



# Environmental Sustainability in Qatar..

## Accomplishment and challenges



بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





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## Al Fardan Group.. Committed to continuing our journey towards achieving sustainable development in Qatar

### Omar Hussain Alfardan

President and CEO

Alfardan Group

At Alfardan Group, we are proud to be among the companies in Qatar leading the private sector in integrating sustainability into the core of our corporate ethos. As reflected in the Qatar National Vision 2030 (QNV 2030), we recognize the importance of sustainable and inclusive growth as a pivotal catalyst for shaping a resilient and prosperous future.

We remain committed to upholding the core values of trust, distinction, and dedication to service excellence that have been the roots of our company since its inception by our founder and Chairman, Hussain Ibrahim Alfardan.

In 2022, Alfardan Group became a participating company in The United Nations Global Compact, incorporating the Ten Principles into our business practices and aligning our efforts with the UN Sustainable Development Goals (SDGs). Striving ahead, we developed the Group's ESG Strategy, cutting across all divisions and marking a significant step in our commitment to sustainable practices, guiding our decisions to align our business goals with our responsibilities to the environment, our workforce, and the communities we serve. In May 2023, we submitted

our first Communications on Progress (CoP) report, embodying our commitment to continuous progress, corporate transparency, and objective reporting.

Working collaboratively at various levels to contribute to our identified goals, we have introduced a number of initiatives including training and development opportunities for our employees; responsible waste management solutions at our offices; making quality education accessible to deserving students through our Tariqi scholarship program besides creating equal opportunities and providing mentorship to develop the future leaders.

Looking ahead, I believe that this is our opportunity to make lasting and positive change for generations to come and we remain committed to continuing our journey in adding value to the sustainable development of the State of Qatar. We hope our actions inspire others in the region to follow.





## **Al Abdulghani Motors: Ensuring environmental responsibility is firmly established in our work**

### **Abdulghani Nasser Al Abdulghani**

Chief Executive Office- Al Abdulghani Motors

“At Al Abdulghani Motors, we are proud of the approach we follow in enhancing sustainability frameworks and practices and the way we conduct our business, which aligns with our philosophy of continuous improvement and development. With this approach, we aim to make the world a happier and brighter place. Through our voluntary endeavors in creating a Corporate Citizenship culture, we seek to make a tangible impact in the world around us and achieve the pillars of our national vision.

As a pioneering company in the mobility sector, we strive to leave a lasting and positive imprint on the society and the environment in which we operate. The entire company family participates in this pursuit, starting with our employees and extending to our dear partners and official suppliers, and of course our loyal customers, as we together pushed the wheel of development to ensure that environmental responsibility is firmly established in our work, through which we ensure the safety and sustainability of the environment.”





## Qatar proactive in the formulation of policies to ensure sustainable development

### Ali Akbar Shaikh Ali

Chairman of Ansar Group

The State of Qatar has made significant strides in sustainable development, in line with the national vision of 2030 in its economic, social and environmental dimensions. Qatar has invested in Qatari citizens and has been proactive in formulating policies that ensure sustainable development, create a better future for future generations and implement the goals of sustainable development of Qatar national vision 2030, aimed at balancing economic growth with the preservation of the environment and resources, especially in the light of the increasing environmental challenges around the world.

Qatar, with its rapidly growing economy and burgeoning consumer market, has witnessed unprecedented development in recent years. As businessmen, we have been at the forefront of this growth, shaping the retail sector to meet the evolving demands of our consumers.

Sustainability in the retail sector is not merely a buzzword; it is a commitment to the well-being of our planet, the prosperity of our communities, and the longevity of our businesses. As we cater to the diverse needs of our consumers, we must be mindful of the environmental and social impact of our operations.

In an era marked by unprecedented global challenges, the responsibility of businesses goes beyond profit margins; it extends to the well-being of our planet and the communities we serve. At Ansar Group, we firmly believe that our success is intertwined with the sustainability of the environment and society, where sustainability is a matter of profound importance at our group, it is a commitment that lies at the very heart of our company's mission and values.

One of the key pillars of our commitment to sustainability lies in responsible sourcing. We understand that every product on our shelves has a story, from its origin to the hands that

crafted it. As part of our commitment, we are actively engaged in sourcing practices that prioritize ethical production, fair labor, and environmentally responsible methods. By doing so, we not only contribute to the global sustainability agenda but also ensure that our customers can make informed and conscientious choices.

Reducing our environmental footprint is another critical aspect of our sustainability journey. From energy-efficient operations to eco-friendly packaging initiatives, we are investing in innovative solutions to minimize our impact on the environment. We are proud to say that our stores in Qatar are implementing cutting-edge technologies to reduce energy consumption, and we are continuously exploring ways to optimize our supply chain for reduced emissions and waste.

Ansar Group is also deeply committed to fostering a culture of sustainability among its customers. Through awareness campaigns, educational initiatives, and partnerships with local environmental organizations, we aim to empower our customers to make sustainable choices in their daily lives. By offering a wide range of eco-friendly products and promoting responsible consumption, we strive to be a catalyst for positive change in the community.

At Ansar Group, sustainability is not just a corporate initiative; it is a core value that guides our decisions and actions. We recognize that our role in the retail sector goes beyond providing products; it involves shaping a future where prosperity is synonymous with responsible business practices.

As we move forward, we are dedicated to furthering our commitment to sustainability, driving positive change, and inspiring others within the industry to join us on this transformative journey. We keen to build a sustainable future for Qatar, where businesses thrive, communities flourish, and the planet prospers.



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## GENERAL INTRODUCTION

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## Sustainability in Qatar.. ensuring environmental, social and economic well-being

Qatar has undergone rapid economic development in recent decades, driven primarily by its abundant oil and natural gas reserves. As the nation has experienced substantial growth and modernization, there has been an increasing recognition of the importance of sustainability to ensure long-term environmental, social, and economic well-being.

Sustainability in Qatar is a multifaceted concept that encompasses environmental conservation, social responsibility, and economic resilience. The government of Qatar has taken significant steps to address sustainability challenges and promote a more sustainable future for the country. Some key aspects of sustainability in Qatar include:

### Environmental Conservation:

**Water Management:** Given the arid climate, water scarcity is a significant concern in Qatar. The government has invested in advanced technologies for water desalination and wastewater treatment to ensure a sustainable water supply.

“Kahramaa” is diligently working to rehabilitate and activate many water wells located throughout Qatar,

to increase direct feeding of the country’s aquifer system from rain and thus improve the condition of groundwater and increase its availability to enhance water security.

**Renewable Energy:** Qatar is making strides in diversifying its energy mix by investing in renewable energy sources. Solar energy projects have gained traction, contributing to a more sustainable and eco-friendly power generation system.

Qatar has a vibrant and integrated clean technology value chain, which offers many investment opportunities. With abundant solar energy resources, Qatar is well positioned to benefit from hydrogen production, which is essential for decarbonizing hard-to-mitigate sectors. In addition, Qatar’s low-cost electricity, abundant natural gas resources, and efficient and interconnected electricity grid form a solid foundation for hydrogen production.

Qatar is making great efforts to reduce greenhouse gases, conserve land, and enhance biodiversity to improve indoor air quality, in accordance with World Health Organization guidelines. These efforts

are embodied in the construction of a number of pioneering sustainable cities in the country, and the development of a network of metro lines powered by renewable energy.

### Green Infrastructure:

To reduce reliance on private cars and alleviate traffic congestion, Qatar has invested in public transport infrastructure, including developing the metro system and bus networks. The Ministry of Transport has also implemented a strategy of complete and gradual transformation to electric buses, which aims to convert public transport buses to run on electric power. Qatar has actively worked to electrify its public bus fleet and has worked on sustainable expansion in the field of aviation.

Sustainable urban development is a key focus of Qatar’s plans, with a focus on green spaces, energy-efficient buildings, and smart city initiatives, as Qatar has expanded in building several sustainable cities in the past decade and adopted policies to reduce carbon emissions.

### Social Responsibility:

Qatar recognizes the importance of educating its citizens about sustainability. Initiatives promoting environmental awareness and responsible consumption have been implemented, targeting schools, communities, and businesses. The

government has been working towards fostering a more inclusive society, ensuring that economic development benefits all segments of the population.

### Economic Resilience:

As part of its Vision 2030, Qatar is actively working to diversify its economy, reducing its dependence on oil and gas. This includes investments in sectors such as technology, healthcare, and education. Qatar is exploring ways to adopt a circular economy model, aiming to minimize waste and optimize resource use across various industries, as Qatar realizes that the circular economy brings it many benefits, the most important of which are reducing spending, rationalizing consumption, reducing the waste of raw materials, launching recycling operations, and maintaining the use of Products, equipment and infrastructure are optimized for a longer period of time, improving resource productivity. In addition, it is an important means of employing the workforce and reviving agriculture, trade, and transportation.

Qatar actively engages in international partnerships and agreements related to sustainability, participating in forums and initiatives to exchange knowledge and best practices with the global community. While Qatar faces unique challenges due to its geographical and economic context,



its commitment to sustainability reflects a broader global trend toward responsible development and environmental stewardship. The ongoing efforts in Qatar signal a dedication to creating a sustainable and resilient future for the country and its people.

### **Most prominent achievements**

Qatar has made significant strides in various areas related to sustainability. In the field of renewable energy investments, Qatar has made substantial investments in renewable energy projects, particularly in solar power. The country aims to derive a significant portion of its energy from renewable sources, contributing to a more sustainable and diversified energy mix.

In the area of public transport infrastructure, the development of the Doha Metro, a state-of-the-art metro system, has greatly enhanced public transportation in the capital city. This project aims to reduce traffic congestion, lower carbon emissions, and promote sustainable urban mobility.

Regarding water security initiatives, Qatar has implemented advanced technologies for water desalination and wastewater treatment, addressing the challenges of water scarcity in the arid region. These initiatives contribute to the sustainable management of water resources.

Qatar has implemented educational programs and campaigns to raise awareness about environmental

issues and sustainable practices. These efforts aim to foster a culture of sustainability among citizens, residents, and businesses. Qatar has embraced green building standards and practices, with an increasing number of buildings constructed according to sustainability principles. This includes the use of energy-efficient technologies and materials to reduce the environmental footprint of infrastructure.

Qatar actively engages in international collaborations and partnerships related to sustainability. The country participates in global initiatives, conferences, and forums to share experiences, learn from best practices, and contribute to international efforts in addressing environmental challenges.

As part of its endeavor to diversify the economy, Qatar's Vision 2030 outlines a comprehensive strategy for economic diversification, aiming to reduce dependence on hydrocarbon resources. Investments in sectors such as technology, healthcare, and education contribute to building a more resilient and diversified economy.

### **Challenges of implementing sustainability**

While Qatar has made notable progress in the realm of sustainability, it also faces several significant challenges, reflective of its unique geographical, economic, and demographic characteristics.

One of the most important challenges facing Qatar in the field of sustainability is water scarcity, as Qatar's

arid climate and limited freshwater resources pose a significant challenge. The country relies heavily on desalination and treated wastewater for its water supply. Sustainable water management strategies are crucial to addressing this challenge.

The high demand for energy, primarily driven by rapid urbanization and industrialization, contributes to significant carbon emissions. Despite investments in renewable energy, reducing reliance on fossil fuels and achieving carbon neutrality remain challenges. Qatar is making unremitting efforts to confront such challenges and has achieved positive results.

The generation of municipal waste is on the rise due to population growth and economic development. As part of its endeavor to mitigate environmental impact, Qatar has developed effective waste management systems, including recycling and waste-to-energy solutions.

Qatar, like many Gulf nations, is vulnerable to the impacts of climate change, including rising temperatures, sea-level rise, and extreme weather events. Developing and implementing effective strategies for climate change adaptation is crucial.

The phenomenon of climate change is undoubtedly one of the serious challenges of recent time. It is a problem that is continuously exacerbating and causing many problems which intertwine in their economic, environmental, and social dimensions and have very

serious negative repercussions on all forms of life including human life and on both developed and developing countries alike, especially on the tracks of the sustainable development which all peoples aspire to.

Qatar has implemented many initiatives to overcome the climate challenge, including operating a carbon storage plant, the largest of its kind in the region. It aims to capture more than 5 million tons of carbon dioxide annually from the liquefied natural gas industry, the country has taken the initiative to plant one million trees to enhance biodiversity, improve air quality, and reduce the country's carbon footprint. Qatar also recognizes education as a key element in addressing climate change. Encouraging a cultural shift towards sustainable practices at the individual and societal levels represents an ongoing challenge. Education and awareness programs play a crucial role in promoting a sense of responsibility towards the environment.

In conclusion, addressing these challenges requires a concerted effort from the government, businesses, and the community. Qatar's commitment to sustainability, as outlined in initiatives like Qatar National Vision 2030, reflects a recognition of these challenges and a dedication to finding comprehensive and effective solutions.







## CHAPTER 1



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# The Ministry of Municipality fosters sustainability and recycling practices by conducting several programs, initiatives, and events

In order to achieve its objectives of “improving the quality of life while working to achieve Qatar Vision 2030” and “excellence in providing services and optimum planning of cities while preserving the environment,” “natural resources, and achieving food security for us and future generations,” the Ministry of Municipality has adopted a set of institutional values. The Ministry’s prior plan for the preceding five years was centered on multiple pillars of priorities and aspirations, which included:

- Enhancing the State of Qatar’s “humanization of cities” by implementing unique planning frameworks and regulations in the domains of transportation, urban planning, and infrastructure that suit the requirements of both residents and citizens of the country.
- Enhance urban aesthetics and expand green areas to support long-term urban health
- Eliminate landfills entirely from society.



The Ministry of Municipality relies on a comprehensive approach to achieve its goals in the field of sustainability, which includes:

► **National Environment Strategy:**

It establishes a thorough roadmap for Qatar’s sustainability efforts, outlining major goals and initiatives to achieve them. Climate change, biodiversity, energy, water, waste, and agriculture are among the primary aspects tackled in the strategy.

► **Sustainability plan of action:**

The National Environment Strategy is translated into a specific, implementable action plan.

The business plan defines objectives, key performance indicators (KPIs), responsibilities, and timelines for each initiative.

► **Cooperation with relevant authorities:**

The Ministry of Municipality works with a wide range of relevant authorities to achieve its sustainability objectives, including other ministries, the private sector, non-governmental organizations, and civil society.

► **Programs and initiatives:**

In order to meet its objectives in the fields of sustainability and recycling, the Ministry of Municipality has put multiple initiatives and programs into action. One such program is the integrated national program for sorting waste at the source, of which the first phase was finished during the previous period and whose second phase is now in progress, covering every house in the country and lasting five years. Three hundred and twenty thousand tree seedlings were planted, in addition to the Million Tree Planting Initiative, which was completed by the end of 2022, and the Ten Million Tree Planting Initiative, which began in 2023 and runs through 2030 in its first year.

The Ministry of Municipality also supports programs launched by other government authorities, such as the Qatar National Program for Energy Conservation and

Efficiency of Use (Tarsheed) and agricultural sustainable development programs.

During the past time, the State of Qatar has accomplished multiple accomplishments and breakthroughs in the fields of waste management, recycling, and sustainability, the most significant of which are:

- Resulting in the initiatives to plant one million and ten million trees, as well as increasing vegetation and open areas and helping to lower temperatures and carbon emissions.
- There were 144 public parks in 2023 compared to 113 in 2019, a 27% growth, and 15 new parks were established in that year.
- The country’s total green space grew from 4.4 km<sup>2</sup> in 2019 to 43 km<sup>2</sup> in 2023. Between 2019 and 2023, the per capita share of green space climbed from 1.64 m<sup>2</sup> to 5.8 m<sup>2</sup>.
- Raising the proportion of treated water used for green space irrigation from 36% in 2019 to 75% in 2023, at a rate of 39% growth.
- The circular economy model will be activated in the waste treatment center in Mesaieed as a result of boosting the efficiency of the waste treatment operations.
- Creating the concept of “healthy cities” will help cities in the sustainable development field live better and more fulfilling lives.
- In this regard, seven Qatari cities joined the UNESCO Global Network of Learning Cities, and all of Qatar’s cities received certification as healthy cities, making them the first in the world to be granted this accreditation from the World Health Organization..

► **Awareness and education:**

The Ministry of Municipality conducts numerous awareness- and education-raising initiatives to help community people

comprehend the value of sustainability.

► **Employment of technology:**

The Ministry of Municipalities makes investments in technological solutions, such as waste management, smart irrigation, and solar energy systems, to increase operational efficiency and accomplish objectives related to sustainability.

**Recycling and sustainability**

Under the slogan “Sustainability is our legacy for future generations,” the Ministry of Municipality organized the fourth edition of the Recycling and Sustainability Conference and Exhibition at the Expo 2023 Doha headquarters. Multiple governmental and semi-governmental institutions, the private sector, and factories participated in the event, which was held in support of Qatar Vision 2030’s sustainable strategic plan. Together with a select group of professionals and specialists in the areas of sustainability, waste management, and treatment, there are also some foreign parties involved.

The conference is being organized this year along with Expo 2023 Doha, which the State of Qatar is hosting. Expo 2023 in Doha is the first such event in the Middle East and North Africa, and its goal is to encourage sustainable innovations and battle desertification. This shows how much significance the state places on waste reduction, recycling, and versatile use. The third national development strategy, which aims to promote the circular economy of recycled and reused materials and adopt sustainable and effective practices by promoting the optimal use of natural resources and their sustainability for future generations, is one of them. The other two are the production of fertilizer and energy, in accordance with the Ministry’s strategic plan.

During past periods, the State of Qatar has achieved many achievements and successes in the field of waste management and recycling, as demonstrated by reaching a zero waste rate during the activities of the



2022 World Cup and the 2023 Asian Cup after converting waste into recyclable materials or clean energy in a waste treatment center, which is a record-breaking achievement in the process of Qatari efforts to lower waste and accomplish sustainable development.”

**the Entire Disposal of the Damaged Tires Stock**

The Waste Recycling and Treatment Department in the Public Services Affairs Sector, representing the Ministry of Municipality, announced the entire disposal of the damaged tire stock in the State of Qatar, in compliance with the Ministry’s strategy to achieve sustainable development goals and the Qatar National Vision 2030. This is a first for the region in the field of recycling, waste treatment, and secure disposal. This corresponds within the framework of the Ministry of Municipality’s integrated plan for waste management and recycling, as the Ministry sought to accomplish a strategic goal by creating an extensive strategy for the safe disposal of used tires, the number of which is estimated to be in the millions, and by coming up with effective ways to recycle them at all of its affiliated locations. In collaboration with the private sector.

In April 2020, the Umm Al-Afa'i landfill started the tire disposal process in partnership with the private sector. Following the submission of technical bids, which were granted to three companies, the tires were cut and exported abroad. The entire tire stock in the landfill was disposed of, with a total of 13,000 tons of waste removed and 56 thousand tons of cleaned material, in order to prepare the location for rehabilitation and use in important state projects. Though at a very slow pace, the tire disposal process has been in place at the Rawdat Rashed landfill since the start of collecting tires. The landfill was designed to take in damaged tires at a rate of 2,000 tons per month.

**The Zero Waste Initiative keeps up with the shift to clean and renewable energy**

Under the slogan “Less waste... a more beautiful city,” the Ministry of Municipality launched the “Zero Waste” campaign to keep up with the shift to clean and renewable energy, as well as to work on recycling waste and rubbish, with the objective of raising community awareness of the importance of waste as part of resource sustainability. In order to reach the objectives of the Qatar

National Vision 2030, numerous additional objectives must be accomplished, targeted at improving waste management, which assists in decreasing its impact on society’s health and safety while improving the quality of life.

The objective of the initiative is to create a methodology for thinking about waste management in terms of materials, including consumption, production, and recycling, as well as to encourage continuous work and share success stories by organizing events and activities for all members of society, particularly since Qatar seeks to develop a methodology for thinking about waste management and its significance.

The initiative seeks to implement measures for better waste management that will help alleviate these effects, thereby achieving Qatar’s 2030 vision of becoming an advanced society capable of maintaining its development and resource sustainability, particularly since improper waste handling may negatively impact human health and lead to soil and water pollution, impacting local ecosystems.

“Zero Waste” is a community effort that is supported and participated in by a variety

of state agencies and institutions, including private entities, public and semi-public organizations, charities, educational institutions, and civil society initiatives. It also seeks to incentivize companies, institutions, and people to utilize more recycled resources and fewer waste-producing ones. Reusing it, attempting to create a methodology of thinking about waste management and its significance, encouraging community involvement and investment in the recycling industry, expanding awareness campaigns and programs, and so on are all necessary to help the Ministry meet its goal by 2030 of offering sustainable services for clean and green cities.

The Ministry of Municipality also carries out many programs, initiatives, and events to tackle waste of all kinds, reuse them, generate electrical energy, and produce agricultural fertilizer through the participation of all parties via multiple initiatives and programs, raising awareness and attracting young people into volunteer work, in addition to concentrating on the essentiality of youth and children in general, including college and school students, which is done by boosting family and society participation.

**The largest waste treatment centers in the Middle East**

The Waste Treatment Center of the Ministry of Municipality is one of the Middle East’s largest waste treatment centers, delivering fertilizer, electricity, biogas, and recyclable materials. The waste treatment center produced more than 36 thousand tons of fertilizer last year, which was handed out to municipalities, nurseries, and all public agencies in the country, in addition to producing 264 thousand megawatts of electricity, 38 cubic meters of biogas, and other iron products. Plastic, and others.

**50 plants for recycling**

With 50 plants allocated land in the Al-



Afja area, the Ministry of Municipality keeps cooperating with the private sector, investing in waste management and treatment in line with the State of Qatar’s strategic goals in the areas of sustaining and preserving resources and improving quality of life. These plants recycle a wide range of materials, such as tires, metals, medical waste, electronics, glass, construction waste, wood, oils, plastics, batteries, paper, aluminum, and anything else related to recycling.

**Decision to ban the use of single-use plastic bags**

In continuation of the Ministry of Municipality’s efforts to codify the legislative system related to the management of solid waste, the Ministry announced controls on the use of plastic bags that comply with Ministerial Decision No. (143) of 2022, which bans institutions, companies, and malls from using single-use plastic bags. The ministerial decision established a number of important controls for the use of plastic bags, the most important of which is the ban on single-use plastic bags in all sales and shopping establishments and outlets, which the decision defined as bags

made primarily of plastic with a thickness of less than 40 microns and used once as a packaging and wrapping material before being discarded or recycled. The decision regulated replacements to single-use bags, such as multi-use bags or biodegradable plastic bags. The decision further limited its application to institutions, companies, and shopping malls by banning the use of single-use bags for wrapping, packaging, presenting, circulating, carrying, or transporting products and goods of all kinds. The relevant department of the Ministry, in collaboration with the competent authorities, will oversee the implementation of this decision, which will take effect on November 15, 2022.

The Minister’s decision is part of a larger package of legal legislation, programs, and campaigns that the Ministry has been setting up for a long time, such as the decision to sort solid waste, the waste sorting program from the source, the “Zero Waste” campaign, and others. The success of such efforts pertains to creating public knowledge about these programs. And programs aimed at reducing the health and environmental damage caused by single-use plastic bags.





**Initiative to plant 10 million trees by 2030**

Given the particular significance of trees in the ecosystem and their effects on human health and quality of life, the State of Qatar is dedicated to international commitments made during the Paris Agreement on reducing carbon emissions. To bolster its efforts in the fields of alleviating the effects of climate change and environmental sustainability, the Ministry of Municipality launched the Million Planting Initiative, with the goal of planting 10 million trees by 2030 after the country planted one million, the millionth of which was planted on December 18, 2023, the day of the state's National Day. The initiative's goals are to boost biodiversity, use treated water for irrigation, improve air quality, expand vegetation, and lower gas emissions.



The initiative's primary objective is to plant tree seedlings in multiple locations selected for this purpose, such as Sidr, Ghaf, Samar, and other areas native to Qatar. The initiative covered the entire State of Qatar, including afforestation at the furjan level and in front of houses, afforestation at the level of external areas far from cities (farms, mansions, reserves, industrial areas,

and those close to treated water plants), and afforestation at the level of main highways and local roads, intersections, bridges, and roundabouts. The initiative also encouraged residents to plant in their neighborhoods by giving them seedlings at low costs. Al Khor Corniche, Doha, Al Shamal, Al Wakrah Beach, and Simaisma Beach are just a few examples of beaches

and waterfronts. Additionally, communities and diplomatic organizations, such as ambassadors, participate in these areas.

**The Panda House Park**

The Panda House Park in Al Khor is considered one of the most important tourist destinations in the State of Qatar. The Panda House Park, which was built according to the highest international specifications and standards, is located near Al Khor Park and Al Bayt Stadium, and both Al Khor and Al Dhakhira Municipalities, and is about 35 kilometers from the city of Doha.

The Panda House is considered the first of its kind in the Middle East, and the largest in the world, and is ready to welcome all panda lovers. The house was designed in implementation of the idea of "from house to house," so that it mimics the shape of the mountains inspired by the terrain of the panda's original land, which is the Minshan Mountains. In Sichuan Province, China.

The interior of the panda house contains two separate enclosures, an enclosure for the panda Suhail with an outdoor garden, and a garden for the panda Thuraya in an external



garden. Part of the garden was also planted with 2,814 bamboo plants, and the green areas are estimated at 53 thousand square meters, and some trees were brought from the forests of China and planted. Inside the house.

The area of the "Panda House" is 120 thousand square meters, and includes a display and housing area for pandas, green spaces and service buildings, in addition to parking spaces for visitors amounting to 300 spaces. The park was also designed and implemented in accordance with the highest standards of quality and safety in accordance with the standards of the Global Evaluation System. Sustainability GSAS, taking into account the achievement of environmental quality with regard to the issue of energy saving and environmental preservation.

**Expo 2023 in Doha is a key platform for achieving sustainability in agriculture and Horticultural**

The International Horticultural Exhibition, Expo 2023 Doha, serves as a platform for stimulating change and raising international awareness of the value of

working to discover effective solutions to desertification, climate change, and sustainability challenges. It works to combine traditions and modern technology for the balanced use of resources, as well as to create a gathering spot for people and ideas, in order to speed up the pace of innovation, creativity, research, and scientific progress in the field of modern agriculture, resulting in safe and sustainable food for the world's population.

Expo, the largest event hosted by the State of Qatar after the FIFA World Cup Qatar 2022, has succeeded in attracting millions of visitors since its opening until now. The slogan of Expo 2023 Doha, "Green Desert... A Better Environment," reflects the goal of encouraging the public and informing them of innovative solutions aimed at reducing the phenomenon of desertification and being an international platform for participants, decision-makers, non-governmental organizations, and experts in order to address environmental problems and sustainability challenges.

The State of Qatar's hosting of the Expo

2023 Doha Horticultural Exhibition provides an opportunity to propose new solutions to water scarcity, desertification problems, and climate change challenges. The organization of this event reflects the country's confidence in its continuing attempts to support efforts to preserve and sustain the environment, as well as to build on its previous achievements. This important international exhibition, which runs for 179 days on the grounds of Al Bidda Park on the Doha Corniche, serves as an important platform for achieving sustainability in agriculture and horticulture, as well as an opportunity to come up with innovative solutions with the participation of approximately 80 countries, international organizations, and representatives from Qatar's various sectors.

The goal of this special edition of the international exhibition, which has participation from 80 different countries, is to make the idea of "greening the desert" the centerpiece idea for the upcoming years.







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## CHAPTER 2

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# Qatar National Strategy for Environment and Climate Change

Qatar has demonstrated a growing interest in environmental issues and a commitment to addressing the dangers of pollution in recent years. Environmental sustainability has been increasingly present on Qatar's policy agenda since the early 2000s, with the ratification of the Permanent Constitution, the issuance of several environmental laws, and the launch of Qatar National Vision 2030, and its supplementary strategies. Some key aspects of Qatar's efforts include:

### Qatar National Vision 2030:

Qatar's National Vision 2030 is a comprehensive development plan that outlines the country's aspirations across various sectors, including environmental sustainability. It emphasizes the importance of responsible environmental management and sustainable development.

Launched in 2008, Qatar National Vision 2030 (QNV 2030) was the first of its kind in the state. The launch of the Vision came during a time period wherein there were repeated calls for establishing an integrated approach to sustainable development at global, regional, and national levels, from the Earth Summit in 1992 to the General Assembly Special Session on the Environment in 1997 and the World Summit on Sustainable Development in 2002. The idea of developing the vision perhaps has

emerged due to the deliberations and conclusions of such conferences. QNV 2030 was the first policy document attempting to provide a long-term comprehensive development strategy for the State of Qatar, and it appears to be largely influenced by the United Nations' (UN) manifestation of sustainable development (i.e., 1987's Brundtland Report and subsequent UN publications).

The sustainable development approach of QNV 2030 is similar to what Peterson (1997) described as the competing objectives approach, in which a strategy is designed to reconcile social, economic, and ecological goals. The vision is constituted of four 'pillars': social, human, economic, and environmental development, and for each, national challenges and objectives are identified. In addition to the challenges that are specific to each pillar, five major challenges were recognized by QNV 2030 and are supposed to be at the core of the efforts made toward the four pillars. Three of these challenges concern environmental sustainability, which are attending to current needs without compromising future generations' needs, managing economic growth and population, and sustaining the social and economic development that the state has been experiencing while protecting the environment.

The environmental development pillar of the Vision is concerned with environmental management and addressing the aforesaid three challenges along with challenges that are specific to Qatar's ecosystems, which are the impact of climate change on sea levels, the impacts of declining water and hydrocarbon resources, pollution, and environmental degradation.

QNV 2030 also identifies the means that need to be established for environmental sustainability, which include an environmentally aware population, a comprehensive legal system, effective environmental institutions, a comprehensive sustainable urban development planning, and regional and international cooperation.



### Environmental Protection Laws and Regulations:

Qatar has enacted laws and regulations to address environmental issues and control pollution. These regulations cover air and water quality, waste management, and

other aspects of environmental protection. One of the unique features of the Permanent Constitution of Qatar is that it recognizes the state's obligation toward preserving the environment and pursuing a sustainable development approach, as stated in Article-No 33 of the Constitution. However, many environmental laws and regulations were issued long before the Constitution was decreed in June 2004. One of the very early laws to protect the environment was Law No 8 of 1974 on public or general cleanliness, which generally prohibited depositing and abandoning waste in any public space and provided a guideline on handling and managing waste. The law was active for around four decades and was only recently repealed by Law No 18 of 2017,





which indicates similar principles.

Marine biodiversity was one of the early environmental themes to be addressed by the law. Law No 4 of 1983 was issued to regulate the exploitation and protection of living aquatic resources. Among several purposes, the Law aims to protect marine biodiversity from harmful practices and overfishing and detect and prevent the use of harmful substances that could impact the living aquatic resources' growth, reproduction, and migration. The issuance of the law came only a few years after Qatar's accession to the Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution in 1978, its Action Plan, and its subsequent protocols, namely the Protocol concerning Regional Cooperation in Combating Pollution by Oil and Other Harmful Substances in Cases of Emergency in 1982.

Law No 32 on preventing damage to plant ecology and ecosystems was issued in 1995. The main purpose of the law is to regulate grazing areas and seasons and indicate the prohibited practices that have an adverse impact on plants' ecology and ecosystems.

The key legislation on environment protection is Law No. 30 issued in 2002 with the aim to protect and preserve the quality and balance of the environment, combat all forms and sources of pollution and avoid its impacts, and develop natural resources and conserve biodiversity to ensure the benefit of current and future generations. The executive bylaw for the law was issued in 2005 and covers the environment and sustainable development, development projects' environmental impact, environmental disasters' emergency plans, waste and hazardous materials, air pollution, water pollution, and marine environment

protection.

Perhaps the most significant law on conserving wildlife and natural habitats is Law No 19 of 2004, which revolves around prohibiting activities that harm ecological systems and their inhabitants and undertaking necessary arrangements to rehabilitate and manage natural habitats and preserve endangered species. Several nature reserves were established following the issuance of the law, such as Lusail Reserve in 2005, Al Mashabiya, Al Eraiq, and Al Thakhira Reserves in 2006, Khor Al Adaid Reserve in 2007, Southern Area Reserve in 2018, and Al Rafaa Reserve in 2020. Prior to the 2004's Law, several laws were in force on conserving wildlife. Law No 4 of 2002 was issued to regulate hunting activities of wildlife animals, including mammals, birds, and reptiles. Moreover, hunting seasons for certain birds and wild animals are also defined by ministerial decrees—seasons were specified for the years 2002, 2003, 2006, 2007, 2008, and 2009.



Law No 5 of 2006 was issued to regulate trade activities of endangered wildlife—fauna and flora—and their products. Also, a National Biosafety Committee was established by Ministerial Decree No. 11 of 2007 to propose policies, regulations, and executive bylaws for biosafety, establish guidelines and procedures for licensing importing of genetically modified organisms and their products, and several other related responsibilities. The Minister of Environment issued Resolution No 37 of 2010 on conserving turtles and seabirds from extinction. The Resolution prohibits approaching, disturbing, or poaching the nests of both species in the area of Fuwairit Beach during the breeding season—from April to July.

In terms of laws to address air pollution, there is Law No 19 of 2015 on issuing the Unified Law of the Gulf Cooperation Council for the Arab States on the Control of Substances that Deplete the Ozone Layer. Also, Ministerial Decree No 310 of 2020 has been issued for establishing and operating a national air quality



monitoring network, which intends to contribute to solving the persistent issue of lack of data and monitoring tools for air pollution in Qatar.

#### **Air Quality Management:**

Qatar has been working to monitor and improve air quality, particularly in urban areas where industrial activities and rapid urbanization can contribute to pollution. Efforts include the installation of air quality monitoring stations and the development of strategies to reduce air pollution.

Qatar has regulations in place to monitor and control air quality, particularly in urban and industrial areas. These regulations may include emission standards for industries and regulations for vehicular emissions.

#### **Waste Management Initiatives:**

Qatar has been focusing on improving waste management practices, including recycling and waste reduction programs. Efforts have been made to enhance public awareness about responsible waste disposal. Qatar has regulations governing the management and disposal of waste. These regulations may include guidelines for waste segregation, recycling, and



proper disposal methods.

#### **Water Conservation:**

Water conservation is a crucial aspect of Qatar's environmental strategy. Initiatives include the development of advanced water treatment technologies, promoting water-efficient practices, and implementing measures to reduce water wastage.

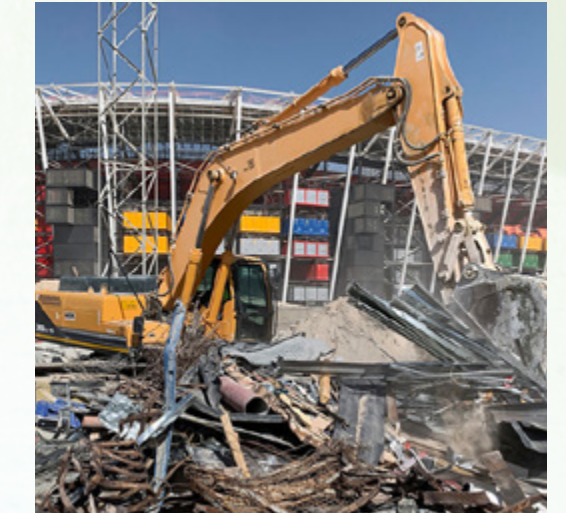
Regulations are in place to monitor and maintain water quality in Qatar. These regulations may cover aspects such as water treatment, conservation, and pollution prevention.

#### **Renewable Energy Development:**

Qatar is investing in renewable energy sources as part of its commitment to mitigating climate change. This includes the development of solar power projects and efforts to diversify its energy mix.

#### **International Collaboration:**

Qatar actively engages in international efforts to address global environmental challenges. The country participates in conferences, agreements, and initiatives aimed at finding collective solutions to issues such as climate change and biodiversity loss.



#### **Public Awareness and Education:**

Qatar has been working to raise public awareness about environmental issues. Educational programs and awareness campaigns help inform the public about the importance of environmental protection and sustainable living practices.

#### **National Policies and Strategies**

Although the 2000s were significant to environmental sustainability policy planning in Qatar since they have witnessed the establishment of the first medium- and long-term nationwide strategies, environment has been the concern of a number of policy initiatives throughout the 1970s, 1980s, and 1990s. These policy initiatives came in various—yet scattered—forms, whether laws (such as Law No. 8 of 1974 on General or Public Cleanliness), institutions (such as the establishment of Standing or Permanent Environmental Protection Committee in 1981), or the ratification of regional and international environmental treaties (such as accessing the 1954 International Convention for the Prevention of Pollution of the Sea by Oil in 1980) (United Nations Environment Program 1984).



The state's strategies concerning environmental affairs have been developing gradually in terms of scope and level since the start of the new millennium. One of the early medium-term strategies that were developed at the sub-sectoral level was the National Biodiversity Strategy and Actions Plan (NBSAP), launched in 2004. It was developed at a time in which the subject of biodiversity has been the focus of several international and regional treaties, such as the Convention on Biological Diversity in 1996, the Convention to Combat Desertification in 1999, the

Convention on International Trade in Endangered Species of Wild Fauna and Flora in 2001, and the Convention on the Conservation of Wildlife and their Natural Habitats in the Countries of Gulf Cooperation Council in 2004—which Qatar has ratified the accession to. The NBSAP intended to provide a 10-year roadmap for sustaining biodiversity, marine ecosystems, and aquatic resources. The second NBSAP was launched in 2015 and aims to achieve the objectives set in the first strategy along with a few additional by 2025.

The years that followed the launch of

NBSAP witnessed the development of more sophisticated long- and medium-term strategies with wider scopes, including the Qatar National Vision, National Development Strategies, the National Environment and Climate Change Strategy.

#### Qatar National Environment and Climate Change Strategy

The fourth quarter of the year 2021 has witnessed the unveiling of the first National Environment and Climate Change Strategy 2021 to 2030 and the National Climate Change Plan 2030. Both documents are supposedly significant to environmental sustainability policy in Qatar since they intend to pave the way toward meeting the state's targets of not only QNV 2030 but also those that it has committed to accomplishing at the international level (i.e., the 2030 Agenda for Sustainable Development and the Paris Agreement). It is worth mentioning as well that, unlike the NDS and relevant sectoral strategy 5-years duration, the timeframe that has been set in both policy documents extends from 2021 to 2030.

launching the Qatar National Environment and Climate Change Strategy marks a new phase in the State of Qatar's efforts in facing climate change. This strategy is one of the main pillars to realize Qatar National Vision 2030, which is in line with the UN Sustainable Development Goals and the State of Qatar's ambition to become one of the region's leading countries in the field. This will be accomplished through the implementation of a number of projects and initiatives that contribute to lower Carbon Dioxide emissions and rely on renewable energy sources.

Qatar plays a major role in cooperation with international organizations and

bodies concerned with the environment and climate change, as it was one of the first countries to join the United Nations Framework Convention on Climate Change in 1996, the Kyoto Protocol in 2005 and the Paris Agreement in 2016. In addition, Qatar is a member of the International Renewable Energy Agency (IRENA), which supports countries in their transition to a sustainable energy future. The State of Qatar also hosted the 18th Conference of the Parties (COP18) in 2012, which is one of the global climate change negotiations stations that contributed to reaching the Paris Agreement.

The strategy constitutes a main pillar of Qatar National Vision 2030 and this vision was taken as the basis for drawing up the environmental strategy, taking into account the Qatar Development Strategy, which was launched in 2018, and all other existing strategies, including the water strategy and the climate change strategy, so that the Qatar National Environment and Climate Change Strategy will be in an integrated manner.

The preparation of the strategy was started in February 2021, with the participation of more than 20 concerned government agencies from various ministries, departments, companies, and more than 50 international experts from specialists worldwide, it was implemented in several stages, which included a complete identification process for the environment in Qatar and determine the starting point and the stage of comparisons with a number of countries.

After implementing about 400 workshops, 30 countries were selected for comparisons, it was decided to implement 89 initiatives, including 40 initiatives that existed before, and 49 new initiatives, all of these initiatives were placed under one environmental strategy, all laws related

to the environment in Qatar were also covered to evaluate their effectiveness. Furthermore, the strategy seeks to achieve three goals, the first is the well-being of the Qatari people, the second is economic flexibility, and the third is environmental protection.

The strategy covers 5 areas: greenhouse gas emissions, air quality, biodiversity, water, circular economy, waste management, and land use. A governance system has been established to implement the strategy, to reach the specific goals by 2030, including reducing greenhouse gas emissions by 25 percent by date, as well as the establishment of 30 air quality monitoring stations by 2023, and the increase in the number of reserves concerning biodiversity.

The Qatar National Environment and Climate Change Strategy and the National Climate Change Action Plan 2030 contribute to achieving a balance between the urgent need to work in the field of climate change and environmental protection, and the need to promote sustainable social and economic development in an economy based mainly on the export of liquefied natural gas and related products.

By signing the Paris Climate Agreement with other world leaders, the State of Qatar pledged to commit to reducing global temperatures by much less than two degrees Celsius, and to strive to limit global warming to no more than 1.5 degrees Celsius, putting into consideration that the commitment to preserve the environment is an integral part of the constitution of the State of Qatar, and is one of the main pillars defined in Qatar National Vision 2030, and is given a high priority in the first and second national development strategy.

The State of Qatar also recently submitted its second report on nationally determined contributions to the United Nations Framework Convention on Climate Change, in which it pledged to reduce global greenhouse gas emissions by 25 percent by 2030, compared to business-as-usual rates.

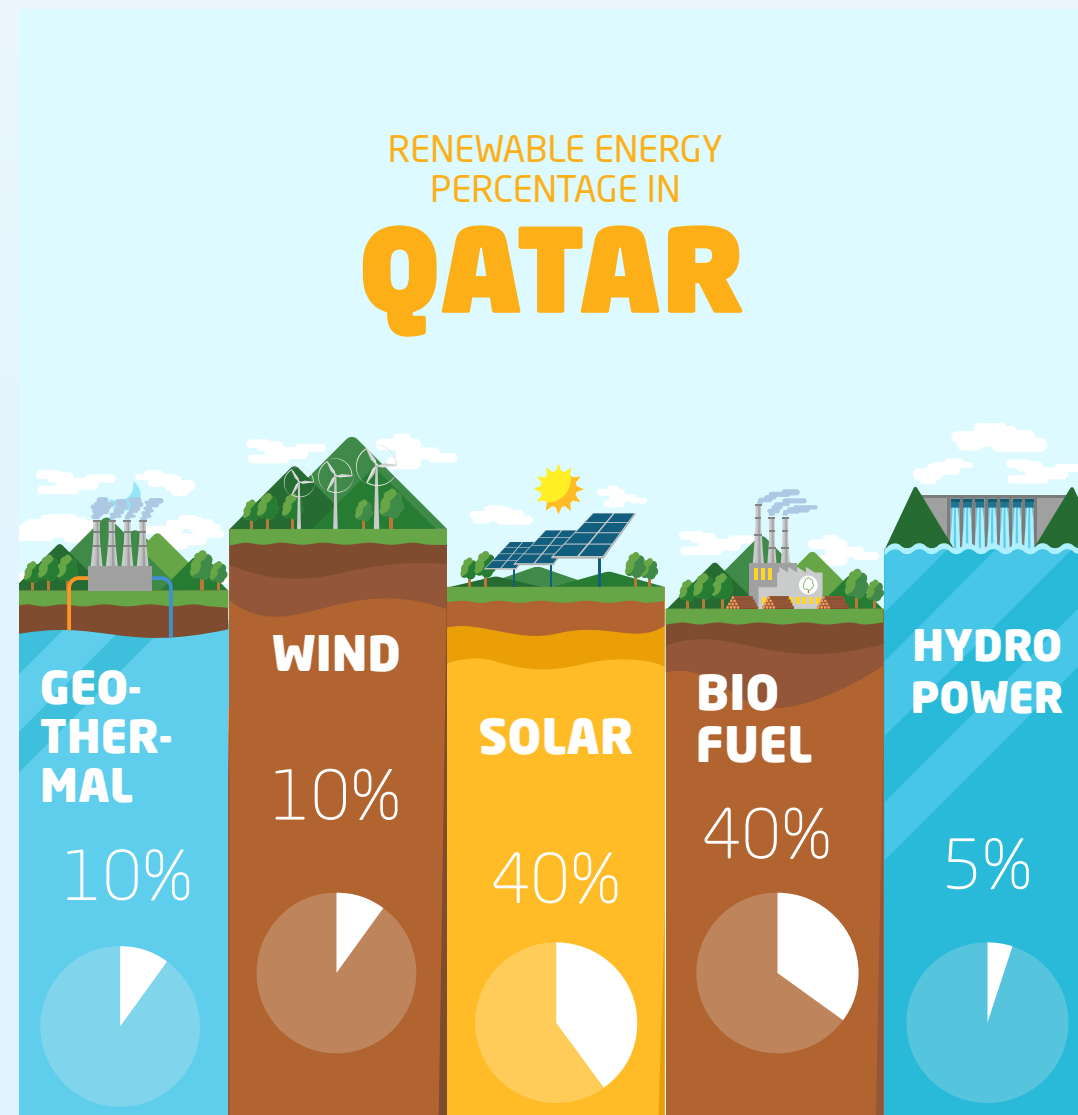
This progress reflects Qatar's clear adherence to its commitments under the Paris Agreement and is fully consistent with the objectives set out in Qatar National Vision 2030 and other strategies and plans at the national level.

This goal is also one of the most ambitious goals undertaken by any other country in the region, and it is the only goal that is fully supported by approved plans and programs that define the mechanisms that will be implemented to achieve the goal.

The National Action Plan for Climate Change 2030 identifies the programs developed by each sector and the actions expected to be implemented to achieve the desired goals, as the oil and gas sector is the largest contributor to efforts to reduce emissions. However, all other sectors and relevant stakeholders have identified their ambitious contributions to achieve this target.

Qatar is also aware that many of the effects of climate change will continue for many decades to come, and it is difficult to find immediate solutions to them, and that all stakeholders should cooperate in order to reduce its impact on societies, the environment and the economy.

Qatar is currently implementing a new monitoring, reporting and verification system that provides decision makers with the right information at the right time, enabling informed decisions on a range of issues related to climate and the environment.





With regard to the major achievements and initiatives, Qatar has already succeeded in implementing programs and projects aimed at reducing greenhouse gas emissions, improving environmental protection methods, and adapting to the impacts of climate change.

The state will depend to a large extent on the energy sector to drive economic growth and achieve social development. Therefore, it is keen to find the right balance between providing clean energy and making it available at an affordable cost for all, while at the same time committing to being responsible towards the environment and constantly promoting the preservation of natural resources.

Qatar Energy intends to reduce the carbon intensity of LNG facilities by 25 percent by 2030, and to reach the target of zero emissions from routine flaring in natural gas production, as well as reduce the weighted methane intensity by 0.2 percent by 2025. Mitigating Greenhouse Gas Emissions from its Operations, Qatar Power has invested heavily in advanced technology to increase energy efficiency and reduce emissions from natural gas flaring and plans to start relying on clean and renewable energy sources in the coming years.

The Qatar National Environment and Climate Change Strategy (QNE) was developed with the vision to protect and enhance Qatar's environment to safeguard the well-being of Qatar's population and ensure the long-term resilience of the economy.

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gas emissions by 25% by 2030, compared to business-as-usual rates.

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Qatar is currently implementing a new monitoring, reporting and verification system that provides decision makers with the right information at the right time, enabling informed decisions on a range of issues related to climate and the environment.

QNE is an effort that builds upon Qatar National Vision 2030, which features four key pillars to create "harmony between economic growth, social development and environmental protection". Qatar has built further on this strong foundation by establishing a new environmental

taskforce.

With QNE charting the next chapter in the nation's environmental journey, the strategy will also provide a framework to realise Qatar's 2030 ambitions while paving the way for long-term environmental management. A new cross-ministerial taskforce has been set up to lead and review QNE's implementation. This have done together with the amendment of critical policies and regulations to support these changes. In addition, a dedicated budget has been set aside to drive implementation efforts, alongside investment into innovative technology, and capability and awareness building efforts.

The launch of QNE is a landmark step to champion environmental growth and prosperity in Qatar. QNE will drive a new trajectory that not only accelerates tangible impact across specific environmental domains, but also installs a robust policy framework, strong governance, and solid capability infrastructure to safeguard Qatar's environment for future generations.



## ► Five key environmental priority areas with ambitious targets

Qatar National Environment and Climate Change Strategy has identified five key environmental priority areas with ambitious targets developed for each priority.

1



### GHG emissions and air quality:

Reduce GHG emissions to limit global warming and improve ambient and indoor air quality to better protect public health and the wider environment. To do so, Qatar seeks to reduce GHG emissions by 25% versus a business-as-usual scenario by 2030, enhance ambient air quality standards and update limit values by 2024, among other targets.

2



### Biodiversity:

Enhance efforts to conserve, restore and protect biodiversity for healthy and resilient natural ecosystems. To achieve this, Qatar will conserve and effectively manage more than 25% of its total land area by 2030 and put in place restoration and protection plans for key species, among other targets.

3



### Water:

Ensure the sustainable and integrated management of all water resources. For example, Qatar will reduce groundwater extraction by 60%, reduce daily household water consumption by a third and double desalination via reverse osmosis or more sustainable technologies, among other targets.

4



### Circular economy and waste management:

Enhance critical infrastructure for sustainable waste management and drive more circular use of materials. To do so, Qatar seeks to close and rehabilitate 100% of unsanitary landfills and achieve a 15% material recycling rate of municipal wastes, among other targets.

5



### Land use:

Enhance the long-term potential of all land resources. Qatar will prioritise high-yield and sustainable agriculture production by driving a more than 50% improvement in farmland productivity, as well as launch sustainable urban planning initiatives such as mandating green building requirements amongst other targets.







## The Ministry of Transportation

crowned Qatar's efforts to establish an integrated, interconnected, and sustainable transportation system

# Transportation sector

## innovative ideas for supporting national development.

The significance of transportation in sustainable development was initially recognized at the United Nations Earth Summit in 1992, and it was emphasized in the summit's concluding document, Agenda 21 century. In conducting the five-year review of Agenda 21 Century during its nineteenth extraordinary session, the UN General Assembly also noted that in 1997, transportation was expected to be the main driving force for increasing global energy demand over the next twenty years (in fact, it is now the largest end user of energy in developed countries and the fastest growing sector in most developing countries). Furthermore, the significance of transportation was re-emphasized in the final document, Johannesburg's executive plan for the 2002 World Summit on Sustainable Development. The executive plan included several of fulcrums for sustainable transportation in the context of infrastructure, public transportation systems, goods delivery networks, affordability, efficiency, and ease of transportation, as well as improving air quality and urban health and lowering greenhouse gas emissions.

In recent years, global interest in transportation has continued. At the 2012 United Nations Conference on Sustainable Development (Rio+20), world leaders unanimously recognized that transportation and mobility are vital for sustainable development. The availability of environmentally friendly means of transportation can stimulate economic growth and improve mobility. Sustainable mobility encourages economic integration while also increasing equity in society, health, city resilience, urban-rural connectedness, and rural productivity.

The inclusion of sustainable transportation in various sustainable development objectives and targets, particularly those relating to food security, health, energy, economic growth, infrastructure, cities, and human settlements, is mainstreamed in the 2030 Agenda for Sustainable Development. The UNFCCC acknowledges the value of transportation to climate action; the transportation sector will play an essential part in accomplishing the Paris Agreement because transportation accounts for almost a quarter of global energy-related greenhouse gas emissions that will likely continue to increase. In

the future years, these emissions will skyrocket.

### An overview of the Qatari transportation sector:

In Qatar, there are two types of transportation: private and public. As private car ownership and widespread reliance on them ruled in Qatar, the majority of the population relied on private transportation, while a minority group relied on public transportation. As a result, there was substantial traffic congestion, particularly during rush hour. The government's method to addressing traffic congestion is mostly through the building of road infrastructure, which has included 8,500 kilometers of new road infrastructure, 200 new bridges, and 30 new tunnels. The expansions were designed to lessen traffic congestion, however they did not lower car ownership, as the annual rise of car ownership has been steadily going up over the past decade. As consequently, it results in inefficient land use, low air quality, and a negative impact on human health.

The Qatari government has considered expanding public transportation other

options through specific regional projects such as the metro and tram. As part of the Qatar National Vision 2030, the government has invested in infrastructure projects such as the railway and metro system to diversify the country's transportation system, reduce public dependence on automobiles, and promote sustainable living habits, and public transportation now fulfills an appropriate portion of transportation demand, especially when there are major events such as the 2022 FIFA World Cup.

Qatar's dependence on private automobiles for its primary transportation operations is due to a number of factors, the most significant of which is that having a private car is relatively inexpensive owing to low fuel prices, low costs for registration, and laws that encourage the use of private cars. The usage of private cars, on the other hand, has indirect costs such as pollution, congestion, poor air quality, traffic accidents, and the resulting economic burden. According to International Energy Agency estimates, the transportation sector contributes to around 25% of total carbon dioxide emissions in cities.







Changing the culture of excessive use of private automobiles, on the other hand, might result in enormous economic and social benefits, as well as clear environmental positives. As countries, including the State of Qatar, reconsider their mobility and urban development systems and invest in sustainable and smart mobility, traffic will improve, as will the economic cycle and energy efficiency, and the transportation system will be safer, leading to higher societal productivity and less need for new roads and infrastructure.

**The prospect of progressing toward sustainable transportation systems using a five-part framework:**

1. Cities should prioritize public transportation in future planning, with fully electric public transportation fleets available. Qatar has such a transportation system, having invested \$36 billion in the automated, high-quality Doha Metro system. The country is also committed to reaching zero emissions from public transportation by 2030, with an interim goal of switching 25% of the transportation fleet to zero-emission vehicles.
2. Cities should work to transition from fuel-powered automobiles to electric vehicles. Qatar has begun to experiment with alternatives, such as running electric

buses on the Golden Metro Line. Mowasalat, Qatar’s public transportation operator, has launched electric bus charging stations as part of the Ministry of Transport’s comprehensive policy for electric cars, which states that the Ministry of Transport provides incentives to private automobile owners to embrace electric vehicles. The Ministry also signed a memorandum of understanding with Alfardan Motors to provide free charging stations for electric vehicles across the country, easing the transition to electric vehicles.

3. Cities can encourage shared mobility to reduce the number of private car trips and improve transportation efficiency. Many businesses have proven that vehicle sharing is a viable business model that leads to better transportation system efficiency.
4. Cities can motivate mobility through non-vehicle-based means. This includes making cities more walkable and offering micro mobility options like bike sharing and e-scooters. This mode of transportation, in addition to being an active and healthy option, can improve transport options as a viable alternative by overcoming the “first-mile” and “last-mile” connectivity challenges that encourage people to choose their own car as a mode of transportation. Micro mobility is particularly useful during public events

where massive crowds have to stroll relatively short distances, such as between football stadiums and nearby facilities.

5. To encourage less private automobile usage, towns can reconsider how they plan their urban areas. In addition to relying less on private vehicles, urban planning can incorporate ideas like “integrated streets,” which offer safer and smarter mobility options for all user groups. A lot of towns have started implementing “five-minute” policies, meaning that significant amenities or public transportation may be accessible on foot in five minutes or less.

**Ministry of Transportation...a transformational process towards a smart and sustainable transportation system**

In the economic, industrial, and social development plans that are carried out by many countries worldwide, the transportation sector is considered the cornerstone of any development process. The State of Qatar recognized early on the significance of developing and updating the transportation sector’s infrastructure to support the different industrial, commercial, and service sectors. This was especially true given the nation’s recent rapid population growth and robust economic expansion, where the population of the nation has increased dramatically in recent years.

In light of the country’s objective of transforming into a knowledge-based digital economy, the Ministry of Transportation has continued to work tirelessly to establish a global transport infrastructure and create a smart land, sea, and air transportation system that operates in accordance with the latest technological technologies that support sustainable development and keep pace

**90% of Karwa taxis have been replaced with eco-friendly hybrid vehicles**

**There are now 55 Metrolink routes**

with the requirements of Qatar’s smart government, especially considering the country’s overall growth. The contribution of the transportation sector to the country’s GDP.

The state’s interest in the transportation sector was clear in the state’s general budget allocations, with huge budgets allocated to the transportation sector and large financial allocations with the objective of providing the best services on air transport lines, in addition to other allocations to implement the Qatar

Public Transport Programme. The state allocated 95% of its massive infrastructure investments to projects. Regulation of the land transport industry with the aim of extending highway length to 8,500 km and constructing 200 bridges and 30 new tunnels.

The land transportation sector noticed a technological boom in various parts of the country, which was carried out under the supervision of the Ministry of Transportation through the implementation of five key projects within



its strategy for private sector involvement in public transportation projects, particularly electric buses, the setting up of 17 sites for some public transportation infrastructure projects, and the construction of 3,000 smart parking lots. For buses, developing the West Bay Bus Center, operating water taxis (sea ferries), and boosting the efficiency of performance and use of public buses through partnerships with “Karwa” Transportation, the country’s public transportation bus operator, developing the current route network, and adopting new routes and purchasing smart cards. Repackaging, developing, and releasing mobile apps.

The Ministry was seeking to improve the infrastructure that backs public transportation buses through the establishment of 9 bus stops and depots with smart systems, 4 lot sites, and importing 627 ecologically friendly electric vehicles. The Ministry worked on a smart and sustainable transportation planning project as part of growing the use of smart technologies in the transportation industry. It sets up policies in the country that promote smart transportation applications and models, such as the road network, buses, trains, taxi systems, smart parking, and the integrated system project for fares and issuing public transportation tickets via a smart and integrated system.

A project involving the use of Wi-Fi technology on road lighting poles to transmit information to users of roads and other means of transportation, in addition to smart management of operation to save energy, is included in the list, as is a project involving the development of long-term future operation and maintenance programs for roads that rely on smart technologies, and a project for a rapid movement system. (A smart

mode of transportation that operates on conventional roads on wheels).

According to the Qatar National Vision 2030, the Ministry continues the shift process toward an integrated and sustainable smart transportation system by considering transportation as one of the five most prominent sectors on which the Smart Qatar Program (TASMU) is based, which leads the transformation efforts towards building a smart Qatar. The transportation industry wants to decrease traffic delays by 20% and road deaths by 10%, while also lowering vehicle emissions for routine trips by 10%.

#### **Sustainability...the cornerstone of Qatar 2050’s comprehensive transportation plan:**

The Qatar Comprehensive Transport Plan 2050 is a roadmap for land transport infrastructure investment that will determine future frameworks and trends for developing transport networks at the national level, guaranteeing



their integration with land use, urban development, population growth, and meeting future demand for transport systems. The concept of sustainability is fundamental to this plan because it has a significant impact on economic and environmental development by achieving a balance between the demands of economic growth and environmental protection, as well as contributing to the reduction of climate change through the execution of long-term initiatives to foster the transition to sustainable transportation.

The plan also aims to achieve financial sustainability for the land transport sector by covering the greatest amount of operating costs possible via the application of transport demand management policies and encouraging public-private partnerships to invest in and contribute to both the building and operation of transportation systems. The comprehensive transportation plan for the State of Qatar 2050 is



expected to bring significant economic returns as a result of increased revenues and the benefits of reduced vehicle operating costs, reduced energy and fuel consumption, reduced travel time, and reduced carbon emissions and traffic accidents.

Implementing this plan will also strengthen the State of Qatar’s position as one of the world’s most sustainable countries by providing innovative and sustainable transportation solutions that support all aspects of development pursued by the state, thereby improving the quality of life of citizens and everyone living on Qatari soil while preserving the state’s national identity.

The plan includes an integrated set of initiatives and projects that will serve all users of land transportation systems and networks until 2050, including highways, public transportation, pedestrians, bicycles, demand management for land

transportation, and other transportation techniques and technology, with the goal of achieving complementarity between these elements, improving connectivity between them, improving road safety, reducing traffic jams, and preserving the environment.

#### **Sustainable transformation of public transportation:**

Qatar is making strides toward sustainable mobility by investing in infrastructure and encouraging the use of alternative energy means of transportation. Qatar is working to minimize carbon emissions in the transportation sector through motivating people to use public transportation. Qatar’s outstanding transportation infrastructure demonstrates the country’s dedication to sustainable transportation. The sophisticated metro network, which includes three lines, two international airports, an efficient road network, and advanced port facilities, demonstrates

Qatar’s dedication to modernizing its transportation sector and represents Qatar’s multifaceted commitment to sustainable transportation. Its unwavering commitment to a greener, more sustainable future. Qatar is not only contemplating the change but actively making its way as a regional vanguard of sustainable urban mobility by promoting electric mobility and developing modern transportation infrastructure. Qatar’s vision of a diverse, environmentally responsible economy becomes clear with each step made to boost transportation networks, heralding a hopeful era of sustainability and innovation. Qatar has advanced in the carrying out of plans for environmentally friendly, sustainable transportation through a comprehensive strategy that includes:

#### **► Clean Aviation:**

Qatar wishes to promote green and sustainable transportation in the realm of



aviation. Doha, represented by its national airline, is a major international aviation center. Qatar Airways has invested in eco-friendly aircraft since its inception; hence, the sustainability scene in Qatari aviation is far stronger than in others. Doha has a good chance of reaching clean aviation within the next few years since it possesses the necessary tools.

Qatar Airways is committed to working with the aviation sector in order to achieve the desired environmental goals, and it has been certified by the International Air Transport Association's Environmental Assessment Programme, which provides a framework to assure constant enhancement of environmental performance across various operational functions.

While some other countries have yet to decide whether the high cost of clean aviation will be imposed on governments, airlines, energy companies, or travelers, Qatar, with its resources and determination to achieve its goals, can achieve what no one else has so far, especially given its status as an aviation pioneer. Qatar hopes of consolidating its position as the center for sustainable aviation through strategic collaborations. Qatar's commitment to advanced air transport solutions is embodied by the unique Electra Aero electric aircraft, which is built for short take-offs and landings.

#### ► **Doha Metro Network**

According to the Qatar Railways Company's annual report, the first phase of the Doha Metro project was started in 2020, and it is an express train network that connects some of the country's cities. The Doha Metro is the cornerstone of Qatar's concept for an integrated public transportation system that will transform the industry. Doha public transportation

is available across the city. The Doha Metro is the country's mainstay of public transportation. It was built to meet the highest sustainability standards and will play a key part in aiding the country's efforts to fulfill the Qatar National Vision 2030 in the transportation sector. Rail, which operates the metro, has strengthened sustainability by halting the use of paper tickets and launching a number of initiatives in the field of sustainability through partnerships with a number of relevant institutions, in addition to the metro's contribution to reducing reliance on private cars, traffic congestion, and the resulting carbon emissions.

The metro system was introduced as part of a strategy to transform cities into low-carbon environments by lowering emissions from passenger vehicles. Indicators indicate the metro is more sustainable than buses and cars in all impact categories. Most importantly, metro transportation is crucial for tackling critical environmental issues in the transport sector, such as global warming, particles that are harmful to human health, and smog. Annually, the metro line may save around 12.3 million tons of CO<sub>2</sub>, 457.13 tons of microparticles that are harmful to human health, and 0.061 million tons of smoggy air. Because electricity is the biggest contributor to the metro system's environmental impact, its impact can be further enhanced by employing a cleaner energy source than renewable energy sources.

The Doha Metro project is fully compatible with Qatar Vision 2030, which focuses on the human, social, economic, and environmental sustainability of development. It is expected to alleviate traffic jams by 190,000 cars per day. This project consists of three main lines: red, gold, and green, and a total of 37

stations and 65 trains with a length of 76 kilometers in the first phase.

The Doha Metro is the first metro project in the world to obtain an accredited sustainability certificate for an innovative classification of railway stations that includes all phases of the project, starting from design, through construction, and ending with the operation stage. The GSAS certification program focuses on assessing green infrastructure and building projects and offering advice on how to minimize environmental impacts on the design, construction, and operation phases.

#### ► **"Park and Move" project:**

This project is part of the Public Transportation Bus Infrastructure Program. This significant project, in addition to metro stations, provides cutting-edge, highly efficient facilities and parking lots dispersed throughout large and vital geographical areas of the country. The project's goal is to encourage the use of modern, sustainable public transportation and contribute to traffic flow, traffic jams and carbon emissions, as well as supporting the public transportation network and Doha Metro operations.

The project provides free parking near metro stations to boost the services of the public transportation network and the Doha Metro, with the objective of attracting car owners to use modern transportation systems to and from various destinations in less time and at a lower cost, which contributes to raising the level of service on the public road and major intersections in terms of traffic flow and reducing traffic jams and carbon emissions caused by automobile usage.

The "Park and Move" project fits into the Ministry of Transport and Communications' commitment to employ modern, eco-friendly, and sustainable

public means of transport. It also intends to improve the standard of public transportation services and expand the number of beneficiaries over the next few years by offering modern, highly efficient means of transportation that are dispersed throughout significant geographic areas of the country, as well as parking lots that guarantee access for citizens, residents, and visitors in the simplest and least expensive ways.

#### ► **Eco-friendly car initiative:**

Qatar has set a target of making a drastic

breakthrough in electric vehicle usage by 2030. The government has set aside 15,000 public charging stations as proof of its commitment to promoting a sustainable electric vehicle environment. Surprisingly, the present drop in EV penetration in Qatar is due in part to cultural preferences and the proliferation of sturdy four-wheel-drive vehicles developed specifically for desert terrain. Innovative initiatives, such as the Sila program, an integrated multimodal transportation solution accessible via a unified mobile application, showcase Qatar's commitment to achieving

sustainable urban mobility.

In order to accomplish the Qatar Vision 2030 of sustainability and environmental preservation, the eco-friendly car initiative was launched in Qatar in 2017 in collaboration between the Ministries of Energy, Transport, and Environment. Despite the spread of charging stations for electric vehicles in Doha, there is an urgent need to increase the use of this type of vehicle throughout Qatar, not just in the capital. This endeavor must also include raising awareness about the good environmental impact of these vehicles





and the extent to which they reduce carbon emissions, considering that most people know not much about them and are worried about using them.

Through the National Program for Conservation and Energy Efficiency “Tarsheed” and in collaboration with the Committee, the Qatar General Electricity and Water Corporation has made significant contributions to the field of electric transformation by developing the Qatar Strategy for Charging Electric Vehicles and its infrastructure to serve as the core of the legislation governing the setting up and operation of electric vehicle charging stations and the joint efforts to oversee the State of Qatar’s plan for shifting to sustainable transportation.

► **The first eco-friendly car in Qatar:**

“The Eco Transit Company” unveiled the first iteration of an electric car based entirely on Qatari intellectual property. The entry of this company into the sector of eco-friendly transportation solutions signals an important shift in the Qatari and Gulf markets. This step is based on the Qatar National Vision 2030 and the Qatar National Strategy in their many forms, as the state seeks to implement substantial changes in the transportation sector to make it greener and more sustainable. It also corresponds with the global trend of reducing detrimental carbon emissions generated through traditional vehicles, which are major contributors to environmental pollution.

Eco Transit is the first company in Qatar specializing in electric vehicles and all-encompassing eco-friendly infrastructure and transportation solutions. In collaboration with its international partners, the company made an investment to acquire exclusive

intellectual property for a variety of electric vehicles and buses. This was an initial step towards establishing an integrated industry for light and heavy-duty electric vehicles under the VIM brand. In order to make sure that electric vehicles and buses comply with Gulf standards and international specifications, the company seeks to invest in building the first hub in the region to certify electric cars in collaboration with the national authorities. Accreditation certificates will be issued for these vehicles.

► **Micro mobility revolution:**

Qatar’s shift towards sustainable urban mobility extends to micromobility solutions. Bicycles and electric scooters are becoming more and more common as viable options for short-distance inner-city mobility.

The aim of the Qatar National Strategy for Environment and Climate Change and the Comprehensive Transport Plan for the State of Qatar 2050 is to develop an integrated, world-class, multi-modal system that offers secure, trustworthy, eco-friendly, and accessible transportation services to all. One of the mainstays of these two initiatives is pedestrian and bike infrastructure. In this context, the best example of these projects is the inauguration of the Olympic Cycling Path on National Sports Day in 2020, which received the Guinness World Record in September 2020 as the world’s longest bicycle path, extending for 33 kilometers and measuring 7 meters in width.



## CHAPTER 4





# Sustainable cities in Qatar

Designs that combine eco-friendly technology and improved urban planning

The global need for sustainable cities has never been more pressing. As the world's population continues to grow, so does the number of people living in urban areas. According to the United Nations, 68% of the world's population is projected to live in urban areas by 2050, up from 55% in 2018. This rapid urbanization, while offering opportunities for economic and social development, also presents significant challenges, particularly in terms of sustainability.

The global need for sustainable cities has never been more pressing. As the world's population continues to grow, so does the number of people living in urban areas. According to the United Nations, 68% of the world's population is projected to live in urban areas by 2050, up from 55% in 2018. This rapid urbanization, while offering opportunities for economic and social development, also presents significant challenges, particularly in terms of sustainability.





At the level of environmental sustainability, Cities are major contributors to climate change, accounting for about 70% of global carbon emissions and over 60% of resource use. The design and operation of cities need to be rethought to reduce their environmental impact. This includes improving energy efficiency, reducing waste, promoting the use of renewable energy, and integrating green spaces.

At the level of social sustainability, rapid urbanization often leads to increased inequality, with many city dwellers living in inadequate housing conditions and lacking access to basic services. Sustainable cities aim to be inclusive, offering opportunities for all residents and ensuring access to quality services such as healthcare, education, and public transportation.

At the level of economic sustainability, cities are engines of economic growth, but this growth needs to be sustainable. This means promoting industries that are not only profitable but also have a low environmental impact and provide decent work. Sustainable cities also aim to be resilient, able to withstand economic shocks and stresses.

#### **Qatar's Commitment to Sustainability and Eco-friendly Cities**

The State of Qatar has shown a strong commitment to sustainability and the development of eco-friendly cities. This commitment is driven by both environmental considerations and the need to diversify its economy away from a reliance on fossil fuels.

Qatar's commitment to sustainability is enshrined in its National Vision 2030,

a comprehensive plan that sets out the country's long-term development goals. The vision emphasizes the importance of sustainable development and environmental management, with a focus on balancing economic growth with environmental protection and social development.

One of the keyways in which Qatar is working towards its sustainability goals is through the development of eco-friendly cities. These cities are designed to be models of sustainable urban development, incorporating the latest eco-friendly technologies and urban planning techniques, where the government and private sector are embracing green building and sustainable practices to reduce the country's environmental impact. Their commitment to sustainability has increased demand for sustainable buildings and cities, having a positive influence on the real estate market.

The country's climate, characterized by high temperatures and limited rainfall, makes traditional building methods unsustainable in the long term. Adopting more energy-efficient and environmentally friendly practices is necessary to ensure that buildings can continue providing safe and comfortable living spaces.

As the country looks to the future, it is taking necessary steps to ensure that its buildings are more energy-efficient and have a lower environmental impact. By adopting green building standards, promoting renewable energy, and developing new technologies, Qatar's real estate market will likely become more sustainable and resilient in years to come.

Sustainability in the real estate industry refers to the design, construction, and operation of buildings in an

environmentally responsible way. It involves using renewable energy sources, water conservation, and reducing greenhouse gas emissions. The benefits of sustainable buildings include reduced energy costs, increased indoor air quality, and improved occupant health and productivity.

One organization that significantly promotes sustainable development in the country is the Qatar Green Building Council (QGBC). The QGBC is a non-profit organization established in 2009 to promote sustainable building practices in Qatar and encourage the implementation of green building codes and standards. The organization is a World Green Building Council (WGBC) member and works closely with other green building councils worldwide to promote sustainable building practices.

The QGBC has several initiatives that promote sustainability in the construction industry. One is the Qatar Sustainability Assessment System (QSAS), a green building rating system developed specifically for Qatar. The QSAS provides guidelines and standards for sustainable building design and construction practices and evaluates the sustainability of buildings based on a range of factors, including energy efficiency, water conservation, and indoor environmental quality.

The QGBC organizes several events and workshops to raise awareness of sustainable building practices. These events provide a platform for industry professionals to share their knowledge and experiences and to discuss new developments and trends in the field. The QGBC also includes training and certification programs for professionals in the green building industry. These programs aim to educate professionals about green building practices to help

them obtain internationally recognized certifications.

#### **Implementing Green Building Policy in Qatar**

green building has been an increasing priority for Qatar. QNV 2030 and the QNDS both explicitly incorporate sustainability principles where Qatar National Vision 2030 includes goals for environmental sustainability and urban development. The vision emphasizes the importance of preserving the environment and promoting sustainable development in various sectors, including urban planning.

##### **► LEED Certification:**

The Leadership in Energy and Environmental Design (LEED) certification is one example of a globally recognised green building standard. Buildings that achieve LEED certification are recognized as being among the most environmentally friendly in the world where green building standards are increasingly being adopted in the construction industry to ensure energy efficiency and environmental

responsibility.

Qatar was one of the first countries in the Middle East to establish a Green Building Council chapter to promote LEED certified projects where the state has worked on establishing a legal framework to support and enforce green building standards along with choosing recognized green building standards such as LEED (Leadership in Energy and Environmental Design).

Several notable sustainable buildings and developments in Qatar have received the LEED certification that has set the standard for future regional projects indicating a commitment to sustainability.

projects that achieved LEED Gold certification include Qatar Foundation Headquarters, Hamad International Airport, Al Mourjan Business Lounge, Qatar Faculty of Islamic Studies and Qatar National Library, featuring a range of sustainable design elements, such as energy-efficient lighting and air conditioning systems, rainwater harvesting systems, and green roofs.







These projects are just a few examples of Qatar prioritizing sustainable development and green building practices. The country has recognised the importance of sustainable construction and its impact on the environment, human health, and the economy. By incorporating sustainable features into its real estate projects, Qatar is positioning itself as a leader in sustainable development in the region.

► **Green building code**

Qatar's National Development Strategy has targets on green building, including the implementation of a green building code to improve efficiency in construction design which include standards for elements as better insulation and increased shading and reflection.

Implementing a green building policy in Qatar involves a comprehensive

approach that addresses various aspects of sustainable construction and operation. In this regard Qatar has taken into consideration some steps and considerations such as policy development and define objectives in terms of goals of the green building policy including energy efficiency, water conservation, waste reduction, and improved indoor air quality.

In addition, Qatar has conducted public awareness campaigns to educate the public, developers, and construction professionals about the benefits of green building practices and offer training programs for architects, engineers, and construction workers to enhance their skills in sustainable construction practices, as well as working closely with developers and builders to encourage the adoption of green building practices with allocating funds for research and development in

green building technologies and materials.

Qatar has also independently developed one of the region's premiere green building certification systems, the Qatar Sustainability Assessment System (which later became the Gulf Sustainability Assessment System and is now the Global Green Sustainability Assessment System, or GSAS). Significantly, Qatar has hardwired green building into the latest iteration of the Qatar Construction Specifications (QCS), and has mandated achievement of sustainability benchmarks in all new government construction projects.<sup>75</sup> Some large development projects have voluntarily incorporated green building technologies, most notable being the Lusail City projects, Qatar Rail (metro), the World Cup 2022 stadiums, the Ashghal projects (schools & mosques), and the new port and navy base. Qatar has also been making inroads into developing

the residential green building market. In 2012 the Qatar Green Building Council developed the region's first Passivhaus experiment, in partnership with Qatar General Electricity & Water Corporation (Kahramaa) and Barwa Real Estate Company, supported by engineers from Texas A&M University at Qatar (TAMUQ). A villa with sustainability features was developed next to a villa utilizing conventional construction features. Two similar families were moved into each villa. The operating expenses and resource construction of each villa were monitored. During the winter, the passive house generated surplus electricity, which was fed back into the electricity grid.

Sustainable cities in Qatar focus on combining eco-friendly technology with improved urban planning to create more efficient, livable, and environmentally friendly urban spaces.

These cities are designed in a shape that decreases the need for private cars, which contributes to reducing carbon emissions and easing traffic congestion. These cities were designed to conserve water sustainably via the use of modern technologies and practices that reduce water consumption, and to enhance energy efficiency via solar panels that provide electricity and hot water.

► **Sustainable Public Transportation:**

Qatar is investing in public transportation infrastructure to reduce reliance on private vehicles, thus decreasing traffic congestion and air pollution. Projects such as the Doha Metro and the Lusail Light Rail Transit system contribute to more sustainable urban mobility.

Doha tram has contributed to a sustainable urban transportation network through reducing traffic congestion

by providing an efficient and reliable alternative to private car travel.

Trams typically have lower emissions compared to individual cars, especially if the electricity used for the tram system comes from renewable sources. This contributed to the reduction of greenhouse gas emissions and improves air quality. The presence of a tram system encourages residents to choose sustainable modes of transportation, fostering a cultural shift towards more eco-friendly commuting habits.

Metro are generally energy-efficient modes of transportation. When powered by clean and renewable energy sources, they contribute to the city's overall sustainability goals. In addition, the Doha Metro system can attract ridership away from private vehicles, reducing the overall dependence on cars and easing the demand for parking infrastructure.

The State of Qatar is a role model for the rapid transition to the use of clean and environmentally friendly energy sources. The sustainable 'Green Car Initiative' aims to bring the percentage of environmentally friendly cars on the roads in the State of Qatar to 10% by 2030. This initiative is a vital part of the country's vision related to smart cities, as they are sustainable and environmentally friendly environments.

Electric transportation and the use of electric cars are very promising means within the framework of efforts to accelerate Qatar's transition to cleaner, energy-efficient transportation systems. However, promoting and encouraging this large-scale transformation requires adequate infrastructure. This includes increasing the number of charging stations available to road users and ensuring that the stations are operated using renewable energy sources.







**Prominent examples of sustainable cities and buildings**

Qatar has made big efforts to develop sustainable cities and incorporate environmentally friendly practices. The sustainable city which also known as an eco-city or green city, is one that has been planned considering the social, economic, and environmental effects as well as providing a resilient habitat for the current population, all without compromising the ability of future generations to experience the same. Here are some of the most prominent examples of sustainable cities in Qatar:

► **The Pearl Island Qatar:**

An artificial island developed by United Development Company (UDC), is designed as an eco-friendly and sustainable community, with features such as water and energy conservation and using renewable energy sources. The island includes a district cooling system that uses seawater to cool buildings, reducing the need for energy-intensive air conditioning.

As part of its commitment to Qatar's National Climate Change Action Plan, the pearl Qatar seeks to reduce its environmental footprint and carbon

emissions associated with its buildings and facilities by reducing direct and indirect energy consumption in all its offices and buildings and replacing it with renewable energy and equipment that ensures energy efficiency, such as energy-efficient and motion-activated lighting, in addition to rationalizing water use as well as ensuring that the largest amount of water is recycled for irrigation and other purposes with the installation of roof systems to collect rainwater and make use of it.

The pearl Island Qatar aims to be at the forefront of modern mobility in Qatar by converting 50% of its transport from petrol to electric vehicles, promoting alternative modes of transportation such as using water taxis, electric scooters, and bicycles on dedicated routes, as well as providing more charging outlets for electric vehicles throughout The Pearl Island.

► **Msheireb Downtown Doha:**

Msheireb is a regeneration project in the heart of Doha, aiming to transform the old commercial district into a sustainable, mixed-use development. The project incorporates green building standards, energy-efficient technologies, and a pedestrian-friendly design. This sustainable mixed-use urban regeneration project in the heart of Doha incorporates various sustainable design elements, including energy-efficient building envelopes, solar thermal systems, and rainwater harvesting. It also includes a district cooling system that combines groundwater and seawater to cool buildings, reducing the need for energy-intensive air conditioning. Msheireb Downtown Doha has achieved several international certifications, including the LEED Platinum certification, the highest level of accreditation awarded by the US Green Building Council.

Msheireb Downtown is the world's first sustainable downtown revitalization project is, which is particularly noteworthy. Near the Hamad International Airport and in the middle of two major entryways to the city, Msheireb Downtown Doha is ideally situated in the center of Doha, Qatar's ambitious and booming capital city.

The first sustainable downtown redevelopment project in the world, Msheireb Downtown Doha boasts one of the greatest concentrations of LEED (Leadership in Energy and Environmental Design) certified sustainable buildings. All buildings are aiming for LEED Gold certification with a 32 percent energy savings objective, while some structures are aiming for LEED Platinum.

The layout of the streets in Msheireb is intended to draw cool breezes from the Gulf and shield the majority of pedestrian paths from the blazing heat. Buildings are grouped together to provide shade for one another and are painted a light color to need less cooling.



Msheireb Downtown is reducing traffic grid congestion and carbon emissions by reducing the demand for personal automobile use. With more than 5,200 photovoltaic (PV) solar panels that produce both electricity and hot water, the district was built with sustainable water conservation in mind. These

innovative technologies and practices are lowering water use by up to 30%.

A hub for the network, the Msheireb metro station shuttles passengers across the city. Additionally, a tram system that surrounds the whole Downtown region would transport people between various locations on the site, thereby reducing the need for cars in the city.

► **Lusail City:**

Lusail is a major sustainable city project located just north of the capital, Doha. The city is designed to be environmentally friendly, with a focus on green spaces, energy efficiency, and sustainable transportation.

Lusail City aims to become a model for sustainable urban development, with features such as smart city technology, integrated transportation systems, and a focus on green spaces and public parks. The city is also designed to be pedestrian-friendly, with wide sidewalks, bike lanes, and dedicated pedestrian areas.

As Qatar's first and biggest sustainable





metropolis, Lusail City has bold, ground-breaking ideas that support every aspect of the country's National Vision. By incorporating cutting-edge concepts that include sustainability principles into the center of the city planning, Lusail goes beyond the typical concept of a contemporary metropolis.

A cutting-edge District Cooling System, one of the largest in the world and built to save 65 million tons of CO<sub>2</sub> annually, is present in Lusail City. Additionally, the city has a light rail system, a park and ride program, and a network of cycling and pedestrian paths that offer dependable and environmentally friendly transit options.

Every plot in the entire city of Lusail is connected to the Natural Gas Network by the Gas Network, which reduces the need for power, especially for

household cooking and all sizable public entertainment and dining establishments.

The source segregation of two waste fractions, wet and dry waste, is intended and executed in addition to conventional trash collection to enable national treatment facilities. There will be about 420 tons of organic waste that could be burned and 310 tons that could be recycled.

The sewage treatment facility in Lusail has been built such that all cleaned gray water would be repurposed for irrigation. It is a cutting-edge wastewater treatment facility built on a small platform to serve Lusail Development and the Pearl-Qatar, Leqtaifiya lagoon. It uses the most recent submerged Membrane Bio-reactor technology with immersed hollow fiber membranes to provide the highest standards in wastewater treatment and

sustainable environmental solutions.

Smart city concept has been created to provide Lusail inhabitants and tourists with state-of-the-art internal security services as well as the integration of smart metering, smart grid, and integrated traffic control systems across the city. Additionally, the capacity to fully automate homes and workplaces in Lusail will contribute to the operation of the most effective Building Management System (BMS) for every building in Lusail City.

#### ► **Education City:**

A 2,500-acre campus that hosts various international universities, research centers, and student housing that aims to reduce its environmental impact through sustainable technologies and practices, such as solar power, rainwater harvesting, and energy-efficient building design.

The Education City of Qatar Foundation (QF) is an outstanding illustration of how sustainability and green construction techniques can change a space for the benefit of both the environment and people. In Education City, there are several public places, but none are as distinctive as Oxygen Park, a huge 130,000 sq. m green area built close to the Hamad Bin Khalifa University Student Centre.

In contrast to the everyday grind of academic and professional life, Oxygen Park is intended to be a shade-rich, green lung on campus that shows the potential of native and adaptable planting as well as water-efficiency. More than a hundred plant species, including local ones like the Arabic Gum, Ghaf, Samar, Salam, and Sidra trees, may be found in its sculptured gardens.

The West Green Spine in Education City is a 54,000 square meter park that includes a basketball, volleyball, and football court, as well as areas for leisure, exercise, and family fun.

Qatar Foundation intends to significantly reduce the number of automobiles on the whole campus of Education City. A cutting-edge 11.5km tramway is being constructed in Education City to carry students, workers, and tourists across the area. There will be 19 trams operating along it, each 27 meters long and divided into three portions specifically made for Qatar's hot climate.

To combat the excessive heat, the trams will have powerful air conditioning units and protective sun blinds on the roof. Students have the choice to cycle or stroll through secure areas between buildings up until the tramway opens, allowing them to take advantage of the outdoors in fair weather.

The continuous transformation of Education City into a destination for

leisure, education, and wellbeing points the way to a greener and more sustainable Qatar and exemplifies how sustainability concepts may be applied practically to enhance the day-to-day existence of actual communities.

#### ► **Sidra Medicine:**

Sidra Medicine is a state-of-the-art hospital and research center located in Doha. Sidra Medicine, as a healthcare institution, has the potential to influence the broader community and contribute to Qatar's sustainability goals.

A LEED-certified hospital that features

energy-efficient systems, water conservation, and the use of sustainable materials, as well as a green roof and solar panels.

#### ► **Qatar National Convention Centre (QNCC):**

Completed in 2011, the QNCC was the first convention center in the Middle East to receive LEED certification and is considered one of the region's most sustainable buildings. It features a range of energy-efficient and sustainable design elements, such as solar thermal panels for hot water and heating and a rainwater harvesting system for irrigation.







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# CHAPTER 5





# The Green Economy

The cornerstone of investment in Qatar's future

One of the economic sectors that enjoys widespread attention both locally and globally is the green economy, often known as the circular economy. The planet Earth today groans and complains about the damage caused by humans and disrupting the delicate balance of this unique planet due to misuse of Earth's resources, pollution, and the destruction that has struck our wonderful planet in its atmosphere, waters, soil, and depths, which has made nature's wrath inevitable. This is especially true in light of the increasing environmental threats caused by traditional economic and industrial activities, in addition to the negative impacts on the climate and the risks from the depletion of traditional energy sources such as oil, gas, and coal. Hurricanes, floods, melting snow at the poles, rising sea levels, extraordinary temperature rises, droughts, land drift, rising quantities of toxic chemicals in the atmosphere, and even earthquakes have all become a threat to life on Earth.



This harsh reality, from which there is no escape, as scientists say, except by transforming the entire world to a green economy, which means an economy in which carbon emissions are reduced and resource efficiency is increased. This is accomplished through the full use of clean and renewable energy sources such as solar and wind energy, and this includes adopting clean energy in factories, power generation stations, and means of transportation. It also includes recycling non-degradable waste such as glass, plastic, and metal items, as well as managing water in a way that lowers waste in its use on a global level. It involves protecting forests and growing millions of trees worldwide to prevent soil erosion, contribute to oxygen production, and reduce carbon dioxide and other pollutants. Research indicates that if nations around the world rely on cutting-edge scientific technologies, humanity can transition to a fully renewable energy system by 2030. The term “green economy” refers to a broad range of commercial endeavors that seek to minimize environmental hazards and accomplish sustainable development without endangering the environment.

The size of the green economy is notably

expanding on a worldwide scale. It has a present value of eight trillion dollars, and by 2030, it is predicted to grow to over twelve trillion dollars, supporting 380 million job opportunities. Over 3,000 businesses internationally currently have a direct connection to the green economy, and numerous countries and international organizations are in favor of this global trend.

The green economy is receiving obvious government attention at the state level, with legislative support and promotion of investment in various sectors. Qatar’s green economy is predicted to be worth USD 17 billion by 2030, accounting for 10% of Qatar’s GDP. It is estimated to provide 19,000 new jobs. At present, approximately 15% of landfills are recycled.

The wise leadership of Qatar also approved a project to invest in solar energy production and rely on it to generate electricity in the future in Qatar. They even exported this clean and renewable energy to other countries which ensures a profit for Qatar and serves as one of the sources of diversified income, even though the State of Qatar. It is a country that exports natural gas and oil, and while its economic interests

are tied to these essential resources, the decision was made because of the leadership’s strong sense of responsibility for essential global and humanitarian issues such as climate change, the environment, and the future of Earth.

The international conference on climate change and human rights, co-hosted by the National Human Rights Committee, the United Nations Development Programme, the League of Arab States, and the Global Alliance of National Human Rights Institutions, spurred the Qatari government’s shift to a green economy and minimize harmful emissions to the lowest possible level. The government actively encourages the private sector to engage in green economy-related economic activity, and the Qatar Chamber of Commerce and Industry supports this transition by facilitating investments in this sector.

The green economy’s activities, through their link to sustainable development, provide direct support to Qatar’s National Vision 2030 in its multiple economic, social, humanitarian, and environmental pillars. It also helps strengthen Qatar’s credibility as a leader in environmental protection and sustainable development on a local, regional, and worldwide scale.

## Qatar is a promising waste management hub in the Middle East

Qatar is emerging as a prospective Middle East and North African waste management hub. This region produces approximately 6% of total global waste, with disposal methods ranging from random dumpsites to landfills to sorting and recycling facilities. In this context, excellent connectivity and contemporary infrastructure in a country that allows up to 100% foreign ownership in all sectors—the best in the GCC—offer appealing chances in recycling, waste usage as fuel, and material recovery to potential investors.

The sophisticated networks and modern infrastructure in Qatar provide promising opportunities for potential investors in the fields of waste recycling, use as fuel, and material recovery. Qatar, a logistical and commercial center that enjoys unrivaled communication, is ranked first in the Arab world on the Global Financial Security Index, and is proud of its government initiatives. Extensive support for foreign investors to lead the sustainable waste management industry in the future.



There are 4 factors on which the waste management sector in the State of Qatar is based:

- **Recycling:**

the integrated waste sorting and recycling program, as well as Qatar’s second national development strategy, involve the use of recycling technology, such as the usage of approximately 20 % recycled materials in construction projects.

- **Using waste as fuel:**

Qatar, the first Gulf Cooperation Council (GCC) government to implement such a program, generates over 30 megawatts of electricity at the local Solid waste Treatment Center.

- **Material recovery:**

5% of the waste produced in Qatar consists of metals, including iron (70%)

and aluminum (30%).

- **Partnerships:**

The Ministry of Municipality has launched an investment platform entitled “opportunities” to foster partnerships between the public and private sectors and to profit from the opportunities provided by Innovative Technology in this field. The Public Works Authority, ASHGHAL, has launched the first joint project between the public and private sectors for wastewater treatment worth 1.5 billion dollars in order to rationalize water consumption and the use of unconventional water resources, which could attract local and foreign investment similar to other joint projects between the public and private sectors in Qatar.

In order to promote economic growth and protect the nation’s environmental capital, the Waste Management Market in

Qatar has been bolstered by nine facilities that monitor it besides an overwhelming dedication from the government to recycling. Adding to that, recycling 15% of all municipal waste, the Qatar National Environment and Climate Change Strategy aims to close and rehabilitate unhealthy landfills. It also offers lucrative opportunities across the whole waste management value chain.

In terms of sustainability planning, Qatar has made investments in the development of circular system cities and areas, such as Lusail and Msheireb, in the downtown area of Doha. These areas will serve as role models for sustainable living, with suction-based waste collection, wastewater treatment facilities, central cooling, central facilities, and the Global Sustainability Assessment System’s foundations being a standard rather than the exception.





In the upcoming decades, establishing this sustainable model will become more and more significant. While non-governmental and international organizations play a vital role in promoting the use of the circular system, investors and businesses must take the lead in expanding this industry. Allocating investments to the sustainable waste management sector will have a double impact that supports the accomplishment of the Sustainable Development Goals set by the United Nations. First, it will result in direct and indirect economic benefits, as industrial waste will account for half of the global waste market's revenue. Secondly, there will be long-term positive effects on environmental protection, with an important share of the world's economic output being environmental diversity.

Space is a limited resource on our planet, and as a consequence of expanding populations and industrialization, waste is gradually taking up more and more of

it. By 2050, it is expected that the annual amount of waste produced worldwide would have reached approximately 3.4 billion tons. Even though this is an alarming figure, it also presents bright prospects for long-term investment in waste management and the use of technology in a sophisticated circular economy.

#### **The circular economy and the World Cup:**

Since Qatar was awarded the right to host the 2022 World Cup, interest in the circular economy has intensified. This is because the competent authorities are aware that there is significant waste produced during the construction and equipping of stadiums, as well as during the flow of tourists and other events. Even after the World Cup ended, there has been ongoing discussion about the potential benefits of recycling waste and integrating it into economy cycle.

According to the competent authorities,

the state of Qatar focused on the recycling of construction waste, particularly the "waste of the Qatar World Cup championship," posing a significant challenge, where the state of Qatar made significant efforts with contractors and others in order to show the importance of recycling and its economic value to the state.

Qatar's win in hosting the 2022 World Cup was an important milestone toward improving its green economy indicators, since the state of Qatar's leadership pursued a steady transition toward a green economy. This was evident during the activities of the Qatar World Cup 2022, where the first World Cup in the world was equal to net zero carbon emissions, thanks to the use of solar energy in cooling stadiums, and the Supreme Committee for projects and legacy estimated that the waste lifted from the FIFA World Cup Qatar 2022 stadiums amounted to about two thousand tons, with 80% of

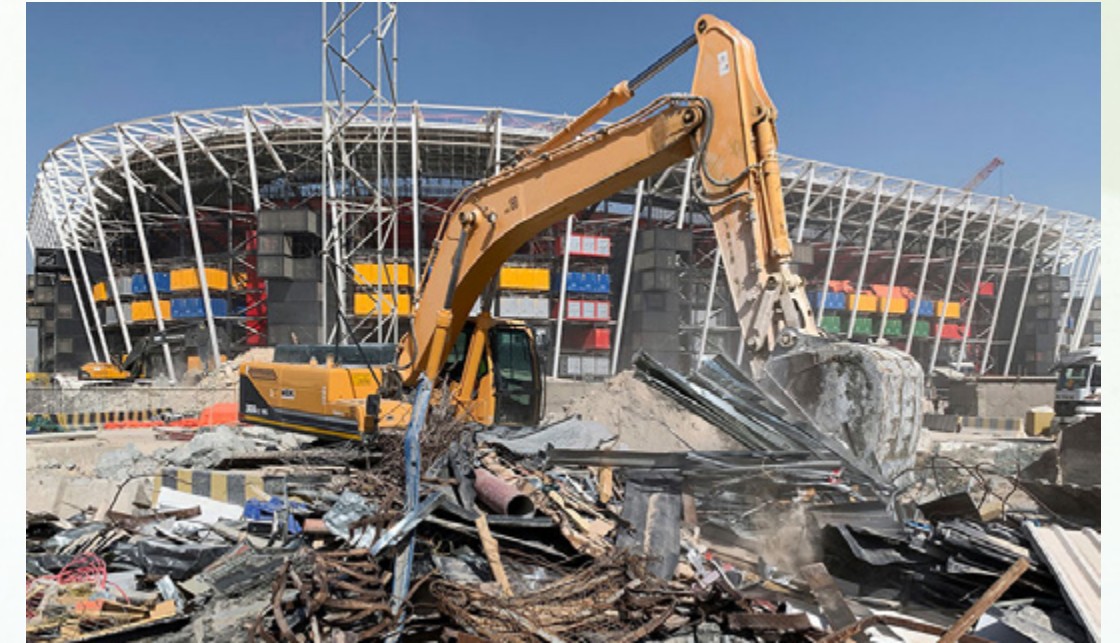
it being recycled. 54% of this amount was converted to organic fertilizer, 22% to plastic, 14% to paper and cardboard, 8% to glass, 2% to metal, and 2% to electronics, and the committee was successful in recycling 70 to 80% of the stadium construction waste. Also, using 90% of the remnants of the old Ahmed bin Ali Stadium in the new construction operations of the stadium.

#### **The role of the Qatari private sector:**

The private sector in Qatar is expected to play a critical part in the development of the circular economy, with investors and businesses playing a key role in expanding this industry. Directing investments toward a sustainable waste management sector will have a double effect that will assist in the accomplishment of the United Nations Sustainable Development Goals, as industrial waste will be the largest source of revenue in the global waste market by 50%.

As consequently, it is critical to encourage and create the private sector in this field, as well as introduce technology and qualified skilled labor, especially as Qatar prepares for increased tourist traffic following the World Cup experience, and an open economy, especially in the presence of a complete infrastructure and in such conditions which assist in the growth of the recycling industry and economies.

In addition to copper waste, wire scraps, glass, cardboard paper, food packaging, and tire waste from manufacturing cars that is used for stadium and road flooring, the circular economy is starting to permeate some significant industries. Currently, many factories invest in this direction and produce plastic that is then recycled.



The circular economy provides numerous benefits, the most important of which are reduced spending, rationalized consumption, reduced waste of raw materials, the launch of recycling processes, manufacturing, development, and use, maintaining optimal and longer-term use of products, equipment, and infrastructure, which improves resource productivity, as well as being an important means of employing labor and the recovery of agriculture, trade, and transportation.

#### **Green funding in Qatar: opportunities and challenges**

The COVID-19 pandemic has not only hindered the achievement of the Sustainable Development Goals but has also had a substantial influence on national economies and the global financial system. The Global Human Development Index, which is based on a combination of health, education, and living standards indicators, is estimated by the United Nations Development Program to have declined for the first time since 1990 during the corona pandemic. This indicates that while the

pandemic's effects presented significant challenges, they also offered significant opportunities for advancing the 2030 Agenda and the Sustainable Development Goals.

Faced with the further challenges caused by climate change, governments have committed to a number of policy measures that support green recovery in order to restore their economies while protecting people's and the planet's interests. The OECD estimates that countries' public resources allocated to support the green recovery total at least 312 billion US dollars. In Muslim-majority countries, these measures open up enormous prospects for green finance in general, and green Islamic financing in particular.

In light of its National Vision 2030, and in order to strengthen efforts to diversify its economic resources away from reliance on hydrocarbons, the state of Qatar is carrying out a number of initiatives that aim to mitigate the harmful consequences of climate change. These measures include increasing the percentage of solar energy use in





the national power grid to over 20% by 2030, promoting optimal water use, improving air quality, waste recycling, and increasing vegetation, as well as the country's commitment to host the first "carbon neutral" football World Cup using solar-powered stadiums and water- and energy-saving cooling and lighting technology. It is worth mentioning that Qatar is a signatory to the Paris Agreement on Climate Change and supports a number of worldwide initiatives aimed at minimizing the adverse effects of climate change. Green finance can be used to fund all of these initiatives. In this sense, Qatar may take advantage of the following four global financial sector tendencies to promote green financing and strengthen green recovery initiatives:

**1. Socially responsible investment growth, environmental and social investment awareness and governance:**

Socially responsible investment, environmental and social investment, and governance are among the world's fastest growing investment sectors. They are both inspired by an increasing understanding of social

and environmental responsibility. According to data issued by the Global Alliance for Sustainable Investment, global sustainable investment volume in the five major markets reached USD 30.7 trillion at the beginning of 2018, a 34 percent growth in two years. Europe, the United States, Japan, Canada, Australia, and New Zealand are among the five major markets. Green finance tools and products can attract a growing number of socially responsible investment investors who want to align their portfolios' social and environmental values.

**2. The upward trend of Islamic finance:**

According to the Islamic Financial Services Council, the total value of the Islamic financial services industry through its three main sectors (banking, capital markets, and takaful) was estimated at USD 2.44 trillion in 2019, representing a 11.4 percent annual growth in US dollar assets. This industry's overall value is estimated to reach 3.8 trillion dollars by 2022. Qatar is a global center of Islamic finance, with Islamic finance

assets accounting for more than 20% of the local financial systems' assets. With the recent development of green Islamic finance, Qatar now has the opportunity to strengthen its position as a regional leader in the field of sustainable finance by promoting synergies between the growing Islamic and green finance markets.

**3. Financial innovation to foster sustainability:**

According to the United Nations Conference on Trade and Development (UNCTAD), meeting the Sustainable Development Goals will necessitate saving between 5 and 7 trillion US dollars, with a 2.5 trillion US dollar investment gap in developing nations. According to the International Renewable Energy Agency, the net additional investment needed to deploy renewable energy solutions is USD 1.4 trillion, or around USD 100 billion per year on average between 2016 and 2030. To close the finance gap, the private sector must participate in green investments. That is why many green tools and products have been

developed across various sectors of the financial industry. As a result, several green tools and products have been developed across many financial industries. Retail banking products, such as green loans and mortgages, green corporate products and investments, green project financing, green venture capital and private equity, and green capital market instruments, such as Green Investment Funds, green bonds, and instruments, are instances of these instruments.

**4. Merging sustainability goals into national strategies:**

Many governments around the world have incorporated sustainability goals and green finance roadmaps into their national strategies, either through a top-down approach in which green finance frameworks and rankings are coordinated at the local level (as in China) or through market-led collaborative actions. Furthermore, several countries

developed incentives in the form of subsidies and tax breaks to overcome obstacles to private-sector investment, such as large upfront costs, extended investment timelines, and higher perceived risks. Qatar may benefit from these experiences by developing a distinctive green finance model in the area through cooperation and partnership programs.

**Green Qatari instrument and bonds.. A fast growing market:**

Green finance has dramatically transformed the financial industry, and its sub-sectors, such as banking, credit, and microfinance, have been at the forefront of adopting environmentally friendly practices in recent years. It is worth noting that in 2019, the global green bond market reached 258 billion pounds. Indeed, economies around the world are expected to invest 90 trillion dollars by 2030 in order to meet their Global Goals for sustainable development and climate change. London is currently

regarded as the beating heart of green finance development. However, with 10.3 billion dollars in transactions in the first quarter of 2019, India occupied the second largest green bond market.

The green bond market has risen to more than USD 100 billion in yearly bond issuance. Green Finance has several business opportunities for financial institutions worldwide due to its rapid development. Despite the rapid increase, a significant amount of windfall gains are required to promote the transition to a low-carbon society. Green instruments are a novel way of funding green infrastructure that has the potential to become a new asset class for both Islamic and socially responsible investors.

Despite the fact that Qatar released USD 28 billion in bonds and instruments in 2019, the market is still dominated by government issues and commercial banks in corporate issues, with the exception of EZDAN instruments issued in 2016 and 2017. The growth of green instruments in the UAE with the empowerment system may assist in facilitating the process of issuing corporate instruments, consequently increasing market liquidity.

Promoting green recovery, in line with the goals of diversifying the country's economic resources and mitigating climate change, demands the construction of an enabling structure for the development of green finance in Qatar. The development of a variety of locally bankable green projects, more market knowledge, and better synergies between Islamic finance and green financing will serve as the foundation for future innovations and policy initiatives such as green labels, frameworks, and incentives.





### The Qatari banking sector.. A major role in supporting green finance initiatives:

The banking sector and financial institutions play a vital role in promoting and supporting green finance initiatives by contributing to the development of the green economy through a variety of means, including financing and green loans, through which banks can provide financing for environmentally sustainable projects such as renewable energy facilities, energy-efficient infrastructure, and sustainable agriculture. They may offer low-interest loans and financial solutions to encourage companies and individuals to invest in green initiatives. Banks can issue green bonds to raise funding for environmentally friendly projects. These bonds are especially designated for environmentally friendly initiatives, and the proceeds are channeled toward initiatives that have a good environmental

impact. Banks are also critical in evaluating and managing the risks associated with green investments. They can gain skills in assessing projects' environmental, social, and governance factors (ESG) to ensure the long-term viability and sustainability of their investment portfolios. Environmental, social, and governance considerations can be integrated into bank decision-making processes. This entails examining not only financial risks, but also the environmental and social impacts of investments. This integration can aid in the identification and support of projects that align with sustainability objectives. Banks can also advise clients on sustainable investment alternatives and assist them in navigating the difficulties of green finance. This involves advising on how to incorporate governance, social, and environmental

considerations into investment strategies, as well as cooperating with governments, non-governmental organizations, and other stakeholders to achieve sustainable development. Partnerships can promote the exchange of knowledge, resources, and skills in support of green projects, and banks can implement sustainable and responsible procurement practices in their own operations. This includes picking environmentally friendly vendors and suppliers and carrying out energy-saving techniques at their facilities.

Some of Qatar's top banks have been active in advancing sustainability and green financing. The following are some of the most vital Qatari banks that have expressed an interest in sponsoring environmental and sustainability initiatives:

#### Qatar National Bank "QNB":

QNB is Qatar's largest bank, which has demonstrated its dedication to sustainability. The bank is involved in green project financing as well as encouraging sustainable practices. In September 2020, QNB issued the first green bond in Qatar, with a tranche of 600 million USD, under the medium-term bond program, with a five-year maturity under the green, social, and sustainability bond framework, to fund projects related to energy efficiency, clean transportation, renewable energy, sustainable water and wastewater management, environmentally sustainable management of living natural resources and land, affordable housing, and pollutant reduction. Green buildings, progress and socioeconomic empowerment, and prevention and control.

#### Al Rayan bank:

Al Rayan Bank is a Qatari Islamic bank that invests in initiatives that adhere to environmental and ethical values. The bank stresses Islamic finance principles such as ethical investing and responsible business operations.

#### Doha Bank:

Doha Bank is an active participant in green finance. As part of Qatar Vision 2030, the bank has introduced a special green car loan facility that is exclusively available for the purchase of environmentally friendly cars, which is designed to encourage clients to buy energy-efficient vehicles in order to build a sustainable and efficient environment. The bank has also launched internet banking, paperless banking, SMS banking, ATM banking, and telephone banking. Doha Bank has also launched its own channels, including Doha Souq, money transfers, and online bill payment. In addition, the bank launched a green credit card and a green account. Doha Bank has an exclusive green banking website dedicated to enhancing community environmental safety by handling public and private needs.

#### Qatar Islamic Bank (QIB):

QIB, a prominent Islamic bank in Qatar, has demonstrated its dedication to sustainability and ethical banking practices. Islamic banks are potential backers of green finance efforts because the tenets of Islamic finance are frequently in line with moral and sustainable business practices.

#### Commercial Bank of Qatar:

The Commercial Bank of Qatar has demonstrated its adherence to corporate social responsibility by taking part across multiple environmental and social initiatives.

#### Qatar Development Bank:

The Qatar Development Bank (QDB) has set up a green finance program to help environmentally friendly projects in the National Business System. The program includes an array of sectors and small and medium-sized businesses that manufacture green products with a positive environmental impact, as well as businesses that incorporate technological solutions or environmentally friendly processes into their operations with the goal of lowering energy costs and addressing environmental issues caused by their business activities. This trend is consistent with the bank's strategy of supporting environmentally friendly projects that meet the needs of the current stage at the national and global levels, as the bank moves in accordance with its corporate responsibility to support entrepreneurs in accordance with the country's national vision of building a sustainable knowledge-based economy.

Entrepreneurs who are interested in transforming their businesses into environmentally friendly enterprises and producing sustainable products can apply for financing through the bank's website. The green finance program offers companies competitive and advantageous profit rates.





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# CHAPTER 6

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# Qatar's energy sector

an urgent demand to lower carbon emissions

Over the past two centuries, there have been notable improvements in living standards due in part to the strong correlation between energy and human growth as well as the increased availability of clean, affordable, and reliable fuels. As in the past, controlling the effects of human advancement on the environment is essential to advancing humankind.

The growth of carbon dioxide emissions related to energy will slow down during the next few decades, despite the fact that population and living standards will expand dramatically as long as energy efficiency improvements continue and efforts to adopt low-carbon fuels increase wherever possible. By 2030, carbon dioxide emissions worldwide are probably going to peak before starting to drop.

As people and countries seek ways to lessen the hazards of global climate change, viable solutions that do not put at risk the cost or reliability of the energy they demand will be required. This critical issue was discussed at the 2015 United Nations Climate Change Conference in Paris. Many countries are currently reducing their carbon dioxide emissions as a percentage of their GDP. The carbon intensity of the global economy is expected to reduce by half by 2040, with considerable contributions from both OECD and non-OECD countries. Gains in energy efficiency are likely to play a substantial role in this objective, as will a gradual but significant shift to lower-carbon-intensity energy types.

As a result of these changes, globally, energy-related CO2 emissions are predicted to peak around 2030 and then begin to drop. In 2040, global CO2 emissions are expected to be only around 10% of what they are today. It is also expected that governments will enact policies that impose high costs on

energy-related CO2 emissions, and the implicit cost in OECD countries will reach about \$80 per ton in 2040. China and other leading non-OECD countries are anticipated to follow OECD policies.

In OECD countries, energy-related CO2 emissions are already declining, while efficiency and cleaner fuels are more than offsetting the rate of economic expansion. Emissions in OECD countries are predicted to drop by 20% until 2040, with the OECD countries' role in global emissions lowering from less than 40% to less than 30%. Europe's economy is expected to remain the least carbon-intensive of any major area.

Nevertheless, by 2040, carbon dioxide emissions in countries outside the OECD are predicted to rise by a third. China's emissions are predicted to peak by 2030 and then decline by 10% until 2040, when they would account for approximately 25% of world emissions, more than twice that of the US or India. By 2040, emissions in China and the OECD countries should be more than offset by the growth in India and other developing countries. However, emissions in these countries will still be rising.

### Options for dealing with long-term climate change issues:

Countries and consumers aspire to maximize the value of their limited financial resources on energy-related expenditures while decreasing

greenhouse gas emissions. The greatest value, according to expectations, will be found in the majority of countries not through subsidies or mandates for high-cost alternative technologies but rather through open market competition among a wide range of feasible, lower-carbon options. To this end, the US Congressional Budget Office has suggested for years that putting a clear and dependable price on carbon dioxide emissions is the most cost-effective way for society to reduce emissions.

The most economical ways to reduce greenhouse gas emissions and the incentives for doing so will be evident under a carbon cost strategy. For instance, it is evident that increasing the fuel efficiency of traditional gasoline-powered cars in the US will lower emissions more affordably than increasing the usage of costly electric vehicles. In the power generation sector, employing natural gas in lieu of coal is also a more affordable way to reduce emissions than constructing new wind or solar power plants.

### The Qatari experience in combating carbon emissions:

The link between economic growth and environmental degradation is a contentious issue, with the pressing question being whether there is a trade-off between the sustainability of economic activities and the preservation of natural resource conditions or whether





economic growth can coexist with environmental protection measures. The direct link between the use of fossil fuels and environmental degradation has offered an intriguing policy dilemma. Burning fossil fuels emits carbon dioxide and other greenhouse gases into the atmosphere, trapping heat and contributing significantly to climate change. High industrial activity, on the other hand, paired with rapid growth in the population, is increasing pressure on energy demand.

In the case of Qatar, the nation has made notable economic progress in recent decades. Nonetheless, Qatar must choose between boosting its economic development and lowering carbon dioxide emissions. Qatar is an interesting country because of its strategic mandate to support sustainable development in addition to other sectors. In terms of GDP per capita, the World Bank ranks Qatar

among the richest nations in the world. The economy of the nation is primarily reliant on the production of oil and gas, which accounts for more than 50% of GDP, 85% of revenues from exports, and 70% of government revenue. Doha is an important player in the liquefied natural gas market. In order to protect the environment and fulfill climate change goals, the State of Qatar is working to support policies that will increase energy efficiency, diversify the energy mix by adding more renewable energy sources, encourage technological advancements that will improve energy efficiency in the desert climate, and put energy demand management programs into place. The State of Qatar has increased activities and programs to diversify the economy and decrease its reliance on imports, all while serving domestic demand and working to reconsider the Sustainable Development Goals.

#### Accomplishing carbon neutrality in all country initiatives:

Achieving carbon neutrality is an objective that the State of Qatar has taken into account in all of its initiatives. For example, because all World Cup stadiums and infrastructure had to adhere to stringent sustainability criteria, Qatar organized the first World Cup ever to be carbon-free, which the country hosted at the end of 2022. The eight stadiums that were used for the football championship were built, along with several programs for recycling and air quality monitoring stations. Furthermore, Qatar is becoming more self-sufficient in a number of areas, such as transportation and food production, which makes it a model for overcoming obstacles to achieve economic growth. This was also visible in total carbon emissions, with per capita carbon emissions declining by 13% in 2018 compared to a historic high in 2000.

Total carbon emissions have increased since then, but at a slower rate, indicating that Qatar is seeing relative expansion. From 2008 to 2018, a 1% increase in GDP resulted in a 0.65% reduction in carbon dioxide emissions, from 0.65% to 0.44%. This drop is crucial to Qatar, where many emission-cutting initiatives have been undertaken.

Despite recent reductions in Qatar's total emissions, Doha is working to support policies that increase energy efficiency, diversify the energy mix by introducing more renewable energy sources, support technological development to improve energy efficiency in the desert climate, and implement energy demand management programs to maintain the same. The declining trend and achievement of climate change targets are becoming increasingly significant.

#### Qatar's path towards sustainability... developing solutions for carbon use and storage

The urgency of coping with the consequences of climate change has never been clearer. Renewable electrical energy alone will be insufficient at a time when signatory states to the Paris Climate Agreement seek to mobilize their efforts to prevent global warming and decrease carbon emissions at the sectorial level. As a result, focus should be made on employing a variety of technologies, such as low-carbon hydrogen, bioenergy, and carbon capture, utilization, and storage (CCUS) technologies, to play a significant role in reaching these ambitious goals and aspirations. Indeed, carbon emissions from sectors such as oil and gas, steel, aluminum, and cement production can benefit from carbon capture, use, and storage technology, and by 2050, up to 10 billion tons of carbon dioxide

must be removed from the atmosphere annually, according to average estimates of several 1.5°C path scenarios considered by the UN Intergovernmental Panel on Climate Change. . Despite the potential of carbon capture, use, and storage technology, the delay in its adoption has lowered expectations. This technology has been known for decades, but some countries have only recently made substantial headway in implementing and improving it, except for the past ten years. Nevertheless, despite these advancements, an internationally accepted technical framework for the application of carbon capture, utilization, and storage technologies remains elusive. This can be attributed to a number of things, such as the high implementation costs of this technology, the absence of all-encompassing government regulations and incentives, and the necessity for additional research and development to lower costs and increase efficiency. Across the CUS value chain, about 300 projects are now in various stages of completion. There are only 35 projects

in the commercial operations stage, and together they sequester 45 million tons of carbon dioxide, which represents about 0.12% of total global carbon dioxide emissions in 2022, when global carbon dioxide emissions from the energy sector reached a new record level of more than 36.8 gigatonnes.

With multiple projects under development, this cutting-edge technology has the potential to mitigate climate change by capturing about 300 million metric tons of carbon dioxide emissions annually by 2035. This is approximately ten times the operational capacity of carbon capture, utilization and storage technology as it stands today, nevertheless it still far below the International Energy Agency's aim of 4,000 million metric tons of carbon dioxide annually by 2035 in order to fulfill the 1.5 degree Celsius path's objectives.

#### Qatari leadership in carbon capture, use and storage technology

In order to accelerate sustainable development goals and make the







transition to a diversified, knowledge-based economy, the State of Qatar has set an ambitious national goal to reduce greenhouse gas emissions by 25% by 2030. This goal has emerged as one of the main priorities of the Qatar National Vision 2030. With the adoption of these audacious objectives, the State of Qatar demonstrates its determination to tackle climate change and lessen its environmental effects.

As a major contributor to the global energy market, Qatar has an unusual opportunity to pioneer carbon capture, utilization, and storage technological projects. Qatar has made significant progress in this area. Leading local energy companies recently collaborated with global behemoths to develop a roadmap for carbon capture technologies. Furthermore, Qatar held the Middle East's first carbon capture, storage, and utilization forum, emphasizing the country's commitment to profiting from the benefits of this technology. Qatar

is investing extensively in facilities for carbon capture, utilization, and storage technology as part of its efforts to manage carbon emissions and promote carbon emission reduction initiatives. By 2035, the country intends to store more than 11 million tons of CO<sub>2</sub>. Such facilities, with their colossal capacity, are expected to play a major part in the country's decarbonization efforts. According to a significant local sustainability report published in 2022, the country has amassed around 3.8 million tons of carbon dioxide since 2019, with production capacity reaching approximately 2.2 million metric tons annually until the end of 2021.

The State of Qatar will be able to lower carbon emissions and activate its contribution to the field of regional and international collaboration aimed at developing technology for carbon capture, utilization, and storage by defining a comprehensive roadmap for carbon capture, utilization, and

storage. This roadmap should prioritize R&D, public-private partnerships, and the incorporation of carbon capture, utilization, and storage technology into current sectors. Furthermore, Qatar may use its global leadership in natural gas production to stimulate the use of blue hydrogen and minimize carbon emissions. More, as well as encouraging the use of sustainable energy sources.

Developing and scaling up carbon capture, utilization, and storage technologies is important to meeting the Paris Agreement's objectives. The State of Qatar has the chance to consolidate its leadership in this field, but it will necessitate commitment from policymakers and stakeholders throughout all sectors. Qatar will be able to take significant strides toward a more sustainable future by building a thorough road plan for the dissemination of this promising technology, as well as boosting regional and worldwide cooperation.

To scale up CUS projects, Qatari authorities as well as companies must work with global partners to speed action in four essential areas:



**1. Create an attractive market:**

Policymakers must support an advanced and streamlined approach to regulatory requirements and licensing. At the same time, companies and all others across the value chain should activate their efforts to cooperate in areas where the required regulations and incentives are available. Globally, governments can accelerate the spread of CUS technology by providing tax incentives, grants and other financial support measures, as well as simplifying permitting processes through clear regulations.



**2. Stimulating global demand for low-carbon products and services:**

Global cooperation and government action are essential to creating stable environments for investments in carbon capture, utilization and storage technologies, which is achieved by clear and sophisticated regulations. Our research shows that the value of low-carbon products and services can be increased, with a global focus on product carbon intensity, and will serve as a key catalyst and enabler in deep decarbonization efforts across entire sector supply chains.



**3. Cooperation to pick up the pace of accomplishment:**

Long-term success will depend on strengthening partnerships and alliances and moving forward with shared projects as CUS centers and joint systems spread globally. In the end, cooperation amongst governments, investors, and sector-level actors speeds up the development and spread of carbon capture, utilization, and storage (CCUS) technology by sharing risks, pooling resources, and generating economies of scale.



**4. Emphasizing technical innovation:**

It will be critical to see a decline in the cost of the technologies used to separate carbon dioxide from other greenhouse gases as carbon capture, utilization, and storage technology spreads. The energy used by carbon capture, utilization, and storage (CCUS) technologies needs to be given more attention, especially when these technologies are used in atmospheric flue gas streams. This will probably necessitate the development of novel and inventive technologies. Determining the future generation of these necessary technologies will be heavily reliant on research and development.





**Qatar Energy's sustainability strategy:**

Qatar Energy prioritizes reducing the company's ecological footprint and enhancing the versatility of the country's biodiversity through the use of natural solutions that lessen carbon dioxide emissions and improve the local environment in order to raise the standard of living. As a major energy producer, Qatar Energy has reaffirmed its commitment to the responsible production of clean energy at reasonable prices by launching its updated sustainability strategy, which includes multiple initiatives to reduce greenhouse gas emissions. The company has implemented numerous steps and initiatives that help reduce carbon emissions.

Qatar Energy wants to increase its operational capacity to capture and store carbon dioxide in the region, as well as its ability to inject more than 2.2 million tons of carbon dioxide annually, in order to capture more than 11 million tons of carbon dioxide annually by 2035. These measures will help reduce carbon emissions in liquefied natural gas facilities in Qatar by 35% and in exploration and production facilities by at least 25%.

The updated plan supports Qatar Energy's dedication to environmental protection and enhancement, as well as achieving a balance of economic, social, and environmental aspects that are consistent with Qatar's National Vision 2030. The strategy also reaffirms Qatar Energy's commitment to handling social challenges in a competitive and complex energy environment while also striving for a top-

notch safety culture that ensures a safe and healthy environment for all people and communities in which Qatar Energy operates. Qatar Energy's strategy aims to generate 5 gigatonnes of solar energy by 2035, bringing the company's total solar energy capacity to 1,675 megawatts. All solar energy generation projects under Qatar Energy must be completely integrated.

These steps are regarded as critical for Qatar Energy to cement its position in the field of renewable energy and to follow its sustainability strategy, putting Qatar Energy on the right path to accomplish its sustainability objectives and benefit from domestic renewable energy sources. It also achieves a slew of advantages, including competitive energy production, less reliance on gas, lower carbon emissions, and improved environmental conditions. In addition, the project employs single-axis moving photovoltaic cell technology.

With strong government policies supporting the use of renewable technologies to contribute to global climate change efforts, national

companies in Qatar are demonstrating their commitment to sustainability and making the most of the country's natural resources by pouring huge sums of money into renewable energy projects. The companies additionally benefit from Qatar's environment, which is favorable to solar energy because the sun never sets there throughout the year. Renewable energy is now a commitment to investing in sustainable energy and technology rather than just an economical choice for protecting and preserving the state's resources. Achieving social, economic, and environmental goals all at once would be facilitated by this shift, and acknowledging the significance of renewable energy technology for sustainable development, the State of Qatar is persisting in its investments in this field.

**Most prominent renewable energy projects:**

- **Al-Kharsaa solar power station:**

Al Kharsaa Station is one of the State of Qatar's strategic initiatives, which includes building projects that minimize gas and heat emissions. The station helps reduce carbon dioxide emissions by one million tons per year. The Al-Kharsaa station's location was determined after extensive scientific studies to determine the best locations that achieve the highest possible operational efficiency and maximize the project's economic value, taking into account the geological, environmental, and societal impacts of establishing this station.

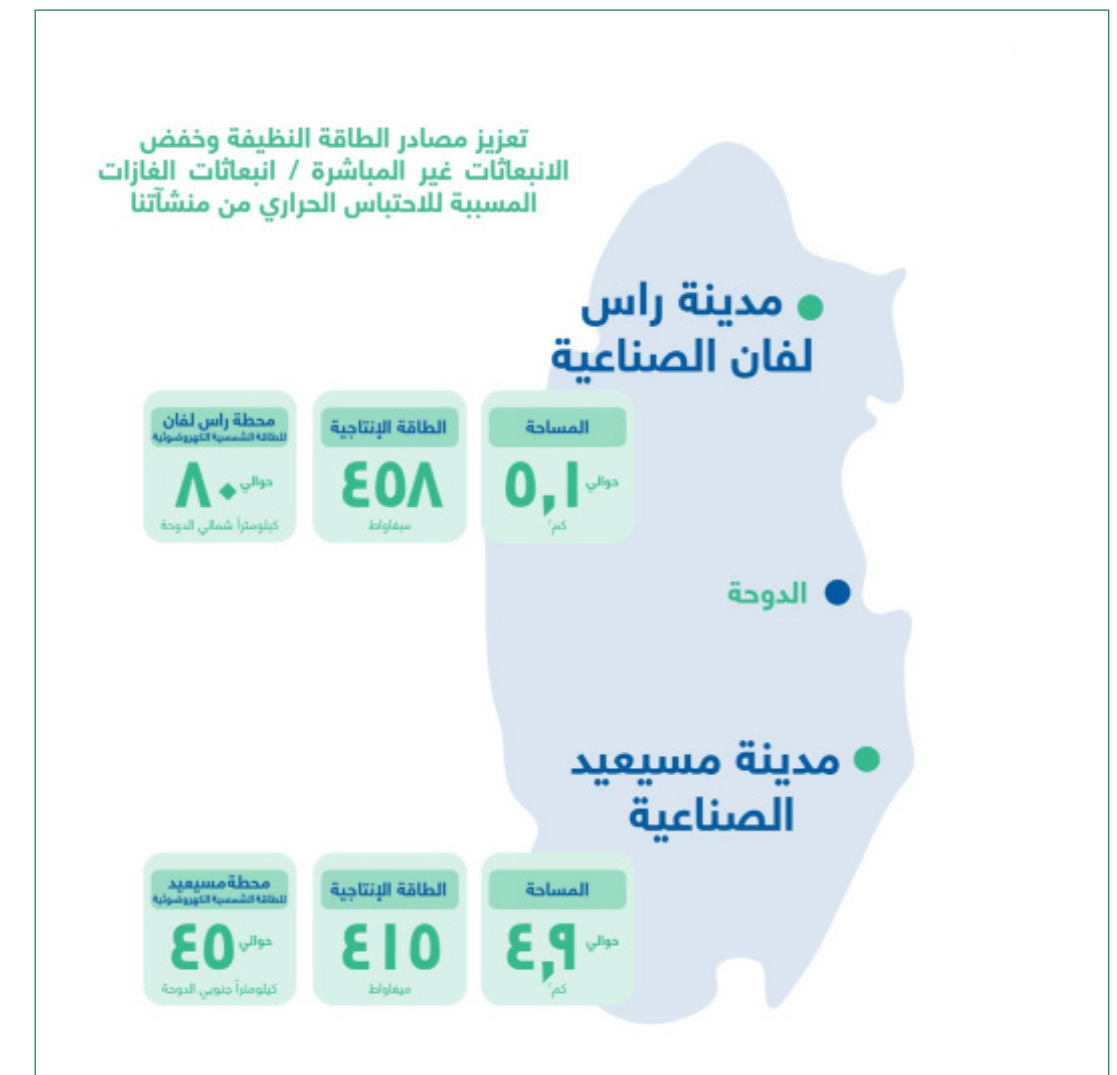
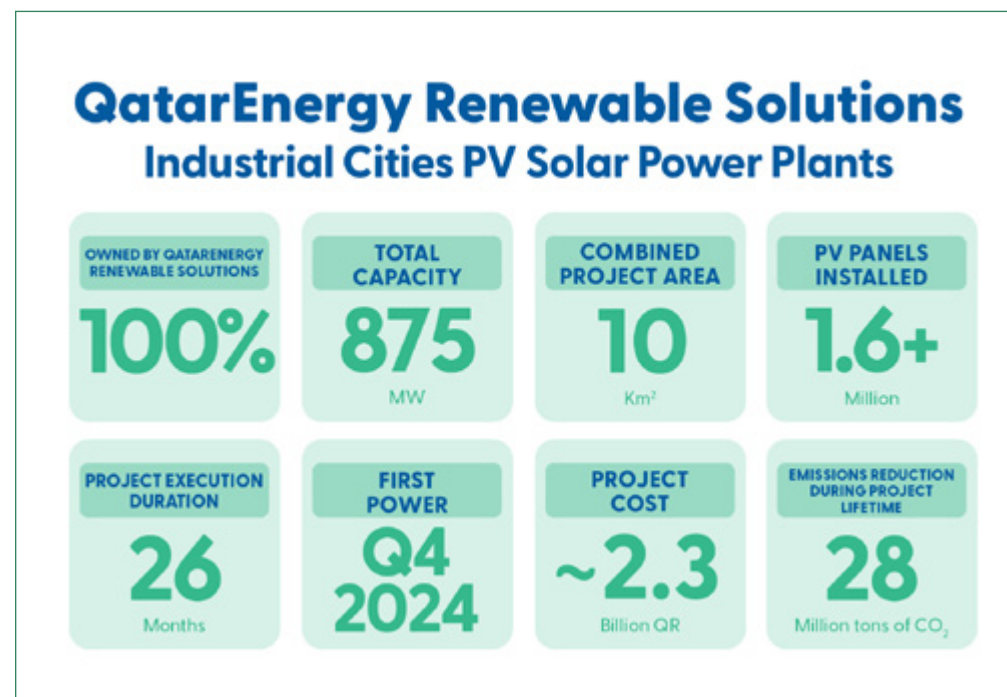
With an 800 megawatt capacity, the Al Kharsaa solar power station is the first in the State of Qatar and among the largest in the region for its type of station. Covering an area of more than 10 square kilometers, the station is equipped with more than 1.8 million solar panels mounted on metal bases.

The panels use technology that tracks the sun's movement from east to west to optimize the use of the land area and increase the station's daily production.

The station also invests in operation and maintenance, such as deploying robots to clean solar panels at night using purified water in order to increase the station's efficiency. The Al Kharsaa solar power station began producing electrical energy to the Qatar National Grid with the start of the first stage's production, which totaled to 400 megawatts. The capacity was raised to the full production capacity of 800 megawatts with the completion of the second

stage of the project, with the station covering around 10% of the power demand through the national grid during peak loads. The construction of this station is part of the Qatar Energy Sustainability Strategy, which solidifies Qatar's commitment as a major energy producer to the responsible production of clean energy at competitive costs to aid in the switch to low-carbon energy.

The Al Kharsaa power station project includes new solutions and innovations in solar energy technology, such as the use of double panels, which save space by converting direct and reflected solar radiation into electrical energy; the







use of the latest automated systems to track the sun to make the most of the solar brightness; and the use of robots in the continuous cleaning process of solar panels to maintain production efficiency and reduce station operating expenses.

- **Ammonia Project-7:**

Qatar Energy Renewable Solutions Company and Qatar Chemical Fertilizers Company signed a contract in August 2022 to construct the Ammonia-7 facility, the world's largest blue ammonia project, for approximately \$1 billion. The project is significant proof of Qatar Energy's concrete actions to lower the carbon intensity of energy products, as well as an essential cornerstone of Qatar Energy's strategy for sustainability and transition to low-carbon energy.

When the carbon dioxide released during traditional ammonia production is captured and preserved, blue ammonia is formed. Blue

ammonia, which is transportable by normal ships, can then be utilized in low-carbon power plants.

As part of its efforts to implement its sustainability strategy, Qatar Energy has invested in blue ammonia and expanded carbon dioxide capture and storage facilities. These investments highlight the company's commitment, as a major energy producer, to the responsible production of clean, affordable energy to support the shift to low-carbon energy.

- **Power stations (plants) in industrial cities**

Qatar Energy has granted engineering, procurement, and construction contracts for its industrial cities' solar energy projects. This project calls for the construction of two massive solar photovoltaic power plants in Mesaieed Industrial City and Ras Laffan Industrial City. The project is planned to start producing power by the end of 2024.

The value of investments in the solar energy stations project in Qatar Energy's industrial cities is around 2.3 billion riyals, and these stations contribute to decreasing direct emissions by more than 28 million tons of carbon dioxide over the project's lifetime.

The production of the two power stations assists in lowering greenhouse gas emissions from Qatar Energy's facilities in the industrial cities of Mesaieed and Ras Laffan, particularly the projects to expand liquefied natural gas production from the North Field, as well as increasing grid capacity in other locations.

As the cornerstone of a sustainable future, the solar power plant project in industrial cities is seen as a significant step towards putting the Qatar Energy Strategy into action, which aims to diversify the State of Qatar's energy sources and increase reliance on highly efficient renewable energy.

## OFFICIAL SPONSORS





ناصر بن خالد للسيارات  
NASSER BIN KHALED AUTOMOBILES

Nasser Bin Khaled Automobiles is the authorized general distributor for the prestigious brands Mercedes-Benz, Mercedes-AMG, and Mercedes-Maybach in Qatar. Established in 1957, it has emerged as one of the foremost luxury car dealers in Qatar and the region, maintaining this status over decades until the present day.

Nasser Bin Khaled Automobiles, a subsidiary of Nasser Bin Khaled Holding Group, a leading family business entity in Qatar. Since its inception, the Group has been committed to achieving global standards in all its endeavors, distinguishing itself as a prominent entity in Qatar's business landscape, emphasizing innovation and ethical practices in its commercial activities with customers.

Over its more than six decades of operation, Nasser Bin Khaled Automobiles has achieved remarkable success. Today, it has attained unprecedented levels of credibility and trust among its clientele in Qatar and beyond, boasting strategic partnerships with renowned global corporations and institutions.



The company has remained true to its commitment to contribute to Qatar's prosperous by continuously enhancing its operations, services, and societal engagement.

The success of Nasser Bin Khaled Automobiles is built on strong and sustainable relationships with its esteemed customers, providing them with a wide range of products and options. The company's name has become synonymous with luxury and sophistication, with a rich history of service quality and market leadership. It always strives to exceed customers' expectations and fulfill their desires.

Nasser Bin Khaled dedicates its efforts to realizing development in Qatar and contributing to a bright and promising future. The company operates based on principles of innovation, transparency, hard work, and perseverance in its relationships with local and international stakeholders.

The group attributes its successes to a highly competent team that effectively implements major development projects in the country, making NBK's vision a tangible reality.

Nasser Bin Khaled Automobiles leads in providing exceptional international products and services to meet the constantly growing demands of the local market. It has earned the trust and appreciation of the local market by offering high-quality products, making Qatar one of the most competitive automotive markets in the region and beyond.

Aligned with its national vision, Nasser Bin Khaled Automobiles supports the national economy by actively contributing to the achievement of the Qatar National Vision 2030 goals across various sectors. It also supports national, social, cultural, and

sports initiatives, forming a key pillar of its social and developmental responsibility.

**Commencement and History:**

Nasser Bin Khaled Automobiles was among the first companies in the region to secure the distribution rights for Mercedes-Benz vehicles. In a remarkably short period, it achieved remarkable success, becoming a significant player in the automotive sector. Since the 1950s, it has provided the latest models from the leading brand to the local market, meeting customer aspirations and supplying them with reliable, luxurious vehicles bearing the famous three-pointed star.

NBK Automobile's showroom became a destination for VIPs, businessmen, and Mercedes-Benz enthusiasts, distinguished by its upscale customer service that epitomized the brand's identity and values, coupled with comprehensive and distinctive after-sales services.

The company continues its growth and development journey in Qatar, expanding its services, products, and offering the latest globally launched vehicles to lead the region in providing a diverse range of modern vehicles to the market. Top of

Form

**Our portfolio**

As the authorized agent and general distributor of Mercedes-Benz in Qatar, Nasser Bin Khaled Automobiles provides a wide portfolio of vehicles from the brand, including passenger cars, commercial vehicles, trucks, and buses, renowned globally for their durability, quality, modern technological features, and high safety standards.

In the sedan segment, the Mercedes-Benz S-Class stands at the forefront of luxury vehicles, enjoying a prestigious status in Qatar as the world's best car and the top choice for luxury car enthusiasts. Additionally, the sedan portfolio includes diverse models from the renowned E and C-Class categories, while Mercedes-Benz sports models have garnered a special place among enthusiasts, competing with major global brands in the field.

In the GT category, Mercedes-Benz and Mercedes-AMG cars have become preferred choices for a wide range of customers, especially young individuals and speed enthusiasts, excelling and leading in all aspects.







Thanks to continuous development processes and ongoing research, Mercedes-Benz has ventured into the multi-purpose sports car and SUV sectors, with its G-Class vehicle becoming a distinctive symbol worldwide, embodying unparalleled strength, elegance, and unmatched performance in the SUV family, owing to its distinctive design and exceptional performance.

In addition to the G-Class, the Mercedes-Benz portfolio includes numerous SUVs, such as the luxurious GLS and GLC, alongside sporty coupe vehicles like the GLE and GLC, which have secured a special place among car enthusiasts in recent years.

The company also supplies the local market with a diverse range of vans, including the luxurious V-Class for passengers and Sprinter vehicles for various applications, particularly in the medical sector, owing to their reliability and numerous attributes.

Mercedes-Benz trucks are considered the best in the world, with Actros leading the way with its versatile capabilities. Our company plays a leading role in providing these trucks to the local market to meet the demands of business, transportation, and large construction projects in Qatar. Alongside Actros, the company offers various Arocs trucks known for their reliability, high quality, and ability to withstand tough conditions.

**A New Era in the Electric Vehicle Industry**

In line with its support for Qatar’s National Vision 2030, particularly its environmental pillar, Nasser Bin Khaled Automobiles has introduced a range of luxurious electric Mercedes-Benz vehicles that meet the highest environmental standards and reflect the brand values based on absolute luxury, reliability, and safety. Mercedes-Benz has invested in the electric vehicle world as part of its unique approach that aligns with its values

and leading position to offer distinctive vehicles that make a difference in this category.

In our showroom, we offer a variety of Mercedes-Benz electric cars, including the EQS sedan, EQS SUV, EQE SUV, and EQB.

**AMG**

Our personalized AMG services allow enthusiasts to customize their vehicles with color options, fabrics, seat types, and accessories.

In its dedicated section at the Salwa Road showroom, a diverse range of Mercedes-AMG vehicles shines, offering customers premium personalized services that meet their aspirations and satisfy their passion for owning a dream car with superior performance, bearing the manufacturer’s personal touch in its engine name.

**Maybach**

Mercedes-Maybach represents the epitome of luxury, sophistication, and elegance, serving as a symbol of excellence and outstanding privilege. Nasser Bin Khaled Automobiles offers two Mercedes-Maybach models from the S and GLS classes, distinguished by iconic design, colors, and absolute luxury.

**Service centers**

Nasser Bin Khaled Automobiles provides the finest after-sales services for its customers in three maintenance centers: the main service center in the industrial area, and two express service centers in Al-Gharafa and Al-Sadd areas. These centers are distinguished by their use of the latest electronic inspection equipment and a team of specialized experts who undergo continuous training to keep up with the latest innovations in maintenance and service.

The main center in the industrial area has undergone renovation and



modernization works as part of the ongoing plans followed by Nasser Bin Khaled Automobiles and Mercedes-Benz to elevate the level of customer service and automotive maintenance services to the highest international standards. This reflects our vision of in providing the finest and best services to truly reflect the partners’ true legacy. This center will contribute to the birth of a completely different era in the automotive maintenance world and establish new standards in this sector.

**Premium After-Sales Services**

The company offers a variety of services to customers, including pre-scheduled maintenance appointments, vehicle delivery and pickup at the customer’s home or office, appointment scheduling tailored to the customer’s schedule, along with providing permanent welcome packages during maintenance operations.

**Social Responsibility**

Nasser Bin Khaled Automobiles

has consistently upheld its social responsibility by leading among national companies in supporting various local events, initiatives, and activities, whether they are sports, cultural, or community-oriented. The company has formed numerous partnerships and provided extensive support for a wide range of events, including the Katara International Arabian Horse Festival, where it has offered premium care since the festival’s inception, providing various forms of support and sponsorship.

Additionally, Nasser Bin Khaled Automobiles continues to support the Nasser Bin Khaled Ramadan Tennis Championship organized by the NBK group annually, which has become a yearly tradition featuring top tennis players from Qatar, the region, and the world, with the aim of promoting sports and community activities during the holy month.

Nasser Bin Khaled Automobiles organizes the Mercedes Golf Cup Championship, one of the strongest golf tournaments in

Qatar, attracting widespread participation from enthusiasts of the game.

Furthermore, the company supports the National Sports Day events annually, organizing various sports activities and competitions and awarding valuable prizes to winners to encourage and motivate them, supporting the state’s efforts in this regard.

This responsibility extends beyond sports, as the company engages in diverse cultural and artistic initiatives, including hosting a Mercedes-Benz Fashion Week to encourage young designers and supporting women’s initiatives through the “She’s Mercedes”, highlighting women’s achievements and acknowledging their efforts across various sectors. In addition, the company sponsored the “Women of the Year Awards” in partnership with the Qatari Businesswomen Association, presenting the distinctive “She’s Mercedes” award in addition to sponsoring the Engineer of the Year Award.



# Mowasalat (Karwa) is fully committed to sustainability by developing an eco-friendly fleet

At Karwa Mowasalat Company, we are devoted to fulfilling our responsibility to reduce environmental impact through the adoption of eco-friendly practices in transportation services, as well as through environmental initiatives and investments in environmentally friendly technologies that contribute to a sustainable economy and environment. Karwa Mowasalat Company has lowered carbon dioxide emissions by 28,110,232 kg since the inception of our electric bus services in 2022, which is equivalent to planting 203,697 trees.



## Sustainable bus fleet.

### ► Smart transportation system

Our adherence to sustainability has been proven by a variety of accomplishments under smart transportation systems, one of which is the noteworthy development of our electric bus fleet, which presently

numbers 909 and is employed for national transportation services. The number of charging stations and facilities has increased significantly as well; there are currently 640 charging stations located across Doha. Our electric buses run smoothly and efficiently thanks to this network, which also guarantees their

restricted availability for public usage. With the widening of our services, we established four extra depots for electric buses, which function as a primary focus in maintenance, distribution, and operation activities, helping to improve efficiency and extend the operational lifespan of the fleet. Our commitment

is evident in the Lusail Bus Depot, the world's largest electric bus depot, which was developed and operated in partnership with numerous stakeholders in the country.

### ► Smart public buses

Urban transportation systems are reshaping due to a surge of smart advances in the field of smart public buses, which rely on technological advancements that improve sustainability, efficiency, and user experience while redefining how we interact with transportation systems.

#### 1. AI for intelligent control and monitoring:

Cutting-edge technology integration opens up new possibilities for control and analytics; fleet connectivity to the Internet of Things (IOT) facilitates smooth communication; and "automated data" adds to a better understanding of bus performance. This lowers downtime, permits us to modify preventative maintenance programs, and allows us to apply smart malfunction diagnostics.

#### 2. Direct monitoring of the vehicles' mechanical condition:

while automatic recording of mechanical malfunctions assists in rapid problem solving, direct monitoring of vehicle mechanical condition plays a crucial role in improving efficiency and the order of services. Additionally, performance is enhanced through monitoring battery health and energy consumption. Monitoring the motor's and battery's temperatures as well as the cooling system's effectiveness are necessary for sustained operation.

#### 3. Monitoring driver behavior:

By detecting harsh braking and hard acceleration, automatic driver behavior monitoring substantially

enhances efficiency and safety while offering an accurate analysis of driving behaviors. These analyses aid in enhancing training, assessing the performance of drivers, and promoting safe driving practices.

#### 4. Smart electronic tickets:

With a variety of payment options, including smart card payments and electronic tickets, as well as direct discounts through the app, electronic tickets give passengers comfort and flexibility in how they plan their travels and pay for their fare. As a result, the Karwa trip planning application significantly improves the passenger experience. These choices make transferring money easy and straightforward while also simplifying the payment procedure.

#### 5. Providing information via mobile phone:

Through the smartphone application, passengers can quickly view information and updates on transportation services. This feature makes it easy for passengers to plan trips and allows them to track the current location of buses effortlessly

and determine their actual arrival times.

#### 6. Smart bus stop and info panels inside buses:

We constantly strive to further enhance the experience of our passengers, which is why we have smart information panels set up inside both buses and stations. These panels offer a variety of data and updates, including information about the most significant city landmarks that are situated in the bus's actual geographic location, giving passengers helpful information while they are traveling. Additionally, targeting and location-based advertising will soon boost audience engagement and communication.

#### Developing school transportation with a fleet of smart school buses

In order to safeguard children and enrich their experience, smart school buses employ the newest technologies; thus, we are presently working on creating the school transportation system. These buses, with their many





cutting-edge features and attributes, raised the standards for modern school transportation.

**Driver Assistance Systems (ADAS) to enhance safety**

Advanced driver assistance systems (ADAS) in smart school buses provide an array of safety improvements, including proactive warnings to lower the likelihood of an accident and sensors that detect potential collisions and inform the driver. Pedestrian protection sensors increase safety during student drop-off and pick-up activities. Forward odometer and lane departure warning systems improve driving practices, while speed limiters and downhill start systems provide levels of control.

**Efficient energy control systems and enhanced safety**

The employment of an energy control

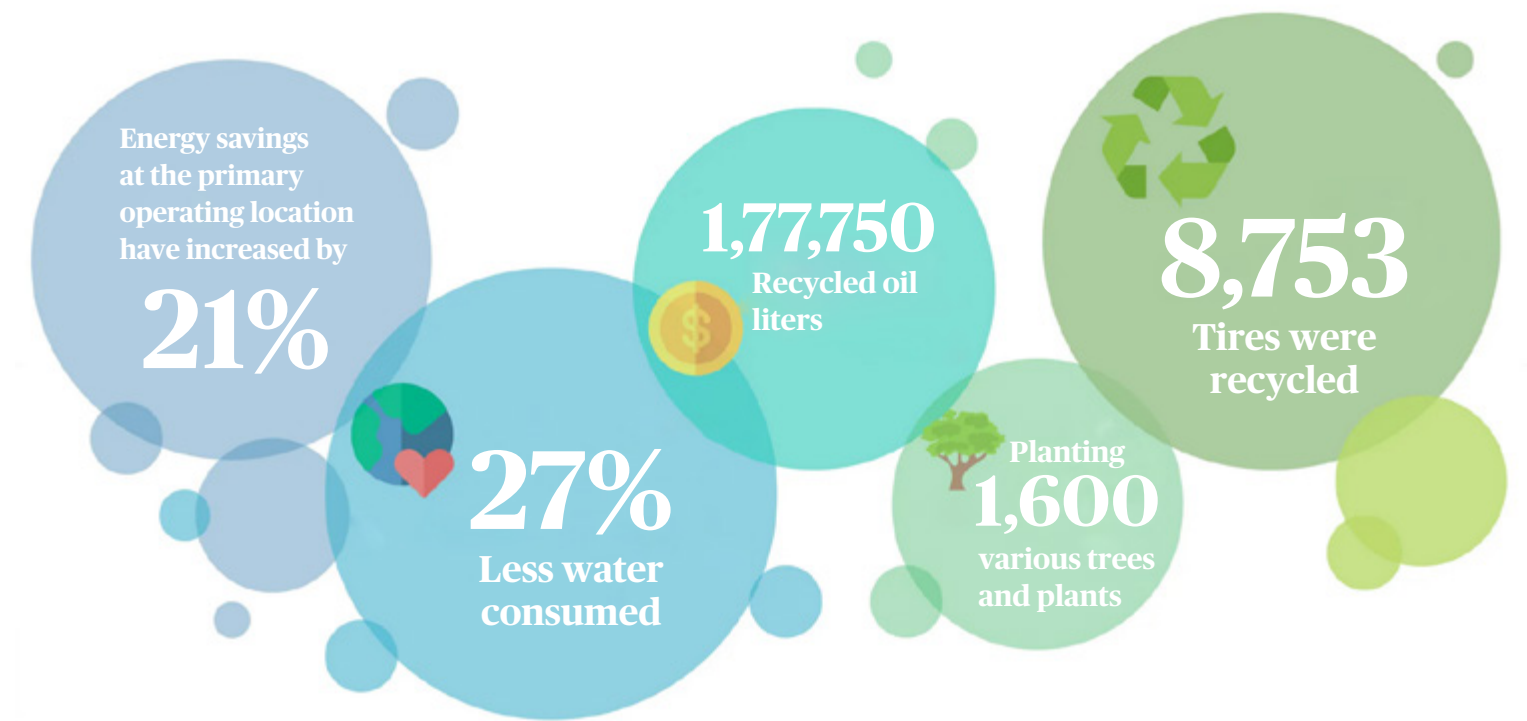
system enhances both safety and energy consumption. 360-degree surround cameras offer drivers a peripheral view of the vehicle, facilitating safe driving. In addition to passenger number recording devices, which provide accurate operating data that contributes to improved safety and effective route planning, the driver drowsiness detection system works to ensure the driver's safety and attention, while the automatic emergency braking system (ABS) responds quickly to avoid potential risks. It is worth noting that the "No Child Left on the Bus" button on the back of school buses sends an immediate alert to the driver, assuring the safety of all passengers.

Technology is a vital component of numerous aspects of our lives, including school transportation. Smart school buses with driver assistance systems (ADAS) and other control features are

the basis for establishing a safe and efficient environment for both kids and drivers. These innovations illustrate our commitment to making school transportation safer, more advanced, and responsive to the needs of our community.

**A sustainable fleet of Karwa taxis and limousines in Doha**

In 2022, we upgraded the Doha limousine service by adding luxury electric vehicle options, and we updated the complete fleet of city taxis with the latest electric vehicles. As part of our plan for a sustainable future, we are growing our electric fleet of light vehicles. In an effort to fulfill our objective of having all electric vehicles on the road by 2030, we are making significant efforts to lower our carbon footprint and maintain a clean, healthy environment.



**The company's current environmental programs**

**27% less water consumed:**

We at Mowasalat Company (Karwa) cut our drinking water use by 27% in 2022 compared to 2021 through a variety of activities and campaigns since water is a valuable resource that we must use responsibly. We increased these measures to the fullest extent possible in 2023, and by the end of the year, we hope to have achieved a higher percentage. This accomplishment is primarily due to the company's vehicle wash facilities' recycling and utilization of used water. By raising understanding of water recycling, our facilities serve as an example.

**Energy savings at the primary operating location have increased by 21%:**

With meticulous preparation and smart investments in our facilities, we were able to lower our electricity use by 21% in 2022 compared to 2021. Our objective is to permanently rationalize and minimize electricity consumption. This led to a one-fifth increase in energy savings, and installing energy-saving machinery and

accessories—like air conditioners, motion sensors, outdoor lighting timers, LED lights, and other accessories—in various company locations and facilities played a major part in making this happen. Reducing greenhouse gas emissions and promoting a sustainable economy are the objectives.

**1, 77,750 recycled oil liters:**

It is critical to develop strategies for consuming oils and prolonging their lives through recycled products in order to ensure eco-friendly transportation. We have established multiple types of programs to recycle and reuse oils through strategic relationships with recycling companies that manufacture reusable petroleum substances, thereby limiting environmental pollution and conserving natural resources.

**8,753 tires were recycled:**

We have put in place a thorough tire recycling program as an essential element of waste reduction, minimizing the environmental impact of rubber waste,

and improving resource efficiency since we are cognizant of the environmental concerns associated with improper tire disposal. To make sure that the old tires from our vehicles are turned into useful resources like building materials, rubberized asphalt, or alternative fuels, we have partnered up with recycling companies. This strategy has reduced the amount of rubber scrap that ends up in landfills.

**Planting 1,600 various trees and plants**

We have launched a number of initiatives aimed at encouraging agriculture in various locations within the company, such as the residential city of Karwa, where 1,600 seedlings were planted in 2022, contributing to the production of 100,000 kg of oxygen per year. Plants are crucial in the battle against climate change. Thus, we not only minimize the effects of heat in cities but also enhance the quality of the air and increase green spaces. As well as providing aesthetic value, plants also absorb carbon dioxide released by vehicles.



# Alfardan Group

Alfardan Group is one of the leading family conglomerates in Qatar and the region, built around traditional family values and an uncompromising commitment to integrity, premium service, and social responsibility.

Alfardan Group's operations are inspired by passion. All Alfardan offerings have the highest standards of quality and exclusivity, whether in the jewellery, financial services, property, automotive, marine, hospitality, healthcare, or agriculture sectors. In all business sectors they operate in, the Group strives to achieve mastery and to exceed expectations.

Alfardan Group strives to regularly improve and raise its standard of service to an even higher level. The Group has also proven itself as one of the most prominent and steadfast brands in Qatar for its incomparable excellence in the region. This strength is manifested through the Group's international presence in the United Arab Emirates, Kingdom of Saudi Arabia, Oman, Turkey, and Switzerland.

## The Evolution of Alfardan Businesses

Throughout its history of more than 70 years, Alfardan Group has successfully evolved from a pearl-trading enterprise in the Arabian Gulf, into one of the leading regional conglomerates operating in a wide range of industries and sectors.

Alfardan Group is a collection of businesses that began in 1954 with Alfardan Jewellery and then expanded into property, hospitality, healthcare, automotive, marine, agriculture, and financial services sectors. Now, Alfardan Group manages an unrivaled brand portfolio that offers clients countless opportunities to indulge in a luxury lifestyle and enjoy an Exclusive Experience. The list of businesses showcases how Alfardan Group has continued to expand into new ventures and locations over the years, acting as a catalyst for Qatar's growing influence around the world.

The rapid expansion of the company was possible due to the Group's fundamental values that define the business, and the

ability to observe opportunities where others may not, allowing our Board of Directors and senior management to succeed across multiple levels.

## Our Approach to Sustainability

As one of Qatar's largest companies operating across 8 sectors, we are driven by our purpose to empower change and deliver impact. In 2022, the Group joined the UN Global Compact, the world's largest corporate sustainability initiative. From strategy to operations, Alfardan is committed to preserving a culture of integrity across all units.

The UN Global Compact is a call to companies everywhere to align their operations and strategies with Ten universally accepted principles

in the areas of human rights, labor, environment, and anti-corruption, and to take action in support of UN goals and issues embodied in the Sustainable Development Goals (SDGs).

Striving ahead, Alfardan Group developed an ESG Strategy, cutting across all divisions and marking a significant step in our commitment to sustainable practices, guiding our decisions to align our business goals with our responsibilities to the environment, our workforce, and the communities we serve. In May 2023, the Group submitted our first Communications on Progress (CoP) report, embodying our commitment to continuous progress, corporate transparency, and objective reporting.

## SUSTAINABLE DEVELOPMENT GOALS



### ALIGNED LOCALLY Qatar National Vision 2030

The national vision aims to transform Qatar into an advanced country by 2030, capable of sustaining its own development and providing a high standard of living for its population and future generations.

### ALIGNED GLOBALLY THE UN 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

The UN 2030 Agenda for Sustainable Development is a global plan of action for achieving sustainable development. The Sustainable Development Goals are comprised of 17 goals and 169 targets such as the elimination of poverty and hunger, fighting climate change, supporting decent work and growth, and creating sustainable cities and communities. For Alfardan Group, aligning with SDGs is the next big way to make a positive impact as an organization.

### VISION

To be an agile organization that can transform to the future demands of societal and environmental changes.

### MISSION

To leverage stakeholders' knowledge and skills to act responsibly toward the dynamic shifts in ESG goals.

## Our ESG Strategy

ESG Vision & Mission



### Our Target SDGs for 2024 - 2025

We use the United Nations Sustainable Development Goals (SDGs) as a framework to shape our strategy and ambitions. Defined in 2015, the SDGs consist of 17 global goals with a 2030 deadline. All 193 countries in the UN General Assembly adopted this resolution. We realize these goals cannot be met without support from the global business community. Our approach to supporting the SDGs is to focus on the goals where we can have the most impact while screening and implementing actions that contribute to the other goals as well..

### Our ESG Pillars

<p><b>People-focused:</b></p>	<p><b>Pioneer:</b></p>	<p><b>Localization:</b></p>	<p><b>International partnerships:</b></p>	<p><b>Compliance with global ESG Standards:</b></p>
<p>Nurtures and empowers talent to create a workforce to support AFG ESG vision.</p>	<p>Looks to the future to anticipate trends before the market recognizes them.</p>	<p>Develops local talent, prioritize local procurement, and make local investment where possible.</p>	<p>Forms strong international relationships with suppliers and benefits from their insights and procedures</p>	<p>Prioritizes compliance with laws &amp; regulations and protects and enhances reputation in the market</p>

## ► Sustainability highlights

### ► Alfardan Group became a signatory to UN Women’s Empowerment Principles

Alfardan Group has signed on to the United Nations Women’s Empowerment Principles (WEPs), becoming among the first Qatari private-sector companies to adopt the framework.

Established by UN Women and UN Global Compact, WEPs are a set of principles that guide businesses on advancing gender equality and women’s empowerment.

By joining the WEPs community, Alfardan Group continues to advance its mission and support the development, and advancement of women in the workplace and society.

### ► Alfardan Automotive Supports Qatar National Vision 2030 by Supplying Electric Vehicles Charging Stations

In a significant step towards realizing Qatar’s National Vision 2030, Alfardan Automotive, a division of Alfardan Group, has successfully implemented a network of Electric Vehicle Charging Stations across strategic locations in Qatar. These stations, established in collaboration with the Ministry of Transportation (MoT), are now operational and readily accessible to the public, catering to all types of electric vehicles in the country. This initiative aligns with Qatar’s commitment to fostering environmentally sustainable practices, promoting economic growth, and enhancing social well-being.

The strategically positioned charging stations, conveniently located in 10 key areas, aim to encourage a wider adoption of electric vehicles, paving the way for a greener future. This infrastructure expansion serves as a testament to Qatar’s dedication to embracing sustainable transportation solutions and promoting a cleaner environment for generations to come.



### ► The launch of a series of Sustainability Workshops



The launch of the SDG workshop series is a significant step in Alfardan Group’s journey towards sustainability. The Group is committed to empowering its employees to become agents of change and creating a more sustainable future for all. This series of workshops aims to educate and empower employees to become champions of sustainability in their daily lives and within the workplace while also understanding the overall sustainability vision that the Group is working to adopt.

Being a signatory to the UN Global Compact, a commitment to aligning business operations and strategies with ten universally accepted principles in the areas of human rights, labour, environment, and anti-corruption, Alfardan Group is committed to creating a more sustainable future for all.



## ► Sustainability highlights CONTD...

### ► Waste management training with Elite

In a significant step towards a more sustainable future, our dedicated staff underwent a comprehensive training program on waste segregation and recycling, facilitated by experts from Elite Paper Recycling. This initiative marks a turning point in our journey towards environmental stewardship, equipping our team with the knowledge and skills necessary to effectively manage our waste and minimize our footprint. Our team members received waste recycling certifications, paving the way for a cleaner and greener future. The training program covered a wide range of topics, including the importance of waste segregation, the different types of recyclable materials, and the proper methods for sorting and storing waste. Participants also gained hands-on experience in identifying and classifying recyclable materials, and they learned about the various recycling programs available in our community.



### ► Pioneering Sustainable Agriculture: Safwa's Hydroponic Farming Expertise

Located within the Alfardan family farm, "Wahat Al-Shafalahia," stands Safwa, a beacon of innovation in automated hydroponic farming. Established as a Qatari farm dedicated to year-round cultivation of leafy vegetables like various lettuces, baby rocca, baby spinach, bok choy, and kale, Safwa has revolutionized agriculture in Qatar, employing cutting-edge technologies and a team of highly skilled local engineers to cultivate a thriving oasis amidst the arid landscape.

At the heart of Safwa's success lies its commitment to sustainable practices. By utilizing advanced hydroponic and aeroponic systems, Safwa has achieved remarkable water efficiency, reducing consumption by up to 90% compared to traditional soil-based farming. These systems eliminate the need for soil altogether, creating a sterile environment that minimizes the risk of

pests and diseases, negating the need for harmful chemicals and pesticides. Safwa's ingenuity extends beyond water conservation. Its greenhouses serve as protective microclimates, meticulously controlling temperature and humidity to optimize crop growth and yield. This approach ensures a consistent supply of fresh, nutritious produce, even in the face of Qatar's challenging environmental conditions. The benefits of Safwa's sustainable farming extend beyond environmental



impact. Indoor hydroponic systems enable production to increase three to ten times within the same space, significantly reducing the time between harvest and consumption. This rapid turnaround ensures that consumers receive the freshest possible produce.

Safwa's dedication to sustainable agriculture has not gone unnoticed. In 2022, the company received the prestigious FBN International NxG Lombard Odier Award, recognizing its innovative practices and commitment to environmental stewardship.

As a pioneer in sustainable agriculture, Safwa continues to set the benchmark for excellence in Qatar. The farm's commitment to innovation, sustainability, and community engagement has transformed the Qatari agricultural landscape, paving the way for a greener and healthier future.

### ► Building Sustainability into the Future



In the real estate sector, eco-friendly practices are increasingly adopted, setting new standards. With its pioneering technology, Burj Alfardan stands out as this year's Green Commercial Building, for its efforts in sustainability and environmental protection with intelligent resource allocation that mirrors sustainability in its design.

With green building principles at its core, Burj Alfardan has a 3-star GSAS (Global Sustainability Assessment System) rating which highlights its cutting-edge design that is luxurious yet sustainable. Impressive features like Automatic Plate Number Recognition (APNR), state-of-the-art offices, and designated data systems allow Burj Alfardan to exceed its tenants' expectations. The building also features a built-in grid-connected solar electric PV system and dedicated electric car charging stations that are planned to be installed in the future. Throughout its design, other features including indoor and outdoor digital screens, mobile Bluetooth access, and AC cooling system are all purposely designed around sustainability, incorporating it within the day-to-day operations of the building..

### ► Tariqi: Empowering the Next Generation of Leaders

Alfardan Group is deeply committed to fostering the next generation of leaders through education and mentorship. For nearly two decades, the Group has been supporting students and educational initiatives through grants, mentorship, and job placements. In 2020, this commitment to quality education was further solidified with the launch of the Tariqi scholarship program.

Tariqi is a comprehensive scholarship program that provides financial

assistance, academic support, and professional development opportunities to outstanding students pursuing undergraduate degrees in fields of strategic importance to Qatar's development. The program is designed to nurture the intellectual and professional growth of future leaders, enabling them to make significant contributions to Qatar's economy and society. The Tariqi student scholarship program has supported a total of 86 students so far.







## Al Abdulghani Motors' Initiatives Towards Sustainability

### ► Carbon emission reduction initiatives

The efforts of the process of reducing the carbon footprint and the use of hybrid cars are one of the most important initiatives of Al Abdul Ghani Motors Company to reduce carbon emissions. We have taken many initiatives in this context, including cooperation with the Public Parks Department of the Ministry of Municipality and providing them with hybrid cars for use in daily operations. This cooperation comes within the "Reducing the carbon footprint" program of the Public Parks Department, through which it promotes ways to preserve

the environment. As is also the case with our initiative in our cooperation with the Ministry of Transport for the same purpose.

Al Abdulghani Motors uses unique and innovative ways to reduce its carbon footprint, such as providing mobile service buses equipped with GPS, which allows for more effective route planning, as the system enables us to send the nearest service technician to the customer's site, improving customer service and reducing our fuel usage. The use of Hiace light trucks as mobile service trucks has also significantly reduced fuel usage

Al Abdulghani Motors Industrial Solutions division is a pioneer in delivering lithium battery powered forklifts and warehouse equipment to the Qatari market. Our commitment to carbon neutrality programs also ensures the expansion of electric products and products with high energy efficiency, such as the 80-volt Toyota Traigo forklifts that are 20% more energy efficient, as well as lithium battery powered forklifts such as Toyota forklifts and BT Tyro forklifts.

As part of our efforts to promote carbon neutrality, we offer our customers the option of acquiring LPG and dual-fuel

forklifts that give a significant advantage over traditional diesel cranes without underestimating performance.

We are also proud that 90% of our equipment rental fleet consists of machinery and electrical equipment, the highest percentage of its kind in the sector.

Through continuous training, awareness sessions and product demonstrations to customers, we have played an important role in promoting electrical material conveying equipment and increasing demand for it by 35% in the past five years.

By using our specialized solutions for high-density warehouses such as narrow-aisle loading trucks and automated storage racking, customers can save a significant amount of energy and space.

Another of our initiatives is our use and provision of high-density storage solutions such as narrow-aisle loading trucks and automatic storage shelves, which enable customers to save energy consumption and significantly reduce carbon dioxide emissions, and this saving comes as a result of reducing the space used for storage and thus reducing the energy consumption used to control temperature and humidity in those warehouses.

Sustainable sourcing is one of the key factors in the selection process of our business partners as we prioritize suppliers who adhere to sustainable sourcing practices, including sound resource extraction, fair trade and ethical business practices.

We carry out periodic assessments at all stages of providing the product to the customer taking into account the environmental impact of the products throughout their life cycle, from production and use to disposal, as we pay great attention to improving the packaging process and prefer to use environmentally friendly packaging materials and reduce excessive packaging whenever possible.

At AAM we have comprehensive recycling programs across our offices, such as encouraging employees to separate waste materials into paper, plastic, and metals.

One of the proactive initiatives is the "Big Recycling Thursday" a weekly event where employees collect recyclable materials.

### ► Repurposing initiative

Our repurposing initiatives are solely for of non-recyclable materials that we have found that could be repurposed into functional and beneficial projects. These initiatives are divided into:

- **External Sustainable Practices:** where the Community is included in upcycling projects converting waste wooden pallets into furniture.
- **And, Internal Sustainable Practices:** the spare parts team have taken the lead in upcycling their packaging materials into various functional uses.

### ► Waste Management and Reduction

As a large company with many locations, offices, warehouses, storage facilities and a business that requires meticulous documentation and processes we have been proactive with our waste management and waste reduction initiatives as demonstrated below.

Hazardous materials and electronic waste are disposed of properly, adhering to relevant regulations and industry best practices.

### ► Paper use reduction

We opt for Online Banking whenever possible for Vendor and Customer Payments and Trade Finance transactions which resulted in significant reduction in use of paper.

We also send and share electronically most of the Management Reports on Shared Folders instead of printing.

The Processes and Approvals for petty cash and payment vouchers have been digitized on FIORI in SAP avoiding paper printing and manual approvals.

One of the major initiatives was the digitization of corporate documents and paperless based correspondence, at AAM we are motivated to scanning and converting paper documents catalogues, brochures, flyers, business cards into digital formats which allows easier storage, document retrieval, and sharing of information and eliminating the need for physical copies.







We communicate internally through the use of email, instant messaging, and various online tools, for faster more convenient and environmentally friendly manner.

**Green Initiatives**

Planting trees can have a significant impact on the environment. Trees play a crucial role in mitigating climate change by absorbing carbon dioxide and releasing oxygen, improving air quality, conserving water, preventing soil erosion, providing habitats for wildlife, and enhancing the overall beauty of our surroundings. When people witness someone actively engaging in positive environmental actions such as planting trees, it often serves as a powerful example and encourages others to get involved too. This ripple effect can lead to a collective effort toward environmental conservation and sustainability.

► **Internal Voluntary Initiatives**

One of the many inspired initiatives implemented by our LVD team was the Wukair tree planting initiative where everyone gathered to plant trees around the Birkat Al Awamer vehicle storage yard. Today, the total number of trees that are planted around the storage area is 154 trees. Another initiative was turning their concrete fortress into a green haven planting one

tree, one plant at a time.

At the offices and warehouse all lighting was changed to LED energy saving bulbs. We mainly use biodegradable plastic bags or oxo in stores.

The LVD team continuing on their green initiatives started to transform their offices into green offices by adding plants as well as recycle used pallets to make plant stands. The whole LVD offices have been filled with different plants.

The green project was also extended to the PDI Workshop. Since the technicians are working with metal tools and are constantly exposed to vehicles, plants were placed inside the PDI Workshop to help with carbon neutrality by absorbing harmful chemicals.

LVD created a break area for the technicians to give them a place to relax with a cleaner environment. The area is now known as a Technician Coffee Lounge.

LVD Park was yet another initiative from the LVD team creating unique ways to improve their environment and surroundings, during one of those quests the team discovered a waste area at the back of the workshop that could be utilized better and they got on to work immediately. The area was cleaned up

from all the waste, the ground leveled, the team then sourced dirt from the washing bays where cars get cleaned before its delivered to the customers, the mud build up at the washing bays are cleaned every 4- 6 months. The mud was removed from the drainage and used as additional soil for the park. It was a great way of recycling the mud from the dust build-up while making sure the drainage is clean.

We are extremely proud of our green initiatives at AAM, we have made significant strides through many projects and initiatives.

**Sustainable Partnerships**

Sustainable Partnerships and programs are one of the most vital strategic pillars in our sustainability and stakeholder engagement projects, we have collaborated with many government and non- government entities achieving core environmental markers, some of the partnerships we are extremely proud of are:

- **“Keep Qatar Clean” Project with DEAP** is a partnership with the Doha Environmental Action Project (DEAP) to promote and carry out beach and dune clean-ups against plastic pollution.

DEAP carries out weekly cleanups where a total of 31 tones s of waste and plastic collected were collected in the year 2023.

- **“GREEN QATAR”** this is a strategic partnership with the Public Parks Department, Ministry of Municipality keeping Qatar Green campaign. The Seedlings to your Homes Project is a collaboration where we provide the Public Parks Department the full-time operational use of 2 HIACE vans for delivery of seedlings and plants across Qatar where the vans delivered a total of 63,645 seedlings in the year 2023.
- **“10 Million Trees Initiative”** Al Abdulghani Motors recently joined the Ministry of Municipality’s initiative to plant 10 million trees and made it one of the strategic goals for implementation in the year 2024, as we launched our plan to contribute to the initiative by planting the company’s facilities and buildings, starting with the inauguration of our pavilion at Expo Doha 2023.
- **An on going partnership between AAM and Seashore Recycling &**

**Sustainability Center** to recycle segregated waste materials collected from Al Abdulghani Tower.

**Ongoing Efforts**

Seminars and Conferences play a vital role in information sharing and learning across corporate and government entities. AAM through various business units held seminars and conferences on Sustainability & Environment the latest being the Sustainable & Environmental Mobility Solutions Conference which was held at Project Qatar Exhibition 2023.

- Sustainable & Environmental Mobility Solutions Conference at Project Qatar Exhibition 2023.
- The After-Sales Department’s use of water-based paints in all workshops reduced emissions of evaporated organic compounds (VOC) and thus contributed to reducing air pollution and improving health standards among employees.
- The Mobility Department’s initiatives demonstrated its commitment to the concept of carbon neutrality,

alignment with Qatar Vision 2030, and a comprehensive approach to sustainability, and the department promoted hybrid cars from Toyota and Lexus to customers.

912 hybrid electric vehicles have currently been distributed among governmental and non-governmental agencies, such as:

- Karwa - Mowasalat
- The Ministry of Municipal
- Black limousine service with one of the digital platforms
- Expo Doha Qatar 2023
- Hamad Medical Corporation and Primary Health Care

In total, approximately 5 million kilograms of CO2 have been saved annually since the beginning of this initiative.

Al Abdulghani Motors renews its commitment and dedication to be champions of the United Nations Sustainability Goals and Qatar National Vision 2023 through all of our business units, with Environmental Initiatives, Human Development and Social Development Programs for a better community, country and the world at large.







# MWANI QATAR

IS A KEY PARTNER IN QATAR'S  
SUSTAINABLE TRANSITION

Sustainability is an essential aspect of Mwani Qatar's strategy, and the company's sustainability plan reflects its role as a vital partner in Qatar's sustainable transition. This plan was developed in accordance with a thorough road map for accomplishing the company's development objectives, with a concentration on environmental, social, and economic criteria along with the Qatar National Vision 2030. It reinforces the Ministry of Transport's plan for developing a sustainable maritime transport sector.





This strategy has resulted in numerous successes for the country's maritime sector. Hamad Port, Qatar's main gateway to world trade, is one of the most important projects that embody the country's efforts to create a sustainable green economy, as recognized by regional and international institutions, by obtaining international recognition as one of the country's largest smart and environmentally friendly ports. The port recently received the PERS (Port Environmental Review System) certification, which is granted by the "ECOSLC" organization to seaports that meet the standards and requirements for environmental management, thereby becoming the first port in the Gulf Cooperation Council countries to become part of the global organization's network of eco-friendly ports, which includes some of the world's most important ports. These international accomplishments and certificates prove Hamad Port's dedication to using the best innovative practices based on environmental sustainability and clean energy in its operations, as well as Qatar's worldwide and regional

leadership in green, environmentally friendly projects.

The port was able to achieve these accomplishments thanks to many eco-friendly green initiatives implemented by Mwani Qatar to ensure that it meets all local and global requirements and standards, as well as passing all stages of assessment and rigorous tests run by the entities that grant these awards and certificates.

**Saving marine diversity**

Among these initiatives is the relocation of thousands of coral reefs to protect the marine environment and maintain marine biodiversity, as well as the relocation of all healthy coral reef colonies located at the Hamad Port construction site to reduce damage to them. A pre-translocation scan has been carried out, and a suitable location with the same substrate and environmental conditions for breeding was found. As part of this process, more than 12.5 thousand pieces of coral, 14.3 thousand square meters of seaweed, and 31.7 thousand mangroves and seedlings were transported and resettled, all while

continuously monitoring the quality of the surrounding marine waters and taking every measure possible to ensure their survival and health.

**Green facilities**

The initiatives also included protecting the green environment at the company's facilities by planting over 50,000 seedlings and 1,200 palm trees in 2022 and 2023. It also works with the private sector to preserve green landscapes in its ports and treat wastewater in collaboration with the Public Authority for Works (Ashghal). It produces treated water that complies with the most rigorous international ecological standards and specifications at two stations in Hamad Port. This water is used in agricultural and irrigation operations at the port via two lines, with a daily consumption rate of 210 square meters (130 square meters in the first line and 80 square meters in the second).

As part of its determination to guarantee the safe disposal of waste generated in the company's facilities, a strict waste management plan has been developed

under which waste generated at all locations is disposed of responsibly by analyzing and sorting the waste and auditing the reception facilities to ensure compliance with all plan requirements. We have drastically lowered our waste generation. Waste and disposal.

**Strict monitoring**

Mwani Qatar monitors ambient air quality, noise, the maritime environment, and ground and marine waters through fixed and mobile monitoring systems at Hamad and Ruwais ports as part of its role in public health and environmental protection. In this context, and as part of our efforts to avoid and lower air pollution in our operations, we developed an environmental monitoring system that delivers accurate daily readings of air and water quality at our managed locations via fixed and mobile stations. The monitoring system consists of four maritime buoys that monitor ambient emissions and the concentration of pollutants present at port borders in order to verify the environmental impact.

In addition, five mobile monitoring stations are in place to track the ambient air quality on a quarterly basis. The placement of the monitoring stations was done with great care to guarantee that the data was readable. The company additionally commits itself to upholding international and regional conventions as well as the national plan to tackle oil pollution. Through oil pollution control equipment and a dredging unit set aside for that purpose, Mwani Qatar offers the necessary staff and equipment to combat any oil leaks and clean the port basin.

**Sustainable buildings**

Mwani Qatar dedicates itself to environmental protection as part of its efforts to preserve and safeguard the Qatari environment for current and future generations, which is consistent with the Qatar National Vision 2030's sustainability



goals. In this regard, the corporation adopted the Global Sustainability Standards Assessment System's (GSAS) sustainability requirements for all facilities. Hamad Port has ratings of 2, 3, and 4 stars, and all facilities and buildings in Qatar's ports are outfitted with a smart lighting system that optimizes consumption and conserves energy as necessary.

In an effort to promote and contribute to the reduction of carbon emissions, five electric vehicle charging stations were also set up. The 125 buildings at Hamad Port meet global standards for water and energy efficiency, lower waste production, and enhance indoor air quality by complying with the global rating system criteria.

**Clean energy**

In terms of energy conservation, the most recent energy-saving measures were put into place in collaboration with the Qatar General Electricity and Water Corporation (Kahramaa). These measures included the use of renewable energy from cranes in Hamad Port, which helps boost the port's energy consumption efficiency and minimizes the environmental impact of its operational activities because it uses less fuel. Since the cranes use a hybrid battery type, as their cargo is unloaded or the containers they are moving are lowered, they produce more energy, which speeds up the process of recharging the batteries.

**Eco-friendly equipment**

Hamad Port also provides eco-friendly technology and equipment, such as electric tractors, electric RTGs, and electric STS container cranes, in addition to 22 electric forklifts and 12 electric-powered cranes. Fuel consumption has also decreased as a result of fleet reduction and the acquisition of two Audi ETRON electric cars. Furthermore, the use of electric CNG buses for internal mobility in the port is being tested, lowering the number of private vehicles inside the port facilities.





# Applying Environmental Governance Principles in our Ports and Terminals

In line with Qatar National Vision 2030, which aims for Qatar to become an advanced society capable of sustaining its development and providing a high standard of living for its people, QTerminals continues to work hard to implement the principles of environmental and social governance, in accordance with approved international standards. QTerminals aims to reduce the environmental impact of its operations by taking many effective measures, such as the use of electric-powered vehicles and mechanisms, resorting to clean and renewable energy, and smart, environmentally friendly solutions in its operations.

## QTerminals Group Overview

QTerminals is a leading international port and terminal operator which provides operational services for containers, bulk and general cargo, RORO, livestock, offshore supply services and cruise ships.

In 2016, QTerminals was founded as a JV between Qatar Ports Management Company (Mwani Qatar) and the shipping and logistics company, Qatar Navigation (Milaha).

### Our Vision

To become a recognized world class customer-focused operator with a global portfolio to create long-term shareholder value.

We are a recognised world class operator:

### Our Mission

To set the bar for safety and reliability through operational excellence, sustainable development, and talented employees, reflecting the highest degree of efficiency.





QTerminals Group’s portfolio includes four port assets:

<b>QTerminals’ flagship facility, Hamad Port in Qatar</b>	<b>QTerminals Antalya in Turkey</b>	<b>QTerminals Olvia in Ukraine</b>	<b>QTerminals Kramer in Rotterdam</b>
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Climate change and Environmental stewardship are included in strategic action field of QTerminals:

Climate change

QTerminals’ contribution to fight the climate crisis through emission reduction and energy efficiency in the port environment.

Emissions reduction: Reduce climate impact of operations (e.g., fuel switch, renewable energy)

Enhance energy efficiency: Reduction of energy demand (e.g., through improved lighting, process efficiency, insulation and smart energy demand management)

Environmental stewardship

Taking responsibility for the environment beyond port boundaries through waste management, water treatment and biodiversity & land use.

The QTerminals Environmental, Social, and Governance program ESG framework covers 16 sub-dimensions - 5 Environmental, 6 Social, and 5 Governance

Measures in environmental stewardship expected with longer implementation time with Key activities starting at the end of 2023 and beginning of 2024



ESG roadmap - Environmental stewardship

► Waste management

- Reduce packaging waste in logistics
- Ensure recycling of solid waste and reduce landfilling of hazardous waste
- Offer a service of treating waste from vessels
- Introduce recycling of damaged containers
- Collect and publish data on waste generation and treatment
- 27. Eliminate use of plastic bottles
- Digitalise processes to create a paperless office

► Water management

- Ensure treatment and reuse of wastewater from port operations
- Ensure treatment and reuse of wastewater from port operations
- Monitor quality of seawater and content of wastewater to detect pollution
- Remove marine debris
- Ensure full compliance with seawater quality standards

► Biodiversity

- Monitor condition of sensitive flora and fauna
- Invest in flora and fauna rehabilitation
- Monitor air quality and noise level

► Cross-sector

- Conduct third party audits for waste and water management
- Develop internal policy on ESG standards in (re)construction

In an iterative process we derived binding roadmaps to achieve ambitious, but realistic results until 2025 - Implementation about to start

Main topics in environmental:

- Transparency on emissions for the ports/terminals
- Aggressive decarbonization of operations through, e.g., electrification of equipment
- Shift to renewable energy, e.g., own wind turbines
- Awareness sessions for all employees
- Reduction of waste generation and water consumption
- Support of biodiversity in the port environment
- Environmental-friendly construction procedures

Starting with emissions transparency early is key - Emission reduction measures, such as electrification of vehicles or renewable energy, in parallel

QTerminals’ Efforts in Environment Protection and Sustainability

Environmentally Friendly Equipment at Hamad Port - CT2:

► TRAILERS

The trailers at Hamad Port’s CT2 are proudly manufactured locally in Qatar. These Trailers are environmentally friendly, reduce stress with fewer welding points to enhance its endurance.

► FORKLIFTS

QTerminals is currently replacing the existing diesel forklifts with electric forklifts. This equipment operates without generating harmful emissions, promotes smooth and gentle operation that benefits the environment.

These forklifts have zero emissions and each 3 tons capacity forklift, reduces 4093 kg of CO2 annually. In addition, these forklifts have no harmful carbon monoxide for operators or nearby workers if they were exposed to it.

Besides, they don’t emit carbon dioxide greenhouse gasses to warm the climate and the engines have low noise. Besides, they do not emit carbon dioxide, which is one of the greenhouse gasses that cause global warming; and their engines have low noise.

► TRACTORS

Hamad Port’s CT2 includes a range of fully electric zero-emission environmentally friendly tractors that use lithium-based batteries and have a capacity of 75 tons.

► RUBBER TYRED GANTRY CRANES

The Rubber Tyred Gantry Cranes (RTGs) at Hamad Port’s are environmentally friendly, as they use hybrid type energy technology, which is efficient and cost-effective, and have the capacity to lift 40 tons.

► (LED) LIGHTMASTS

Hamad Port’s CT1 And CT2 features fully recyclable precision LED Lighting, low glare, extra-long life and dark-sky friendly.

Sustainable Techniques and Methods at Hamad Port’s CT2:

► SEWAGE TREATMENT PLANT\*

Sewage treatment is undertaken at Hamad Port to remove contaminants from sewage and produce an effluent that is suitable for discharge to the surrounding environment or reuse application, thereby preventing water pollution from raw sewage discharges.

\*This initiative is undertaken by Mwani Qatar.

► SPRING LOADED” MANHOLE COVERS

The manhole covers that were used do not require manual or mechanical lifting which has positive impacts on environment, health and safety.



# The Supreme Committee for Delivery and Legacy

At the heart of efforts to deliver the first FIFA World Cup™ in the Middle East and Arab world, was an unwavering commitment to sustainability. It was a core value that informed the planning, design, construction, testing and delivery of operations throughout the tournament, and, more importantly, a pillar of the legacy that the FIFA World Cup™ shall leave behind for Qatar and the region.

### FIFA World Cup Qatar 2022™ Sustainability Pillars:

The FIFA World Cup Qatar 2022™ Sustainability Program was the most comprehensive for any FIFA World Cup™ to date. It covered five pillars: human, social, economic, governance

and environment. Not only did it help deliver an amazing tournament, but it enabled Qatar to make tangible progress towards the Qatar National Vision 2030 (QNV2030), as well as the United Nations Sustainable Development Goals.

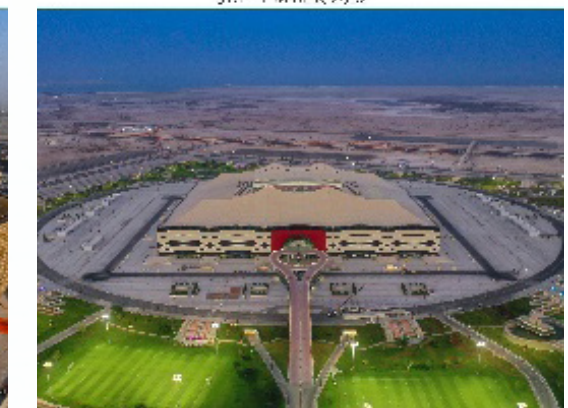
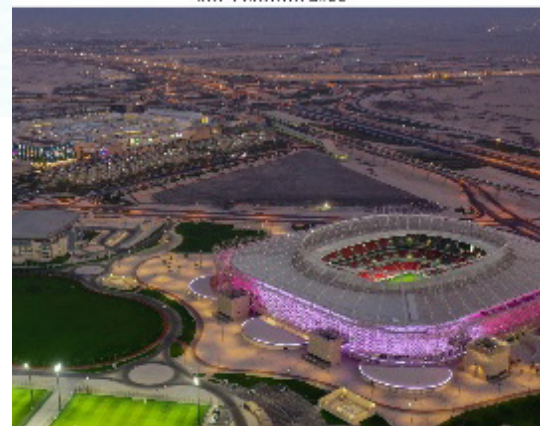
### The design of the eight FIFA World Cup Qatar 2022™ stadiums blended architectural innovation with a commitment to reflecting the region's heritage::

Qatar 2022 stadiums symbolised the spirit of Qatar, reflecting the essence of the country's identity whilst incorporating state-of-the-art technologies, innovations, and rigorous sustainability standards.

### Key Sustainability Achievements:

#### ► Sustainable Buildings:

- Global Sustainability Assessment System (GSAS) Green building certification achieved for all 8 stadiums ahead of the tournament.
- Exceeded FIFA requirements of 4\* GSAS in 5 stadiums, including GSAS Construction Management and Operations certification.
- Ensuring that stadiums were 30% more energy efficient, and 40% more water efficient than business as usual designs.
- Over 50 hours of knowledge sharing



sessions held during construction stages.

- 18 hours of workshops on Green Hospitality conducted, with almost 100 local hotels in attendance.

#### ► Circularity:

Qatar hosted the first FIFA World Cup™ in the region through the development of sustainable infrastructure, charting a climate action path, and responsible resource management. When the road to the FIFA World Cup™ started in Qatar, there was virtually no renewable energy, very limited public transport, no recycling, and no electric vehicles. After 12 intensive years of preparations for the FIFA World Cup Qatar 2022™, Qatar now has one of the largest solar power plants in the region, and one of the best metro systems in the world. Qatar 2022 organisers recycled 77% of waste from FIFA World Cup™ stadiums and have deployed one of the largest fleets of

electric buses in the world.

- Qatar recycled almost 80% of waste generated from the construction of stadiums.
- During Qatar 2022, over 4,000 tonnes of waste generated and segregated at tournament stadiums.
  - 77% of waste from stadium operations was recycled or composted.
  - Remaining waste turned into green energy.
  - Zero waste from stadiums went to Qatar's landfill.
- All contracts required compliance with the Qatar 2022 Sustainable Procurement Code, and all catering contracts required the elimination of single use plastics.
- Qatar 2022 sponsors provided, for the first time, recycled PET plastic bottles,

minimizing the impact of new plastic use in over 8 million bottles.

- Tournament organisers implemented water refilling stations and avoided the use of over 300,000 new plastic bottles.
- Tournament organisers worked with a recycling market and created local recycling initiatives, resulting in the first PET recycling factory in Qatar.
- Over 130,000 people were trained on sustainability in event management, and Qatar 2022 was the first FIFA World Cup™ to achieve sustainability management system certification (ISO20121).
- **Climate Action:**
  - Pre- and post-event GHG emissions inventory.
  - Instead of using diesel generator farms to provide temporary power, electric substations built and





- accounted for as legacy use, saving 82% diesel requirements.
- 750 Electric buses deployed and free public transportation with Hayya card.
- Solar power bus charging station built.
- 90% reduction of temporary diesel generators through smart utilization of national grid for temporary electricity demand.
- Establishment of a tree and turf nursery by the Supreme Committee for Delivery and Legacy:
  - Located in the North of Doha, spanning 770,000 m2, the nursery met planting requirements for the stadium's pitches, training sites, and surrounding areas.
  - Many of its plants were native to Qatar, over 250 distinct types of trees, shrubs, ground covers, succulents, climbers, and turf.
  - 800MW Al Kharsa'ah solar power plant inaugurated prior to the FIFA World Cup™.



**Social Impact:**

Qatar 2022 stadiums offered an array of services for disabled people, enabling fans to enjoy the excitement of the tournament in a barrier-free and unprecedented way. In addition to providing many seating options for wheelchair users with the best locations to watch the match, the stadiums also included sensory rooms that enabled people with autism and sensory perception difficulties to enjoy football in a calmer and more controlled environment, equipped with staff and assistive technology. For blind fans, organisers provided Audio Descriptive Commentary (ADC) in the Arabic language for the first time.

All accessibility planning for the tournament was driven by international standards and the Accessibility Forum, a community initiative that enabled disabled fans to be active participants in the planning and delivery of the tournament. The result was that Qatar 2022 exceeded international best practices, while creating a long-lasting legacy of accessibility for generations to come.

**One Tide:**

The OneTide programme is an SC legacy programme that aimed to bring people together in Qatar on the issue of plastic waste prevention #AsOneTide.

The Supreme Committee for Delivery & Legacy and the Ministry of Environment and Climate Change partnered with local industries in Qatar to launch the OneTide Industry Coalition on 16 December, 2022. The Coalition's objective was to identify and promote long-term plastic waste management and circular solutions in Qatar.:

**Achivementd include:**

- Calculated first ever plastic waste footprint for a mega event to define reduction initiatives and compensate with recovery of equivalent waste from nature.
- Established OneTide plastic waste reduction awareness program.
- Fast tracked regulations to allow rPET to be used for food grade items.



- Supported local and international beach clean up projects, collecting 400 tonnes of plastic waste.
- Self-assessment of plastic use within the participating organizations and waste reduction roadmaps.
- Qatar specific data collection on PET and analytics.
- Community recycling stations in public places and awareness campaigns.



**Eng. Bodour AL Meer**

*Sustainability Executive Director - Supreme Committee for Delivery and Legacy)*

"Although the tournament lasted approximately one month, it was a transformative event that was twelve years in the making. Sports, and football in particular, have a unique capacity to inspire and spark the passion of millions of fans around the globe. Hosting the FIFA World Cup Qatar 2022 was a precious opportunity that we had the honor of hosting. Our work now must be to continue to collaborate and work together to deliver a sustainable legacy for our region."

**Legacy Impact:**

- Implementation of the Qatar 2022 Sustainability Strategy paved the way for future events in Qatar.
- The Qatar 2022 Sustainable Sourcing Code created new supply chains in the market, especially for compostable and biodegradable service ware that were previously unavailable.
- Extensive stakeholder consultation led to improved recycling rates and the development of new recycling capabilities in the country.
- GSAS certification uptake increased for many other types of building.
- SC Tree and Turf Nursery set new opportunities and long-term vision for planting and turf strategies.
- Four Best Practice Reports were published relating to sustainable construction.
- Over 50 sustainability articles have been published, and numerous conference presentations, increasing awareness and capabilities of sustainability in Qatar.



## Katara Hospitality: Committed to sustainability across our diverse portfolio of hotels and resorts



Sustainability is a matter of great significance that lies at the heart of Katara Hospitality's mission as we are deeply committed to advancing sustainability in the local and international hospitality sector. In addition, we play a pivotal role in shaping a more sustainable future for Qatar.

In the realm of hospitality, our mission extends beyond providing luxurious accommodations; it encompasses the responsibility of stewardship for the

environment and the communities we serve. At Katara Hospitality, we firmly believe that sustainable practices are not just good for business; they are essential for the well-being of our country and the long-term success of our industry.

One of the cornerstones of our commitment to sustainability is the implementation of eco-friendly practices across our diverse portfolio of hotels and resorts. We are dedicated to minimizing our environmental footprint

through energy-efficient technologies, water conservation measures, and waste reduction initiatives. From implementing smart building systems to utilizing renewable energy sources, we strive to set new standards for sustainable hospitality operations.

Katara Hospitality is also deeply invested in sustainable sourcing and responsible consumption. We understand that the choices we make in procurement and the products we offer have far-reaching implications.

By prioritizing locally sourced, organic, and ethically produced goods, we not only support local economy but also contribute to a more sustainable and resilient supply chain.

Our commitment to sustainability extends to the communities in which we operate either in Qatar or in the world. Katara Hospitality is actively engaged in community outreach programs, supporting local initiatives that focus on education, environmental conservation, and social development. We believe

that by investing in the well-being of our communities, we can create a positive and lasting impact that goes beyond the walls of our properties.

Moreover, we recognize the role of education and awareness in fostering a culture of sustainability. Katara Hospitality is committed to raising awareness among our guests, employees, and stakeholders about the importance of sustainable practices. From providing eco-friendly amenities to organizing community events, we

aim to inspire positive change and encourage a more conscious approach to hospitality.

In conclusion, sustainability is not just a concept at Katara Hospitality; it is a fundamental part of our identity. As the leading hospitality provider in Qatar, we understand the responsibility that comes with our position, and we are dedicated to setting new benchmarks for sustainable practices in the industry.



## The Public Works Authority 'Ashghal' Promoting environmental sustainability practices in infrastructure projects

The Public Works Authority 'Ashghal' has exerted significant efforts to incorporate sustainability in its strategic plan and had implemented various initiatives on work sites that aim to ensure sustainability and environmental protection as part of its commitment to play a pivotal role in the achievement of Qatar's strategic objectives, in line with Qatar National Vision 2030.

Promoting sustainability and recycling is an essential goal within Ashghal's Corporate Strategy 2018-2022 and all of the efforts employed in this field, not only aim to achieve environmental protection and create balance between economic growth and environment preservation but also to set the example both locally and regionally and share the knowledge and best practices across all of the sector's parties.



### Application of global programmes and systems

Ashghal has established several management systems, programmes and initiatives aimed at engaging all stakeholders from consulting companies, contractors, suppliers, workers, and others, and encouraging them to adopt positive environmental practices, create solutions and new methods, and apply them during different stages of project implementation.

The Public Works Authority has been adopting many initiatives and modern working systems with the aim of applying the highest environmental and sustainability standards and increasing the efficiency of the road network and traffic safety on it as well as recycling materials used in construction works. The volume of the recycled materials and their use in projects reached 19,073,151 tons by about 52%.

### Environment and Sustainability Monthly Report (ESMR)

As part of its efforts to improve environmental performance, Ashghal developed and implemented its Environment and Sustainability Monthly Report (ESMR) in 2019. The ESMR is an innovative tool for accurately monitoring and reporting all construction materials as well as carbon impacts and reductions.

The ESMR allowed Ashghal to measure its carbon footprint against the conventional approach and reported a total carbon emissions reduction of a 148,709 (tCO2e) in year 2022 in the Roads Projects Department's projects.

### Construction material recycling yards

Furthermore, Ashghal established three strategically located construction material recycling yards to the North, West and South of Doha to optimize resource

efficiency. These facilities became operational in 2020 for processing and recycling construction waste materials (excavated material, reclaimed asphalt, concrete, and demolition waste) instead of disposing them in landfill.

Ashghal's Recycling Yards contributed to reducing the one-way distance for disposal to landfill by 60 km on average, as well as the demand for imported construction materials, leading ultimately to the reduction of carbon footprint.

### Recycled asphalt material

Sustainability initiatives implemented in Ashghal's projects include the recycling and use of rubber tires as an improved material to use bitumen modified with crumb rubber (CRMB) which in turn is used in the work of asphalt mixes, where 2,657 tons of this material were produced in 2022, thereby increasing the stability and durability of asphalt for longer periods of time and reducing noise on the road. The initiative also contributed to recycling older tires rather than dispose them in landfills to preserve the environment and achieve sustainability.

In addition to producing modified bitumen, reclaimed asphalt is also used from existing roads prior to the commencement of development projects and is recycled in the asphalt layers that are paved on new roads and upgraded roads. During 2022, 51,577 tons of reclaimed asphalt were reused in the road paved asphalt layers.

Furthermore, in the construction of the projects, used concrete and extracted materials are recycled in excavation and aggregate works, with 2,851,373 tons used in base course and 15,079,584 tons used in backfill work, as well as 726,180 tons used as a material for pipe and cable insulation.

Moreover, reclaimed asphalt from road upgrades is like "Qatar's topsoil", it has high recycling value for processing into asphalt mixes for new roads, like how traditional topsoil is preserved for rehabilitation. Approved Reclaimed Asphalt Pavement (RAP) mixes are implemented only in Base Courses, and Crumb Rubber Modified Binder (CRMB) asphalt mixes are implemented in the Wearing Course layer.





**Road maintenance operating techniques**

The Public Works Authority has also invested in introducing state-of-the-art sustainable road operation and maintenance technologies to maintain sustainability and reduce wastage in maintenance by scanning roads, bridges and drainage network using latest inspection techniques to identify any deficiencies prior to its maintenance work.

**Various initiatives**

To optimize the utilization of water resources, water resulting from dewatering has been used instead of potable water in project work, such as spraying over sand and soil to prevent dust volatilization, which contributed to reducing carbon emissions from water transport and supply as well as the consumption of natural resources. A total of 4,800,800 tons of groundwater was reclaimed and treated in Roads Projects



Department projects in 2021.

As for the innovative solutions used in Ashghal's projects, many of the projects have come to include smart transportation systems which can be easily developed and improved in the future, with the aim of managing road and traffic networks, thereby increasing the efficiency of the road network, enhancing traffic safety, and reducing congestion,

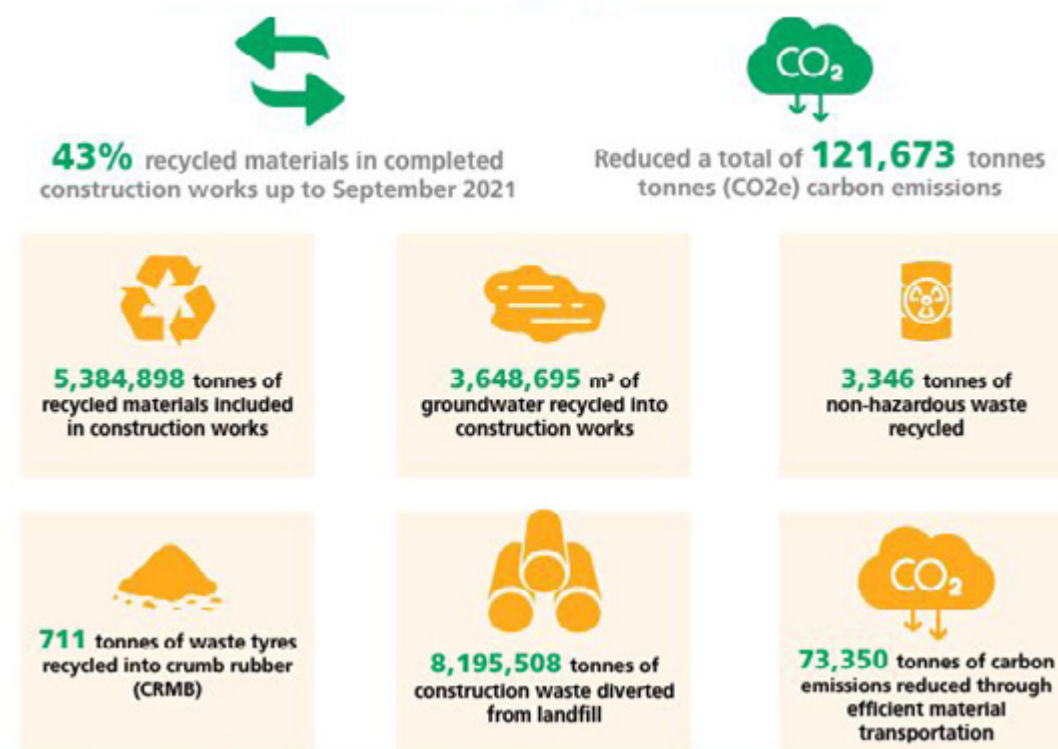
which will contribute to reducing travel time, air pollution and auditory pollution. Ashghal also worked to establish the largest solar-powered electric charging station in the region and provide high-efficiency solar cell shades to become the first bus station in the region to operate solely on a solar power source, an important aspect of renewable energy.

**Uses of treated wastewater**

Ashghal also designs, constructs, and operates 24 wastewater treatment plants spread across the cities of Qatar, and they produce approximately 700,000 m3/day of treated and produced wastewater according to global and local specifications in this field.

The power of one of these plants ranges from 280,000-100 m3/day, and the highest techniques are used in the wastewater treatment of biological treatment with nitrogen removal, phosphorus, sand filters, microns, sterilization process by chlorine and ultraviolet rays, and odor management technology.

Treated water produced by plants daily is also utilized in several uses supporting environmental sustainability as a type of recycling such as: green spaces irrigation, road beautification, fodder agriculture, cooling systems, and sand washing used in road and construction projects.



**Awards:**

In 2020, The Public Works Authority won the "Best Government Initiative" award at the Qatar Green Building Council's annual Sustainability Awards, and the "Green Award" initiative was nominated to win a Sustainability Award by the Institute of Environmental Management and Assessment under the "Best Campaign in the Government Sector" category.

Ashghal also carried out extensive research and testing to determine the feasibility and usability of the tire mill-modified asphalt mixture to suit the Qatari's environment, which contributed to Ashghal receiving an international award for a paper at the CIC 2020 conference.

At the international level, the Roads Projects Department's Areas Infrastructure Programme won the International Environment Award, as follows:

- ▶ International Sustainability Leadership Award from Business Intelligence Group in 2022
- ▶ International Communities Award in the category of Ethical and Environmental Sustainability for the Application of Green Initiatives in Areas Infrastructure Development Programme Projects in 2022.
- ▶ Harvard Business Council's Environment and Sustainability Diamond Level Award in 2022 for Road Projects
- ▶ 10 Green Awards of Ashghal for Projects of the Areas Infrastructure Development Programme in 2022
- ▶ Green Foundation Award for Environmental and Sustainability Efforts in the Areas Infrastructure Development Programme of Green Organization in 2021
- ▶ Best Working Paper Award during the International Conference on Civil Infrastructure and Construction (CIC) in 2020



- ▶ Government Sustainability Initiative Award within Qatar's Sustainability Awards from (QGBC) in 2020 on Roads Projects Department's Efforts in Sustainability
- ▶ Green Organization Award for Environmental and Sustainability Efforts in the Areas Infrastructure Development Programme of Green Apple Organization in 2021
- ▶ GORD's Sustainability Pioneers Award on Ashghal adopting the Global Sustainability Assessment System (GSAS) standards in its various projects.
- ▶ Qatar Sustainability Award for Ashghal's application of GSAS Standards in Educational and Health Building Projects

- ▶ Government Sustainability Initiative Award from Qatar Green Building Council in 2020
- ▶ ISO 14001:2015 Certification in Environmental Management System in 2020
- ▶ Hamad Medical Corporation Building Energy Efficiency Award at the fifth edition of the 2019 "Tarsheed" Celebration
- ▶ The first prize in "Tarsheed" competition from Kahramaa under the slogan "Green Foundation for a Sustainable Tomorrow, on the design of the building of the Qatar Center of Social Cultural for the Deaf, 2017