This biodiversity assessment of Tunisia has been conducted in conjunction with the preparation of the USAID Country Development and Cooperation Strategy in compliance with Foreign Assistance Act (FAA) Section 119. In particular, Section 119 (d) of the FAA requires that the assessment include an analysis of:

> 1) "The actions necessary to conserve biodiversity, and;
> 2) "The extent to which the actions proposed for support by the Agency meet the needs thus identified."

The identification of opportunities for the USG to have positive impacts on biodiversity conservation in Tunisia is the final step of the following analytical process:

- Review of the biodiversity of the country;
- Identification of threats to biodiversity and their root causes;
- Identification of the constraints to effective conservation;
- Identification of the actions needed to overcome these constraints;
- Analysis of the conservation initiatives underway in respect to actions needed;
- Analysis of the extent to which the CDCS and ongoing USG programs contribute to, or hinder, biodiversity conservation; and
- Identification of opportunities for the USG to have positive impacts on biodiversity conservation within the general framework of the CDCS.

Overview
Tunisia is located in the Mediterranean Basin Hotspot, one of earth's 25 "biologically richest and most endangered ecoregions." Despite its relatively small size, Tunisia has a high level of biodiversity. This is due to its location between Europe and Africa, on the Sicilian Channel. Tunisia has a species diversity of more than 7,200 species of which about one percent are endemic –the rate of endemism is about 10 percent among vascular flora.

Tunisia's National Development Strategy 2016-2020 prioritizes advancing the green economy as the driver of sustainable development:

- Equitable development that includes all regions and respects the environment;
- Sustainable use of natural resources, including water; protecting biodiversity; and modern agricultural practices to increase food security;
- Environmental protection;
- Reducing energy consumption; and
- Reducing disaster risk.

In its new National Development Strategy, the Government of Tunisia (GoT) emphasizes reforming its development model to focus on long term sustainability. According to the Tunisian Minister of Development, International Cooperation and Investment Yassine Brahim, Tunisia's principal economic challenge is having a small internal market with few natural resources. Tunisia's ecosystems support its economic development and provide income and jobs to most vulnerable population. For example, the coastal zone is home to over 65 percent of Tunisia's population and to its major industries; it also supports its tourism sector, which relies on mass beach activity that contributes seven percent of GDP (2008) and provides employment opportunities for 380,000, or 10 percent of Tunisia's active population. Tunisia's water and soil resources support agricultural activity that contributes eight percent of GDP and employs 16 percent of the national workforce.

Despite the GoT's new green development strategy, Tunisia's current development path is depleting its natural resource stock. A diagnostic for the National Development Strategy found that the annual cost of environmental degradation is 2.7 percent of GDP. The adjusted net savings (ANS) measures the real difference between national income and consumption. It takes into consideration investment in human capital, depreciation of fixed capital, depletion of natural resources, and damage caused by pollution. While Tunisia's ANS rose from 2.6 percent of GDP in 1980 to 19 percent in 1999, it steadily declined over the past decade to reach -3.2 percent by 2012 due to energy depletion, local pollution damage and mineral and forests depletion (WDI 2014). Although Tunisia's 2010 revolution was largely caused by economic dissatisfaction, pressures put on natural resources, particularly water, can provoke unrest and/or conflict. .

Threats to ecosystems and biodiversity
Tunisia faces several threats to its biodiversity:

- water pollution from raw sewage;
- limited natural freshwater resources;
- toxic and hazardous waste disposal;

- overgrazing;
- erosion and desertification

Threats to marine, coastal and freshwater biodiversity:

Water pollution from raw sewage is the greatest and most generalized threat to coastal biodiversity. Drainage, development, and urbanization are major threats to wetlands and coastal ecosystems. Pollution threatens many aquatic ecosystems and coastal marine ecosystems. Fragmentation of habitats by dam construction is a major threat to river and wetland ecosystems. Other threats include invasive exotic species, climate change, drought, sedimentation, and poaching.

Stresses on limited natural freshwater resources is a general threat to biodiversity in Tunisia. Threatened flora and fauna species in the southern areas of the country can be further stressed by increased temperatures and decreased rainfall. This could increase water salinity in agricultural areas, damaging already fragile crops. Coastal aquifers may also be affected by saline water, in an area where the tourism sector relies on a consistent and clean supply of water. In 2003, overexploitation of the Cap Bon aquifer led to the salinization of over 2,800 freshwater wells (Gaaloul 2003).

Toxic and hazardous waste disposal
Hazardous waste is often stored at the production site, though a significant portion is dumped with domestic solid waste in municipal landfills. Some categories of hazardous waste are managed through specific systems: for example, used oils are collected and recycled by the Tunisian Society of Lubricants (Sotulub) and a project for recycling used batteries has also begun. Since the early 1990s, Sotulub has operated a countrywide used oil recovery system. There are approximately 20 hospital hazardous waste incinerators in Tunisia, although 25 percent are out of service. A large incineration facility exists in the Tunis area, but needs to be upgraded. Despite the waste separation efforts in hospitals, most medical hazardous waste is re-mixed and disposed with domestic waste. This system includes a re-collection network and a recycling plant at Bizerte (METAP 2011).

Overgrazing is a major cause of watershed degradation. Firewood and many non-timber products are very seriously and illegally over-exploited. Other threats to forest areas include fragmentation, climate change, conversion to agricultural and urban uses, wildfires, and invasive alien species.

Desertification and soil erosion. According to a 2009 survey done by the Ministry of Environment, in conjunction with UNDP, up to 75 percent of the territory is threatened by soil erosion and degradation. As of 2008, 17.7 percent of Tunisia is being used for agriculture, with an estimated 8,000 hectares of arable soil being lost per year because of desertification. In 2008, the costs of desertification were evaluated at US$100 million (National Report). The problems of soil erosion and desertification are exacerbated by extreme climatic factors including severe wind storms, intermittent heavy rainfall, and drought.

Actions needed for enhanced conservation

Since the 1980s, Tunisia has put considerable effort toward ensuring environmental protection and management, and has made important achievements in environmental conservation, energy use efficiency, and managing its water resources as a key component in the country's economic and social policies, as well as building country capacity for environmental protection and management (World Bank, 2015). However, important challenges remain: Tunisia's already scarce water resources are threatened by over-abstraction and pollution; challenges pertaining to hazardous waste (including healthcare waste and PCBs); and reconciling the ecosystem conservation with socio-economic development of the local communities.

Climate change is expected to exacerbate the pressure on Tunisia's water and biodiversity resources. Tunisia is expected to experience a significant increase in temperature by 2100, with summer temperatures exceeding 4C by the end of the century. Precipitation is expected to decrease, particularly along the coast, by 20 percent. Tunisia can also expect a rise in sea level between 38cm and 55cm by 2100, affecting all of the country's economic centers. In Tunisia's First National Communication was prepared by the Ministry of Environment and Land Planning in 2001 and was updated by a Second National Communication in 2013. The Second National Communication focuses on soil and water conservation, desertification, and reforestation. Given the potential economic impacts, the GoT has focused on sea level rise in its climate adaptation programming (UNFCCC, 2013).

Even so, the GoT has shown a strong commitment to environmental protection. Tunisia is party to international agreements on: Biodiversity, Climate Change, Climate Change-Kyoto Protocol, Desertification, Endangered Species, Environmental Modification, Hazardous Wastes, Law of the Sea, Marine Dumping, Ozone Layer Protection, Ship Pollution, and Wetlands. It has signed, but not ratified an international agreement on Marine Life Conservation. However, additional measures are needed, including enforcement of relevant laws and policies.

Actions are needed to better conserve marine and freshwater ecosystems given Tunisia's constrained water resources. A lack of sewage treatment plants in dry areas means that the GoT needs to enforce laws and/or create incentives that reduce pollution of sea and groundwater and increase supply through better recycling of water.

Actions are also needed to better conserve terrestrial ecosystems and to overcome the identified constraints include support for the development of the economic potential of biodiversity resources, and the development of biodiversity product value chains wherever the sustainable management and regeneration of the resource can be ensured. Value chain development maximize the benefits to local communities/businesses and user groups in ways that create incentives for sustainable use, as long as it is coupled with strong conservation management. Legal and policy reforms are needed that favor local communities and local businesses as one of the principal beneficiaries of commercial biodiversity products and lay a sound basis for co-management of biodiversity resources on state-owned lands. Reform is needed to ensure the equitable sharing of benefits between local government and local resource managers/co-managers.

Country Development and Cooperation Strategy

In its Tunisia Integrated Country Strategy, the U.S. Government (USG) has identified three priority goals:

- Goal 1: Tunisia adopts reforms and practices to consolidate its democracy, to include good governance and inclusive participation.
- Goal 2:Tunisia has a national security strategy and effective security sector institutions capable of carrying out joint operations and information sharing to ensure an effective, sustainable working partnership that maintains Tunisia's stability and security.
- Goal 3:Tunisia adopts reforms and practices to improve competitiveness, inclusive opportunities, and economic governance to increase sustainable economic growth.

Building on these goals, USAID has identified developed a goal statement with two main areas for assistance to Tunisia, economic growth and democracy and governance. USAID's overall goal is "inclusive participation in Tunisia's socio-economic transformation enabled." The respective intermediate results (IRs) are:

1. Inclusive private sector employment increased; and
2. Social cohesion promoted through democratic consolidation

As formulated, none of these goals are expressly or directly linked to the actions needed for biodiversity and forest conservation in Tunisia. The IRs of the CDCS neither support nor hinder biodiversity and forest conservation. The impact of the CDCS on biodiversity conservation will depend on how the CDCS goals are translated into concrete actions/programs by USAID. The management of natural resources is fundamentally about good governance and to the extent that mismanagement fosters conflict and potentially even radicalism there is scope to consider environmental management within DRG programs. As such, the CDCS analyses identify a number of policy constraints, including the long-standing policy that favors the elite over local populations as a constraint to economic development and to improved governance in rural areas, but did not include value chains that are based on the products of biodiversity and forests, nor explicitly review ecosystem management related to ecotourism or beach tourism, which was 14.5% of GDP in 2015 (Knoema, 2016).

Analysis of ongoing projects/programs
The USAID program
USAID's current activities in Tunisia are administered through the Middle East Regional office, which is principally focused on business reform, adopting international standards, and water resource management.

1. *Tax and Customs Reform Project***:** USAID provides technical assistance in support of the Government of Tunisia's economic reform agenda necessary to grow the economy and create new economic opportunities for Tunisians.

2. *Business Reform and Competitiveness Project***:** USAID promotes expanding employment opportunities for Tunisians with key partner institutions in the public and private sector.

3. *HP/UNIDO***:** USAID partnered with the Government of Tunisia, Government of Italy, Hewlett Packard, and UN Industrial Development Organization (UNIDO) to foster job creation and entrepreneurship among youth at risk in the interior regions with the highest

levels of unemployment.(ends December 2015, with extension to September 2016 pending).

4. *Center for Entrepreneurial and Executive Development:* CEED drives economic growth by developing, connecting and mentoring entrepreneurs to strengthen their businesses so they can create jobs and in turn accelerate economic prosperity (ends December 2015).

5. *Tunisian-American Enterprise Fund:* USAID has provided $60 million to the TAEF to promote the development of the Tunisian private sector through investments in Tunisian enterprises. USAID expects to provide an additional $40 million to the TAEF in FY 2016 and FY 2017 to capitalize the fund at $100 million.

6. *Middle East North Africa Network of Water Centers of Excellence:* Through this regional program, the Tunisian research institution INRGREF (National Institution of Research for Rural Engineering, Water, and Forestry) is working on four applied research activities in the areas of water efficiency, mitigation of environmental impact, and real-time monitoring for irrigated agriculture.

7. *Regional Drought Management System for the Middle East and North Africa:* Tunisia is one of four focus countries under a grant to the International Center for Biosaline Agriculture, in partnership with the University of Nebraska's National Drought Mitigation Center and the Daugherty Water for Food Institute.

8. *Groundwater Governance in the Arab World:* Tunisia is one of five countries in the Middle East involved in a regional activity managed by the International Water Management Institute to study the challenges posed by the unsustainable use of groundwater. The overarching goal of this project is to contribute to finding solutions and mitigation measures to the groundwater crisis, focusing on the crucial area of governance.

9. *Securing Water for Food Grand Challenge, The Buried Diffuser:* This new activity will pilot the "buried diffuser," a new underground irrigation technique, allowing savings in water and energy. The pilot aims to enhance efficiency of water resources by using less water to produce more food.

10. *Countering Gender Based Violence Initiative*: Tunisia is one of six focus countries for an activity that will produce analytics on the socio-economic impacts of gender-based violence, specifically domestic violence, early and forced marriage, and sexual harassment.

11. *Introducing International Audit Standards in the MENA Region***:** The Tunisian *Cour des Comptes* participates with other Arab supreme audit institutions in a USAID-supported regional effort through the INTOSAI Development Initiative to introduce international standards for public sector audit agencies.

12. *MENA Initiative to Lower Non-Tariff Barriers:* Tunisia participates along with other Arab League member countries in a USAID-supported regional effort managed by the

Geneva-based International Trade Center to promote harmonization and streamlining of non-tariff trade barriers.

13. *Legal Enabling Environment Program (LEEP):* Through the global and centrally-managed LEEP program, DCHA/DRG has supported the International Center for Not-for-Profit Law (ICNL) to support reform in Tunisia's NGO legal environment. Immediately after the revolution, ICNL mobilized to work with the interim government and support the drafting of a new, more progressive Decree on Associations. Since then their ongoing work has involved supporting the implementation of the Decree by raising awareness and educating CSOs on their rights and responsibilities under the new legal framework; training CSOs on effective advocacy around legal framework issues; and providing technical support and training for the Prime Ministry on their regulatory role in implementing the Decree.

The Middle East North Africa Network of Water Centers of Excellence and the Regional Drought Management System for the Middle East and North Africa are both excellent examples of ongoing USAID activities that have an environmental management dimension. Both activities work to support Tunisia's goals of optimizing use of natural resources, protecting the environment, and reducing disaster risk.

Opportunities for USG Support

There are several opportunities for linking biodiversity and forest conservation to the CDCS IRs:

Inclusive private sector employment increased; and
Social cohesion promoted through democratic consolidation

The greatest opportunities are to be found in projects that combine both goals, with economic opportunities providing the base on which to integrate improved governance. There are many economic development activities to be found among a variety of biodiversity-based value chains that are based on forest, range and coastal ecosystems. Many of the biodiversity-based value chains have the potential for contributing to economic development favoring some of Tunisia's most impoverished people. This is certainly true for value chains based on mountainous forest and grassland ecosystems and is also often true for coastal artisanal fisheries.

The main challenges for economic development based on biodiversity-based value chains are twofold:

- They must be based on sustainable use or management of the species used in the product. The species is part of an ecosystem, so the ecosystem itself must be well managed to support ecological integrity and sustainable use.

- Sustainable use requires that there must be an empowered management authority with control over the resource, with the technical capacities for sustainably managing resources. Government agencies generally can't manage effectively without involving local resources users. Herein lays the greatest opportunity and the greatest challenge – to support the development of new better governance systems that directly involve local resources users in the management of the resources while making them the principal financial beneficiaries of the commercial uses of the resources.

Context

USAID is preparing a joint Country Development and Cooperation Strategy for Tunisia. The Foreign Assistance Act (FAA) requires that the preparation of such a strategic planning document include a biodiversity assessment. For countries with tropical forests, strategic planning documents also must include a tropical forest assessment. Tunisia does not have tropical forests. The Bureau Environment Officer (BEO) and the Forestry and Biodiversity Office in USAID/Washington assured that this makes little difference to the actual assessment, because the natural forest ecosystems need to be included in the biodiversity assessment.

The objective of the assessment as stated in the TOR is, "To conduct a country-wide assessment of biodiversity and tropical forestry conservation needs and related issues for the purposes of complying with Sections 117, 118, and 119 of the Foreign Assistance Act of 1961, as amended, and Agency guidance on country strategy development, under ADS 201.3.8 and ADS 204.5. Based on this needs assessment, provide analysis of proposed actions under USAID's strategy to identify how they contribute to the conservation needs identified."

The Foreign Assistance Act provides much more specific details of the objectives of the assessments. FAA Section 118(e) requires that such a country development strategy statement include an analysis of:

> a) "The actions necessary in that country to achieve conservation and sustainable management of tropical forests," and; identified
>
> b) "The extent to which the actions proposed for support by the Agency meet the needs thus FAA 119 (d) requires that such a plan should include an analysis of:
>
> > 1) "The actions necessary to conserve biodiversity, and;
> >
> > 2) "The extent to which the actions proposed for support by the Agency meet the needs thus Administrative modalities and methodology."

The assessment was conducted by the Regional Environment Advisor for the Middle East and North Africa region. In addition, a GIS Specialist led the preparation of targeted maps for purposes of this assessment. The assessment was performed from September to November 2015. The assessment is informed by meetings with USAID staff in Washington that included the Tunisia desk officer and the BEO. A preliminary report was submitted at the end of November 2015 to meet the requirements for the completion of the CDCS.

Given limited resources, the majority of the information in this assessment was gathered through a desk review. Additional efforts were made to meet with subject-matter experts with experience on biodiversity and natural resource management in Tunisia. All key points were discussed with USAID/Tunisia and its support staff.

2 OVERVIEW OF THE BIODIVERSITY & ECOSYSTEMS OF TUNISIA

2.1 OVERVIEW

Tunisia is a North African country in the western Mediterranean. Its total area is 163,610 square kilometers. Its western border is shared with Algeria and its southeastern border is shared with Libya. The Mediterranean Sea makes up Tunisia's northern border with approximately 1,300 kilometers of coastline.

Tunisia has a very varied topography. The northwestern border includes an extension of the Atlas Mountains, which is characteristic of the Maghreb. The Atlas in Tunisia are called "la Dorsale Tunisienne" and peaks at 1,544 meters in Mt. Chaanbi. The Medjerda plains traverse the north, extending east towards Libya.

Tunisia also has several steppes. The high steppes are marked by aridity and are intersected by the Wadi Endoreic. To the east, the low semi-arid steppes end at the coastal littoral. It is a flat portion which is extended by a large Continental shelf. The eastern area consists of a vast portion up to the Gulf of Hammamet Ben Guerdène, located at the southeastern end of the country. The southern part of the country is desert. It is marked by a succession of saline lakes (El Gharsa El Jerid, El Fejaj). In the south, there are also rocky plateaus in the dunes of the eastern Grand Erg.

The coastline is dotted with lagoons (Sebkhas) for approximately 1,300 km, including 575 km coastline of sandy beaches. There are a total of 61 islands and islets with variable dimensions. Of these, the most important are the island of Djerba and the Kerkennah Islands.

In terms of climate, the main difference that characterizes climate regions is attributed to the situation created by the Tunisian Dorsal mountain chain. It separates geographical areas areas between the Mediterranean climate in the north and the arid areas of southern Tunisia. Annual rainfall ranges from 1,000 mm in the north, about 380 mm in the country's center, and reaches less than 200 mm in the south. Tunisia receives more than 3,000 hours of sunshine per year.

Tunisia has a varied hydrological network. The north variable has 80 percent of surface water, while the center of the country has 15 percent, and the south five percent. About 80 percent of surface water is currently being used for agriculture. The groundwater resources are estimated at 1.84 million cubic meters per year, of which 1,176,000 cubic meters are in the deep aquifers, most of which are located in the south. About 33 percent of the country is affected by aridity and many areas are affected by the overexploitation of water resources.

Tunisia's population is estimated at 11 million inhabitants (July 2015 est.). A general census of population and housing is in progress. The population growth rate is 1.3 percent with a fertility rate of 2.2 percent. The number of people-under-15 years of age represents 23.2 percent of the total population. Tunisia's infant mortality rate is in a continuous decline, with 16 deaths per 1,000 births and life expectancy at birth of 73.8. According to 2013 UNDP report, Tunisia is considered a country with a high human development index (0.722) and is ranked 94th out of 187 countries.

Tunisia has an urbanization rate of about 66 percent. The population is unevenly distributed, with the majority of the population living in the eastern coastal strip. Economically, the service sector dominates the economy with almost 60 percent of employment. In 2014, Tunisia's GDP was $48.55 billion USD, with a GDP per capita of $11,300. The agricultural sector's contribution to GDP has declined dramatically, from 23.7 percent of GDP in 1965 to 8.5 percent in 2013. However, agriculture and fisheries support 18 percent of employment.

The Ministry Agriculture and Water Resources and the Ministry of the Environment and Sustainable Development are the main government entities entrusted with protecting biodiversity and natural resource management.

2.2 DIFFERENT TYPES OF ECOSYSTEMS IN TUNISIA

Tunisia has 17 national parks, 27 natural reserves, 4 animal reserves, and 40 Ramsar sites.

2.3 TERRESTRIAL ECOSYSTEMS

In northwestern Tunisia, this Mediterranean conifer and mixed forest can be found in the Kroumerie and Mogod Mountain Ranges at their highest elevations of around 1,000 m (Schoenenberger 1995). Even though they lack high elevations, the Tunisian examples are important because their mixed deciduous and evergreen oak forests were once representative of this ecoregion.

2.4 MARINE AND AQUATIC ECOSYSTEMS

In North Africa, permanent rivers are only found in the northern part of Morocco, Algeria and Tunisia--the region that is being fed by the rain and snow melt in the Atlas Mountains range.

In Tunisia, the main and only perennial river is the Oued Medjerda system (450 km in length) that starts in Algeria and ends in the Gulf of Tunis (where it flows into the Mediterranean Sea). The largest lakes, Lac de Tunis and Lac Ichkeul, are brackish so some freshwater species occur in the surrounding marshes, as well as in the oasis Nouail, near Chott El Jerid (Garcia et al. 2010). Tunisia's coastal Mediterranean rivers, especially those of Numidia and enviros, show the highest concentrations of endemic fish. The geographical position, diversity of relief, as well as the importance of the hydrographic system explains this uniqueness.

Tunisia's largest lakes, Lac de Tunis and Lac Ichkeul, are brackish. According to surveys done by IUCN, there are some freshwater species of mollusks that can be found in surrounding freshwater (Garcia et al 2010).

2.5 SPECIES DIVERSITY

According to the 2004 IUCN Red List of Threatened Animals, 17 out of the 78, or 22 percent, mammalian species that are found in Tunisia are either vulnerable, endangered or critically endangered (IUCN 2004).

Classification	Species
Critically Endangered	Addax (Addax nasomaculatus). Mediterranean Monk Seal (Monachus monachus). Scimitar-horned Oryx (Oryx dammah). (Re-

	introduced populations.)
Endangered	Cuvier's Gazelle (Gazella cuvieri). Dama Gazelle (Gazella dama). Fin Whale (Balaenoptera physalus). Slender-horned Gazelle (Gazella leptoceros)
Vulnerable	Barbary Sheep (Ammotragus lervia). Cheetah (Acinonyx jubatus). Dorcas Gazelle (Gazella dorcas). Eurasian Otter (Lutra lutra). Geoffroy's Bat (Myotis emarginatus). Harbor Porpoise (Phocoena phocoena). Lion (Panthera leo). Long-fingered Bat (Myotis capaccinii). Mediterranean Horseshoe Bat (Rhinolophus euryale). Mehely's Horseshoe Bat (Rhinolophus mehelyi)

The Barbary sheep's endangered status has received considerable international attention. It is a North African species who was formerly widespread in rugged and mountainous terrain from deserts and semi-deserts to open forests, but suffer a strong population decline due to poaching and competition from domestic stock. This species is a generalist herbivore combining grazing with browsing, and it can survive without drinking water for long periods (even years) (IUCN 2014). The IUCN Centre for Mediterranean Cooperation, with the support of Tunisia's Direction Générale des Forêts and the Ministry of Environment and the Spanish Ministry of Agriculture, Food and Environment, have organized action plans to protect the Barbary sheep.

Species reintroduction has been done in national parks with variable results in the medium-term. For example, in the Bouhedma park, several endangered species were reintroduced: Addax Antelope (*Addax nasomaculatus*), Oryx Antelope (*Oryx dammah*), the Mhorr gazelle, and camels (North African camels: *Struthio camelus camelus* and South African camels: *Struthio camelus australis*).

2.6 AGROBIODIVERSITY

Tunisia has about 3,900 square kilometers of irrigated land, suitable for agriculture found under highly variable agro-ecological conditions within which Tunisian farmers have long been making adaptive selections. Seventeen percent of Tunisia's land is arable, with 13 percent covered by permanent crops. This has resulted in a rich diversity of locally adapted varieties and breeds of crops and domestic livestock. The main genera of wild relatives of crop plants include Olea, Beta, Solanum, Citrus, Phoenix, and Prunus.

Among the fruit trees cultivated in Tunisia, one finds the highest level of genetic/varietal diversity amongst the following genera: Olea (olive), Beta Vulgaris (sugar beet), and Amygdalus (almond).

For domestic livestock, sheep populations represent the most important domestic livestock species in Tunisia and constitute the principal source of meat. There are several breeds reared

under different ecological zones and production systems. The first most important at 2,555,600 heads (Ministry of Agriculture 2006), is the Barbarine (BR), locally known as "Nejdi" or "fat tailed sheep." The BR is a meat breed widespread in the country (mostly in the middle) and is traditionally managed under extensive production systems. It is a sprig of the population with big tail originating from the Asian steppes that has been implanted in the country since the Punic time. The second most important (1,264,500 heads) breed (Ministry of Agriculture 2006) is the Queue Fine de l'Ouest (QF) known as "Bergui" or "Western Fine Tail", which is a dual-purpose (for milk and meat production) breed. The latter originates from Algeria, where is known as "Ouled Djellal", and is essentially found in the western region of Tunisia. The black of Thibar "noire de Tiber" is the third breed. It is specialized in meat production and is solely found in the Béja region, in the north of the country, and is managed in a relatively more intensive production system. The Black of Thibar breed was the result from crossing of the western Fine Tail and the Merino of Arles at the beginning of the twentieth century (Khaldi 1984). Finally, a new exotic meat breed was introduced from Morocco the fifteen years into the Tunisian oasis, named D'man (DM), and is known by its high prolificacy (Rekik et al 2002).

2.7 PROTECTED AREAS

Tunisia has 17 national parks, 27 natural reserves, 4 animal reserves, and 40 Ramsar sites. These protected areas protected areas generally contribute to human welfare, poverty alleviation and sustainable development, in addition to their conservation function. Protected areas not only help protect species and genetic diversity, but they also help maintain ecosystem services, support the livelihoods of the local people, and provide a wide array of goods and opportunities. Tunisia's protected areas range from mountainlands to coastal ecosystems. Chambi National Park, for example, contains Mount Chambi, the highest peak in Tunisia, as well as populations of the endangered Cuvier's gazelle and the vulnerable Barbary sheep.

Ichkeul National Park was included in UNESCO's list of World Heritage Sites in 1979. Several national parks are on the UNESCO tentative list of World Heritage Sites. Chambi National Park was declared a UNESCO biosphere reserve in 1977. The majority of parks are managed by the forest services, under the auspices of the Ministry of Agriculture. Access to all of the parks is managed by requiring visitors to apply for special entry permits.

Bouhedma National Park	Boukornine National Park	Chambi National Park	El Feija National Park
Ichkeul National Park	Jbil National Park	Jebel Chitana-Cap Négro National Park	Jebel Serj National Park
Sidi Toui National Park	Zembra and Zembretta Island National Park	Dghoumes National Park	Jebel Mghilla National Park
Jebel Orbata National Park	Jebel Zaghdoud National Park	Jebel Zaghouan National Park	Oud Zen National Park
Senghar-Jabess National Park			

Table 1. National Parks in Tunisia

2.8 INSTITUTIONAL RESPONSIBILITIES

Responsibility for biodiversity and natural resource management is shared among several government departments. The relevant laws and decrees can be found in Annex 2. Among these are the Ministry of Agriculture and Water Resources, the Ministry of the Environment and Sustainable Development, Ministry of Tourism, Ministry of Commerce and Handicrafts, National Agency for Environmental Protection, Coastal Management and Protection Agency, National Agency for Waste Management, National Institute of Forest Research, National Agency of Sanitary and Environmental Control of Products, National Society of Plant Protection, Ports and Facilities Fishing Agency, and the Commissioner General for Fisheries. Additionally, 10 advisory bodies exist to provide unbiased assessments of the conditions facing sustainable development, desertification, and energy, among others.

The National Plan 2015-2020 puts forth the green economy as a main priority. As the GoT continues to reform, it may be possible to streamline environmental management duties and responsibilities at the sub-ministerial level, given the amount of government agencies working in a shared space.

3 THREATS ANALYSIS

3.1 THREATS TO TERRESTRIAL ECOSYSTEMS

The most important threats to terrestrial ecosystems are presented in approximate descending order of their importance:

Erosion and desertification
Drought
Climate Change
Other direct threats/pressures

Desertification

Desertification is defined as “the degradation of the land in arid, semi-arid and sub-humid dry areas caused by climatic changes and human activities. It is accompanied by a reduction in the natural potential of the land and depletion in surface and groundwater resources” (United Nations Report, 1999). According to a 2009 survey done by the Ministry of Environment, in conjunction with UNDP, up to 75 percent of the territory is threatened by soil erosion and degradation (Table 2).

ZSAE	Moderately sensitive		Sensitive		Very sensitive		Desert		Total	
	ha	%	ha	%	ha	%	ha	%	ha	%
Kroumirie Mogods	62321	19	236079	72	30889	9			329289	100
North Est Cap Bon	911	0	218027	28	561377	72			780275	100
Dorsale and Tell	273052	12	1808981	76	285757	12			2367790	100
High steppe	50896	4	657024	52	544551	43			1252471	100
Low steppe	89594	5	766053	41	993956	54			1849603	100
High Atlas Ranges	21123	3	124831	18	547569	79			693523	100
Jeffara & Ouara	35990	2	270447	17	1256474	80			1562910	100
Dahar & Matmata	26064	1	678733	36	1161153	62			1865950	100
Chotts	334597	17	431383	22	1212386	61			1978367	100
Grand Erg							2802723	100	2802723	100
National Territory	831316		4737452		6001846		2802723			

Table 2.. Sensitivity to desertification. Source: Ministry of Environment, 2009.

As of 2008, 17 percent of Tunisia's land is being used for agriculture, including 13 percent cover with permanent crops, with an estimated 8,000 hectares of arable soil being lost per year because of desertification. In 2008, the costs of desertification were evaluated at US$100 million (National Report 2008). The problems of soil erosion and desertification are exacerbated by extreme climatic factors including severe wind storms, intermittent heavy rainfall, and drought.

Drought

Nearly two-thirds of Tunisia is semiarid to arid, where drought can be frequent . Drought episodes have been traced back to the sixth century in Tunisia, and the country has experienced 23 dry years from 1907 to 1997. Most recently, Tunisia experienced drought in 1982, 1987 to 1989, 1993 to 1995, and its worst drought in over 50 years from 1999 to 2002 (World Bank 2015).

Climate Change

Tunisian terrestrial biodiversity is seriously affected by climate change. Temperatures are increasing and rainfall is decreasing putting ecosystems and species under severe stress. These changes have sometimes resulted in the outright mortality of the dominant species of some ecosystems. Climate change modifies the basic environmental conditions that ecosystems and species are adapted to.

3.2 THREATS TO MARINE AND FRESHWATER ECOSYSTEMS

The most important threats to marine and freshwater ecosystems are presented in approximate descending order of their importance:

Drainage, development, and urbanization
Pollution
Salinization
Overfishing
Climate change

Tunisia has six main ports: Bizerte, Gabes, La Goulette, Rades, Sfax, Skhira. While overfishing or overharvesting of marine and coastal biodiversity presents a large risk, water pollution from raw sewage is the greatest and most generalized threat to coastal biodiversity.

Drainage, development, and urbanization
Drainage, development, and urbanization are major threats to wetlands and coastal ecosystems. Coastal areas in particular have been hugely impacted by the construction of secondary residences, urban growth and the expansion of industries, infrastructure, and tourism complexes. Wetlands are drained and/or filled for agriculture, urban and industrial expansion, road construction and other land uses. Sand and gravel are extracted for construction materials. Root causes include rapid demographic growth, rapid economic development/urban growth/ industrialization, rapidly increasing demand for water and lack of understanding of the ecological importance of wetlands.

Pollution
Pollution threatens many aquatic ecosystems and coastal marine ecosystems. Almost all estuaries, lagoon, and lower river courses are heavily polluted. Pollution comes from agricultural non-point sources and from urbanization and industrialization.

Salinization
Salinization affects Tunisia's shallow coastal aquifers, particularly the Cap Bon aquifer in the northeast (Garcia et al. 2010). It is caused by the intrusion of seawater into the aquifer and the flow of agricultural drainage water with concentrated salts. In 2003, overuse of the Cap Bon aquifer led to the salinization of over 2,800 freshwater wells (Gaaloul 2003). This not only affects the amount of potable water available for human use, but also the health of species that rely on a clean water supply. If water use is not regulated, the entire coastal aquifer may become saline due to seawater intrusion, as happened in neighboring Libya.

Overfishing
Coastal fisheries have historically been open access resources although this has started to change in recent years (e.g., the government has imposed, and is enforcing, a freeze on the number of fishing boats). Tidal zone shoreline sea life that can be collected on foot is especially vulnerable, but all coastal and open sea fisheries are badly over-harvested. The foreign industrial fishing fleet uses ever more sophisticated technology for efficiently "scouring" the seas. Drift nets that were recently made illegal within the European Union are on open display on the docks. Indeed, many owners of the Tunisian fishing fleet invested heavily in equipment that became available at bargain prices when it was made illegal on the other side of the Mediterranean. Much of the fleet in this harbor is specialized in the use of long lines, another highly criticized fishing technology.

Overfishing through unsustainable fishing techniques (small mesh, hand trawls, submerged nets, blocking of whole width of rivers during migration with nets and traps) and during the closed season when the species is spawning, is affecting freshwater fish populations. In Tunisia, the endangered *Anguilla anguilla* is unsustainably harvested for food (Garcia et al. 2010).

Marine and freshwater ecosystems are poorly studied and poorly understood. The state lacks the means to effectively enforce regulations on the activities of coastal fishermen. Demographic

growth and poverty are major root causes driving the overexploitation of coastal marine resources. The state has not been effective in preventing the over-harvesting of the industrial open sea fisheries. The historical movement of the fishing fleet as fish stocks are depleted in the north is evidence of this.

Climate change
Climate change is an additional threat and results in reduced water inputs into freshwater ecosystems. Climate change combined with rapidly growing human demands for water may prove devastating for remaining downstream wetlands.

4 CONSTRAINTS TO CONSERVATION

4.1 CONSTRAINTS TO THE CONSERVATION OF TERRESTRIAL ECOSYSTEMS

Land tenure and resource access rights
Land distribution is highly unequal in Tunisia with most farms being less than 5 hectares in size; these farms cover only about six percent of the land, suggesting that a smaller number of large farmers predominate. Some commentators have argued that unequal land distribution has played a role in social grievances sparking the revolution that toppled the government of Ben Ali. A contributor to unequal land ownership are inheritance laws, which see land divided into smaller parcels. Unequal land distribution has been shown to negatively impact efforts at reducing rural poverty.

Legal and policy framework
Interventions could include efforts to improve tenure security through registration and the provision of agricultural inputs to increase capital accumulation and agricultural productivity.. Furthermore, women's rights to inherited land are an issue. Despite strong statutory laws, Islamic law prevails in rural areas, which generally discriminate against women with respect to inheritance of land. This is a major issue since inheritance is the dominant means of acquiring rural land.

Climate change
To reduce rural poverty in a land and water-scarce and unequal context vulnerable to climate change, Tunisian farmers could benefit greatly from support for climate smart agricultural practices, including support for tenure security.

4.2 CONSTRAINTS TO MARINE AND FRESHWATER ECOSYSTEMS

Poor governance
Poor governance is a major constraint to the coastal fisheries sector. Artisanal fishermen are poorly organized and poorly informed. The representation of fishermen on boards, stakeholder fora tends to be inequitable. Law enforcement tends to favor the wealthiest investors who are the most heavily invested in modern efficient technologies over the small artisanal fisherman. The artisanal fishermen reported to the Team that trawlers frequently come to depths as shallow as 10 meters, efficiently capturing the fish in the area legally

Commonly, NGOs are best suited for providing such support to local community structures. reserved for the artisanal fishermen. These shallow waters are also the most important areas for the reproduction of many commercial species.

5 IDENTIFICATION OF ACTIONS NEEDED

5.1 ACTIONS NEEDED TO CONSERVE TERRESTRIAL ECOSYSTEMS

Concrete steps that need to be taken to overcome the above mentioned constraints are identified in this chapter, beginning with terrestrial ecosystems:

National Action Program for Combating Desertification (NAP-CD) was developed in 1998. It consists of a framework of strategies, programs and projects for rural development It relies on a rural development strategy that gives greater emphasis to different aspects of natural resource protection and to combat desertification. NAP-CD is a tool for coordinating and integrating different strategies of natural resources implemented by the government and to ensure the consideration of socioeconomic and environmental issues (LAS 2014).

The GoT has developed two soil and water conservation strategies:

- Construction of lakes, improvement of rivers, and watershed improvements; and
- Mechanical terraces and stone tapes

From 1990 to 2011, Tunisia spent over $661 million on soil and water conservation programs, with private companies contributing up to five percent of the total amount.

Tunisia also has a reforestation plan for 2012-2016, which aims to continue extending forest area (afforestation) to reach 10.7% of total area in 2020 (370,000 ha), 250,000 ha of improved pasture, 7,500 km of soil embankment, building 500 lakes, and improving 1 million hectares of watershed improvement. An urgent action is to update Tunisia's degradation map, as well as the agricultural land protection map. Finally, the GoT will need to further align its National Action Program to the UNCCD 10-Year Strategy implementation

5.2 ACTIONS NEEDED TO CONSERVE MARINE AND AQUATIC BIODIVERSITY

Since the beginning of the 2000s, the Tunisian government, fully aware of the potential and the challenges preserving the Gulf of Gabes, have stressed the importance of adopting a pragmatic and integrated approach aimed at safeguarding natural resources, including land and water conservation, mitigating ongoing or potential threats to biodiversity, and addressing social and environmental concerns.

Tunisia's fishery sector faces real challenges (in terms of pollution, for instance), particularly the need for social sustainability by promoting sustainable natural resource use by local communities and supporting nature-based tourism in and around protected areas. The majority of the gaps in marine and aquatic biodiversity preservation are related to governance and community management. Immediate actions in this sector include:

- Formulation of sustainable strategic approaches for long-term biodiversity management not only in the Gulf of Gabes, but also in other similar ecosystems in Tunisia.
- Development and dissemination (publications, websites, etc.) of highly valued scientific knowledge.
- Development of a range of best practices and planning tools.
- Establishment of a sustainable system of knowledge management and sharing.
- Collecting legal and regulatory texts related to biodiversity management in Tunisia.
- Strengthening the institutional capacity of implementing agencies.

- Identification of conditions required to strengthen the mandates of national institutions involved in ecosystem management and biodiversity conservation.
- Adequate appraisals of the technical, scientific, human and financial resources required to reach a sustainable level of effort to protect biodiversity resources.
- Adequate levels of sensitization of local stakeholders (including civil society) on environmental issues.
- Improved general awareness of the importance of participatory mechanisms for planning and implementing development initiatives, in the context of new overall democratic trends of Tunisian society.

5.3 GENERAL ACTIONS NEEDED FOR ALL ECOSYSTEMS

A common thread among the threats facing the diverse ecosystems in Tunisia is the lack of strong natural resource management bodies to enforce laws, particularly related to waste management along coastal areas and water management in the interior. Government capacity building and adequate budget allocations are key to effectively protect all threatened ecosystems in the country. General actions that are needed include:

- Ensuring equitable and managed urban development
- Improving infrastructure
- Sustainably managing water resources
- Sustainably exploiting mining resources
- Supporting sustainable management of the fishing industry while revitalizing and normalizing the fishing industry
- Reorganizing and developing the agriculture sector
- Diversifying tourism options
- Ensuring ecosystems services
- Developing cultural heritage and landscape
- Protecting terrestrial fauna and flora
- Defining the conditions for a rational use of natural resources
- Enhancing social and economic development
- Promoting the participation of local communities in natural resource management
- Protecting lagoon and marine ecosystems
- Protecting natural heritage from droughts, soil degradation, water and soil salinization
- Improving legal frameworks for environmental protection; and
- Improving institutional organization and knowledge base

7 IDENTIFICATION OF OPPORTUNITIES FOR USG SUPPORT

7.1.USAID OPPORTUNITIES TO SUPPORT BIODIVERSITY WITHIN THE CDCS FRAMEWORK

As listed above, there is substantial opportunity for USAID to support biodiversity under the current CDCS. Both of the intermediate results identified in the results framework present opportunities to support biodiversity. Generally, the greatest opportunity that USAID has in Tunisia to support biodiversity is in strengthening of institutional capacities, including strengthening the mandates of national bodies involved in natural resource management.

Given that the GoT has robust laws on natural resource management and protecting biodiversity, USAID could design activities that strengthen the GoT's capacity to enforce laws and policies.

Moreover, USAID can train youth living in sensitive ecosystems on environmental stewardship as part of a community-based management approach to improve livelihoods and strengthen local governance systems.

7.2 LINKAGES WITH THE WATER SECTOR

USAID's Middle East Bureau is tackling water security challenges in Tunisia through its regional Middle East Water Security Initiative (MWSI). MWSI focuses on Middle East Water Security Initiative (MWSI) introducing new technologies to the region that increase the amount of available fresh water. Four regionally-funded water activities with Tunisia components are currently under implementation that fall under the umbrella of MWSI. The activities focus on water productivity in the agriculture sector ("more drop for less drop"), increasing resiliency to drought, and improved groundwater management. The estimated value of assistance from the regional activities that benefits Tunisia is $1.3 million over the period 2013 to 2018.

Future U.S. Government (USG) interventions in the water sector should be complementary to these existing activities, contribute to the objectives of MWSI (and in turn the overall USAID Water and Development Strategy), and also feed into the Government of Tunisia's (GoT) priorities in the water sector. GoT priorities over the next five years include re-using 50 percent of treated wastewater, ensuring a safe water supply rate in rural areas of 96 percent by 2020 (National Strategy 2015-2020), and helping meet the GoT medium-term development goal "Supporting the Green Economy". USG interventions to promote economic growth (EG) should carefully consider if and how water-intense activities are being promoted in water scarce areas. For example, if new (water-intensive) industrial or revenue-generating activities will be promoted in a water scarce area, risks associated with less available water due to the impacts of climate change need to be assessed to ensure success. In this case, EG activities should employ water-saving technologies, and/or be re-located to a different region. USG interventions in Democracy and Governance should consider how the lack of water (for health or food) impacts expected development outcomes, e.g. due to unforeseen migration and conflict over water resources.

7.3 PROGRAMMING OPPORTUNITIES FOR MARINE AND COASTAL ECOSYSTEMS

Given that all of Tunisia's economic powerhouses are located along the Mediterranean coast, there are ample opportunities for planned programs to feature a component dealing with marine and coastal ecosystems. The GoT needs support implementing strategies for sustainable eco-tourism, fishery concession, and a model for participatory preparation and management of biodiversity. Any economic growth activities dealing with solid and/or toxic waste will have to take appropriate mitigation measures to ensure that this is not deposited into the sea. Moreover, any support that USAID provides to sustainable tourism or ecotourism undoubtedly would include work on protecting coastal ecosystems, as it is the main drivers of Tunisia's coastal tourism.

7.4 OPPORTUNITIES FOR SUPPORTING IMPROVED GOVERNANCE

All support for the biodiversity product value chain development and for participatory resource management must include a strong governance component. Commercial harvest rights almost always go to relatively wealthy urban dwellers and almost never to local communities. It is a system designed to favor the urban elite. It is a highly inequitable system that marginalizes local

communities from the monetary benefits from the marketing of biodiversity products. It is a cause of rural poverty.

The main opportunities for US government assistance are in policy reform and in pilot activities for participatory management and marketing of biodiversity products.

7.5 OTHER ECONOMIC DEVELOPMENT OPPORTUNITIES WITH WEAKER LINKS TO BIODIVERSITY

Local tourism development also presents a range of biodiversity-related development activities that include:

- Community-based tourism development
- No-take zone based coastal tourism
- Mountain/wild area trail development
- Local guide services
- Local lodging/campsites
- Cultural tourism

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Workshop on Alignment & implementation of National Action programmes with the UNCCD 10-year Strategy in the Arab Region League of Arab States (18- 20 June 2014), Dubai - UAE Tunisia, Mr. Hamda ALOUI

WEB SITES

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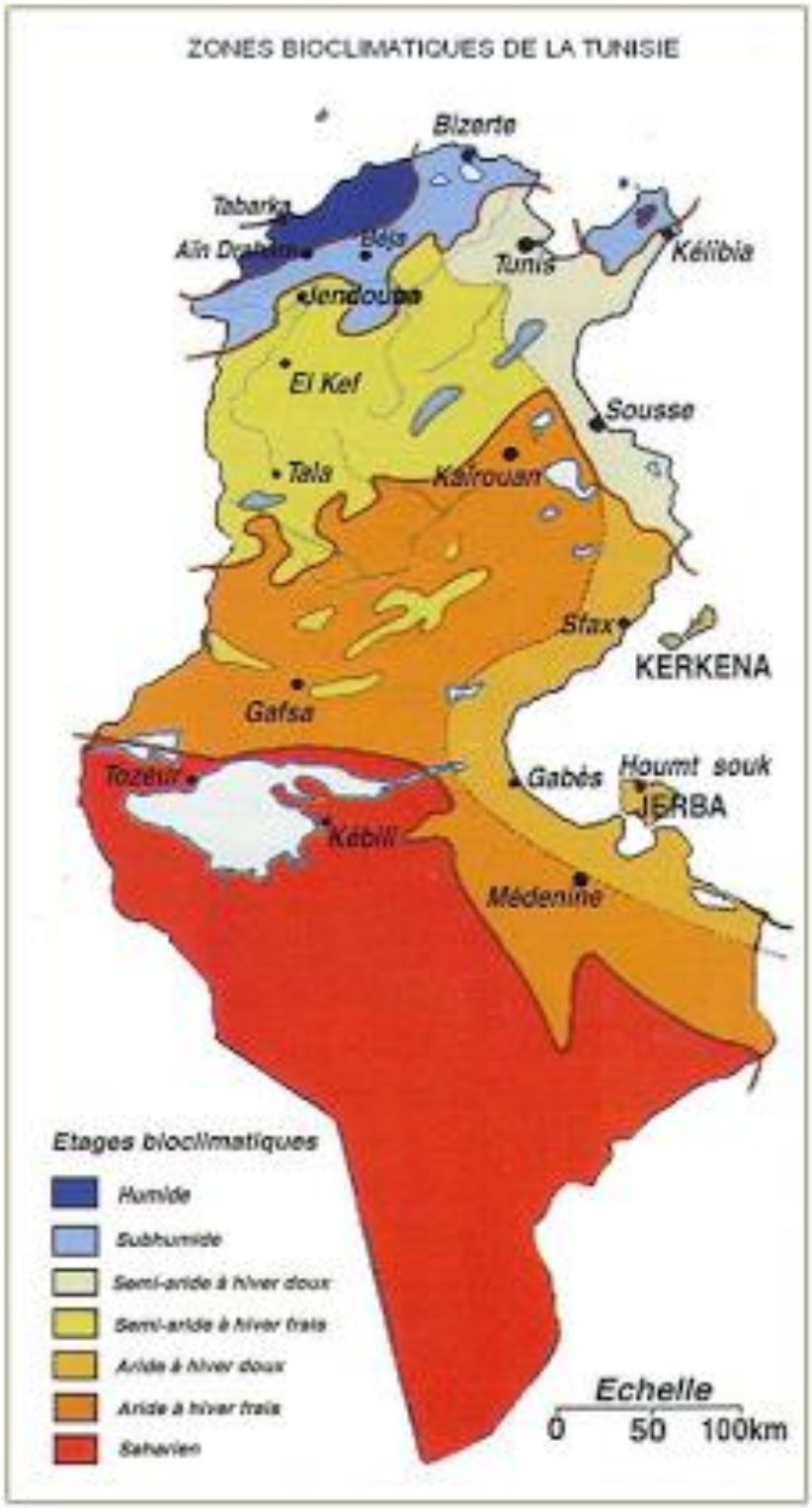
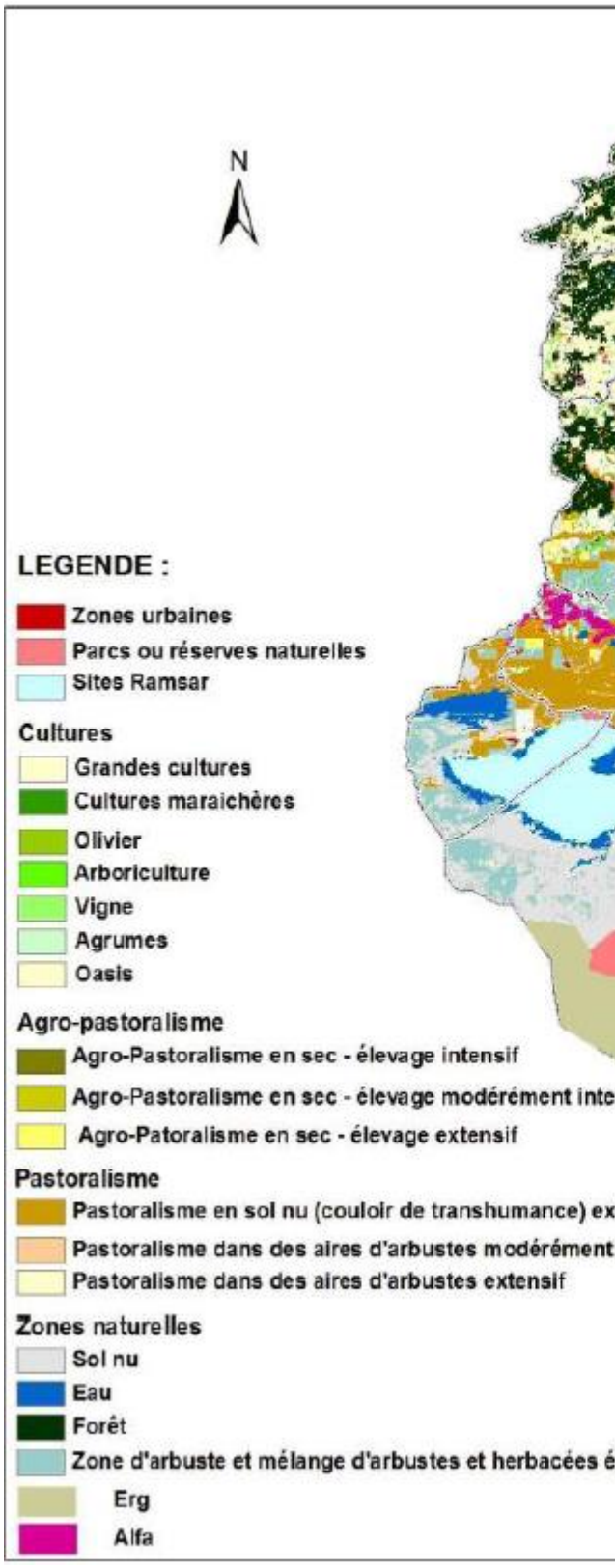
http://www.lrrd.org/lrrd22/3/khal22047.htm
http://www.animalinfo.org/country/tunisia.htm
http://www.iucn.org/news_homepage/news_by_date/?14910/Barbary-sheep-on-the-edge-of-survival-in-North-Africa

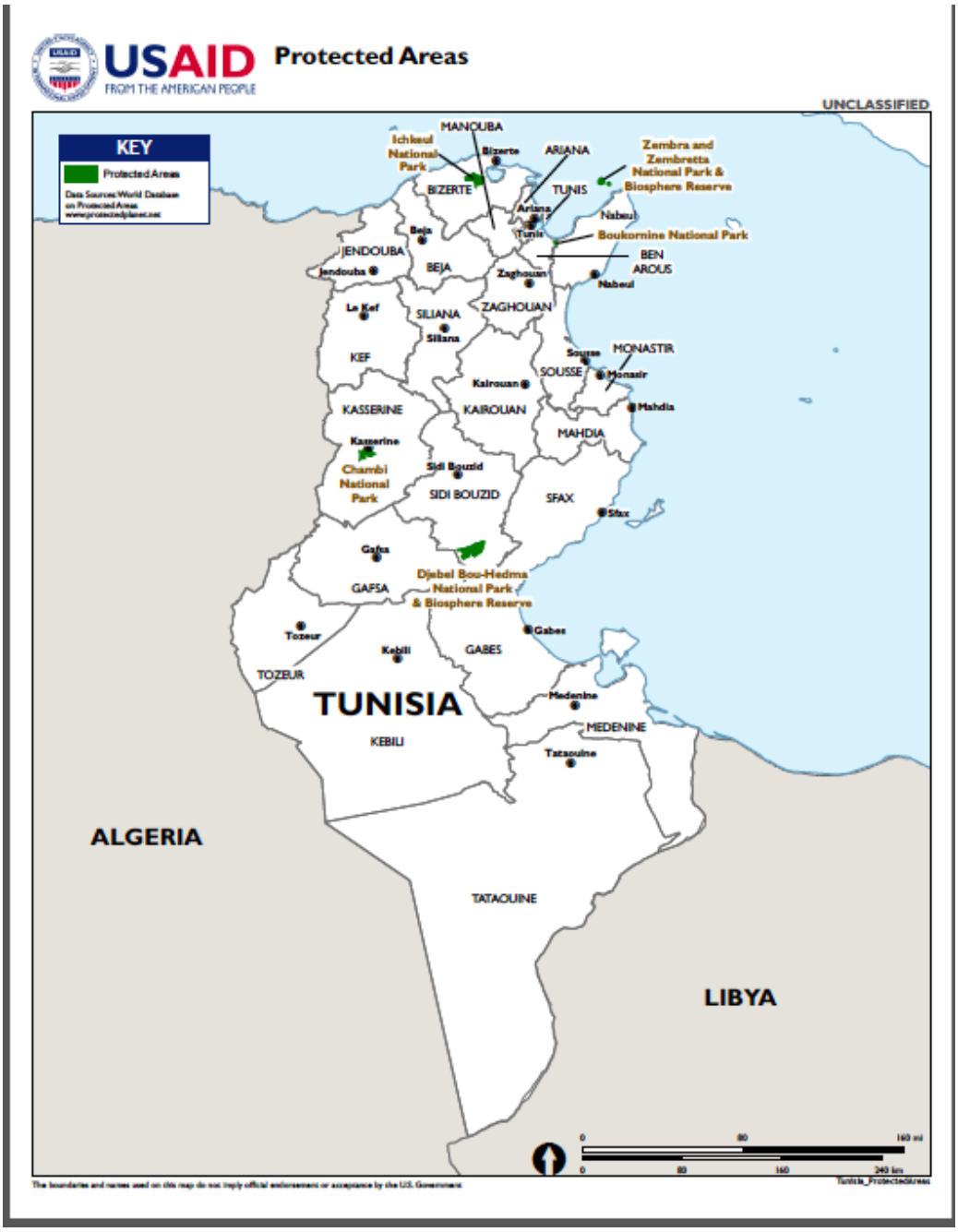
ANNEX 1: MAPS

Maps and data related to biodiversity and forest conservation are presented in this annex. The maps have all been prepared by USAID Geospatial Specialist Steve Gilbert. The titles of the maps along with notes on their relevance and usefulness are presented here.

1. **BIOCLIMATIC ZONES TUNISIA:** The terrestrial ecosystems and biodiversity of Tunisia are directly linked to Tunisia's bioclimatic zones.
2. **ECOREGIONS TUNISIA**
3. **FOREST ECOSYSTEMS AND WATERSHEDS:** Given USAID's interest in working in the water sector, forest ecosystems and watershed have been combined on the same map.
4. **PROTECTED AREAS OF TUNISIA**
5. **FORESTS AND LAKES/RESERVOIRS – TUNISIA:** This map is of interest if one wishes to target the watershed above a specific reservoir.
6. **POPULATION (2014 CENSUS) TUNISIA:** This map presents a ranking of the total population for each region of Tunisia.
7. **POVERTY RATE BY REGION, 2010 (%) - TUNISIA**


ZONES BIOCLIMATIQUES DE LA TUNISIE
Bizerte
Tabarka
Ain Draham
Béja
Tunis
Kélibia
Jendouba
El Kef
Sousse
Tala
Kairouan
Sfax
KERKENA
Gafsa
Tozeur
Gabès
Houmt souk
JERBA
Kébili
Médenine
Etages bioclimatiques
Humide
Subhumide
Semi-aride à hiver doux
Semi-aride à hiver frais
Aride à hiver doux
Aride à hiver frais
Saharien
Echelle
0 50 100km


N
LEGENDE :
Zones urbaines
Parcs ou réserves naturelles
Sites Ramsar
Cultures
Grandes cultures
Cultures maraichères
Olivier
Arboriculture
Vigne
Agrumes
Oasis
Agro-pastoralisme
Agro-Pastoralisme en sec - élevage intensif
Agro-Pastoralisme en sec - élevage modérément inte
Agro-Patoralisme en sec - élevage extensif
Pastoralisme
Pastoralisme en sol nu (couloir de transhumance) ex
Pastoralisme dans des aires d'arbustes modérément
Pastoralisme dans des aires d'arbustes extensif
Zones naturelles
Sol nu
Eau
Forêt
Zone d'arbuste et mélange d'arbustes et herbacées é
Erg
Alfa


USAID
FROM THE AMERICAN PEOPLE
Protected Areas
UNCLASSIFIED
KEY
Protected Areas
Data Sources: World Database on Protected Areas
www.protectedplanet.net
MANOUBA
Ichkeul National Park
Bizerte
ARIANA
Zembra and Zembretta National Park & Biosphere Reserve
BIZERTE
TUNIS
Ariana
Tunis
Nabeul
Boukornine National Park
Beja
JENDOUBA
Jendouba
BEJA
Zaghouan
BEN AROUS
Nabeul
Le Kef
SILIANA
Siliana
ZAGHOUAN
KEF
Sousse
MONASTIR
SOUSSE
Monastir
Kairouan
KASSERINE
KAIROUAN
Mahdia
MAHDIA
Kasserine
Chambi National Park
Sidi Bouzid
SIDI BOUZID
SFAX
Sfax
Gafsa
Djebel Bou-Hedma National Park & Biosphere Reserve
GAFSA
Gabes
Tozeur
Kebili
GABES
TOZEUR
TUNISIA
Medenine
MEDENINE
KEBILI
Tataouine
ALGERIA
TATAOUINE
LIBYA
0
80
160 mi
0
80
160
240 km
The boundaries and names used on this map do not imply official endorsement or acceptance by the U.S. Government.
Tunisia_ProtectedAreas

USAID
FROM THE AMERICAN PEOPLE

Forests and Lakes/Reservoirs

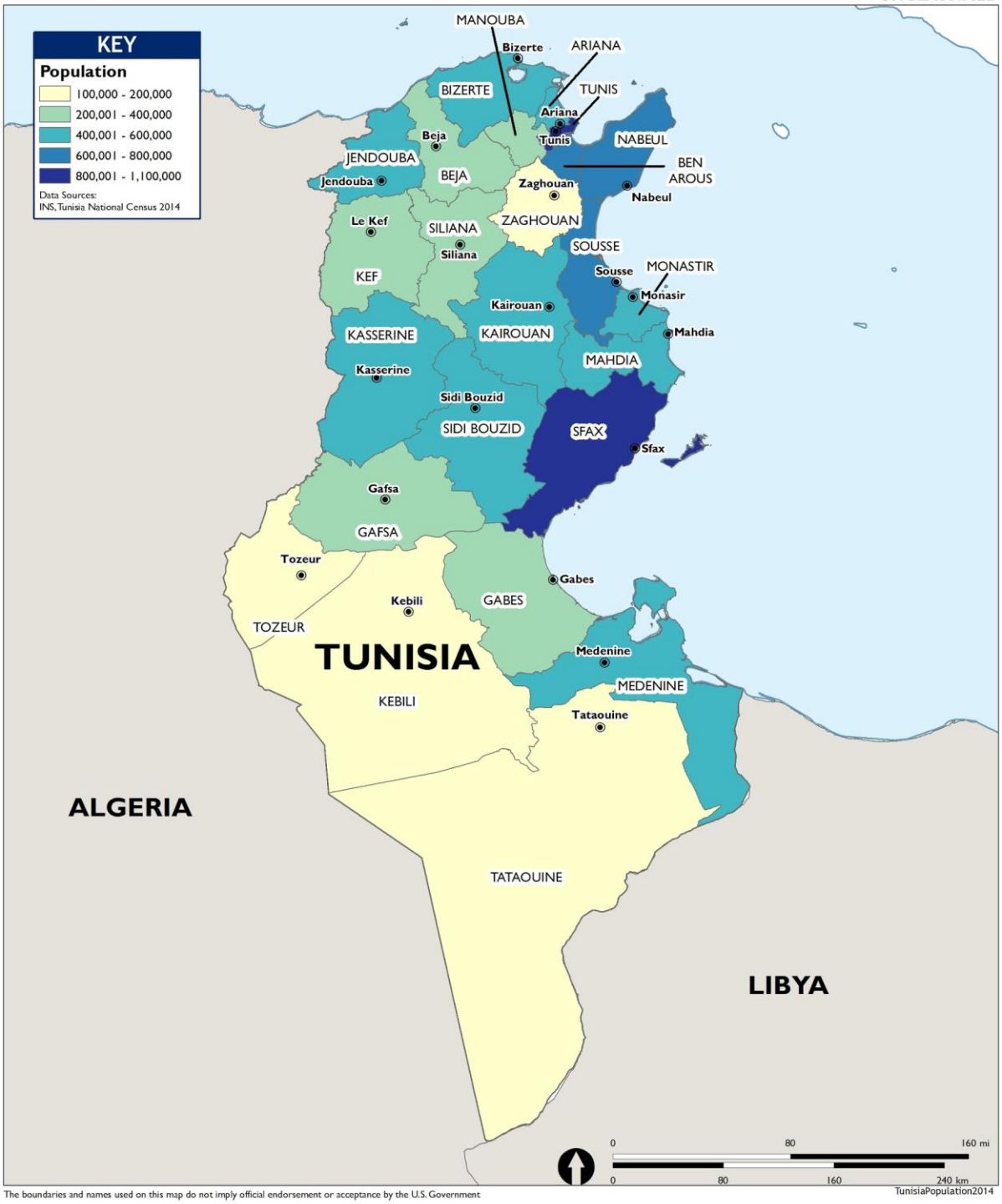
UNCLASSIFIED

The boundaries and names used on this map do not imply official endorsement or acceptance by the U.S. Government

USAID
FROM THE AMERICAN PEOPLE

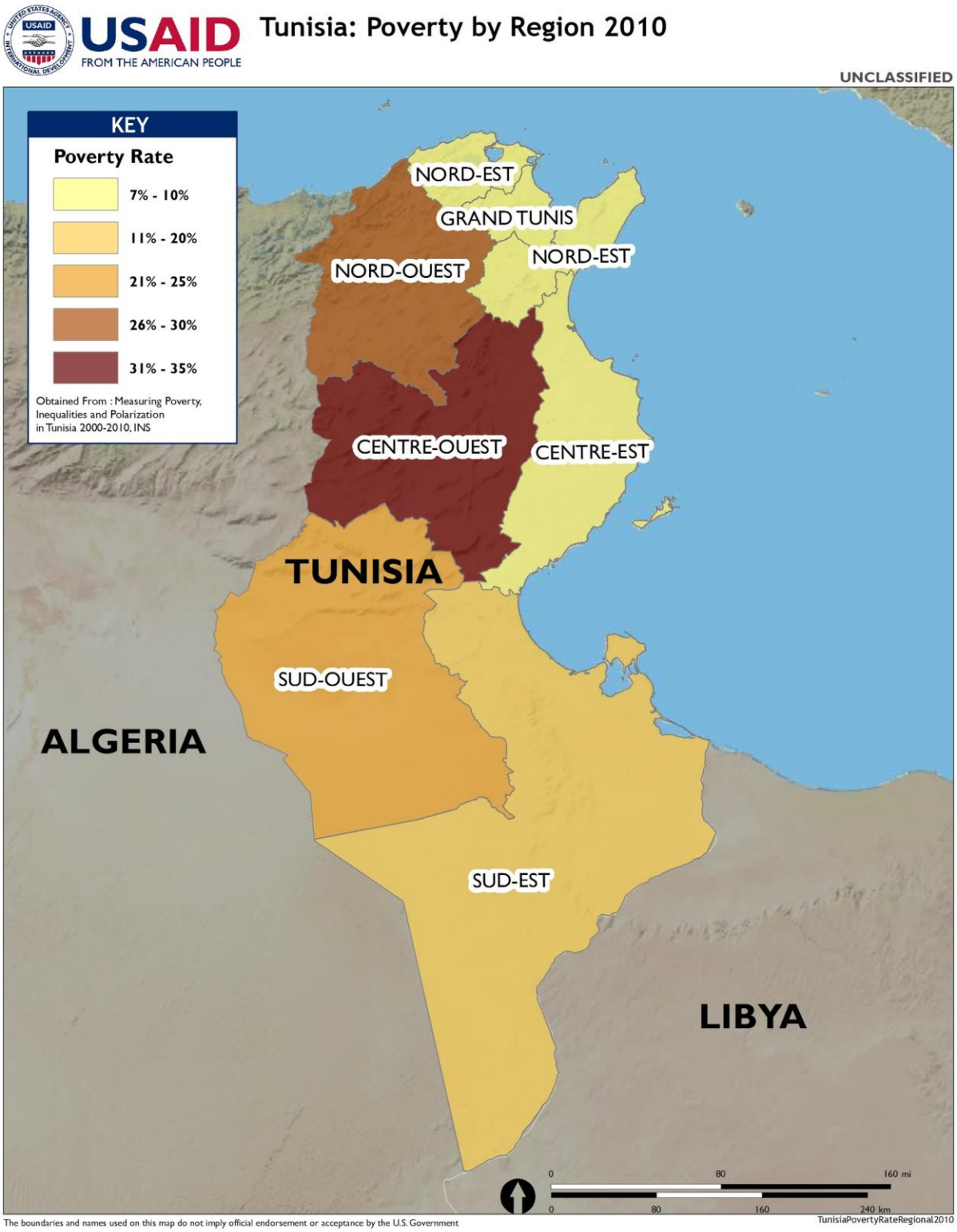
Population by Governorate - 2014

UNCLASSIFIED



The boundaries and names used on this map do not imply official endorsement or acceptance by the U.S. Government

TunisiaPopulation2014



Annex 2: National Plans, Strategies and Legislation

The following national plans, strategies, and legislation are related to biodiversity:

Forest Code (1966 and revised in 1988)
Water Code (1975)
Town-Planning Code (1979 revised in 1994)
Law on cultural property (1986)
Law No. 93-41 of April 19, 1993, restructuring National Sanitation (ONAS)
Law No. 95-70 of 17 July 1995 on the conservation of water and soil
Law No. 95-72 24 July 1995 establishing the Agency for protection and development of the Coastline
Law No. 95-73 of July 24, 1995, relating to the maritime public domain
Law No. 96-25 of March 25, 1996 creating the International Centre for Environmental Technologies of Tunis (CITET)
Law No. 96-29 of April 3, 1996 establishing a national plan of urgent action to fight against marine pollution incidents
Law No. 96-41 of June 10, 1996, on waste control, management and disposal and its implementing regulations
Decree No. 2001-419 of 13 February 2001, as supplemented and amended by Decree no. 2010-625 of 05 April 2010 and Decree No. 2011-1560 of September 5, 2011 establishing the powers of the Ministry of Agriculture and Water Resources
Decree No. 2003-1748 of 11 August 2003 establishing the National Genes' Bank (BNG)
Decree No. 2005-2317 of 22 August 2005 establishing the National Waste Management Agency (ANGED)
Decree No. 2005-2933 of November 1, 2005, establishing the powers of the Ministry of Environment and Sustainable Development
Law No. 2007-34 of June 4, 2007, on air quality
Law No. 2009-49 of July 20, 2009, on marine and coastal protected areas

Major Conventions and Ratification Date

CONVENTION	RATIFICATION DATE
Protocol of the Protection of Cultural Property during of Armed Conflict	1954
Algers Convention on Natural Resource Conservation	1976, ratified by Law number 91 of 1976 dated November 4, 1976
RAMSAR	1971
UNESCO Convention for the Protection of the World Cultural and Natural Heritage	1974
De BONN/CMS	1979
Protocol on cooperation between the countries of North Africa in the field of desert creep resistance	1979, ratified by Law Number 1 of 1979 dated January 25, 1979
Protocol following the International Convention of 1974 for the maintenance of sea species	1980, licenses to join them under the law number 23 for the year 1980 of 23 May 1980
Convention on the establishment of the Arab Center for the Studies of dry Zones and arid Lands	1982
Convention on biological diversity	1992

Bamako Convention on the Ban of the import of toxic waste into Africa and the Control and management of its movement through African boundaries	1991, ratified by Law No. 11 of 1992 dated 03 February 1992
Convention on the Conservation of European Wildlife and Natural Habitats	1995
Convention for the Protection of the Mediterranean Sea Against Pollution (Barcelona Convention)	1999
Cartagena Protocol on Biosafety	2002, Approved by Law number 58 of 2002, dated June 25, 2002; certified by the decree n 2675 to 2002 of 14 October 2002)
Kyoto Protocol to the United Nations Framework Convention on Climate Change	2002
The International Treaty on Plant Genetic Resources for Food and Agriculture	2002, approved by Law No. 15 of 2004 dated March 1, 2004
Stockholm Convention on Persistent Organic Pollutants	2001, approved by Law No. 18 of 2004 dated March 15, 2004
Convention on International Trade of animal and plant varieties facing extinction (CITES)	Convention in accordance with the law number 66 for the year 2005 of 4 August 2005, ratified by decree number 2641 for the year 2005 of 3 October 2005
Convention on the Protection of Underwater Cultural Heritage	2008, approved by law number 61 for the year 2008 of 28 October 2008