



The Circular Economy in Qatar 1

Scoping Paper
Executive Summary

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About This Report

This report is the first stage in a programme of work to develop data-driven policy recommendations that can support Qatar to diversify its economy and build a sustainable, circular economy for future generations.

It builds on the outcomes from workshops, interviews, and a survey to engage policymakers, professionals, academia and civil society within Qatar to capture their feedback. This report is a high level scoping exercise which explores how moving to a circular economy can support Qatar to deliver on its QNV commitments through building a circular economy and securing continued clean growth, whilst preserving its cultural identity and values. The policy proposals set out in this report are based on the views of around 200 stakeholders during workshops and surveys. In phase two, we will explore the impact and feasibility of the proposals identified in phase one in the Qatari context. This will be done through extensive literature reviews, interviews, surveys, and assessments of similar international policies.

The report explores 6 sectors: hospitality, water, plastics, food, the built environment, and energy transition and renewables. In each of these sectors the report identifies:

- the challenges to improving circularity;
- the opportunities that circularity can bring; and
- the pathways that can be taken to realise these.

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Executive Summary



It's about touching the earth lightly"

GLENN MURCUTT, ARCHITECT

A circular economy is a system-level framework that optimises the use of materials and products by circulating them within the economy. Through this, it eliminates waste (material and products that drop out of the cycle of economic utility), reduces environmental impacts and regenerates nature. The consequence of this approach is that it minimises or even eliminates the extraction of resources from the earth, thus maintaining the functional integrity of the earth's biosphere and preserving those resources for future generations. It endeavours to "touch the earth lightly".

Qatar is vulnerable to both the transitional and physical impacts of climate change and is already experiencing the financial impacts of environmental degradation. In 2010 the cost to Qatar of environmental impacts was estimated by the World Bank to be QAR 9.9bn per year (2.2% of GDP in 2010). This figure is likely to rise as the climate crisis deepens.¹ Therefore, for Qatar, transforming to a circular economy is an economic imperative.

In 2008 Qatar published the National Vision 2030 (QNV). This Vision reflects the priorities and values of the Qatari people and established four pillars to set a framework for future growth and prosperity. These pillars are:



Human development of all people to sustain a prosperous society;



Social development of a just and caring society based on high moral standards, and capable of playing a significant role in the global partnership for development;

QATAR'S PROGRESS

In a single generation, Qatar has transformed its economy and now has one of the highest GDP per capita in the world.² Now, the country faces new challenges in the face of growing global concerns about sustainability and the impact of anthropogenic greenhouse gas emissions on the climate, people, the economy, and ultimately the 'health' of the planet. By drawing on its economic and cultural strengths and building on its reputation as a reliable trade partner, Qatar is in an influential position to establish itself as a sustainability exemplar in the Middle East and North Africa (MENA) region and even globally.

Qatar's progress across the sustainability and circular economy fields to date is far-reaching. For example, it was an early adopter of international environmental agreements such as its ratification of the UN Framework Convention on Climate Change (UNFCCC), Qatar's National Development Strategy (NDS), stipulates that prosperity and sustainability must sit side by side.

Qatar has now arrived at a pivotal point in its history. Decisions and investments made now will secure progressive sustainable development and allow Qatar to move with confidence through geopolitical challenges.



Economic development of a competitive and diversified economy capable of meeting the needs of, and securing a high standard of living for all its people for the present and for the future; and



Environmental development. Management of the environment such that there is harmony between economic growth, social development and environmental protection.

ECONOMIC DIVERSIFICATION

Qatar's economy is heavily reliant on the energy sector. This makes the country vulnerable to the transitional risks of climate change including "stranded assets" (infrastructure or resources which are no longer of use). As set out in the NDS 2018-2022, diversification of the economy is needed to generate income from sectors other than energy to ensure that the country is resilient to "fluctuations of the global economy".³

In the NDS, six sectors were identified as priority growth areas. These were: (i) manufacturing industries; (ii) financial services; (iii) professional and scientific activities; (iv) tourism; (v) logistic services; and (vi) information and communication.⁴ Qatar has already expanded and developed new sectors through its free zones and other initiatives. Free zones provide an investor-friendly legal and regulatory environment and have played an important role in catalysing export-oriented diversification in Qatar. The health sector is another area where Qatar has expanded and thanks to significant public investment it is now considered to be one of the best in the world.

Throughout this report, opportunities have been highlighted where circularity can create new prospects to enhance Qatar's diversification objectives and benefit from growth in non-hydrocarbon industries.

OPPORTUNITIES AND CHALLENGES

Qatar's wealth and aspirations place it in a unique position to demonstrate its resolve and capitalise on the growing global focus on sustainability and the environment. Moving toward a circular economy has the potential to significantly strengthen economic growth. In Europe, the Ellen MacArthur Foundation found that adopting a circular economy could boost Europe's resource productivity by 3% by 2030, generating cost savings of €600bn a year and bring in €1.2 trillion of other benefits.⁵ These savings were particularly in areas such as mobility, food and the built environment, which are also key sectors of Qatar's domestic economy.

Feedback was received from over 130 stakeholders working across a diverse range of sectors including climate change and organisations' sustainability. Both the survey and workshops sought views on the opportunities that Qatar could realise from moving toward a circular economy and the challenges it faces in achieving them. Respondents to the survey were also asked which sectors had the most potential to achieve positive environmental and/or economic impact by moving toward a circular business model. Full details are set out in Annex 3.

The top opportunities and challenges identified across the sectors are summarised below:

- The need for more government intervention and oversight was a priority in all sectors, with 35% of respondents citing a lack of policy enforcement as one of the top three barriers to moving to a circular economy. Many respondents called for new regulations on sustainable standards with 40% of respondents identifying it as one of the top three priorities to support a move to a circular economy. Feedback suggested that a top-level commitment was needed from government to build momentum to move toward a sustainable business model with a need for strict enforcement with penalties for transgression.
- Sustainable innovation was a strong theme in all the sectors. Many sustainable technologies are not suited to hot, arid conditions, necessitating development of bespoke, adapted technologies. For example, solar panels have struggled to maintain efficiencies with the high temperatures and dust in environments like Qatar. A lack of suitable sustainable alternatives was raised as the number one barrier to moving to a circular economy by respondents, with 35% of respondents listing it in the top three. Innovation would ensure that sustainable alternatives were available and help reduce the price. During one consultation, a participant proposed the creation of a sovereign wealth fund focused on leveraging finance to stimulate and support sustainable innovation. This could further support the diversification of Qatar's economy through establishing it as a regional hub for sustainable industries. Qatar could establish itself as a global leader in innovation and support the development of abatement technologies that could extend the lifespan of Qatar's Liquefied Natural Gas (LNG) sector for example through Carbon Capture and Storage (CCS).
- In all sectors, respondents identified that public information or behaviour change campaigns could have the biggest impact to support a move toward a circular economy, with 41% picking it as a top three priority. Inadequate education on the impacts of behaviour on the environment was identified as the second largest barrier across the sectors with 35% identifying it as a top three barrier. Building awareness of how improved behaviours impact on the environment can be a quick win for moving to a more efficient, circular economy. Alongside this, there were calls for green or sustainable procurement, cited by 28% of respondents as a top three priority intervention.
- Collaboration was a common theme, particularly regarding the sharing of insights and education between institutions to break down institutional barriers that limit collaboration and sharing. Qatar has a world-class education system and hosts a number of notable universities. However, coordination gaps and the mismatch of agendas were identified between the needs of industry and the research focus of academia.

Sectoral approaches

HOSPITALITY

BACKGROUND



As seen in Qatar's aim to deliver the most sustainable World Cup to date, Qatar's hospitality sector has significant potential for sustainable expansion, supporting objectives for economic diversification. The government and private sector aim to invest ~\$45bn into the tourism sector by 2030.⁶ With growth of the sector comes the risk of a greater impact on the environment both in terms of emissions and the biodiversity of vulnerable habitats such as coral reefs and deserts.

KEY CONSULTATION THEMES (BARRIERS AND PROPOSED SOLUTIONS)

Key themes from the consultation included:

- 37% identified a lack of suitable alternatives to products which were accessible or affordable.
- A lack of policy enforcement was identified as a challenge and 39% suggested centralised guidance on sustainability to support hotels to understand which approaches they should adopt.
- A lack of available and accessible data, particularly with regard to lessons learned from other hotels.
- Respondents proposed public and staff information campaigns, 41% identified integrated sustainable procurement standards, and the introduction of incentives to reward staff and guests for sustainable activities such as recycling bottles.
- 44% suggested hotel alliances to share information, build awareness and understand best practices.

CONCLUSION

Due to tourism being identified as a priority for Qatar's diversification strategy and the international growth in eco-tourism-expected to be worth \$334.4bn globally by 2027 - the sector offers significant circularity potential.⁷ This can be achieved through a well-coordinated policy landscape that is developed in collaboration with the industry and matches the ambition of the National Tourism Sector Strategy 2030

PLASTICS, INCLUDING FASHION AND PACKAGING

BACKGROUND



Qatar has taken positive steps to reduce waste plastic through a mixture of government and private sector-driven approaches. The government has set targets to increase the proportion of recycled materials to 20% of total materials used in 2022¹⁴ and introduced a ban on single-use plastic bags in November 2022.¹⁵ Organisations such as Al Meera, a grocery retailer, have introduced initiatives to encourage the use of reusable bags¹⁶ and the Pearl, an artificial island in Doha, has introduced innovative "sea bins" to collect plastic waste.¹⁷ Plastic waste pollution could have a significant impact on Qatar through microplastics entering food systems and the impact on air quality and health from the incineration of waste.¹⁸

KEY CONSULTATION THEMES (BARRIERS AND PROPOSED SOLUTIONS)

Key themes from the consultation included:

- Challenges around suitable alternatives to plastic (44% of respondents), inadequate education on the impacts (40% of respondents), and a lack of infrastructure for recycling and the need to rely on private companies (28% of respondents).
- Societal pressures to avoid wearing the same clothes twice were cited as contributing to increased textile waste.
- Proposed solutions centred around increasing consumer awareness, including through: enhanced transparency on the environmental impacts of goods (25% respondents); regulatory approaches such as bans on single-use plastic and/or an extended producer responsibility (EPR) scheme (69% respondents); and taxes or fines (32%).

CONCLUSION

In line with the global momentum to address plastic pollution and the significant imports of plastic and textiles, Qatar has begun to take the necessary steps towards a more sustainable system. The next stage will need to involve investment in the necessary recycling infrastructure and the introduction of a regulatory framework which places an onus on producer responsibility.

WATER

BACKGROUND



The issue of water scarcity has been a prevailing problem throughout Qatar's history and will only be compounded by climate change. The government has made significant strides, with: the National Environment and Climate Change Strategy⁸ establishing clear targets to reduce groundwater abstraction by 60% work by KAHRAMAA (the national electricity and water utility company) to upgrade services and reduce leaks¹⁰; and the establishment of Tarsheed (a public awareness campaign run by KAHRAMAA) to reduce the per capita consumption of water and lower carbon emissions.¹¹ However, desalination - the process by which the dissolved mineral salts in water are removed - has a significant impact on the environment. Brine and chemical residues from the desalination process have been discharged into the environment causing rising salinity in the Gulf which has damaged marine aquatic organisms and habitats.¹²

KEY CONSULTATION THEMES (BARRIERS AND PROPOSED SOLUTIONS)

Key themes from the consultation included:

- The challenges related to low policy enforcement (41%), short termism (25%), a lack of awareness of the environmental impacts (37%), infrastructure investment, and paucity of sustainable alternatives to fossil fuel powered desalination.
- The need for metering (currently not in place for either domestic sector or industry) to ensure that residents are aware of their water usage and so that more targeted interventions can be made to reduce wastage (20%).
- Respondents proposed awareness campaigns and further interventions centred around behaviour change to encourage a reduction and re-use of water through incentives (20%), education (44%) and fines (31%).
- Building on the success of Tarsheed with innovative approaches to water preservation. These included proposals such as capturing water from the air and from AC units.

CONCLUSION

The first priority is the efficient use of water i.e., through reducing the use of potable water. This needs a shift in behaviour to achieve efficiency. Next to this, the treatment and reuse of wastewater has the most potential to reduce environmental impacts from the water sector. The cost of treating wastewater is less than half the cost of desalination.¹³ There are also infrastructure costs; eg: CO₂ emission reduction could be made through renewable-powered desalination plants, new innovative agricultural techniques and tighter regulations on water consumption across all sectors.

FOOD AND DOMESTIC WASTE

BACKGROUND



Approximately 60% of domestic waste in Qatar is comprised of food waste.¹⁹ Driven by the scale of the domestic waste, the need to improve food security and the challenges of relying on food imports, the government has set a target to achieve 70% self-sufficiency in the production of fresh vegetables by 2023.²⁰

KEY CONSULTATION THEMES (BARRIERS AND PROPOSED SOLUTIONS)

Key themes from the consultation included:

- Dependence on imports and climatic conditions in Qatar mean food has a substantially lower shelf-life than in countries able to access fresh goods locally, leading to high levels of waste and a greater reliance on plastic packaging to retain freshness.
- A perception that lack of education on the environmental impact of unsustainable waste disposal is leading to high levels of waste (42% respondents). Alongside this, respondents proposed staff training on sustainable best practices (28%).
- Lack of infrastructure to accommodate waste (41% respondents).
- Proposed interventions included: supporting the expansion of composting facilities; 55% of respondents called for campaigns to shift consumer behaviours such as programmes to redistribute excess food to poorer households; the introduction of new standards and regulations (41%); and expanding the utilisation of waste-to-energy methane collection.
- There was also a discussion on embedding national pride into sustainability initiatives.

CONCLUSION

Qatar's Food Security Strategy centralises agricultural self-sufficiency, offering a significant opportunity to both diversify the economy and position Qatar as an innovation hub for sustainable food production. Embedding sustainability into this policy and developing an efficient waste recycling infrastructure will enhance agricultural sustainability, help to create sustainable food production systems, reduce export demand and food waste.

THE BUILT ENVIRONMENT

BACKGROUND



The built environment, and within that the design and construction industry, is an integral part of the economy. Strides have been made towards sustainability and circularity through the application of voluntary building sustainability assessment systems. These include the Leadership in Energy and Environmental Design (LEED) and the Global Sustainability Assessment System (GSAS), which is a built environment sustainability rating system developed by the Gulf Organisation for Research and Development (GORD) in Qatar. Largescale urban developments such as Lusail City and Msheireb Downtown, as well as the World Cup stadia and associated buildings have deployed these systems.

Operational use accounts for a significant proportion of the life cycle carbon emissions in this sector. Other environmental impacts related to the built environment range from air pollution (like ozone depletion and acidification) to waste production. These become evident when a life cycle assessment approach is adopted that extends from cradle (when all construction materials and products are made from raw materials) to delivery on site, their functional lifetime within the built environment and then to grave (when all the materials and products are returned safely to the Earth).²¹

KEY CONSULTATION THEMES (BARRIERS AND PROPOSED SOLUTIONS)

Key themes from the consultation included:

- Challenges to improving sustainability due to a 'siloeed approach to policy interventions' (30% respondents), a lack of strong regulation (40% respondents) and a lack of incentives to use domestic recycled materials.
- Respondents noted that construction methods and materials used were often low quality and there was lack of available data on their environmental impacts.
- Proposed interventions also included the development of coordinated national planning approaches and standards (59% respondents); innovation for green construction materials (17% respondents); tax incentives for sustainable retrofitting (24% respondents) and changes to procurement practices (54% respondents) including post occupancy evaluation and strict policy enforcement.

CONCLUSION

In recent years construction in Qatar has increased exponentially, accompanied by a range of policy interventions to promote sustainable development. Qatar now needs to build on this track record and the momentum from the World Cup 2022. Policy interventions should take both a holistic approach to address the built environment's whole life cycle (including recycling and use of certification schemes) as well as a more targeted approaches for different project types and building archetypes.

ENERGY TRANSITION AND RENEWABLES

BACKGROUND



The energy sector has considerable environmental impacts, from emissions to air pollution and the release of harmful chemicals. Energy transition is therefore a global priority, with a number of multinational initiatives launched in the last year to mobilise billions towards the just transition, particularly in emerging economies.²² Qatar is in a strong position to capitalise on this and its reputation as a reliable trade partner to harness private sector investment. Qatar has made significant progress in scaling up renewables, in particular solar, with the launch of a new solar plant, which is set to provide up to 10% of Qatar's peak electricity demand.²³

KEY CONSULTATION THEMES (BARRIERS AND PROPOSED SOLUTIONS)

Key themes from the consultation included:

- Absence of a long-term target for decarbonisation and a post-2030 plan from Qatar Energy (29% respondents) with respondents calling for a long-term transition strategy as a priority to ensure continued investment in the sector.
- A lack of adequate infrastructure and accessibility of sustainable alternatives, as well as research collaboration gaps between academic institutions and industry (32% respondents).
- Another proposal from 39% of respondents was for Qatar to position itself as a sustainable energy innovator whilst prolonging the life of the hydrocarbon sector in a net-zero world.
- New carbon markets or pricing systems were also identified by 38% of respondents as a priority for the sector, as was the introduction of regulations on sustainable standards (30% of respondents).
- Subsidies for green companies were proposed by 26% of respondents.

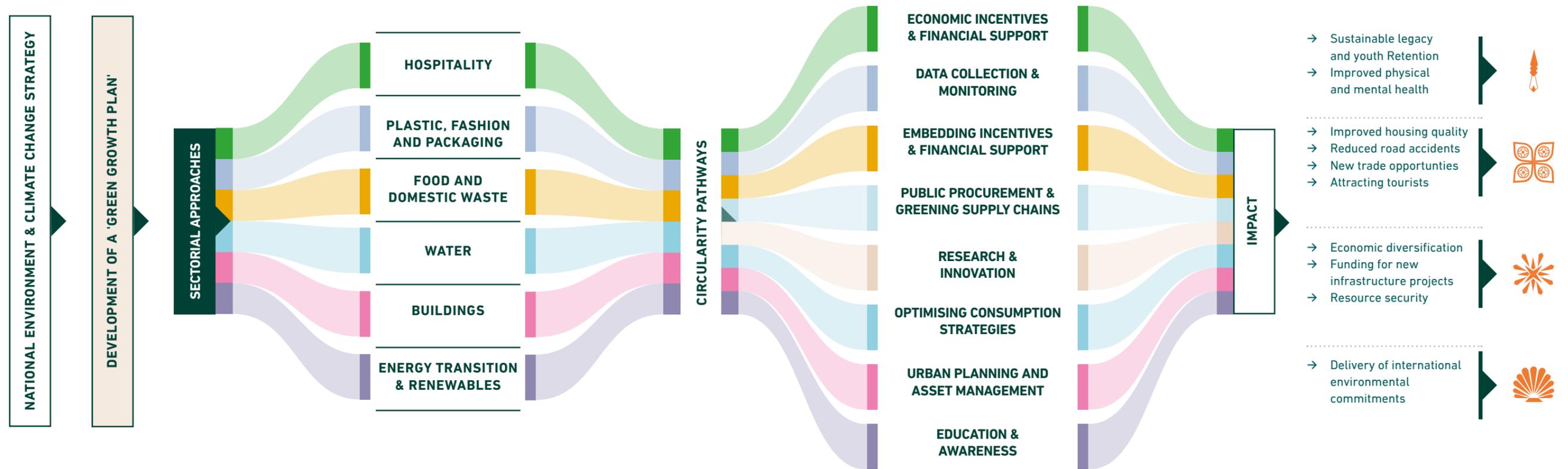
CONCLUSION

Acting on the need to diversify and innovate in the energy sector, whilst pivoting away from a reliance on hydrocarbon exports, is essential to ensure Qatar's sustainable development. Continued investment in renewables will be an important part of this strategy.

NEXT STEPS

During the next stage of work an Issues Paper will be developed. The paper will focus on the built environment, hospitality, and food and domestic waste sectors. It will seek to understand the economic and environmental impact from the pathways proposed in the initial consultations and provide targeted policy recommendations to realise the circularity pathways and overcome the challenges identified. The policy recommendations will be rigorously tested against data and analysis from Qatar or international benchmarks to determine the interventions' effectiveness for addressing environmental and climate issues and the impact on Qatar's economy.

CIRCULAR PATHWAYS TO THE QATAR NATIONAL VISION 2030



Opportunities from a circular economy

Moving toward a circular economy can help to realise a number of opportunities for Qatar and support the delivery of the QNV.

QNV PILLARS	QNDS2 PRIORITY PROJECTS	CIRCULAR ECONOMY OPPORTUNITIES
HUMAN DEVELOPMENT 	EDUCATION & TRAINING	Moving toward a more circular economy can support a range of human development indicators. It can improve the harmonisation between education and the labour market through creation of new industries and training programmes. In turn, this can help to retain skilled workers in Qatar after they graduate from university. There could be an opportunity for collaboration between the Education Ministry and Qatar Foundation to develop this. Increasingly, the younger generation's values are focused on their impact on the environment around them. Increased circularity can build pride in Qatari values through a shift toward more sustainable approaches. Deloitte's global Gen Z and Millennial survey found that climate change was the second biggest concern for these generations (25%), with 37% having left a job that did not align with their values. ²⁴
	HEALTHCARE	Approximately 70% of the population is overweight and 44% have low physical activity. ²⁵ Circularity can improve the health of a population and lead to a decrease in obesity rates through the encouragement of walking rather than driving. In addition, enhanced health protection can be achieved through minimising harmful chemicals in the environment and improved water and air quality. For example, as a result of China's wide-ranging Air Pollution Action Plan, a sharp reduction in particulate matter led to a 23% reduction in respiratory mortality between 2013 and 2017. ²⁶
	SOCIAL DEVELOPMENT 	SOCIAL PROTECTION, FAMILY COHESION AND WOMEN'S EMPOWERMENT
	SECURITY AND PUBLIC SAFETY	Reduced road accidents through improved provisions for pedestrians. In the United States, a higher number of bike lanes caused a significant reduction in fatalities, including a drop of 60% in Seattle. ²⁸
	SPORTS AND CULTURE	Aligning the growth of the hospitality sector with growing global eco-tourism trends can offer an attractive and bespoke experience for an increasingly environmentally conscious market. For example, the establishment of Jordan's largest nature reserve, the Dana Biosphere, has attracted a significant proportion of 150,000 ecotourists who have helped to support local employment and vulnerable households, and over 160,000 families within rural communities across the country. ²⁹
	INTERNATIONAL COOPERATION	Improving Qatar's sustainability credentials can support the building of political capital both in the region and internationally through an increased profile in the three Rio Convention discussions (biodiversity, climate change, desertification). This can be a useful tool in other international fora, such as trade. Increasing alignment with international sustainable finance standards, and other environmental standards, can also facilitate increased commerce. Earlier this year Japan launched the GX league, a carbon pricing system, with the aim of facilitating trade with the EU following the introduction of the EU's carbon border tax. ³⁰

QNV PILLARS	QNDS2 PRIORITY PROJECTS	CIRCULAR ECONOMY OPPORTUNITIES
ECONOMIC DEVELOPMENT 	ECONOMIC DIVERSIFICATION AND THE PRIVATE SECTOR DEVELOPMENT	Trillions of dollars need to be mobilised globally in order to adapt to the impacts of climate change, transition to a low carbon economy and stop biodiversity loss. ³¹ This cannot be met by the public sector alone. Countries are looking to catalyse investment from the private sector through public-private partnerships and innovation. Qatar can position itself at the heart of the sustainable transition through investment into sustainable innovation, research and development of new abatement solutions. At COP27 Egypt launched the country's Nexus of Water, Food and Energy (NWFE) programme to capitalise on international transition finance and mobilise finance for a transition to a low carbon economy.
	ECONOMIC INFRASTRUCTURE	Qatar can mobilise increased funding for infrastructure projects through polluter-pays approaches to policy. This can support a move to a more integrated, sustainable management of water and energy resources. For example, the EU's extended producer responsibility schemes places the responsibility on producers to put in place infrastructure for the re-use and recovery of used packaging. ³² Resource efficiency and security of supply for critical raw materials can be improved through recovery and re-use. Additionally, improving energy efficiency can enable Qatar to increase the gas available to export. In addition, this ethos can extend to buildings through wide scale extension retrofitting.
	NATURAL RESOURCES MANAGEMENT	Improved circularity can support industry through increased resource security for critical raw materials and support the development of abatement technologies to reduce the risk of stranded assets. Creation of a holistic urban circular ecosystem can enhance food, water and energy efficiency and expand agricultural outputs. Diversification of the energy mix to include renewables can increase profits from the natural resources sector. For example, in Bahrain, widespread usage of hydroponic farming produces over 5,000 tonnes of fresh food annually, whilst using 80% less water than traditional methods. ³³ There is also significant potential for Treated Sewage Effluent (TSE) to better manage water resources.
ENVIRONMENTAL DEVELOPMENT 	ENVIRONMENTAL SUSTAINABILITY	Moving toward a circular economy supports the delivery of environmental development objectives including Qatar's NDC and NDS and the commitment to preserve the desert and marine biodiversity. Development of permaculture, aquaponics, vertical farming and other innovative agricultural practices to build a sustainable agricultural system which also support a diverse economy. Through preserving and replanting mangroves, Egypt is enhancing biodiversity, protecting coastal erosion and combatting climate change, with the trees absorbing five times more carbon than conventional forests. ³⁴

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EARTHNA

Earthna is a non-profit policy research and advocacy center established under Qatar Foundation (QF) to inform and influence national and global sustainability policy.

Bridging technical and research expertise with policy advice and advocacy, Earthna will convene a wide community of technical and research experts, government, policy and decision makers, businesses, multilateral institutions, and civil society to generate a more sustainable future.

Earthna runs multidisciplinary programming with a focus on the fields of hot and arid climates, sustainable cities, and sustainable energy, as well as the potential of QF's Education City as a testbed for sustainable technologies and practices.

Earthna is focused on developing tools, solutions, and policies to improve people's lives within a thriving natural environment. Working together with our community to co-create and design solutions that utilize our resources and understand our local culture and needs, we deliver a message of hope and impactful action that will strengthen our legacy.

For more information on Earthna please visit: www.earthna.qa
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