational profile. This has contributed a great deal to knowledge empowerment and modernization of all sections of the society even as the country preserved its core cultural heritage and values. The country's national development plan 'Qatar National Vision 2030' launched in 2008 guided the development efforts towards attainment of advanced society status. As a result, Qatar achieved success in all the eight

Millennium Development Goals set by the United Nations in 2000 and has the ability embrace the Sustainable Development Goals identified for implementation post-2015. A stable increase in human development indicators is among the clear predictions of social development, in addition to decreasing illiteracy rates, increasing life expectancy at birth, tremendous improvements in the health care system, and strengthening the service sector to help the community, as educational indicators suggest changes at all levels, including Pre-primary education (kindergarten), primary, preparatory, secondary, and higher education (university). A prominent feature of the country's social and educational development is the very visible progress achieved by women and they are active participants in national development.

### **Chapter 6: Economy**

Mining and quarrying have become one of the most important contributors to the GDP, and according to the latest statistical update in 2018, the volume of Qatari natural gas reserves is 24.7 trillion cubic meters, oil reserves are 25.2 billion barrels, and liquefied natural gas exports are 76.4 million tons. Other main non-mining and quarrying activities in Qatar include manufacturing, building and construction, business services, wholesale and retail, agriculture, electricity, water, transport and communications, and other activities. Gross value-added pertaining to the mining and quarrying sector for the year 2017 has been estimated at 196 billion Qatari riyals, showing an increase of 19.5% over the GVA of the previous year. This increase is attributed to rising international prices for oil and gas in 2017 compared to 2016. Due to the impact of lower international prices for oil and gas products, the Mining and quarrying sector has witnessed a decrease in its contribution to GDP compared to the peak in 2013 (55.7%), representing 32.3% of nominal GDP in 2017. In real terms, mining remained virtually unchanged at a Compound Annual Growth Rate (CAGR) of 0.03% mainly due to moratorium on further gas development from the north field.

## **Chapter 7: Waste Management**

Considerable quantities of wastes are produced in Qatar like many other industrialized countries, requiring proper management. Waste is classified into two general types namely, municipal waste and hazardous waste. Municipal waste consists of domestic waste, green waste, food executions, slaughterhouse waste, sludge, solid waste, construction waste, tires, and others. There are dedicated services under the control of municipalities responsible for domestic waste collection, deportation, and processing. These agencies also work with other stakeholders in management of waste-handling facilities. Municipal waste management facilities are in the form of four stations, a center for waste treatment, and two areas designated for landfill.

The state of Qatar takes serious measures to deal with hazardous waste, even industries have been instructed to minimize the hazardous waste originating from their operations. While waste recycling is a primary activity in Qatar, at present waste is recycled from solid raw waste and construction sector waste. Seriousness with which the country takes the management of all sorts of wastes is evident from the number of projects undertaken and those on-going. The objectives of these projects are to enhance the overall environmental quality, improve the aesthetics and protect the environment for the benefit of society.

## **Chapter 8: Sustainable Development**

sustainable development chapter presents policy-relevant perspectives on sustainable development in line with the contents and spirit of Qatar National Vision 2030. The chapter emphasizes that sustainable development is a 'continuing journey', and there is a need for developing and sustaining momentum towards exploring all the possible approaches that may be helpful in: a) examining the science-policy interface and, b) strengthening the integration of inter-linkages related to sustainable development goals, and c) identifying and addressing emerging issues. Contents of this chapter

explain the importance of understanding the challenges and pathways to sustainable development as enshrined under the Qatar National Vision, namely its environmental, social, economic, and human dimensions. The country's blueprint for sustainable development will help in making progress in achieving all the 17 Sustainable Development Goals (2015-2030) suggested by the United Nations. With regard to the fact that climate change represents a major threat to the achievement of the sustainable development goals, this issue was discussed, and a special reference was made to the options available for adaptation under the different climatic conditions in Qatar. Discussions on this topic builds on our Ministry's 2015 report on 'Intended Nationally Determined Contributions'. Successive National Development Strategies covering the timeframes: 2011-2016 and 2018-2022 give due weightage to environmental sustainability in our activities. While the core concepts and frameworks for sustainability have been outlined in concerned chapters, it is important to mention that the sustainability transition in Qatar has permeated even the construction sector. While the core concepts and frameworks for sustainability have been outlined in concerned chapters, it is important to mention that the sustainability transition in Qatar has permeated even the construction sector. This is evident from inception of Qatar Green Building Council (QGBC) and inclusion of green designs under Qatar Construction Specifications (QCS) 2014. Inherent in the green designs are elements for energy efficiency, reduction in use of natural resources, waste reduction and recycling, and other means of minimizing environmental degradation while promoting the quality of social environment and economizing mitigation measures. The main components of Qatar's environmental management approach that will augur well for sustainable development include boosting resilience of natural ecosystems, improving environmental quality, enhancing resource efficiency, investing in socio-economic development and knowledge empowerment of the society.



"The state of the environment in the State of Qatar was prepared and reviewed with the participation of experts, researchers and those who interested in the environment from various sectors in the country, such as relevant ministries, universities, and institutions".

### **Purpose of preparing the state of the environment report**

- Provide decision makers with documented and updated information to enact laws and policies that ensure environmental sustainability and the public interest.
- Facilitate the progress made towards achieving the sustainability of the country's natural resources.
- Raise the public awareness and promote the understanding of environmental fields and to extent of their deterioration or improvement.
- Provide an interactive environmental information database to use it as a reference to achieve sustainable development goals.