

Qatar National Biodiversity Strategy and Action Plan 2015-2025



TABLE OF CONTENTS

EXECUTIVE SUMMARY	2
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I-INTRODUCTION	5
-----------------------	----------

- 1-1 Guiding Principles
- 1-2 Purpose of the revised strategy

II-CURRENT STATE OF BIODIVERSITY	7
---	----------

III-STRATEGIC GOALS AND TARGETS	10
--	-----------

- 3-1 Increasing knowledge
- 3-2 Increased awareness and participation
- 3-3 Protection of marine & coastal biodiversity
- 3-4 Protection of key terrestrial biodiversity through effective management of protected areas
- 3-5 Sustainable Development through incorporation of biodiversity conservation into national planning
- 3-6 Enhancing local capacity
- 3-7 Identifying main biosafety issues and ensuring equitable access to genetic resources

IV-PUTTING THE STRATEGY INTO ACTION	22
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REFERENCES

APPENDICES

Appendix 1: Summary of targets and associated Indicators

Appendix 2: The Aichi targets of the Convention on Biological Diversity

Appendix 3: Linkages between strategy goals, Aichi targets and Qatar National Development Strategy.

Executive Summary

The State of Qatar has seen fast paced development and industrialization, with social and economic changes taking place at an unprecedented rate. This rapid development and the growing resident population inevitably place pressures on the natural environment. However, these pressures can be monitored and managed to ensure that sustainable development and the vision set out in the country's development strategy 2030 can be achieved, coupling socio-economic benefits with the conservation of biodiversity and natural heritage.

With its economic stability and security and its forward thinking leadership, Qatar is well positioned to be amongst the leaders in the region in scientific research and nature conservation, taking advantage of the benefits to human well-being that come with sound and science based policies for resource use and land use. Natural and cultural heritage are intertwined and this updated strategy aims to establish a mechanism for their sustained conservation, building upon the multitude of successes and efforts that have already taken place in the past decade.

The main purpose of this update is to revisit the 11 strategic goals set out in Qatar's original NBSAP, and set out a more focused path. The ambitious 2004 NBSAP was developed with a very thorough consultative and well researched process and most of its elements have been retained. The current update aims to highlight priority goals and establish more specific, realistic and time-bound activities and outcomes for these goals, while retaining the overall elements set out in the 2004 goals for the vision and strategy. The update also aims to align the revised targets with the CBD's 2011-2020 Strategic Plan for Biodiversity and the Aichi Targets, and harmonize them with recently developed national strategies including the Qatar Vision 2030 and the Qatar National Development Strategy 2011-2016.

The successes and challenges in implementation achieved so far are taken into account through the review of national reports and through consultations with the Ministry of Environment and invited stakeholders. This update aims to avoid a full re-drafting and re-publishing of the original strategy set out in 2004, and hopes to refine it and re-organize specific targets in a pragmatic and realistic approach, based on identified priority issues, taking into account the current and foreseen capacity of national institutions for its implementation, and setting a timeframe of ten years (2015-2025).

2015-2025 Qatar Strategic Goals

1. Improve scientific knowledge of Qatar Biodiversity, its status and trends (Aichi target 19)
2. Raise public awareness & participation in biodiversity conservation (Aichi Target 1)
3. Conserve Qatar’s marine biodiversity & coastal habitats (Aichi targets 5, 6, 10 11 & 12)
4. Protect terrestrial ecosystems through effective management of declared protected areas (5, 10, 12, 11, and 15)
5. Develop sustainably by incorporating biodiversity conservation into national planning processes. (Aichi target 2, 4)
6. Build local capacity for biodiversity conservation (Aichi target 1, 2 & 19)
7. Improve knowledge of biosafety issues and activate the implementation of the Cartagena protocol on biosafety and Nagoya Protocol on access and benefit sharing. (Aichi target 9 & 13)

QATAR VISION 2030; Environmental Development Pillar: to ensure harmony among economic growth, social development and environmental protection.		
NBSAP Goal (2015-2025)	QNDS (2011-2016)	Aichi Targets (2011-2020)
Improved scientific knowledge	‘ Establish Biodiversity baselines, central database’	19
Increased awareness and participation	‘An increasingly environmentally aware population’	1
Key marine & coastal habitats protected and marine resources sustained	‘Nature & Natural heritage sustainably managed’	5,6,10,11 & 12
Key terrestrial habitats protected through effective management	‘Nature & Natural Heritage sustainably managed’	5,10,11,12,& 15
Biodiversity conservation incorporated into national planning	‘ Improved governance and outcomes’ ‘ a culture of evidence based policy making’	2,4
Enhanced local capacity	‘strengthening institutions responsible for the	1, 2 & 19

	environment' 'improved governance and outcomes'	
Main biosafety issues identified and genetic resources equitably shared	' Nature & Natural Heritage sustainably managed'	9, 13

I- Introduction

1.1 Guiding principles

The Qur'an has made it clear that Man should not ignore his responsibility of stewardship on earth. It is only when our ethical horizons extend to embrace not only mankind, but all generations and created beings that we can perform the noble role of stewardship on earth.

The protection of nature and natural resources are deep-rooted in Islamic values and in Qatar's constitution. These principles have guided the state's laws, policies, national development and they also form the basis and spirit of this National Biodiversity Strategy and Action Plan.

Islamic Principles for the Conservation of Nature:

1. Conservation of the natural environment is a moral and ethical imperative. Environmental problems cannot be solved through knowledge and technology alone. Only moral conviction and ethical consciousness, on both individual and social levels, can motivate people to forgo some of the short term profits of this life, and to make personal sacrifices for the common good.
2. Ethical teachings should be backed by legislation and effective enforcement of injunctions and prohibitions. The force of law and political authority are indispensable to bring about justice and equity in the allocation and distribution of natural resources and in implementing the measures required for the protection and conservation of the earth.
3. The development of the earth should be planned and implemented in accordance with natural constraints, ecological values and sensitivities. Planning for development should in every case include analysis of environmental impacts and be designed to minimize damage to the natural environment and depletion of natural resources.
4. Ecologically sustainable economic development needs to integrate social and economic practices acceptable to local populations. Conservation divorced from sustainable development is neither socially acceptable nor economically viable. People's rights to harvest and extract the natural resources on which society depends should be allocated according to the effort they invest in the beneficial use and conservation of these resources.
5. Scientific and technical knowledge of the natural environment and its conservation should continually be improved and developed. Accurate information is indispensable to enlightened decisions for the conservation of the natural environment. This will help us to avoid acts that lead to its destruction and the precautionary principle should be adopted before and after harm has occurred.

6. Development projects undertaken in one country should not lead to damage or harm in the natural environment of another country. National, local or private development projects should not be implemented if they will cause injury to others in neighboring countries.

7. The natural environment and natural resources should not be subjected to any irreparable damage resulting from military actions. Man has no right to exploit or damage natural resources in such a way as to spoil the food bases and other sources of subsistence for living beings, or expose them to destruction and defilement as may happen in a military confrontation.

The principles of CBD are thus consistent with those of Islam particularly as regards to the imperative to conserve nature, to respond to the needs of society (now and in the future), to integrate social and economic practices acceptable to local populations and to improve and develop scientific and technical knowledge

1.2 Purpose and Scope of the strategy

Article 33 of the Permanent Constitution for the State of Qatar, ratified in 2004, states “The State shall conserve the environment and its natural balance for the comprehensive and sustainable use of its resources for all generations”.

Qatar’s National Vision 2030, developed in 2008, rests on four key pillars, human development, social development, economic development and environmental development. In the fourth pillar, the national vision is to ‘manage the environment such that there is harmony between economic growth, social development and environmental protection’. The Vision states: ‘The State of Qatar seeks to preserve and protect its unique environment and nurture the abundance of nature granted by God. Accordingly, development will be carried out with responsibility and respect, balancing the needs of economic growth and social development with the conditions for environmental protection.’ Biodiversity conservation relates to all four of the National Vision’s key pillars; without nature and natural resources there can be no social or human or economic development. Qatar’s NBSAP was revised with this in mind, seeking a cross-sectoral viewpoint on all contents of this strategy, and emphasizing national integration of biodiversity conservation and cross-sectoral partnerships for its implementation.

The updated National Biodiversity Strategy and Action Plan (NBSAP) is based on the pillars and principles of Qatar’s National Vision and Permanent Constitution, and aims to be in harmony and synergy with the main priorities and goals set out in the Qatar National Development Strategy. This harmonization will ensure that the NBSAP is fully integrated into the national agenda and the systematic revision process of the national development strategy, ensuring that the strategy for biodiversity conservation and the strategy for national development are always interlinked. Indeed, the purpose of this strategy is not to constitute a set of goals or actions that would be solely relevant

to a single sector or government institution, disconnected from the national context. The purpose of this second version of Qatar's NBSAP is to set out feasible, ambitious, targeted, specific and time bound targets that are in line with national priorities and that fit within the global action plan for biodiversity and its 20 Aichi targets.

The first version of Qatar's NBSAP contained eleven strategic goals that identified the most pressing biodiversity issues in Qatar. Each of these goals was supported by an action plan that was composed of a series of proposed short term and long term activities that can be developed into practical projects. Each goal was also followed by monitoring indicators and responsible institutions. The revised strategy maintains much of the original ideas and identified issues, but revises the targets and proposed activities based on the thorough revision of the implementation of the original strategy through Qatar's five national reports, and a series of cross-sectoral stakeholder meetings to identify gaps in the strategy, thus allowing a more targeted , pragmatic strategy with an action plan developed based on a deeper understanding of the factors that either contribute to or hinder successful implementation.

II- Current state of biodiversity

Qatar is a peninsula, about 180 km long and 85 km wide covering a land area of 11,437 sq. km and 900 km of coastline, surrounded on three sides by the waters of the Arabian Gulf. Its only land connection is Saudi Arabia to the south. The landscape of Qatar is generally flat and land elevation ranges between 6-103 meters above sea level. Rocky hills and sand dunes are found mostly in the south and saline swampy mud flats are common along the coast.

Qatar is classified as a hot subtropical desert. Average rainfall is 81 mm, average maximum temperature is 31 C and average minimum temperature is 22 C. It has no rivers or lakes and the primary sources of freshwater are rainfall and ground water. Terrestrial ecosystems are faced with slow recovery from disturbance due to the strong winds, low rainfall, high temperatures and low nutrient availability of the soil. The Arabian Peninsula is known to be one of the most hostile environments on earth and one of the most fragile, but also one where species have developed unique and interesting adaptations in order to survive.

The basic terrestrial habitat types to be found in Qatar include: mangroves, sabkha (salt marshes), sand dunes, Hammada desert (rocks and gravel), rocky ecosystems, wadis and runnels, and depressions that collect fine sand.

The Arabian Gulf, a shallow, semi enclosed sea with an average depth of 35 meters, slow water exchange and high levels of evaporation, represents an extreme environment where marine species are typically surviving at their thresholds of salinity and temperature tolerance. Recent studies have shown that these environmental conditions do not stop marine organisms and in particular coral reefs from recovering from natural mass mortality events, making the surrounding waters of Qatar and the Gulf in general an open air laboratory for studying the impacts of extreme temperatures and climate change on coral reefs and other marine species. In addition to high salinity and temperature variations, the region experiences natural oil seeps and high level of hydrocarbons in the water, and recent reports have indicated the ability of some species of endemic bacteria to utilize these hydrocarbons. These bacteria, coral and other endemic and uniquely adapted species represent valuable genetic and biological resources for future biotechnological advances that could hold the answer to many environmental challenges the world faces today.

The number of species being discovered in Qatar and in the region continues to grow, although studies are scarce. To date 1955 known species, of which 955 are marine, have been recorded in Qatar, some of them new to science.

The main body responsible for overseeing environmental preservation and management is the Ministry of Environment (formerly the Supreme Council for the Environment and Natural Resources).

Qatar shares similar environmental challenges to those identified globally and regionally, in particular those challenges related to rapid industrialization, climate change, invasive species, water scarcity and desertification. Qatar's National Development Strategy 2011-2016 has identified 5 main stress points for the country's environmental challenges: These are:

- Doha's rising water table compounding the city's environmental challenges;
- Increasing salinity in groundwater which is degrading soil quality;
- Air pollution contributing to health problems;
- Climate change and rising sea levels; and
- Biodiversity and several species under threat.

The National Biodiversity Strategy and Action Plan, taking an ecosystem approach to biodiversity management, has implications across all 5 of these issues but looks specifically at the fifth challenge to identify the main priorities for the next decade.

Since 2005, Qatar has increased its protected area coverage from 11% to 29%, hitting a higher target than the one set out in 2005. Considering the country's total surface area, this percentage

represents one of the highest in the world. Most of the protected areas are terrestrial, aiming to protect delicate desert ecosystems from overgrazing, development and desertification. However, there are currently no actively implemented management measures or monitoring in these areas to assess the effectiveness or performance of these protected areas. Similarly, no education and communication plans were developed to raise awareness about the purpose of protection or the value of species and habitats encompassed within these areas. Very little information is available on the current state of habitats and species and the status of management. Ecotourism was included



as a strategic objective in 2005, with the aim to develop several eco-touristic facilities at these reserves, however no significant visitor facilities currently exist, and very few residents or tourists are aware of the declared protected areas. There is little knowledge and understanding about ecosystem services and the benefits provided by biodiversity, and although the number of species researched and recorded in Qatar continues to grow, this knowledge is not well disseminated to residents and nationals, and environmental protection is often mostly associated with waste management and seen as the sole responsibility of a policing body (Ministry of Environment). One of the main goals and challenges for the next decade would be to significantly change perceptions, attitudes and interest towards biodiversity, by involving all members of the society and actively engaging them in biodiversity conservation.

Desertification in Qatar continues to be a problem. Qatar was once covered by much larger areas of grassland but these areas are now replaced by thorny perennial shrubs. Vegetation density has changed from 10% of land cover to about 1 % due to the loss of traditional Hima methods of rangeland management. Desertification is enhanced by uncontrolled livestock grazing, irrigation with high saline water, and encroachment of sand areas. A new law was introduced prohibiting grazing of camel herds in the entire country(Ministerial Decision 146 for the Year 2013). Overgrazing is a problem shared by all countries of the Arabian Peninsula, and is a result of the lack of research on the ecological carrying capacity of livestock grazing. In Qatar, agriculture uses up to 74% of freshwater resources and yet contributes only 1% of the GDP. Livestock supply, including sheep and goats which eat plants down to the roots unlike camels, has increased and traditional herding practices have changed, resulting in high localized grazing pressure and intensive use of fossil ground water supplies to grow nonnative feed population (Alfalfa and Rhodes grass). This has reduced the biodiversity of the shrub land landscape in Qatar, reducing many native plant species, reducing soil fertility and increasing wind erosion. Oryx and gazelle,

species that in the past naturally survived on these shrub lands, must now be fed with additional food resources inside the designated reserves.

Most development in Qatar takes place along the coast. Dredging, coastal reclamation, discharge from power plants, desalination and sewage treatment plants, ballast water and the petrochemical industry all contribute to stress on the natural marine environment. Qatar is blessed with sea grass beds that help feed the world's second largest population of dugongs and coral reefs that survive at the threshold of their tolerance, providing valuable nursery habitat for many commercially important fish species and providing key feeding areas for globally endangered sea turtles. Key marine habitats including coral reefs, sea grass beds and mangroves are the main focus for protecting marine biodiversity in the next decade, in addition to introducing measures to ensure that local fisheries become sustainable.

III- Strategic Goals for 2025

Goal 1: Increased knowledge of current and future status of biodiversity in Qatar
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Qatar National Target 1.1: By 2025, a complete open access biodiversity database is live online and fully functional, operating as an awareness tool as well as a decision making tool.

Qatar National Target 1.2: By 2025, at least 35 new scientific papers will have been published in peer reviewed journals on biodiversity issues in Qatar.

Qatar National Target 1.3: By 2025, the population trends of globally threatened marine and terrestrial species found in Qatar will be known.

Qatar National Target 1.4: By 2025, the key habitats for biodiversity conservation in Qatar will be known and mapped.

Qatar National Target 1.5: By 2025, an annual national Biodiversity Status Report will be introduced and published, and available in a format usable by policymakers.

A main gap identified in recent national reports is the lack of information on status, location and characteristics of the local biodiversity in Qatar to advise policymakers. In order for any conservation program or project to be successful, sound scientific knowledge is needed on species



occurrence, location, trends, threats, habitat requirements, ecological function and importance. Currently there are 33 species in Qatar that are on the IUCN Red List, but without proper population assessments for most known species and local populations, it is possible that this number could be an underestimate. Furthermore, regional assessments are needed to identify trends in certain local populations that may be isolated from the global stock.

There is a lack of information about the baseline environment and in many cases natural habitats have already been altered. Prioritizing resources and efforts is difficult without proper scientific information to adequately understand the main areas and species that require attention. Academic research is being carried out but remains insufficient, and data is scattered across several institutions without a proper platform for information sharing. A lot of the information persists in grey literature as each project requires an environmental impact assessment to be carried out, however there is a need to consolidate and carry out quality control on this data to make it comparable and usable. The Ministry of Environment has already entered the initial phases of planning for a comprehensive biodiversity database that would compile all existing research on biodiversity in Qatar including number, status and location of species, habitats and their main threats. Once fully functional, this database would operate as both an awareness and a decision making tool. The database and the overall need for more information on the current and future status of biodiversity in Qatar has also been identified as a strategic priority in Qatar's National Development Strategy 2011-2016.

Priority actions for achieving Goal 1:

1. Establish a biodiversity database
2. Commission a gap analysis in cooperation with other data holders (Center for Scientific and Applied Research (SARC), Ministry of Development Planning and Statistics, Ministry of Environment, national non-government organizations, Qatar University, petrochemical industries etc...)
3. Compile GIS data & sensitivity mapping, ensure up to date maps and information
4. Adopt and train personnel on scientific methodology for monitoring to produce comparable, long term valid data

5. Compile scattered data from grey literature, environmental impact assessments, academic research and departmental projects and make them publicly accessible
6. Form a working group amongst institutions and industries to coordinate data sharing mechanism and draft agreements on open access to data between relevant institutions
7. Establish monitoring and data collection programs for key areas and species to input into the biodiversity database
8. Establish a taskforce on developing monitoring and performance indicators for species, habitats and designated reserves; and
9. Provide incentives and funding for publishing research in international peer reviewed scientific journals.

Goal 2: Public participation in biodiversity conservation and increased interest & awareness

Qatar National Target 2.1: interactive environmental sciences, desert ecology and marine ecology modules with outdoor activities will be incorporated in all public middle school and high school national curricula by 2025.

Qatar National Target 2.2: Starting in 2015, at least one public nationwide campaign is held per year on biodiversity (marine, wetland, desert, etc...) with cooperation amongst NGOs, government and private sector.

Qatar National Target 2.3: By 2025, at least one community volunteer/citizen science program at one protected area is established.

Qatar National Target 2.4: Starting 2016, at least two annual biodiversity related nationwide celebrations and events are organized (World Environment Day, World Oceans Day, World Turtle Day, World day to combat desertification, Run/Swim/Bike for Biodiversity Marathon, International day for Biodiversity etc...)

Qatar National Target 2.5: By 2025, biodiversity news is featured at least 3 times a month in national media (social media, local English and Arabic press, national TV).

Qatar National Target 2.6: Between 2015 and 2025, at least one major international biodiversity conference is hosted in Qatar.

Priority actions for achieving Goal 2:

- Create an environmental education working group that includes members from the Ministry of Environment, Ministry of Education, Qatar University and representatives of public and private schools to set the main themes for an environmental education curriculum for primary and secondary schools.
- Develop an annual agenda for environmental awareness events and celebrations, and create the multi-agency committees responsible for organizing these events and determining respective budget allocations
- Invite national media outlets to publicize events and meetings and make known the main points of the National Biodiversity Strategy
- Seek local and international expertise in developing citizen science programs
- Provide academic institutions and libraries with environmental literature
- Upgrade curricula and teachers on biodiversity issues
- Organize outdoor activities that would introduce students to biodiversity

Goal 3: Preservation of coastal ecosystems and sustainability of marine resources

Qatar National Target 3.1: By 2025, all commercial fish in Qatar will be sustainably fished.

Qatar National Target 3.2: By 2025, the feasibility of at least one Marine Stewardship Council or Aquaculture Stewardship Council certified local fishery or farm is carried out.

Qatar National Target 3.3: By 2025, a marine turtle conservation action plan is in place and being implemented.

Qatar National Target 3.4: By 2020, a Marine Action Plan is developed, taking an ecosystem approach and identifying Ecologically and Biologically significant Areas (EBSAs)

Qatar National Target 3.5: By 2025, 3 new adequately selected key representative coastal/marine protected areas are declared for conservation, including nesting and habitats for marine turtles, migratory birds, coral reef habitat and/or sea grass habitat.

Qatar National Target 3.6: By 2025, key areas for whale sharks are known and protected.

Qatar National Target 3.7: By 2020, marine mammal annual and seasonal surveys are in place.

Qatar's natural and cultural heritage have long had a strong association with the sea. Local commercial fisheries continue to be productive but if not adequately studied and managed could lead to great losses. The Arabian Gulf is increasingly facing threats to its key



habitats. Reaching this goal may require a number of bold, strong and targeted measures to manage and regulate activities affecting the marine environment, such as seasonal fishing closures, eliminating fisheries subsidies, new regulations on gear, catch quotas, incentives for fishermen to transition to marine tourism, educational programs and training for fishermen, and a moratorium on new fishing vessels. Stock assessments are already being carried out on many of the most important commercial species, but new fisheries management studies are required to identify fish spawning habitat, key areas for designation as no take reserves, and the socio economic impact of any proposed management measures. Consumer awareness campaigns will also be necessary to achieve the targets, to inform the public about the problem of overfishing and encourage them to purchase sustainably fished species. This target will also require that sustainable sources of imported fish be identified and that eco-labels be introduced to the Qatari market including the Marine Stewardship Council and the Aquaculture Stewardship Council certifications.

Many of the globally threatened marine species in Qatar are relatively understudied and are still in need of nationally agreed and adopted conservation action plans. Taking advantage of the charismatic nature of marine turtles, dugongs, dolphins and the whale shark can help Qatar achieve its marine conservation targets by promoting national and international interest and awareness of the marine biodiversity found in the country. The industrial and academic sectors have already shown a clear interest in these flagship species by initiating their own research and protection programs (Qatar Petroleum program on marine turtles, Maersk company program on Whale Sharks, Dolphin Energy and Continental Shelf Associates work on coral reefs, etc...) and there is an opportunity to encourage and promote these initiatives, compile the data being collected and synergize these activities with national priorities and utilize them to develop species or habitat conservation action plans. Data currently available but still underutilized includes coastal sensitivity maps that identify key marine biodiversity hotspots (not yet available in GIS), as well

as data sets from recent regional projects showing the migrating paths of foraging Hawksbill turtles using satellite tagging technology.

These research projects need to be publicized and made available in a usable format to develop industry best practices and to engage the public, as well as contribute to holistic industry and government driven marine spatial planning.

Priority actions for achieving Goal 3:

- Establish a fisheries observer program to monitor activities at sea
- Establish a well-staffed fish market inspection program
- Develop a consumer awareness campaign on status of local fish and encouraging purchase of sustainably fished species
- Compile research from national and regional marine turtle projects and establish a centralized national turtle nesting database
- Commission a fisheries gear experimental study to examine the impacts and incidental catch levels of different types of gear.
- Identify key areas that act as fish nurseries or spawning habitat for seasonal closures
- Develop a training program for fishermen on marine environment protection, including marine turtle and marine mammal emergency care
- Establish marine eco-tourism programs and community volunteer programs for monitoring turtle nesting and for carrying out marine mammal surveys.
- Compile existing coastal habitat research and identify 3 marine hotspots for declaration as no take marine reserves
- Initiate monitoring and research program in partnership with industry on offshore platforms that act as de facto marine reserves
- Seek ASC certification (Aquaculture Stewardship Council) for all existing and new fish and shrimp farms.
- Initiate feasibility study with the Marine Stewardship Council on certification of local fisheries.

Goal 4: Preservation of key terrestrial biodiversity through effective management of protected areas

Qatar National Target 4.1: Management Plans and monitoring programs for all protected areas in Qatar are developed by 2025, with the participation of local communities, relevant stakeholders and local and international expertise.

Qatar National Target 4.2: At least 3 protected areas have educational visitor centers by 2025, employing local members of the community and offering eco-tourism activities.

Qatar National Target 4.3: Increase visitors to protected areas by 40% by 2025, with special emphasis on school visits and youth activities.

Qatar National Target 4.4: Carry out scientific assessments for protected areas every 3 years to evaluate success in habitat and species conservation.

Qatar National Target 4.5: Designate at least 2 protected areas under international conventions (WHC, Ramsar, UNESCO biosphere reserve) to increase their popularity and international status, contribute to Qatar's image internationally.

Qatar National Target 4.6: By 2025, terrestrial protected areas are effectively helping in combatting desertification and land degradation by conserving a rich variety of native vegetation.

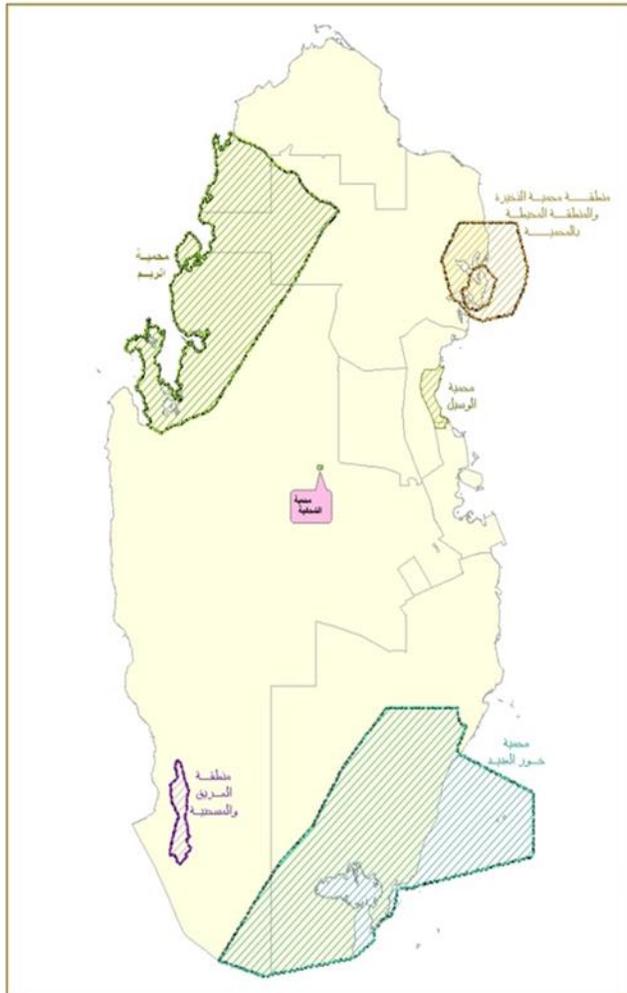
Currently, none of the terrestrial or marine protected areas in Qatar have management plans. One of the main priorities for Qatar in the next decade of biodiversity protection is to develop formal management plans at these declared protected areas and most importantly, implement these management plans. Key indicators that would need to be measured to reevaluate the effectiveness and performance of these protected areas that form about 29% of the territory include:

- Percentage of Qatar's major ecosystems adequately represented in the protected area system
- Budget and number of trained and qualified staff to manage each area.
- Number and health of flora and fauna populations in each area.
- Number of visitors to each of the protected areas.
- Number of facilities available for visitors at each protected area.
- Awareness of visitors regarding importance of conservation.

Priority actions for achieving Goal 4:

- Training guards and rangers in protected area management
- Build capacity within national institutions for protected area management
- Create management committees for each protected area, composed of members of the local community, academic, national agencies and any other relevant stakeholders residing or operating within or nearby each reserve
- Draft management plans for all protected areas in consultation with local communities, international experts and all relevant stakeholders. Seek advice from international convention secretariats and academia when necessary

- Clarify management goals for each area, and set specific targets and indicators to measure performance
- Develop sustainable financing and resourcing plan for each protected area
- Collect data on biodiversity and features of each protected area to evaluate which criteria are met for international designations, including Biosphere Reserve designation, World Heritage designation.
- Develop facilities and infrastructure identified as necessary for the adequate management of the protected area
- Develop priority research and monitoring programs for key species, as well as guidelines for successful reintroduction programs
- Employ local and international ecotourism as a tool for effective management, financing protected areas and raising awareness.



Percentage of Protected Area in State of Qatar

Area Including Land and Sea

Qatar/Protected Area Name	Area in Sq km (Approx.)	Area in Sq km (Approx.)	Percent of Protected Areas
Qatar Total Area including Islands	11552.31076		
Al Areek & Meshabiya		54.76	0.474
Dhakira - LAND AREA		114.459	0.991
Dhakira - SEA AREA		179.706	1.556
Dhakira - Total Area		294.165	2.546
Khor Al Adaid -LAND AREA		1291.127	11.176
Khor Al Adaid -SEA AREA		542.035	4.692
Khor Al Adaid - Total Area		1833.162	15.868
Reem Protected Area		1164.613	10.081
Shahaniya		0.8119951	0.007
Wusail Protected Area		37.49	0.325
Total Area (Land + Sea) (approximate)		3385.002	29.302

Area Land Only

Qatar/Protected Area Name	Area in Sq. km (Approx.)	Area in Sq. km (Approx.)	Percent of Protected Areas
Qatar Total Area including Islands	11552.31076		
Al Areek & Meshabiya		54.76	0.474
Dhakira - LAND AREA		114.459	0.991
Khor Al Adaid -LAND AREA		1291.127	11.176
Reem Protected Area		1164.613	10.081
Shahaniya		0.8119951	0.007
Wusail Protected Area		37.49	0.325
Total (Land only) (approximate)		2663.261	23.054

وزارة البيئة
إدارة نظام المحميات

Goal 5: Qatar is developing sustainably by having biodiversity conservation incorporated into national planning processes

Qatar national target 5.1: By the end of 2014, the updated and formally adopted National Biodiversity Strategy is communicated to all ministries and institutions and its main actions points are known.

Qatar national target 5.2: Starting 2015, all revisions of national development strategies mention and take into account biodiversity conservation and are harmonized with the updated biodiversity strategy.

Qatar national target 5.3: By 2025, conservation and sustainable use of biological diversity is integrated into all the relevant sectors of the government and national plans of the country as required under Article 6(b) of the CBD.

Qatar national target 5.4: By 2016 a cross-sectoral committee on biodiversity is formed to review national progress towards biodiversity conservation.

Qatar national target 5.5: By 2016 the National Biodiversity Strategy is recognized as a national priority with a shared responsibility for implementation, with at least two members from each ministry nominated to act as a liaison with the Ministry of Environment on biodiversity and environmental protection issues.

Qatar national target 5.6: Starting 2016, at least 4 meetings per year take place between the Ministry of Environment and planning authorities to review projects in sensitive areas, communicate biodiversity priorities and their importance for Qatar Vision 2030.

Qatar national target 5.7: By 2020, the conditions for the conservation of biodiversity and its sustainable use are being taken into consideration in all development projects by finalizing rules, regulations and guidelines on Environmental Impact Assessments and Environmental Permitting.

Qatar national target 5.8: All forms of pollution and contamination are lowered to non-detrimental levels by 2020 so that ecosystems are not harmed.

Qatar national target 5.9: By 2025, the principles and goals of multilateral environmental agreements ratified by Qatar are mainstreamed into national development policy and planning processes.

Priority actions for achieving goal 5:

- Participation of the Ministry of Environment's NBSAP implementation team in development and planning decisions, through invitations to attend and contribute to main national development strategy meetings
- Regular and improved communication with planning authorities including the Ministry of Development Planning and Statistics.
- Main elements of the NBSAP are communicated to H.E. Minister of Environment and other high level members at the Ministry of Environment.
- Ensure strategy buy-in from the Ministry of Development Planning and Statistics, Urban Planning council and other relevant planning agencies.
- Ensure that the Ministry of Environment is represented in any future revisions of the Qatar National Development Strategy.
- Strengthen and refine existing environmental legislation and introduce new legislation where gaps are identified.
- Establish a legal mechanism for implementing the strategy and strengthening law enforcement
- Prepare a well-illustrated short version of the NBSAP and organize briefing sessions for decision makers

Goal 6: Enhanced local capacity for biodiversity conservation

Qatar National Target 6.1: Increase the number of Qatari undergraduate university students in Biological and Environmental Sciences by 2025.

Qatar National Target 6.2: Increase Master's Thesis and PhD thesis in Biological and Environmental Sciences carried out and funded in Qatar yearly starting in 2016

Qatar National Target 6.3: Increase qualified manpower of Ministry of Environment by 2025.

Qatar National Target 6.4: By 2025, increase Ministry of Environment management level staff with at least Master's degree qualification.

Qatar National Target 6.5: By 2025, at least 25% more training programs are provided to Ministry of Environment relevant staff.

Qatar National Target 6.6: By 2025, the capacity for the implementation of multilateral environmental agreements is enhanced and facilitated by comparing, identifying and promoting synergies amongst multilateral environmental agreements signed and ratified by the State of Qatar

Qatar National Target 6.7: By 2025, the number of qualified staff in charge of multilateral environmental agreements has increased to allow for better reporting, coordination and implementation.

National Reports since 2004 have identified that a major limiting factor in the implementation of many aspects of the biodiversity conservation strategy is a lack of trained experts. There is a need to build local capacity and encourage more of the younger generation to opt for scientific fields and carry out research projects that fit with national data needs. There is already an increase in expertise, with biological sciences and health and environmental studies comprising 12% of M.Sc. studies done abroad by Qatari students, while Biology, Health, Chemistry and Geology make up 24% of PhD studies abroad. To ensure that more of these graduates opt for careers in environmental management and conservation, job opportunities should be widely advertised and internship and training programs should be developed. Jobs in sciences and research and environmental governance should offer competitive and attractive opportunities, to attract a qualified workforce that would otherwise be headed towards the oil, gas or development sectors. There is a need to considerably increase the number of staff within the Ministry of Environment, the sole and main agency responsible for research, enforcement and implementation for all aspects of environmental protection and biodiversity conservation in the entire country. Certain activities and studies can be outsourced, however the Ministry would benefit from building internal capacity to preserve this expertise within the country. Industrialization is taking place at an unprecedented rate and with this fast paced development comes the urgent need to employ and train a qualified workforce to ensure that development is taking place sustainably as outlined in the Qatar Vision 2030 and the Qatar National Development Strategy. Without the manpower and resources required to protect natural resources and manage the impacts of human activities, the national vision for a country growing in balance and harmony with its natural environment cannot be realized. The Ministry of Environment is tasked with steering the implementation of this strategy and ensuring that, through inter-agency cooperative committees and working groups, it is taken into account in urban planning policies and any future revisions of national development strategies.

Goal 7: Protection of Qatar’s genetic resources and ensuring their equitable sharing

The seventh strategic goal aims to protect the natural ecosystem, as well as humans, from the impacts of invasive species and genetically modified organisms (GMOs) and the loss of genetic resources. The goal is to ensure that the benefits arising from the use of genetic resources is equitably shared and accessible. Genetic loss can be prevented by the establishment of a certification program for food and other imported products allowing the origin to be verifiable. The dangers posed by GMOs and invasive species are not as immediate as the threats to marine and terrestrial biodiversity posed by intensive development and industrialization, but the lack of information on the main issues relating to biosafety in Qatar needs to be addressed. In addition, awareness is needed on the concept of equitable access to biodiversity benefits arising from the use of genetic resources, and the benefit that is to be gained from the implementation of the Nagoya protocol.



Priority actions for achieving Goal 7:

1. Establishment of a sharing mechanism for genetic resources and products
2. Establish a national committee for biosafety with the role to:
 - a. Assess threats and risks
 - b. Control illegal introduction of GMOs
 - c. Label GMO products
 - d. Develop legislative framework for GMOs
 - e. Develop research framework for risk assessment
 - f. Develop a framework for monitoring GMO introduction into the country and issuing permits for their entry and carrying out laboratory analysis
 - g. Preparing regular reports on the state of biosafety in the country
 - h. Building national capacity in the field of biosafety
 - i. Raising awareness on GMOs

- j. Preparing a biosafety strategy that is aligned with the CBD's Aichi targets
3. Implement the Nagoya Protocol on Access and Benefit Sharing (ABS)
4. Raise awareness of the concept of access and benefit sharing and produce and disseminate information about the Nagoya protocol and its benefits for the State
5. Establish a mechanism to identify priority ABS issues in Qatar and promote national and regional cooperation
6. Enhance knowledge and research on value of genetic resources found in Qatar
7. Ensure sustainable use of genetic resource and prevent genetic impoverishment by protecting native and endemic species and crops.

IV- Putting the strategy into action

The immediate next steps towards implementation consist of identifying and securing the human, technical and financial resources necessary to carry out the priority actions. The NBSAP is a government strategy initiated by the Ministry of Environment, however it cannot be delivered by a sole department or by a single government agency alone. Conserving biodiversity requires partnerships, inter-agency taskforces and working groups, regular and systematic information sharing as well as collaboration from the voluntary, academic and business sectors. The Ministry of Environment is tasked with a coordinating role and will reach out to all sectors through cross-sectoral and cross ministerial meetings and committees, and through public engagement via national media and social media and community groups including NGOs. Stable and efficient working groups composed of long term members need to be established as soon as possible to commence work on the priority actions listed to achieve the targets for each strategic objective. The leading role of industry in innovation and research will be acknowledged and encouraged, and the involvement of the private sector will be maintained throughout the implementation of this strategy. Qatar is in a good position to take on a leading regional role in biodiversity conservation, it has already launched funds and programs for international biodiversity research such as the Hima Fund, and has moved quickly to ratify international conventions and establish managerial and regulatory bodies. The challenge now is to focus on the implementation of national strategies and build the partnerships, knowledge base and local capacity to carry out the priority actions identified in the strategy. Effective conservation programs must be just as efficient and well-resourced as industrial and economic projects, and a trained workforce must be the focus for the future. A concentrated government effort that combines financial and scientific support and where stakeholders agree to collaborate as partners will ensure successful implementation of this updated strategy.

The success of the NBSAP will also depend on the level of budget allocated for each program and action identified in the strategy. It would be useful to consider new and innovative sources of funding for the NBSAP such as: a) charging for ecosystem services; b) the introduction of new

taxes, fees and royalties (for example on oil and gas exploitation); and c) the return of a proportion of the fees paid for fishing licenses, tourism licenses and hunting permits to conservation activities.

The NBSAP needs to be viewed as a dynamic and cyclical document that will be reviewed and revised at regular intervals. Considering the pace of change that Qatar is undergoing, a review and revision of the NBSAP by the Ministry of Environment every five years is deemed necessary. Annual progress reports by the Ministry of Environment are also needed to verify that the activities recommended in the NBSAP are being adequately implemented according to the set timeframe.

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Appendix 1: Example of indicators to measure progress towards specific targets

Target	Possible Indicator
1.2	Number of scientific publications on Qatar biodiversity
1.3	Number of threatened species with known Qatar population trend
1.4	Availability of habitat maps
2.1	Number of primary and secondary schools in the country offering environmental science modules
2.3	Number of public campaigns on biodiversity with high level of participation of stakeholders in campaign organization
2.4	Number of participants in citizen science research programs at protected areas
2.5	Number of international biodiversity-themed days celebrated
2.6	Number of media mention of biodiversity
3.1	Number of fish species fished at sustainable levels
3.6	Number of marine protected areas with management plans created
4.1	Number of management plans developed for designated protected areas; number of trained protected area rangers and personnel
4.2	Number of visitor centers built in protected areas
4.3	Percentage increase in visitors to protected areas
4.5	Number of protected areas with international designation
4.6	Percentage of vegetation cover in rehabilitated rangeland areas
5.1	Number of government departments aware of the main points of the national biodiversity strategy
5.6	Number of meetings per year between Ministry of Environment and planning authorities to review projects in sensitive areas, communicate biodiversity priorities
6.1	Percentage of Qatari undergraduate university students in Biological and Environmental Sciences majors
6.2	Number of Master's Theses and PhD theses in Biological and Environmental Sciences carried out and funded in Qatar
6.3	Percentage increase in staff within the Ministry of Environment
6.4	Percentage of staff of Ministry of Environment with Masters degrees.
6.5	Percentage increase in training programs for Ministry of Environment staff

Appendix 2: Aichi targets of the Convention on Biological Diversity

<i>Strategic Goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society</i>		
	Target By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.	1
	Target By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems.	2
	Target By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socio economic conditions.	3
	Target By 2020, at the latest, Governments, business and stakeholders at all levels have taken steps to achieve or have implemented plans for sustainable production and consumption and have kept the impacts of use of natural resources well within safe ecological limits.	4
<i>Strategic Goal B: Reduce the direct pressures on biodiversity and promote sustainable use</i>		
	Target By 2020, the rate of loss of all natural habitats, including forests, is at least halved and where feasible brought close to zero, and degradation and fragmentation is significantly reduced.	5
	Target By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.	6

	Target By 2020 areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.	7
	Target By 2020, pollution, including from excess nutrients, has been brought to levels that are not detrimental to ecosystem function and biodiversity.	8
	Target By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment.	9
	Target By 2015, the multiple anthropogenic pressures on coral reefs, and other vulnerable ecosystems impacted by climate change or ocean acidification are minimized, so as to maintain their integrity and functioning.	10
<i>Strategic Goal C: To improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity</i>		
	Target By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.	11
	Target By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.	12
	Target By 2020, the genetic diversity of cultivated plants and farmed and domesticated animals and of wild relatives, including other socio-economically as well as culturally valuable species, is maintained, and strategies have been developed and implemented for minimizing genetic erosion and safeguarding their genetic diversity.	13
<i>Strategic Goal D: Enhance the benefits to all from biodiversity and ecosystem services</i>		
	Target By 2020, ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking	14

	into account the needs of women, indigenous and local communities, and the poor and vulnerable.	
	Target By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification.	15
	Target By 2015, the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization is in force and operational, consistent with national legislation.	16
<i>Strategic Goal E: Enhance implementation through participatory planning, knowledge management and capacity building</i>		
	Target By 2015 each Party has developed, adopted as a policy instrument, and has commenced implementing an effective, participatory and updated national biodiversity strategy and action plan.	17
	Target By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected in the implementation of the Convention with the full and effective participation of indigenous and local communities, at all relevant levels.	18
	Target By 2020, knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.	19
	Target By 2020, at the latest, the mobilization of financial resources for effectively implementing the Strategic Plan for Biodiversity 2011-2020 from all sources, and in accordance with the consolidated and agreed process in the Strategy for Resource Mobilization, should increase substantially from the current levels. This target will be subject to changes contingent to resource needs assessments to be developed and reported by Parties.	20

Appendix 3: Linkages between 2015-2025 NBSAP Goals, Aichi Targets and Qatar National Development Strategy

QATAR VISION 2030; Environmental Development Pillar: to ensure harmony among economic growth, social development and environmental protection.		
NBSAP Goal (2015-2025)	QNDS (2011-2016)	Aichi Targets (2011-2020)
Improved scientific knowledge	‘ Establish Biodiversity baselines, central database’	19
Increased awareness and participation	‘An increasingly environmentally aware population’	1
Key coastal habitats protected and marine resources sustained	‘Nature & Natural heritage sustainably managed’	5,6,10,11 & 12
Key terrestrial habitats protected through effective management	‘Nature & Natural Heritage sustainably managed’	5,10,11,12,& 15
Biodiversity conservation incorporated into national planning	‘ Improved governance and outcomes’ ‘ a culture of evidence based policy making’	2,4
Enhanced local capacity	‘strengthening institutions responsible for the environment’ ‘improved governance and outcomes’	1, 2 & 19
Main biosafety issues identified and genetic resources equitably shared	‘ Nature & Natural Heritage sustainably managed’	9, 13