添付資料-1　各国の現地調査スケジュール

(1)　チュニジア

月日	活動内容
6 月 17 日(木)	チュニスに到着 質問表などの準備・作成
6 月 18 日（金）	JICA 事務所へ表敬・説明・協議 環境・持続的開発省（MEDD）への表敬・説明・協議
6 月 19 日（土）	資料収集及び整理
6 月 20 日（日）	資料収集及び整理
6 月 21 日（月）	森林総局（DGF）と面会・協議 国家環境保全局（ANPE）と面会・協議 アフリカ開発銀行（AfDB）と面会・協議
6 月 22 日（火）	国立農村工学・水と森林研究所（INRGEF）と面会・協議
6 月 23 日（水）	沿岸保護管理局（APAL）と面会・協議
6 月 24 日（木）	GTZ、世銀及び FAO との面会調整
6 月 25 日（金）	森林総局（DGF）森林保全局と面会・協議 世銀と面会・協議
6 月 26 日（土）	資料整理及び報告書作成
6 月 27 日（日）	資料整理及び報告書作成
6 月 28 日（月）	国家遺伝子バンク（BNG）と面会・協議 WWF と面会・協議 FAO と面会・協議
6 月 29 日（火）	アフリカ開発銀行（AfDB）と面会・協議 GTZと面会・協議
6 月 30 日（水）	JICA 漁業分野専門家及び所長と面会・協議
7 月 1 日（木）	UNDP と面会・協議
7 月 2 日（金）	資料整理及び報告書作成
7 月 3 日（土）	報告書作成
7 月 4 日（日）	報告書作成
7 月 5 日（月）	開発・国際協力省と面会・協議
7 月 6 日（火）	国家環境保全局（ANPE）と協議
7 月 7 日（水）	報告書作成
7 月 8 日（木）	報告書作成
7 月 9 日（金）	JICA 事務所への報告 移動

添付資料-1　各国の現地調査スケジュール

(2)　エチオピア

月日	活動内容
5月27日（木）	アディス・アベバ到着
5月28日（金）	作業計画の検討と質問表の準備・作成（祭日）
5月29日（土）	作業計画の検討と質問表の準備・作成
5月30日（日）	資料収集及び整理
5月31日（月）	JICA事務所へ表敬・説明・協議 エチオピア野生動物・国家歴史協会（EWNHS）と面会・協議 生物多様性保全研究所（IBS）と面会・協議
6月1日（火）	世銀と面会・協議 環境教育NGOと面会・協議
6月2日（水）	環境保護局（EPA）と面会・協議 生物多様性保全研究所（IBS）と面会・協議 エチオピア農業研究機関（EIAR）と面会・協議 オロミア州森林・野生動物公社と面会・協議
6月3日（木）	農業地方開発省（MOARD）と面会・協議 FARM Africa/SOS Sahel（BERSMP）と面会・協議
6月4日（金）	JICA事務所への進捗報告 アフリカ開発銀行（AfDB）と面会・協議 EU住民参加型森林管理プロジェクトと面会・協議 農業地方開発省及び農業地方開発省付属のJICA専門家と面会・協議
6月5日（土）	資料整理
6月6日（日）	資料整理
6月7日（月）	「ポストUNFCCC/COP15における中央・東部アフリカでの生計向上のための気候変動適応戦略、能力向上、農業技術改善に関わる会議」へ、JICA代理として出席
6月8日（火）	資料収集 エチオピア野生生物保護局と面会・協議
6月9日（水）	資料整理 UNDPと面会・協議
6月10日（木）	FAOと面会・協議 GTZと面会・協議
6月11日（金）	Jimma へ移動 JICA調査団に合流 報告書作成
6月12日（土）	Balete-Geraプロジェクト訪問・視察
6月13日（日）	Sigma Satama の新規プロジェクトサイト訪問・視察 アディス・アベバへ移動
6月14日（月）	農業地方開発省付属のJICA専門家への説明 報告書作成
6月15日（火）	報告書作成
6月16日（木）	チュニスへ移動

添付資料-1　各国の現地調査スケジュール

(3)　ウガンダ

月日	活動内容
5月18日（火）	カンパラ到着 JICA ウガンダ事務所と打合せ
5月19日（水）	農業畜産漁業省水産資源局と面談 ウガンダ野性生物協会（Uganda Wildlife Society, UWS）と面談
5月20日（木）	ビクトリア湖環境管理プログラム（Lake Victoria Environment Management Program）と面談 国家森林局（National Forestry Authority, NFA）と面談 気候変動ユニット（Climate Change Unit）と面談
5月21日（金）	水資源環境省環境局と面談 湿地管理局(Wetland Management Unit）と面談
5月22日（土）	資料整理
5月23日（日）	資料整理
5月24日（月）	Uganda Wildlife Authority（UWA）と面談 気象局と面談
5月25日（火）	NFA にて資料収集 湿地管理局で面談
5月26日（水）	NFA の REDD Focal Person と面談 農業畜産漁業省作物資源局と面談 JICA 持続型灌漑開発計画プロジェクトの伊藤専門家と面談
5月27日（木）	Makerere 大学 Institute of Environment and Natural Resource と面談
5月28日（金）	NFA にて情報確認 湿地管理局で情報確認と現地視察に係る協議
5月29日（土）	Mabira 森林保全区で環境教育の協力隊員と面談 資料整理
5月30日（日）	報告書作成
5月31日（月）	IUCN と面談 UNDP/GEF/SGP(Small Grant Project Office)事務所と面談
6月1日（火）	NEMA と面談 CBD Focal Person と面談 現地視察のため Iganga に移動
6月2日（水）	Kumi District Office で環境局湿地保全課と面談 Ramsar 指定の Lake Bisina Wetland と持続型灌漑開発計画プロジェクトの稲作現場を視察
6月3日（木）	Butaleja の Sub-county Office で Wetland Framework Manage ment Plan について面談 Doho-Namatala Wetland の稲作地帯（中国による大規模灌漑）を視察
6月4日（金）	JICA Uganda 事務所へ調査結果報告 湿地管理局へ調査結果説明・協議 森林局へ調査結果説明・協議
6月5日（土）	報告書作成
6月6日（日）	カンパラからヨハネスブルク経由でハボローネへ移動

添付資料-1　各国の現地調査スケジュール

(4)　ボツワナ

月日	活動内容
6 月 6 日 (日)	夕刻：ハボローネ到着
6 月 7 日 (月)	環境・野生動物・観光省 (MEWT)：環境局、森林局、観光局、気象局を訪問し面談依頼。JICA ボツワナ事務所表敬訪問。
6 月 8 日 (火)	野生動物・国立公園局を訪問し面談依頼。財務・開発計画省統計局出版局とボツワナ開発政策研究所で資料収集。ボツワナ大学開発研究所と BirdLife in Botswana を訪問し面談。
6 月 9 日 (水)	National Tree Seed Center（NTSC, 要請書担当者）、森林局（GIS ユニット）を訪問。USAID Tropical Forest Conservation Project 事務局を訪問し面談。
6 月 10 日 (木)	野生動物・国立公園局を訪問し協議依頼。ボツワナ大学開発研究所で面談。Kalahari Conservation Society, UNDP, UNEP, EU を訪問し面談依頼。
6 月 11 日 (金)	環境局とボツワナ大学開発研究所、気象局と面談。
6 月 12 日 (土)	資料整理
6 月 13 日 (日)	資料整理
6 月 14 日 (月)	野生動物・国立公園局を訪問し面談依頼。NTSC の要請書担当者と協議。観光局を訪問し面談依頼。
6 月 15 日 (火)	ボツワナ大学開発研究所、UNDP/GEF、Kalahari Conservation Society と面談。
6 月 16 日 (水)	野生動物・国立公園局に面談依頼。NTSC 要請書担当者と協議。
6 月 17 日 (木)	森林局の関係部課と協議
6 月 18 日 (金)	観光局の関係部課と協議, Conservation International と面談。
6 月 19 日 (土)	資料整理・報告書作成
6 月 20 日 (日)	資料整理・報告書作成
6 月 21 日 (月)	現場視察（ハボローネから Central District, Letlhkane に移動）
6 月 22 日 (火)	現場視察（Central District, Letlhkane 近郊の Khwee 村一帯の森林と村落）
6 月 23 日 (水)	現場視察（Central District, Letlhkane からハボローネに移動）
6 月 24 日 (木)	調査報告案概要（英文）を JICA 東京にメールで送付
6 月 25 日 (金)	環境省（環境局・森林局）に報告、JICA ボツワナ事務所に調査終了の挨拶
6 月 26 日 (土)	報告書作成
6 月 27 日 (日)	午前：ハボローネからヨハネスブルクへ移動
6 月 28 日 (月)	10:00　JICA 南アフリカ事務所に調査結果を報告、報告書作成
6 月 29 日 (火)	報告書作成、午後：ヨハネスブルクからドバイへ移動
6 月 30 日 (水)	ドバイから成田へ移動、帰国

Field Survey Report for the Data Collection Survey on Biodiversity Conservation in Asian and African Regions

Tunisia

July 9, 2010

1. Outline of the Survey

1.1. Background of the Overall Survey

Mankind heavily depends on biodiversity. Nevertheless, it is reported that the biodiversity on earth is in a critical condition as over 40,000 species become extinct every year due to various anthropogenic activities, such as deforestation, hunting/poaching, water pollution and others. Efforts to conserve biodiversity have been reinforced internationally after the adoption of the Convention on Biodiversity (CBD) at the United Nations Conference on Environment and Development in 1992. The Government of Japan has also actively worked on the conservation of biodiversity since then as a country that ratified the convention. This year is the last year of the 2010 biodiversity target adopted by the Conference of the Parties (COP 6) held in the Netherlands in 2002. Furthermore, Japan will host the tenth meeting of the COP in October 2010 as the chair country and is expected to play an important role in leading the activities on biodiversity conservation not only domestically but also internationally.

The Japan International Cooperation Agency (JICA) has successfully implemented a number of cooperation projects/programs on biodiversity conservation. Because of its long and successful achievements, the international community expects JICA to make more contributions, towards COP 10, to the conservation of biodiversity in developing countries. In particular, the countries in Asian and African regions need further assistance in biodiversity conservation since there are many biodiversity hot spots and untouched natural forests still remaining in the regions.

Given this background, JICA was determined to conduct a survey to collect and analyze relevant information/data concerning biodiversity conservation and forestry-related measures against climate change, identifying the needs for future cooperation/assistance in the same subjects in the Asian and African regions.

1.2. Objectives of the Overall Survey

The main objective of the overall survey is to identify the needs for official development assistance in the fields of biodiversity conservation and forestry-related measures against climate changes in the Asian and African regions. Toward this end, the survey team's aims are to:

i) Collect and analyze relevant data and information concerning biodiversity and forest conservation as well as forestry-related measures against climate change in the ODA recipient countries in Asian and African regions;

ii) Establish a database using data and information collected;

iii) Identify the needs for future cooperation in the conservation of biodiversity and mitigation of/adaptation to climate change;

iv) Select eight countries in the regions, four in Asia and another four in Africa, for further examination of the possible cooperation that JICA might be able to implement; and

v) Conceptualize a/ potential project/s in the fields of biodiversity conservation and mitigation/adaptation measures in the forestry sector against climate change.

Following initial desk study and discussions with JICA, the following eight countries were selected from the possible 78 countries; four in Asian and another four in Africa:

- Vietnam
- Philippines
- Cambodia
- Lao RDP
- Uganda
- Botswana
- Ethiopia
- Tunisia.

1.3. Background of the Field Survey

As described in the objectives of the overall survey, a total of eight counties among the 78 countries, which are strategically important for biodiversity conservation in the regions and in need of JICA's ODA assistance in this field, were selected for further examination of potential JICA' cooperation.

The field surveys consisted of numerous activities, including:

- Discussion of the work plan with JICA branch office and relevant government organisations;
- Interviews with relevant organisations for data collection;
- Discussions on needs for assistance in biodiversity conservation and forestry; and
- Examination of possible project potential.

The structure of this report follows as closely as possible that agreed upon with JICA at the inception stage.

1.4. Field Survey Activities

The survey team was composed of five consultants, with each visiting one or two countries to conduct the field surveys described above. The team members were assigned countries based on past experience, language ability, etc.

Specific tasks carried out by the consultant assigned to Tunisia are as follows:

- Collection and review of existing acts and regulations in the forestry, biodiversity and environmental sectors;
- Collection and review of existing policies, strategies and plans in the same sectors;
- Discussions with government offices and other organizations concerned with biodiversity conservation in the country;
- Collection of data and observations of the major ecosystems in the country and potential areas for future interventions under the JICA's cooperation; and
- Identification of the needs for future JICA's cooperation in the field of biodiversity conservation, in consultation with the relevant government and non-government organizations.

1.5. Schedule of Survey

The Tunisian Survey was conducted between the 17th June and the 9th July 2010. A detailed breakdown of the survey activities is provided below.

Date	Activities
June 17 (Thu)	Arrival in Tunis (pm) Preparation of questionnaires etc.
June 18 (Fri)	Kick-off meeting with JICA Meeting with Ministry of Environment and Sustainable Development (MEDD)
June 19 (Sat)	Internet-based research and preparation
June 20 (Sun)	Data preparation, report writing etc
June 21 (Mon)	Meetings with the Direction Nationale des Forets (National Forest Directorate), Agence Nationale de Protection de l'Environnement - ANPE (National Agency for the Protection of the Environment) and the African Development Bank

Date	Activities
June 22 (Tue)	Meeting with the National Institute for Rural engineering, hydrology and forests
June 23 (Wed)	Meetings with the National Society for Natural Sciences, and the Agency for the Protection and Management of Coastal zones (APAL)
June 24 (Thu)	Preliminary meetings/arrangements with GTZ, World Bank, and FAO
June 25 (Fri)	Meetings with Conservation dept, DGF, and World Bank
June 26 (Sat)	Data preparation, report writing etc
June 27 (Sun)	Data preparation, report writing etc
June 28 (Mon)	Meetings with National Gene Bank (BNG), WWF and FAO
June 29 (Tue)	Meetings with AFD and GTZ
June 30 (Wed)	Meeting with JICA fisheries officer / Ass. Resident Representative
July 1(Thu)	Meeting with UNDP
July 2 (Fri)	Data preparation, report writing etc
July 3 (Sat)	Data preparation, report writing etc
July 4 (Sun)	Data preparation, report writing etc
July 5 (Mon)	Meeting with Ministry for Development & International Cooperation
July 6 (Tue)	Return visit to ANPE
July 7 (Wed)	Report writing
July 8 (Thu)	Report writing
July 9 (Fri)	Am: JICA wrap up meeting Pm: Departure

Appendix 1 provides a summary of the above meetings and field visits.

1.6. Overview of Field Visit

Due to the Napoleonic legal system and high levels of bureaucracy that are characteristic of North African countries, arranging meetings in Tunisia was a slow and painful process, with official letters needing to be sent in advance for all respondents. Even with official letters, often followed up by phone calls, meetings were often not granted, and a number of important government institutions were as a result not visited. Due to the same problem, flexibility during the mission was severely limited – for example when learning of new potential information sources in a meeting, it was not easy to quickly follow up with a meeting at the newly identified institution. The acquisition of information was fortunately not quite as problematic as gaining access to institutions.

In terms of potential projects, stakeholders provided a selection of ideas, with some being more forthcoming than others. Most project ideas were of a basic nature, and proponents were reluctant to progress discussions unless a serious and formal desire to provide support was expressed by JICA. In most cases the proponents were trying to find grant aid type support for their activities rather than loans. The study mission requested preparation of basic outlines but in many cases these were not prepared. Given the above issues, it was thus difficult to formulate concrete project concepts, and for the same reason, preparatory work such as assistance with applications and proposals could not take place. It should be mentioned that in spite of the above, should JICA wish to take forward and develop any of the project ideas provided in Chapter 6, it is thought that a serious approach to the relevant institution would receive a very positive response and considerable cooperation. MDCI (see stakeholder analysis) should also be closely involved in the project formation procedure.

Due to a lack of suitably well-advanced project ideas and the closed nature of the institutions, it was not possible to undertake a field visit to a potential project location. Fortunately the study mission has worked in Tunisia on numerous occasions and knows the country well. Although this experience is not a

substitute for detailed site investigations, it does allow a certain understanding and appreciation of the country’s ecosystems, geography and problems, and certainly assisted with the project formulation element.

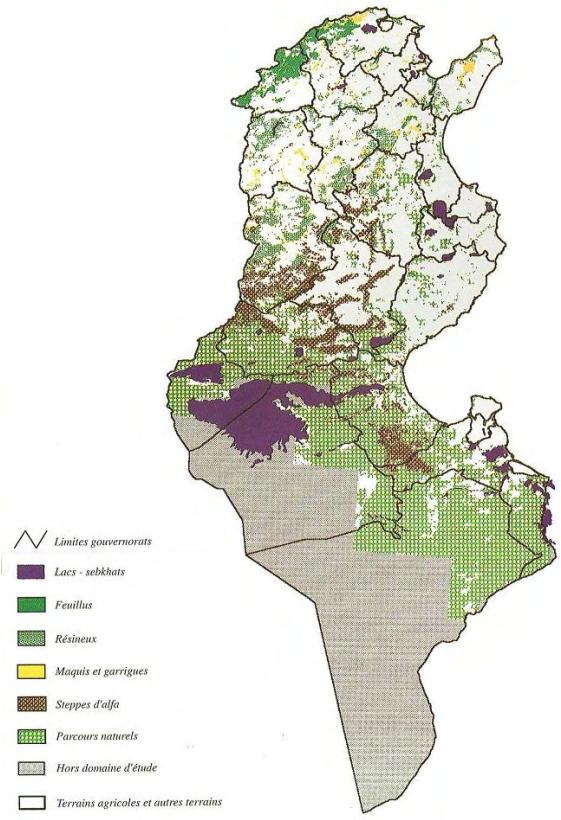
2. Situation Analysis

2.1. Brief Introduction to Tunisia

Located in central North Africa, and the smallest country in the region, Tunisia is bordered to the west and south by Algeria, and to the south-east by Libya. The Mediterranean Sea lies along the northern and eastern sides of the country. Despite its relatively small size, Tunisia has considerable geographical and climatic diversity and is characterized by four broad physical features:

- In the centre is the Tell, which is the easternmost part of the Atlas mountain range
- To the north lies the fertile agricultural plain known as the Sahil
- Inland from the Sahil, between the Tell and a range of hills south of Gafsa, is the semi-arid salt lakes and Steppe region
- As it moves south the Steppe gradually gives way to the Saharan region of the Grand Erg Oriental.

With a population of approximately 10.3 million[1] and an area of 163,610 km^2 the population density is approximately 63/km^2, although the vast majority of the population live in the northern and eastern coastal zone.



Tunisian Land Cover Map

[1] World Bank Development indicators, 2008

Tunisia has a long history of conquest and colonisation; the Phoenicians founded the city of Carthage in around 800 BC, and which was destroyed by the invading Roman Empire in 146 BC. The Romans went on to colonise much of the country. Tunisia was then occupied by the Vandals during the 5th century AD, the Byzantines in the 6th century, the Arabs in the 8th century, and the Ottomans in the late 16th century. Tunisia became a French protectorate in 1881, not gaining its independence until 1956, following German and Italian invasion during the Second World War. Habib Bourguiba became Tunisia's first president in July 25, 1957, and he led considerable modernisation of the country, founding the moderate Islamic principles that still dominate today. The current president, Zine El Abidine Ben Ali, has been in office since 1987, and he and his Constitutional Democratic Rally party have continued to modernise the country, developing its infrastructure, commerce and industry. As a result, and despite relatively few natural resources, Tunisia is now classified as a middle-income country and enjoys a relatively high GDP *per capita* of almost 4,000 USD, and an impressive growth rate of around 4 percent.

The Tunisian economy revolves around tourism, agriculture, and services, and the country has close trade and commerce links with Europe. Despite the favourable social and economic progress in recent years described above, due to high population growth (from 2.6 million people in 1936, to 6.3 million in 1980 to the present level) the average age of the population is below 30, putting great strain on social services and causing high levels of unemployment.

2.2. Natural Characteristics of Tunisia

2.2.1 Introduction

An introduction to the general geographical characteristics of Tunisia is provided above. Despite its small size, it is a relatively diverse country with a broad variety of ecosystems, including *inter alia*, numerous islands, fertile agricultural plains, Mediterranean forests and forest plantations, steppe, and desert in the south. Tunisia biodiversity is likewise relatively rich considering its small size, with a large number of floral and faunal species, including many endemics. The country is an important migratory bird pathway, with many species stopping or overwintering on its many wetland areas. Historic neglect of Tunisia's forests and other important ecosystems, along with relatively high levels of pollution caused a decline in species populations as well as their habitats, but there has been considerable effort in recent years to address this issue, and this ongoing effort shows tangible results of improvement.

2.2.2 Climate

The Tunisian climate is in general described as Mediterranean, with hot dry summers and cool moist winters, aided by winds from the north that limit the growing period; precipitation is very irregular and the rainfall varies considerably from north to south. The south of the country is arid and has hotter summers and a less pronounced seasonal climatic variation.

Average rainfall varies between under 300 mm in the south and around 1000 mm in the north, and average annual sunshine is around 3000 hours.

The Tunisian NAPA predicts an average temperature rise of 1.1 °C to 2030 and 2.1°C to 2050.

2.2.3 Hydrological Systems

Tunisia has very few permanent rivers, with the most important being the Medjerda, which bisects the north of the country, flowing from its source in Algeria to the delta in the Gulf of Utica. The river is critical to the country's agricultural output, and is dammed at several locations to feed irrigation schemes, principally for wheat and vegetable crops.

In addition to the Medjerda and its tributaries, the country has a large number of seasonal rivers, known locally as *Oueds*, and numerous saline lakes, known locally as *Chotts* or *Sabkahs*. 80 percent of the country's surface water resources are found in the north of the country, whereas well over half of the 1.8 million m^3 of water stored in underground aquifers is found in the south of the country.

2.2.4 Soils and Geology

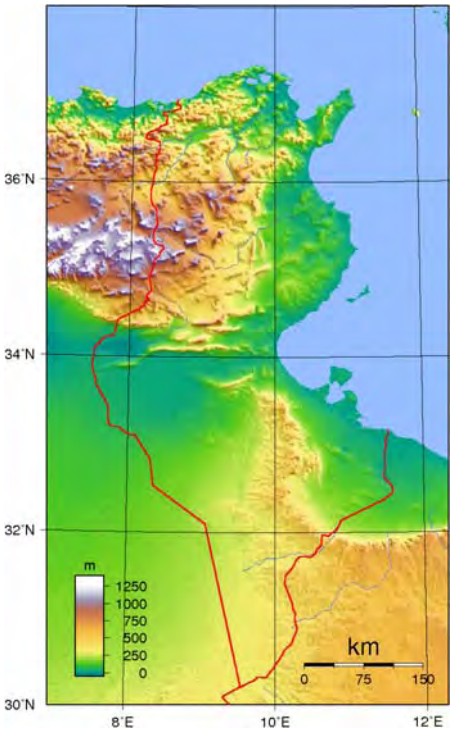
Tunisian soils and geology are defined by the key landforms already mentioned; the Sahil, Tell, Steppe and Sahara zones.

The Sahil region is a mosaic of hills and plains with fertile soils and good water resources permitting intensive and extensive agriculture. Brown-dark soils developed on sandstone and on non-calcareous clays are common, and are the fertile basis for much of the agriculture.

The Tell or Dorsale is a continuation of the Saharan Atlas with the highest point in the country being Jebel Chambi at 1,544 m. The Tell is dominated by "calci-magnesic" soils and vertisols on limestone and marls.

Most of the central Steppe region is a plateau at an altitude of around 500 m and is characterized by its aridity. The plains have some irrigation schemes for agriculture, plus alfa grass (*Stipa tenacissima)* steppe, and are bordered by forested mountains. Soils are calci-magnesic, which are crusted, brown limestone soils, low in organic matter, stony and often eroded. They suit grazing and in some places olive plantations. Further south lies the area of internal drainage to saline lakes, including *Chott al Gharsah*, which is the lowest point in Tunisia at -17 m. The soils in this area are deep and light, but in and around the *Chotts*, they are exceedingly saline.

The southern desert zone or Erg is formed of dunes of sand separated by small sandy depressions with sparse vegetation.



2.3. Present Condition of Biodiversity and Ecosystems

Tunisia's ecosystems were until recently somewhat neglected and often highly degraded. High levels of overgrazing and land clearance had left the country with degraded and eroded rangelands, a forest cover of just four percent, and with numerous endangered species. Industrial pollution, poor waste management and sanitation along with overfishing had caused extensive marine pollution and reduction in fish stocks. A considerable and sustained effort on behalf of the government in recent years, supported by international donors, has been making radical improvements to the quality and coverage of natural ecosystems, and the regeneration and conservation of biodiversity; this effort continues today. The government bodies responsible for environmental protection, preservation and restoration have been working hard to address the problems described above, and Tunisia is now leading environmental protection and restoration activities in North Africa. The country still faces many challenges, however, and the restoration and protection works are far from complete.

Tunisia is reported to have 2,924 plant species, with roughly 12 % requiring some form of conservation. This figure does not, however, include agricultural species. 44 plant species are endemic to Tunisia, with

a further 80 or so being endemic to the region. 101 plant species are considered very rare. The country has identified 2,181 animal species to date classified as follows:

- 1,434 Invertebrates
- 362 Birds
- 78 Mammals
- 58 Herptiles

The marine environment has received less study than terrestrial ecosystems, but 336 fish are recorded. Overall, 76 animals and 54 plant species have been officially identified as rare or endangered[2].

Below is a summary of the past trends and present situation of Tunisia's biodiversity and ecosystems.

2.3.1 Terrestrial Ecosystems

Terrestrial Ecosystems in Tunisia are classified in numerous ways depending on the source, and most are not exhaustive. The National report to the CBD lists the following key ecosystems:

- *Mediterranean forest:* Key species in these forests include cork oaks, olive trees, pistachio, and Aleppo pine. Principally found in the north of the country, near to the coast.
- *Plantation forest:* Often consisting of eucalypts, plantation forests are increasingly common in northern Tunisia.
- *Shrubby heathland:* Rough ground with hardy low-standing shrubs and herbs, including thyme and rosemary – often referred to as *Maquis*. Generally found on hills and mountains in northern Tunisia.
- *Agricultural ecosystems:* Tunisia has a variety of agricultural ecosystems, including cereals, field crops such as artichokes and broad beans, plantations of olives and almonds and fruits such as apricot, pomegranate and prickly pear, and date palm plantations. Extensive pastureland is also a common feature of the Tunisian landscape.
- *Steppe:* Forming the transition between desert in the south and the agricultural plains of the north, the steppe is predominantly formed of alfa grass rangeland.
- Desert: This ecosystem is dominant in the southern part of the country.

There is a large body of literature on land cover in Tunisia and estimates of the extent of the above ecosystems also vary widely; the table below presents an adjusted summary, resulting from the mission meetings and data collection activities.

Ecosystem Type	**Coverage (ha)**
Rangeland	6 million
Non-cultivated land e.g. bare or saline soils such Erg, Reg, Sebkha, and Chott	4 million
Shrub crops	2 million
Annual crops	1.3 million
Natural and plantation forest	1.2 million
Alfa steppe	743,000
Maquis	320,000
Desert	140,000

[2] Decision of 19th July 2006

Forest Ecosystems

a) General Description

Whilst there is much information available in Tunisia on forest cover, an accurate recent figure was difficult to obtain, as the General Forest Directorate are currently producing the latest forest inventory, and were not able to yet provide their figures. The numerous other documents containing forest cover information are generally at least 5 years old and are often conflicting. The information below should therefore be viewed with some caution.

Current forest cover in Tunisia is reported to be at 13.04 %, up from 4 % in 1956 and 7 % in 1987.

Three quarters of Tunisia's forest is found in the north of the country, and the Kasserine area is the most forested of all states, with around 156,000 ha of forest, two thirds of which is Aleppo Pine. The Eastern and southern parts of the country account for less than 2 percent of the country's forests.

The predominant forest types are natural Mediterranean Cork Forests (known as "suberaie"), natural pine forests (dominated by Aleppo Pine), pine plantations and eucalypt-based plantations. "Maquis" type shrubland is also categorised as forest in Tunisia.

The table below provides a summary of the main forest types in Tunisia.

Forest Type	**Description**
Suberaie	Suberaie is dominated by Cork Oak (*Quercus suber L.*) with some Algerian Oak (*Quercus canariensis*). Found in the north of the country, near to the coast, almost all Suberaie is to be found in Jendouba, Beja and Bizerte (see table below).
Pine forests	Pine forests in Tunisia are found across a slightly wider range than Suberaie. The dominant species is Aleppo Pine (*Pinus halepensis*), but other evergreens are also found, such as the Umbrella Pine (*Pinus pinea L*) and Maritime Pine (*Pinus pinaster*) are It should be noted that the Suberaie can also hold evergreen trees such as those mentioned above.
Forest Plantations	Plantations are distributed across the northern parts of the country, and principally consist of production forests and protection forests (although the production forests clearly also protect). Production forests are usually composed of Eucalyptus (camaldulensis and astringens), Umbrella Pine and Maritime Pine. Protection forests are usually composed of Aleppo Pine and Cypress (*Cupressus sempervirens*).
Maquis	Maquis is found principally in the north east of the country, and even surrounds Tunis to the north. Bizerte's forests are two thirds Maquis. This forest type is actually a dense thicket of species such as Myrtle (M*yrtus* sp.), Juniper (*Juniperus* sp.) Rosmary (*Rosmarinus officinalis*), Thyme (*Thymus capitatus*) and Pistachio (*Pistacia lentiscus*).

Source：Compiled by the JICA Study Team based on the various sources

The tables below shows the extent of the important Cork Oak forests and the Aleppo Pine forests in Tunisia:

Location	**Area of Cork Oak**	**Percentage**
Jendouba	35,608	78
Béja	7,658	17
Bizerte	2,190	5
Total	*45,456*	*100*

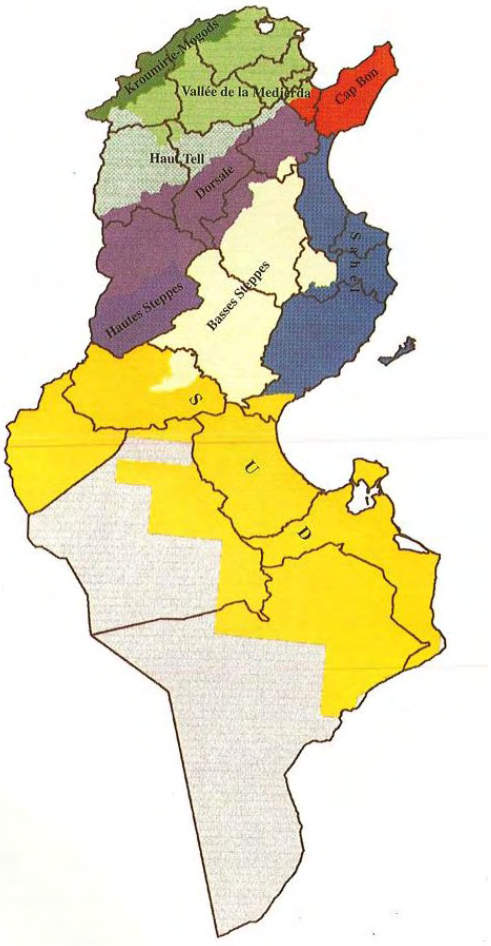
Source：National Strategy for Forest and Pastoral Development (2001)

Location	Area of Aleppo Pine	Percentage
Kasserine	107,474	36
Le Kef	62,443	21
Siliana	58,697	20
Zaghouan	27,877	9
Béja	13,735	5
Others	26,346	9
Total	*296,571*	*100*

Source：National Strategy for Forest and Pastoral Development (2001)

Almost all forests in Tunisia are owned by the state (c. 94 %) but in accordance with the Forest Code (see section 3.2 below) the public are permitted to have numerous anthropogenic uses; in addition to producing wood for construction and as fuel, Cork oaks are harvested for their cork, herbs in the Maquis are gathered; honey is produced, and mushrooms, pine nuts (both normal pine nuts, and the traditional Aleppo Pine nuts known locally as *zgouzgou*), Barbary figs, capers, and carob are all gathered from the forests. Hunting is also widespread.

The country produces around 250,000 m^3 of timber per year, 8,000 tonnes of which is oak/cork oak. Woodland forage makes up between 10 and 25% of the country's animal fodder.



Forest Zones of Tunisia

b) Forest Flora and Fauna

Much of the main flora found in Tunisia's forests is already described above. In terms of rare species, Tunisia's forests reportedly hold 20 endemic plant species, 343 rare plant species, and 26 endangered mammals, 28 endangered birds, 10 endangered reptiles and 9 endangered reptiles.

Species of particular note or rarity in Tunisia's forest ecosystems in addition to those already described are listed below:

- Flora:
  - *Phillyrea latifolia*
  - Whitebeam (*Sorbus area*)
  - Lote (*Celtis australis*)
  - *Euphorbia dendroides*
  - *Asphodeline lutea*
- Fauna:
  - Barbary Sheep (*Ammotragus lervia*)
  - Cuvier's Gazelle (*Gazella cuvieri*)
  - Barbary Partridge (*Alectoris Barbara*)
  - Wild Boar (*Sus scrofa*)
  - Wild Cat (*Felis silvestris*)
  - Hoopoe (*Upupa epops*)
  - Serval (*Leptailurus serval*)
  - Dorcas Gazelle (*Gazella dorcas dorcas*)
  - Atlas deer (*Cervus elaphus barbarous*)
  - Hubara Bustard (*Chlamydotis undulate*)
  - Crested porcupine (*Hystrix cristata*)
  - Bonelli's Eagle (*Aquila fasciata*)

c) Trends

As previously mentioned, Tunisia is undertaking an extensive reforestation and forest rehabilitation programme, and forest cover presently stands at 13.04 percent, a considerable increase on the lowest coverage of just four percent in 1956. The most recent reforestation figures are provided in the table below.

Season	Total Forest Area
2001-2002	1,175,646
2002-2003	1,195,593
2003-2004	1,210,851
2004-2005	1,230,662
2005-2006	1,251,704

In addition to the reforestation efforts, fauna in Tunisia's forests is gradually increasing, due to a combination of tighter hunting laws, increased control of poaching, and reduction in forest fires. The government also has a reintroduction programme for large mammals.

Despite the above positive gains for forest ecosystems, the pressure on Tunisia's forest remains severe, principally due to the poverty of those dwelling in and around the forest areas. Participatory management is therefore high on the forest management agenda, to ensure that the gains made are sustainable.

d) Threats

Threats to forest ecosystems are as follows:

- Natural:
  - Fire
- Anthropogenic:
  - Fire
  - Illegal woodcutting
  - Overgrazing
  - Poaching
  - Unsustainable NFTP harvest
  - Climate change

The underlying causes to the majority of the above threats relate to increasing population and poverty.

Steppe and Desert Ecosystems

Steppe ecosystems in Tunisia are composed predominantly of grassy rangelands, with a smaller amount of Alfa[3] grass (*Stipa tenacissima)* steppe.

Together the above two ecosystems cover almost 7 million hectares in Tunisia, and contribute to around 60 % of pastoral production. In addition to their socio-economic importance for food production and other items (e.g. paper and cordage from Alfa), the steppes form an important barrier against desertification and despite their relative homogeneity, they hold some rare species of flora and fauna. The salt flats and depressions within the steppe and rangelands form interesting and delicate ecosystems, based on halophytic species such as *Atriplex halimus, Atriplex glauca, Suaeda fruticosa, Frankenia thymifolia, Salsola sieberi* and *Salsola vermiculata.*

Some fairly recent data on steppe and rangeland coverage is provided in the table below:

Location	Area of Alfa Steppe	Area of Rangeland	Location	Area of Alfa Steppe	Area of Rangeland
Béja	---	12,991	Monastir	---	2,958
Bizerte	---	13,607	Nabeul	---	3,432
Gabes	124,699	475,042	Sfax	5,077	135,116
Gafsa	161,803	419,534	Sidi Bouzid	152,675	104,166
Jendouba	---	16,437	Siliana	4,512	15,455
Kairouan	57,799	130,764	Sousse	---	31,740
Kasserine	179,235	74,230	Tataouine	431	1,099,392
Kebili	16,862	551,954	Tozeur	3,373	268,693
Le Kef	3,654	14,315	Tunis	---	3,274
Mahdia	---	45,019	Zaghouan	344	8,205
Medenine	32,843	536,502	***Total***	***743,306***	***3,962,723***

Source：National Strategy for Forest and Pastoral Development (2001))

Pure desert ecosystems cover a relatively small land area in Tunisia (just 140,000 ha) but they are very important ecosystems, in particular for the conservation of a number of large mammal species, such as the Rhim Gazelle (*Gazella leptoceros,* Scimitar Oryx (*Oryx dammah*), Cuvier's Gazelle (*Gazella cuvieri*). It should be noted that some of these species also occur in the arid transitional steppe areas. Other rare or endangered desert species found in Tunisia's desert ecosystem include:

[3] Not to be confused with Alfalfa, *Medicago sativa*

- Sand cat (*Felis margarita*)
- North African Elephant Shrew *Elephantulus rozeti*)
- Desert hedgehog (*Paraechinus aethiopicus*)
- Common Gundi (*Ctenodactylus gundi*)
- Saharan striped polecat (*Ictonyx libyca*).

Desert Oases can have a high diversity, and they also hold many hundreds of ancient cultivars of the date palm.

Recent trends in the southern areas is a gradual increase in desert area (though this slowing due to the measures taken to prevent desertification), and a gradual decrease in both alfa steppe and rangeland, due to desertification and overgrazing.

As is evident from the relative paucity of information contained in this section, the amount of study devoted to the steppe and desert ecosystems in Tunisia pales into insignificance in comparison to that devoted to forest ecosystems and forest-based biodiversity.

2.3.2 Aquatic Ecosystems

Tunisia's aquatic ecosystems are divided as follows:

- Freshwater ecosystems
- Sebkah
- Coastal
- Marine.

Freshwater / Inland Ecosystems

Tunisia has few rivers, the principal river and only permanent flowing waterway in the country is the Medjerda River. The country also has a large number of temporary *oueds*, as well as numerous lakes, reservoirs, and drainage and irrigation ditches and channels. Saline lakes known as *Sebkah* are common across Tunisia, and these have interesting halophytic communities.

The country's 250 or so natural and manmade waterways and wetlands are categorised as follows[4]:

Aquatic Ecosystem	Number
Oueds (seasonal rivers)	64
Sebkhas (saline flats)	62
Ponds	37
Chotts (saline lakes)	16
Lakes	15
Interior marshes	14
Natural springs	5
Coastal marshes	4
Peat bogs	3

In common with the steppe ecosystems, relatively little attention is given to the freshwater ecosystems of Tunisia, other than for wetlands, which are dealt with in the section below. It is therefore not possible to provide specific information on species of note, trends and threats.

[4] Incomplete list – does not include e.g. rivers and reservoirs

Coastal and Marine Ecosystems

a) General Description

Tunisia has around 1,600 km of coastline, including sandy beaches, rocky shores[5] and wetlands of various types. As shown in the table above, the country also has 61 islands, all of which are small.

The marine environment has received relatively little study to date, but is in general typical of the Mediterranean, showing fish species such as grey and red mullet (*Liza ramada* and *Mullus surmuletus*), bass (*Dicentrarchus labrax*), sea bream (*Sparus aurata*), and mammals such as the common dolphin (*Delphinus dephis*) and the Striped Dolphin (*Stenella coeruleoalba*). Corals (in particular red coral, *Corallium rubrum*) and sponges (*Hamigera hamigera*) are relatively abundant in rocky areas, along with sea squirts (Ascidiacea) cnidarians, abundant cephalopods, molluscs, crustaceans, and seaweeds such as *Colpomenia sinuosa* and fucophyceae as well as important beds of posidonia sea grass. Of particular importance is the Gulf of Gabes, which has recently been shown to be an important nursery ground for tuna and other fish species.

Rare or endangered marine species in Tunisian waters include the following:

- Posidonia see grass (*Posidonia oceanica*)
- *Axinella cannabina, Axinella polypoides, Geodia cydonium* and *Ircinia foetida* (all sponges)
- Spiny lobster *(Palinurus elephas),* Mediterranean slipper lobster (*Scyllarides latus*), and the European spider crab (*Maja squinado*)
- The green turtle (*Chelonia mydas)*
- Sea lamprey (*Petromyzon marinus*), basking shark (*Cetorhinus maximus)*, shortfin mako shark (*Isurus oxyrinchus*), porbeagle (*Lamna nasus*), and white skate (*Raja alba*)
- European Sturgeon (*Acipenser sturio*), Twaite shad (*Alosa fallax*), Mediterranean killifish (*Aphanius fasciatus*), and Dusky Grouper (*Epinephelus marginatus*).

Wetlands in Tunisia are better characterised than the marine environment, due to the importance of Tunisia's wetlands to migratory bird species; the country receives hundreds of thousands of visiting birds of many species every year[6]. The country's wetlands are also host to numerous resident species, including many that are rare or endangered. Tunisia's wetlands are found all around the coast, and although in places they are threatened by anthropogenic activity, the overall health of these ecosystems is relatively good.

Clearly the most important fauna found in the wetlands are the birds, however these ecosystems also host numerous rare or endangered non-bird animal species, as well as plant species. A summary of the key wetland species (flagship or endangered) found in Tunisia is provided below:

- Mammals:
  - Water Buffalo (*Bubalus bubalis*)
  - Common Genet (*Genetta genetta*)
  - European Otter (*Lutra lutra*)
  - Golden jackal (*Canis aureus*)
- Birds:
  - Moussier´s Redstart (*Phoenicurus moissieri*)
  - White-headed Duck (*Oxyura leucocephala*)
  - Greylag Goose (*Anser anser*)
  - Pink Flamingo (*Phoenicopterus roseus*)

[5] The ratio of sandy to rocky shoreline is roughly 50/50
[6] Ichkeul, perhaps Tunisia's most important wetland, receives around 200,000 visiting birds per year alone.

- Fish:
  - Barbel (*Barbus barbus*)
  - Dover sole (*Solea solea*)
  - Twaite Shad (*Alosa fallax*)
  - European seabass (*Dicentrarchus labrax*)
- Others:
  - Marsh Frog - *Pelophylax* (formerly *Rana*) *ridibunda*
  - European pond terrapin (*Emys orbicularis*)
  - Mediterranean Pond Turtle (*mauremys leprosa*)
  - Berber toad (*Buffo mauritanicus*)
- Flora:
  - Alkali Bulrush (*Scirpus maritimus*)
  - Common Sea Rush (*Juncus Maritimus*)
  - Arabian glasswort (*Salicornia Arabia*)
  - *Ammi visnaga*
  - *Galactites tomentosa*

c) Trends

The government, with donor support, has recently shown increased concern for the conservation of both wetlands and the marine environment itself. Numerous wetlands have been assigned protected status, and a programme for Marine Protected Areas (MPAs) is now underway (see section 2.4 for further details). Legislation for marine and coastal protection has also been updated recently. Beaches are gradually being cleaned up, and attention is being given to marine pollution from industry and wastewater. The process has, however, a long way to go.

Tunisia has in the past three years designated an additional 19 Ramsar sites to add to its previous total of just one site (Ichkeul). At least five of these sites have only been granted Ramsar status in the past year. A summary of the key features and species of these newly designated sites is provided in the table below:

Name / Size	Location	Key Features	Key Species / Details
Ain Dahab 560 ha	Siliana,	Characterised by a rocky semi-arid landscape	Typical flora and fauna of central Tunisia and also hosts an important population of bats (*Pipistrellus* sp)
Bahiret el Bibane 39,266 ha	Medenine	Large lagoon close to the border with Libya and separated from the sea by two karstic peninsulas	Fisheries are managed sustainably to avoid depleting the existing stocks, in turn guaranteeing the benefits provided to the waterbirds that visit the wetland
Barrage Lebna 1,147 ha	Nabeul, Cap Bon	Artificial barrage isolated from the rest of the national dam system and a primary destination for tens of thousands of migrating waterfowl	Marbled teal (*Marmaronetta angustirostris*), the white-headed duck (*Oxyura leucocephala*) and the ferruginous duck (*Aythya nyroca*)
Chott El Jerid 586,187 ha	Tozeur	A vast saline depression located between the mountain range of Cherb to the north and the desert to the south	Important steppe fauna and flora and between 3,000 and 15,000 Mediterranean flamingos (*Phoenicopterus ruber*)
Djerba Bin El Ouedian 12,082 ha	Medenine	The site is composed of the southern part island of Djerba (514 Km^2) and the Bin El Ouedian wetland	Remarkable fauna of fish and waterbirds. The area also contains important archaeological sites
Djerba Guellala	Medenine	Located on the island of Djerba	Mediterranean flamingo

Name / Size	Location	Key Features	Key Species / Details
2,285 ha		and comprising the coastal areas along the southwest corner of the island	(*Phoenicopterus ruber*) and the Eurasian spoonbill (*Platalea leucorodia*)
Djerba Ras Rmel 1,856 ha	Medenine	The third Ramsar site in Djerba, Ras Rmel ("sand cape") is a sand bar 10 km long	Frequented by numerous migratory bird species including the spoonbill (*Platalea leucorodia*), plover (*Charadrius alexandrinus*) and the thick-knee (*Burhinus oedicnemus*)
Garaet Sidi Mansour 2,426 ha	Gafsa	Wetland situated directly to the south of the Sebkhet Noual Ramsar site	When precipitation is high the site attracts an extremely rich avifauna, both during winter and during the nesting season
Iles Kneiss 22,027 ha	Sfax	These islands, about 3.5km from the mainland, are surrounded by vast mud and sand flats at low tide	This site is the most important area for migratory waders in the Mediterranean zone, and over 330,000 waterbirds have been counted on this wetland. It is a breeding ground for the little Egret (*Egretta garzetta*), common Redshank (*Tringa tetanus*), Slender-billed Gull (*Larus genei*) and a wintering ground for the Spoonbill (*Platalea leucorodia*)
Mejen Ech Chitan 7 ha	Bizerte	Known as the "Lake of Water Lilies" and the only site in Tunisia where this species is found	NA
Lagune de Ghar el Melh 10,168 ha	Bizerte	An ancient sea bay now almost totally laden with sediments, this complex and dynamic wetland includes the Medjerda delta	Migratory fish use the site for feeding, especially during the winter period before reaching the sea
Lagunes du Cap Bon oriental 504 ha	Nabeul	Characterised by the almost continuous presence of wetlands along the coast, but isolated from the sea by a thin sand strip and beaches	The variety of habitats and vegetation make the site ideal for several threatened reptile and waterfowl species.
Les Tourbires de Dar Fatma 13 ha	Jendouba	Located in the mountainous region of Kroumirie, these peatlands have a significant presence of oak trees of various species	The site is of primary importance for hosting tree species needed to maintain the local biodiversity
Salines de Thyna 3,343 ha	Sfax	One of only two Mediterranean zones under the influence of tidal fluctuations of up to 2m amplitude, consisting of salt pans, permanent shallow marine waters, and intertidal marshes	Serves as refuge and feeding grounds for sea birds such as the common Redshank (*Tringa tetanus*), Slender-billed Gull (*Larus genei*) and the little tern (*Sterna albifrons*),
Sebkhet Kelbia 8,732 ha	Sousse	Together with Ichkeul, this wetland has historically been considered one of the two great continental wetland zones of the country	regularly hosting around 200,000 waterbirds
Sebkhet Noual 17,060 ha	Sidi Bou Zid	A vast saline depression	This steppe environment hosts large numbers of waterbirds such as the

Name / Size	Location	Key Features	Key Species / Details
			vulnerable houbara bustard (*Chlamydotis undulata*)
Sebkhet Sejoumi 2,979 ha	Tunis	A closed, shallow basin that has maintained its biological importance despite being exposed to considerable urban pressures near Tunis	attracting a large number of including the pink flamingo and several duck species.
Sebkhet Soliman 880 ha	Nabeul	Conserves its water throughout the year due to receiving inputs from the El Bey wastewater treatment plant	NA
Zones Humides Oasiennes de Kebili 2,419 ha	Kebili	The site is composed of many small wetlands that together form one unit	The site is important for migratory birds that cross the Sahara, especially in spring

Source：Based on a print-out provided by DGF

d) Threats

Threats to Tunisian coastal ecosystems include the following:

- Coastal erosion
- Urban development
- Uncontrolled solid waste disposal
- Industrial effluent
- Climate change induced temperature and water level increases
- Overfishing.

2.4. Biodiversity Conservation Activities

Due to the high level of historical forest clearance, and the threats of desertification and climate change, much attention has been given to forests in Tunisia in recent years, both by the government and the donor and NGO community. Reforestation has been a national priority for some years now, and specific targets are provided in the Presidential Electoral Programme to increase forest cover to 16 percent by 2020, at a rate of 27,000 ha per year from 2012. As a result of the above, a considerable amount of baseline study in the forest sector has been prepared by numerous actors, and numerous projects and programmes are underway to restore the country's forests.

Likewise, restoration and conservation of Tunisia's non-forest terrestrial ecosystems and its coastal ecosystems are becoming increasingly important to the development agenda. In parallel, the last two years has seen a rapid increase in dedicated genetic conservation; both *in-situ* and *ex-situ*, and activities continue with earnest. This section of the field report summarises the general national set ups for *in-situ* and *ex-situ* conservation, and provides a brief overview of recent biodiversity conservation activities.

2.4.1 In-situ Conservation

Protected Areas

Terrestrial protected areas in Tunisia, including wetlands, are officially managed and controlled by the General Forest Directorate (DGF). Coastal and marine protected areas are managed and controlled by the Coastal Management and Protection Agency (APAL). Where a protected or sensitive zone is both coastal and terrestrial (e.g. sensitive dunes, littoral forest etc.), APAL has the right to official jurisdiction over the zone, but it is not automatically under their control. In reality, due to the legislation giving APAL the powers described above being just a year old, no previously DGF-controlled areas have been taken on by

APAL, and the two agencies work together. Unofficial responsibility for scientific monitoring in Protected Areas is assigned to the Environmental Protection Agency (ANPE), although the agencies mentioned above also conduct research and monitoring, as does the newly established National Gene Bank (BNG), INRGREF, and some NGOs. There is no dedicated wildlife authority or national park authority in Tunisia, however DGF conservation department engage in wildlife management and conservation, including an extensive breeding and reintroduction programme for large mammals.

The above description shows that although the legal mandates may be relatively clear in terms of Protected Area management, the situation on the ground can at times be confusing and is the cause of a certain amount of overlap and gaps, particularly with respect to management implementation.

Protected areas in Tunisia fall into one of six categories, as shown in the table below. There is currently no equivalency between the categories and IUCN categories, although it is understood that there are plans to reassess the categorisation.

Protected Area Category	Description/Indicators
National Park	• Must be a relatively large area, containing one or more ecosystem type, and in general relatively untouched by human activity. • The species, habitats or geomorphology should be of special scientific, educational or recreational/visual interest • All potentially damaging activities are banned (such as hunting, forestry, agriculture, water extraction, grazing, fires, camping etc.), and human access is restricted.
Nature Reserve	• A relatively small area, the purpose of which is to conserve the existence of one or more species of interest, including nationally or internationally important migratory species. • All potentially damaging activities are banned (such as hunting, forestry, agriculture, water extraction, grazing, fires, camping etc.), and human access is restricted.
Faunal Reserve	• Details are unclear. Tunisia has 4 “Faunal reserves”, all of which are converted hunting zones, and are currently dedicated to multiplication of large mammals.
Wetland	• National level classification and restrictions on wetland areas are unclear, however Ramsar classification has recently been brought in.
Marine Sensitive Zone	• A marine or coastal zone with natural characteristics of interest that constitute a fragile ecosystem that requires protection and management • All Marine Sensitive Zones must be the subject of scientific study and management, as follows: research into characteristics, state of the ecosystems, identification of threats, and development of a conservation strategy, a management plan, and a monitoring system.
Marine Protected Area	• Marine Protected Area status has only recently been created, but a law exists defining the status. • The areas should be sufficiently large to allow rational management • They should have particular species-level conservation importance • They are by law required to have management plans developed and approved by the Minister for Environment • All potentially damaging activities are banned (such as hunting, forestry, agriculture, water extraction, grazing, fires, camping, navigation, overflight, fossil removal, introduction of invasive species etc.), and human access is restricted.

Source：Produced using a) “A Guide to the National parks and Nature Reserves of Tunisia,” b) INRGREF Journal - special 12 (2008) – proceedings of meeting on biodiversity in protected areas – vol 1,” and Law 2009-49 relating to coastal and marine protected areas

In addition to the rapid increase in number of Ramsar sites in Tunisia described above, and the concerted efforts to reforest the country, establishment of marine and terrestrial protected areas has recently become a top environmental priority in Tunisia. The Marine Protected Area (MPA) status was only designated in 2009, and two MPAs have been created to date. Four new Nature Reserves were created in 2009, and

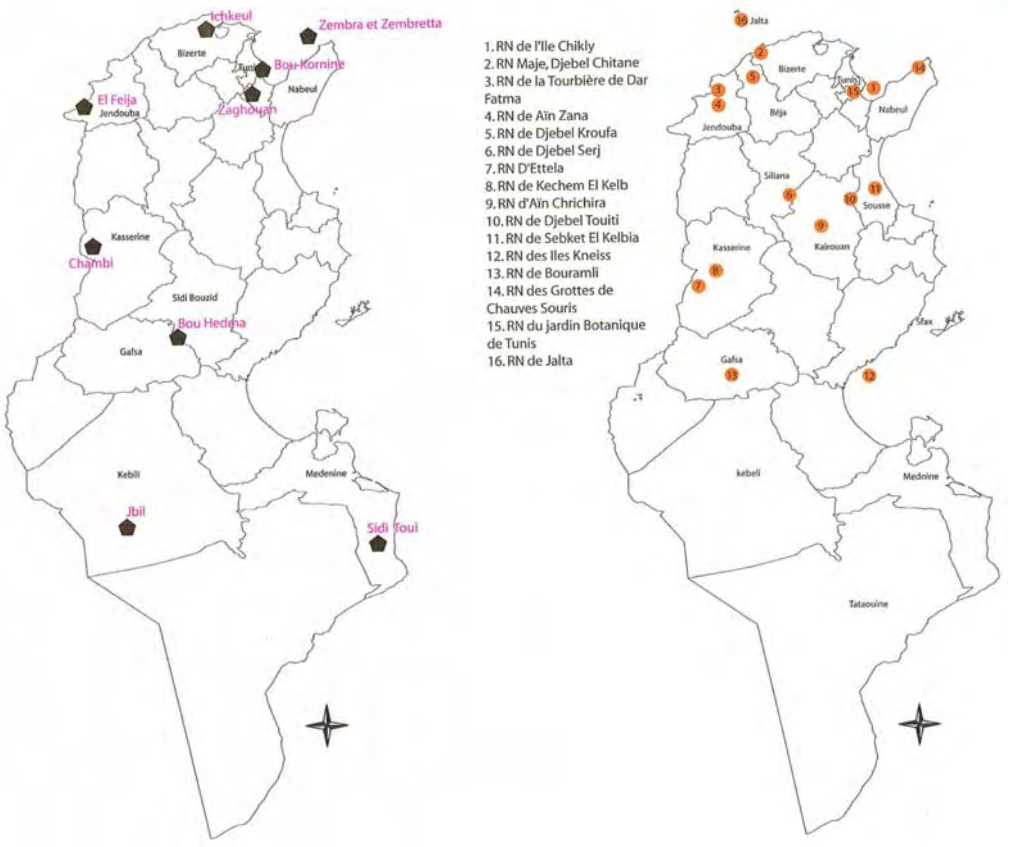
seven new National Parks were created in 2010, almost doubling the total number of National Parks in existence.

Including the above recent additions, the total number of protected areas in Tunisia currently stands at:

- 15 National Parks
- 20 Natural Reserves
- 4 Faunal Reserves
- 237 Wetlands
- 25 Marine Sensitive Zones
- 2 Marine Protected Areas.

Two more National Parks, seven Natural Reserves and three Marine Protected Areas are currently under preparation, along with twenty further Ramsar sites.

Due to the addition of numerous protected areas up to the most recent number indicated above, no information is available on the present land area that is protected in the country, however prior to the additions, the total area of National Park stood at 201,797 ha, and the total area of Natural Reserve was 16,138 ha.



Tunisia's National Parks (left) and Natural Reserves (right)[7]

Although it is the aim of the relevant authorities to prepare and implement management plans for the above protected areas, there is currently a great need for assistance with implementation of management activities in the country's protected areas; as the institutions are not being grown in line with the current

[7] These maps do not show the recently designated PAs described in the text of the report

and projected additions to the protected area system, it is expected that in the short and mid-term, this situation is likely to become more problematic.

In-situ biodiversity conservation is also implemented outside the protected area system; principally via dedicated the BNG's field genetic conservation activities, donor projects, and via indirect measures such as pollution control. In terms of overall *in-situ* conservation activities (i.e. both in PAs and outside PAs) in Tunisia, key initiatives and projects include:

- ***Terrestrial Protected Area Management:*** As already described, the government has an ambitious protected area creation and management programme, supported by various donors, including the World Bank, GTZ, UNDP and AFD, as well as NGOs, including WWF.
- ***Integrated Forest Management:*** As part of the above protected areas management, DGF is applying integrated management principles as widely as possible, including the large JICA IFM programme.
- ***Cork Oak Conservation:*** Whether using participatory principles or not, conservation of cork oak forest is an important focus of most donors in Tunisia.
- ***Reforestation:*** The DGF is in the midst of an extensive reforestation programme, discussed in detail elsewhere in this document.
- ***Forest Fire Reduction:*** The government has embarked upon a project to reduce fires, principally via increasing observation posts, fire stations etc. To date the programme has reduced fires by two thirds.
- ***Participatory Natural Resource Management:*** This government programme, supported by the World Bank, includes not only Cork Oak forests but alfa steppe and rangeland management. Includes re-grassing, planting of cactus, and development of fallow land.
- ***Wetlands Management:*** APAL and other agencies have been embarking on a Sebkha clean-up programme, including removing litter and dumped wastes, and assisting with restoring the hydrological balance.
- ***Date Plantation Management:*** This is underway in a variety of forms, including GTZ pasture restoration, and a UNDP pilot project for returning monoculture oases to traditional mutli species set ups.
- ***Ecotourism:*** Although in early stages of development, ecotourism is becoming an increasingly large donor and NGO focus, with involvement from the World Bank/GEF, GTZ, WWF amongst others.
- ***Coastal management:*** Both the World Bank and JICA are involved in integrated coastal management in the Gulf of Gabes, and UNDP is implementing a small project based on the JICA artificial reef concept. In parallel APAL is working on a beach cleanup programme, and has recently finished the MedWet Coast project.
- ***Coastal Monitoring:*** In addition to monitoring of fish stocks, the government has set up a network for monitoring algae in the Gulf of Gabes, and a network for marine pollution monitoring.
- ***Indigenous grain strains:*** BNG is supporting farmers in reintroducing local and indigenous strains of wheat, barley etc, many of which have unique properties that lend themselves to climate change scenarios.
- ***Organic Farming:*** The land area devoted to organic farming doubled between 2004-2007, and the government continues to promote organic farming for biodiversity conservation and economic development.
- ***NFTP development:*** As part of both the biodiversity and social development strategies, the government and donor community is focussing on developing NFTPs, rangeland based natural products, and medicinal plants

- ***Awareness-raising:*** Recent activities include preparation of various audio-visual materials, travelling education centres for children created using two buses under PA protection program, and distribution of promotional flyers and leaflets “our environment and us”
- ***NBSAP and NAPA implementation:*** Many of the above actions fall under these two strategic plans,
- ***NGO activity***: In addition to the PFM and tree-plating activities outlined above, NGOs met with during the study mission are involved in public awareness and education on biodiversity issues, and in-situ conservation of threatened species.

In-situ Conservation Issues

The various meetings held during the course of the study mission revealed that the following needs relating to *in-situ* conservation are present in Tunisia; note that some of these needs were explicitly stated whereas others were perceived:

- Increased coordination and communication between government stakeholders
- Clarification of roles and responsibilities of government stakeholders
- Preparation of management plans for some protected areas is required
- Assistance with implementation of management activities
- Biodiversity inventories, and increased *in-situ* research
- Assessment and improvement of field enforcement and management arrangements
- Support to reintroduction programmes
- Strengthening of the institutional capacities of DGF and other government institutions involved in *in-situ* conservation (budget allocation, staff, and facilities/equipment)
- Establishment of self-financing mechanisms for sustainable conservation and protection of protected areas and livelihood development (e.g., PES, Eco-tourism, NTFP development, etc.)
- Addressing illegal fishing activities
- Addressing coastal pollution
- Increased awareness-raising of the importance of biodiversity conservation among local communities and decision-makers
- Increased community participation in wildlife conservation.

2.4.2 Ex-situ Conservation

The key institution for *ex-situ* conservation in Tunisia is the National Gene Bank (BNG). This new body is described in full in the following chapter. BNG is responsible for the collection, characterisation, multiplication, and *ex-situ* storage of Tunisia’s genetic resources. It is also nominally responsible for “protecting and enriching” the nation’s biodiversity, whether *in-situ* or *ex-situ*.

To date BNG have gathered over 28,000 accessions, prepared them, described their morphologies, grown them for multiplication needs and for obtaining genetic material, logged them in their database and stored them in their cold rooms.

BNG has assumed responsibility for 12 of the country’s 13 botanical gardens; a recent evaluation revealed that many of these gardens require rehabilitation and improved management. BNG are also planning another 12 botanical gardens. INRGREF is responsible for its on-site botanical gardens as well as 30 arboreta across the country; again, many of these are poorly managed and need attention.

Tunisia's Botanical Gardens

Tunis zoo is not currently used to a significant degree for *ex-situ* conservation and is more of a leisure attraction than a scientific establishment, being managed by the Tunis Municipal Corporation. DGF conducts most of its breeding programmes in-situ in populous national parks, and the animals are then transferred to the less populous zones.

2.4.3 Other Activities

Other activities in the field of forest measures to combat climate change principally involve carbon finance initiatives. A summary of present activities identified during the study mission is provided below:

- ***CDM:*** CDM activities in Tunisia are relatively advanced, with an active portfolio worth 250 million tonnes of CO2[8]. MEDD receives considerable support from the GTZ UNFCCC assistance project. MEDD is the CDM Designated National Authority, and there are several CDM projects already generating credits in Tunisia. Further projects are in the pipeline. Despite MEDD's attempts to attract investment, there has unfortunately been no CDM projects in the afforestation/reforestation sector, with all operational projects being in the gas capture, industrial, and wastewater treatment sectors. MEDD are keen to attract investors into forest related CDM projects, but recognise the difficulties involved, further amplified by the relatively low forest potential in Tunisia compared for example to south American countries.
- ***REDD:*** REDD is at present unknown in Tunisia, and there is no interest in pursuing the initiative at present.
- ***The UNDP African Adaptation Programme:*** funded by the Japanese government, is currently in its early stages. The programme will assist 21 African countries, including Tunisia, in implementing integrated and comprehensive adaptation actions and resilience plans against climate change. The projects will ensure that national development processes incorporate climate change risks and opportunities to secure development gains under a changing climate, and will help countries establish an enabling environment and develop the capacity required to manage and implement cost-effective adaptation policies and plans, as well as the large climate change projects that are expected to be a part of these plans.

[8] A further 50 million tonnes' worth is approved

3. Policy Analysis

3.1. Current relevant policies, strategies and plans

The principal government strategy document upon which all other sectoral strategies are based is the Presidential Electoral Programme (PEP). This strategy was developed to cover the period 2009-2014, and it builds on the strategic pillars defined in the preceding document. The PEP has numerous pillars, without clear prioritisation, including improvements to civil liberties, education, women's rights, economic development, infrastructure, and relating to the present study; agricultural development, scientific research and environmental preservation and protection.

The PEP is supported by a number of more focussed national policies and strategies, including:

- 11th Economic and Social Development Plan (2007–2011)
- The Environmental Policy
- The Wetlands Strategy
- The Protected Areas Strategy
- The Forest and Pastoral Development Strategy

International agreements and commitments also inform and guide policy and strategy in Tunisia. Examples of agreements related to biodiversity and climate change include:

- The Convention on Biodiversity (CBD)
- The United Nations Framework Convention on Climate Change (UNFCCC)
- The United Nations Convention to Combat Desertification (UNCCD)
- The Bern Convention on the Conservation of European Wildlife and Natural Habitats
- Convention on Migratory Species of Wild Animals
- The Agreement on the Conservation of African-Eurasian Migratory Waterbirds
- Barcelona Convention for Protection against Pollution in the Mediterranean Sea.

A summary and review of the key elements of the above national strategies is provided below:

Policy/Strategy	Summary and Review of Relevant Items[9]
Presidential Electoral Programme	Strategies and objectives in the PEP relating to biodiversity conservation, forestry and climate change include: • Stimulation of environmentally friendly investments • Protecting towns against floods • ***Increasing forest cover from 12.8 to 16 % by 2020, via 250,000 ha of reforestation at a rate of 27,000 ha per annum from 2012*** • ***Increase the area of forest protected areas from 17 % to 20 % by 2024, including creation of 20 new protected areas in forest zones*** • ***Reinforcing the environmental monitoring, observation and alert system*** • Achieve a water reuse level of 50 % • ***Protection and enrichment of biodiversity, giving the major role to the National Gene Bank*** • Improvement to environmental awareness and responsibility among the population • Updating the 1989 Environmental Protection law • ***Increasing the effectiveness of the anti-desertification programme, via wind breaks in desert regions***

[9] Items of particular interest or relevance to the JICA mission aims are highlighted in ***bold italics***

Policy/Strategy	Summary and Review of Relevant Items[9]
	• ***Entry into vigour of the coastal protection programme*** • Development of water and soil protection programmes • ***Development of eco-tourism*** • ***Integration and equalization of the regions*** Overall the programme sets out several very pertinent strategies and objectives that fit well with the aims of the present mission and the perceived desires of JICA. What is lacking in the programme is detailed information as well as information on implementation, however as the document is largely political, it is presumed that these details are provided in the sectoral strategies.
11th National Economic and Social Development Plan (2007–2011) / Environmental Policy	This development plan, principally prepared for donor agencies, sets out the development aims of the government of Tunisia. The plan firstly summarises the achievements of the previous plan and the current (2007) socio-economic situation in the country. The principal objectives of the plan are stated as increased growth, reduction in unemployment, poverty reduction and equal distribution of revenue. The plan explains that part of this growth will come from greater attention to environmental issues, but does not list specific aims of activities. The State of the Environment Report, however, states that during the period of the 2007-2011 plan, the Environmental Policy gives priority to the following activities: • Establishment of data bases for environment protection and sustainable development to help in decision-making • ***Conducting strategic and prospective studies on the safeguard of natural resources and ecosystems from a sustainable development perspective*** • ***Protecting natural sites and ecosystems from the risks of pollution and destruction, as well as preserving their ecological balance*** • ***Dedicating greater care to the coastline, by protecting beaches against erosion and promotion of participatory management of sensitive zones*** • Dedicating greater effort to urban and rural environment for better quality of life • Reducing air pollution • Rationalising energy use and promoting renewable and alternative energies • ***Disseminating the methodology of sustainable development among stakeholders and mainstreaming environment in sectoral policy*** • Modernising the instruments of environmental education and awareness-raising, improving partnerships with civil society • Boosting scientific and technological research in the field of the environment. These actions are supported by a long list of targets, the most relevant of which are as follows: • Dealing with the current industrial pollution problem • Updating environmental standards • Preparation of a Master Plan for coastal management • Beach cleaning and remediation • Strengthening environmental monitoring and control systems, particularly for ecosystems. • Increasing international cooperation for environmental issues – in particular with China, ***Japan***, Scandinavia and Spain.
National Biodiversity Strategy and Action Plan	A more extensive summary of the NBSAP is provided elsewhere under the current study, but it is briefly summarised here for completeness. The NBSAP has the following guiding objectives: • Preservation of ecosystems and biodiversity • Restoration and rehabilitation of ecosystems • Sustainable use of natural and genetic resources

Policy/Strategy	Summary and Review of Relevant Items[9]
	• Restoration of equilibrium in biodiversity systems There are six action plans designed to achieve the above objectives, and each programme is composed of a number of specific objectives. The actions plans are as follows: • Improvement to production and use of information, and training • Limiting genetic erosion • Protection of ecosystems • Management of ecosystems • Integrating biodiversity considerations into sectoral policy • Putting in place a suitable institutional and judicial framework The strategy and action plan is a comprehensive document, and its deficiencies in terms of specific goals and indicators, as well as assigning clear roles, has been to a large extent addressed in subsequent national reports and strategic revisions.
The Wetlands Strategy	The Wetlands Strategy of November 2006 has the overall objective of preserving and upgrading wetlands in a manner that contributes to sustainable development, by preserving biodiversity, ensuring sustainable usage of natural resources (and ending unsustainable practices), and promoting the social and economic importance of wetlands. The Strategy has six pillars: • Institutional and judicial improvements; principally focusing on harmonization between the large number of actors involved, as well as encouraging NGO involvement • Collecting, storing and making available sufficient research and data for effective management and improvement • ***Effective management of wetlands, to be ensured via identification of degraded wetlands and implementing appropriate conservation measures*** • Improvement to awareness raising with regards to the socioeconomic importance of wetlands. • ***Increased international cooperation for project implementation and information sharing*** • Monitoring of the status and effectiveness of the strategy The six pillars are followed up with specific actions planned for the sector. Despite mentioning progress monitoring as a strategic pillar, there does not appear to be a clear time schedule within the strategy, nor a list of performance indicators.
The Protected Areas Strategy (2001)	The Protected Areas Strategy contains four sections; an analysis of the (then) present situation with regards to PAs, A 10 year action plan, an outline management plan, and technical annexes. The overall am of the strategy is sustainable development of Tunisia's natural resources, via the creation of an integrated protected areas system. The strategy includes terms of reference for four studies to be carried out: • ***Preparation of management plans and investment plans for each PA*** • ***Ecotourism development study, using one PA as a pilot project*** • Study on development of hunting activities, including sustainable hunting, and use of products from wild animals • Wild animal inventory The action plan, estimated to cost around 81 million dinars, has 10 expected outcomes, and thirty or so specific actions, focused around institutional development, legislative improvements, biodiversity conservation, PA system development and management, sustainable use of natural resources, and awareness raising, training, and information sharing. Key activities listed in the strategy in addition to the preparation of the above studies include:

Policy/Strategy	Summary and Review of Relevant Items[9]
	• Improvement of institutional cooperation and management of the sector • Identification of HR needs and act upon findings • Improvement to the legislative framework • Analysis of potential private sector involvement, and facilitation of the same • Prioritise species and PAs requiring urgent protection • Land cover / use analysis • Creation of new PAs • Review of PA categorisation system • Ensure each PA has a specific management plan • Regeneration of flora • Development of conservation assistance via ecotourism and sustainable NR use • Scientific research and improvements to data use As with the Wetlands Strategy, the Protected Areas Strategy is comprehensive in terms of aims and activities, but lacks a clear timeframe for implementation.
The Forest and Pastoral Development Strategy (2001)	The strategy firstly provides a very detailed description of the (then) present situation with regards to forest areas, species, production, NTFPs etc, and declares that Tunisia's forests are mediocre in quality, coverage and management, and that considerable work is to be done. In fact the introductory text is so extensive and comprehensive that it forms the majority of the strategy document. Following the above text is the strategy itself and the objectives. The policy has 9 specific long term objectives, each containing a number of actions: • ***Control human activities exerted on forest areas*** • ***Terminating the degradation and reduction of steppe and rangeland*** • ***Forest resource development and consolidating and improving management*** • ***Protection of biodiversity*** • Provision of sufficient green areas and recreational forest for urban needs • ***Include forest populations in management practices*** • ***Participatory rangeland and pasture management*** • ***Ownership clearance of forest land*** • ***Expansion of forest cover*** The priority actions resulting from the above objectives are split into two phases – 2002-2006, and 2007-2011 Phase 1 actions include: • Develop models for development and management of rangelands and forest steppe • Develop methods, techniques and procedures for creating, organizing and managing groups of common interest • Test and refine the above models at large enough scale • Engage in dialogue with pastoral and forest populations and assist them with formation of associations • Revise legislation • Reorganise and modernise DGF Phase 2 actions include: • Implementation of rangeland and forest management actions • Participatory development programmes for poverty eradication in the west • Implement sustainable management of biodiversity and protected areas, including the public and civil society in the process • Restructuring of forest administration and improvement to legislation

Policy/Strategy	Summary and Review of Relevant Items[9]
	• Rationalisation of forest production Overall, the strategy document provides excellent background information, a robust approach to solving the problems in the sector, however insufficient attention is given to specific methodologies and actions, and a lack of clear indicators is provided. Over 90 % of the document is background information.

All donors align their activities as much as possible with the Government's national policy, focusing on issues and objectives mentioned in the PEP and its resulting action plans. As biodiversity conservation, reforestation and protected area management all feature in national level policy, there are a considerable number of projects in these areas, either existing or in the pipeline.

Overall, the policies and strategies in place for biodiversity conservation are reasonably comprehensive, with extensive objectives, and in some areas, clear and impressive targets have been set. Where clear targets have not been set, project planning already appears to be somewhat *ad hoc*. The principal criticism of the policy framework, however, is the failure to clearly assign agencies to the different activities; and in the few places where responsibilities are assigned, it seems that the reality of the situation often differs from that defined in the framework. Although principally an institutional capacity issue, and thus discussed elsewhere in this report, a key concern is whether the government institutions can realistically achieve the targets and aspirations laid out in the national policy and strategy.

The above should not detract from the achievements of recent years; Tunisia is making considerable and sustained progress in the conservation, biodiversity and climate change fields, and it is commendable that the country has demanding targets and a strong policy framework against which to work.

3.2. Current legislative set-ups, regulations and guidelines

The Constitution of The Tunisian Republic, adopted in June 1959 and amended in July 1991, is the basis of all laws in the country. The constitution does not explicitly mention environmental issues, or the rights of citizens to live in a clean environment, but it does establish the legal, judicial and institutional basis for the numerous laws and regulations have been passed over the years, many of which relate to forest and biodiversity conservation.

There is no single body that assumes the principal role for legislating in the above mentioned fields; preparation of legislation and guidelines is shared not only between several ministries, but also between the various agencies that are under ministerial direction.

In the past 20 years or so, development of the legislative framework for environmental issues in Tunisia has been a major accomplishment, and the country has an enormous compendium of environmental legislation[10]. Many of the laws, statutes, decrees and decisions have a relatively narrow application[11], and although many are relevant to the current study area, they do not offer a broad function and are therefore not discussed. The more significant and important laws and legal guidelines governing biodiversity-related activities are summarised in the table below.

It should be noted that although legislation is relatively easily available from ministries and via the internet, the lack of a centralised, categorised register of legislation, combined with the large volume of documents available means that filtering out the important laws from the less important laws was a difficult process, and the study mission may have overlooked certain items that should have been included in the review. The following relevant legislation has been summarised and reviewed:

[10] See the CD provided to JICA containing environmental legislation – this does not include recent laws however.
[11] Examples include e.g. authorizations for extraction from forests, definition of hunting seasons, charcoal production, establishment of individual parks etc. There are literally hundreds of legislative documents in the environmental field.

- The Forest Code (No. 88-20 of 1988) and its updates
- Law Creating the Coastal Protection and Management Agency (No. 95-72 of 1995)
- Law Relating to Public Maritime Areas (No. 95-73 of 1995)
- Law Relating to Marine and Coastal Protected Areas (No. 2009-49 of 2009)
- Decree defining the Attributes and Responsibilities of the Ministry of Agriculture (No. 2001-419 of 2001)
- Decree defining the Organisation of the Ministry of Agriculture (No. 2001-420 of 2001)
- Decree on the Organisation of the Ministry of Environment and Sustainable Development (2006-898 of 2006)
- Decree relating to Environmental Impact Studies (No. 91-362 of 1991)
- Decree relating to Environmental Impact Studies and Setting Project Categorisation (No. 2005-1991 of 2005)
- Decision of 19th July 2006 fixing the list of rare and endangered flora and fauna
- Decree Creating the National Gene Bank (No. 2003-1748 of 2003)
- Decree setting the organisation of the National Gene Bank (No. 2007-185)

It should be noted that an Environmental Code, consolidating much of the above legislation, is under preparation; it is not expected to be ready for another year or two.

In addition to the above national legislation, and as described in the preceding section of this report, Tunisia is signatory to numerous international conventions relating to biodiversity and climate change. Many of these conventions require not only strategic implementation, but supporting legislation, and Tunisia has adopted numerous laws to permit implementation of its international duties[12].

Law/Guideline	Summary and Review of Relevant Items
The Forest Code (No. 88-20 of 1988) and its updates	The important elements of the Forest Code are as follows: • Article 1 declares that forests are a national benefit and that it is the responsibility of the state and all citizens to protect them. • Different forest types are then defined, and the “forest regime” is defined as all relevant laws and codes. • Article 7 assigns the DGF as the responsible body for implementation and enforcement of the Forest Code. • Article 16 states that DGF must prepare a management plan for every forest or rangeland area, and defines the main elements of these plans. • Subsequent article detail the concessions, and regulations on sale of timber, pricing etc. • Articles 35 and 36 state that certain forest usage is permitted for all citizens at a non-commercial level – including collection of deadwood, shrub cutting (i.e. trunkless species), pasture, and NFTP collection. • Articles 43 and 44 permit formation of forest associations • Chapter 4 prevents anyone other than the state using timber from state forests for commercial reasons • Article 63 provides the limitations and regulations on using forest pasture • Articles 82-92 list the penalties for various infractions and articles 93 to 101 list various illegal activities (such as starting fires) • Chapter 10 relates to dunes and desertification • Articles 165-206 stipulate various hunting definitions, restrictions, penalties etc. • Article 209 states that in order to preserve biodiversity it is illegal to hunt, gather

[12] E.g. law 93-45 of 1993, Ratifying the CBD

Law/Guideline	Summary and Review of Relevant Items
	or damage protected flora and fauna, and subsequent articles relate to treatment of animals in captivity, phytosanitary issues, invasive species etc. • Articles 218-223 define Protected areas and their management, as well as banned activities • Articles 224-226 deal with wetlands The various legal documents updating the code include amongst others the following: • Further details on concessions • Further details on responsibilities of forest rangers • Further details on hunting restrictions and penalties, as well as other elements of the judicial process As is evident from the above selection of provisions, the Forest Code is a very comprehensive document, setting out well the state obligations and management methods, rights and restrictions of citizens, commercial issues, penalties and so on.
Decree defining the Attributes and Responsibilities of the Ministry of Agriculture (No. 2001-419 of 2001)	The Decree clearly sets out in great detail (i.e. too much to list in this summary) the overall responsibilities of the Ministry of Agriculture. Key responsibilities include: • Diversification of agriculture and development of the organic sector • Preparation of legislation, plans and strategies • Conservation and sustainable use of natural resources • Conservation and development of forest resources
Decree defining the Organisation of the Ministry of Agriculture (No. 2001-420 of 2001)	Much of the content of this decree is summarised in the description of MARHP's organisation and responsibilities in the following chapter of this report (Stakeholder Analysis). The entire set up and responsibilities of MARHP is provided in great detail – areas of interest to the current study include the organisation of DGF and DGPA. The decree is comprehensive and clear.
Law Creating the Coastal Protection and Management Agency (No. 95-72 of 1995)	The Decree creates APAL and assigns it the objective of environmental protection of coastal zones, with the following responsibilities: • Protection of all beaches, dunes, sebkhas, islands, cliffs, etc. • Protection of a varying degree of "interior" coastal features, such as estuaries, coastal forest, peninsulas, etc. • Suitable management of the above zones • Resolution of outstanding coastal land ownership issues • Particular conservation of "sensitive zones"
Law Relating to Public Maritime Areas (No. 95-73 of 1995)	The Law firstly defines the various types of maritime areas, e.g. wetlands, dunes, islands etc., prior to granting free uncontrolled access to all citizens, providing this is done with respect to others and the environment. The police are assigned the task of dealing with any infractions.
Law Relating to Marine and Coastal Protected Areas	This law builds on and updates the two laws above, redefining types of marine areas, including the new designation of "Marine Protected Areas", as well as their protection methods. The responsibilities of APAL are increased, and more attention to conservation of coastal and marine biodiversity and ecosystems is given. The principles of sustainable management are heavily imposed. Key specific articles include: • Each MPA will be created via decree following considerable enquiry and planning

Law/Guideline	Summary and Review of Relevant Items
	• Management of MPAs is explicitly assigned to APAL • Management plans (content is defined) must be prepared for all MPAs, and approved by MEDD • Regulations and restrictions for MPAs, such as public access, diving, fishing, industrial / commercial activities, fires, fossil removal, introduction of alien species etc. At the end of the document over 15 articles are dedicated to penalties for infractions against the law, and assigns the police, the navy, the merchant navy and the coast guard as responsible for enforcement of the law. The law is a well prepared document that is clear and concise, and does not have the ambiguities in terms of responsibilities that much of other Tunisian environmental legislation contains.
Decree relating to Environmental Impact Studies (No. 91-362 of 1991)	The Decree firstly defines in simple terms Environmental Impact Studies. In article 2 the decree states that all project proponents/ competent agencies may not authorise projects without agreement from ANPE, and if necessary (article 4 refers to the list of projects for which EIA is obligatory), without an EIA. Articles 5 and 6 relate to the screening methodology, with Articles 7 and 8 relating to the right of ANPE to request changes in project design. Article 9 provides the required content of an EIA, and the remaining articles relate to timeframes for the EIA process. Overall a robust but slightly simplistic law.
Decree relating to Environmental Impact Studies and Setting Project Categorisation (No. 2005-1991 of 2005)	The 2005 decree builds on previous environmental legislation, reflecting international progress and advances in the field. Key changes include: • The list of projects requiring EIA is expanded • The requirement of an Environmental Management Plan is added to the EIA content requirements • Responsibility for EIA review is extended to almost every national ministry • Timeframes are altered.
Decree on the Organisation of the Ministry of Environment and Sustainable Development	Much of the content of this decree is summarised in the description of MEDD's organisation and responsibilities in the following chapter of this report (Stakeholder Analysis). The decree is very detailed in terms of setting areas of responsibility and defining the different departments of MEDD, however many of the responsibilities are not solely allocated (e.g. "contribute to...." is often used) and hence clear ownership of responsibilities remains somewhat vague.
Decision of 19th July 2006 fixing the list of rare and endangered flora and fauna	This decision quite simply fixes the list of species, which are contained in an annexe – no other issues are mentioned.
Decree Creating the National Gene Bank (No. 2003-1748 of 2003)	The Decree defines the responsibilities and mechanisms of the BNG, the key areas of which are as follows: • Evaluation and conservation of all types of genetics (except human), in particular those that are rare, endangered or represent particular economic, ecological or medicinal value • The working system is defined, i.e. BNG controls and coordinates a national network of stakeholders, rather than carrying out all its own studies. • Collection, identification and assessment of genetic resources • Regeneration of small samples • Repatriation of overseas Tunisian genetic material • Information exchange, training, awareness-raising etc

Law/Guideline	Summary and Review of Relevant Items
Decree setting the organisation of the National Gene Bank (No. 2007-185)	The decree sets out in detail the organisation and activities of BNG, and these are summarised in the following chapter of this report (Stakeholder Analysis).

It can be seen from the above summary that biodiversity conservation, environmental protection and forests are well covered by the existing legislation. In particular, the management of forests and marine and terrestrial protected areas are very well covered. The above legislation, in conjunction with the scores of other legislative texts not reviewed makes for an extremely comprehensive legislative framework; indeed it is widely considered to be exemplary for Africa, and possibly the entire Mediterranean region. Despite the above statement, some areas do give cause for concern:

- The large number of actors that are assigned partial responsibility for certain issues, with a relatively small number of clear overall assignments of responsibility
- The potential lack of ability among the institutions to apply such far-reaching legislation
- The lack of provision for dedicated enforcement agencies

It should also be noted that whilst the framework is undoubtedly comprehensive, no specific law relating to wildlife conservation and management exists, nor does a biodiversity law exist – instead the various regulations are spread between numerous different laws and decrees.

The continued rapid economic growth of the country means that despite the regulations, there is considerable and sustained pressure on the natural environment of the country; the challenge now that the legislative framework is in place is to catch up with it in the field, by effectively managing ecosystems and stakeholders as stipulated. A concerted effort is also needed in terms of awareness-raising amongst the public and enforcement agencies such as the police. Finally, and still related to enforcement; however good a legislative framework may be, adherence is dependent on stamping out both petty and large scale corruption, both of which occur in Tunisia.

4. Stakeholder Analysis

The primary task of the mission to Tunisia was visiting all possible formal stakeholders in the relevant fields, including government institutions, International bodies and funding agencies, and domestic and international NGOs. The purpose of the meetings was to:

- Understand the precise areas of responsibility and mandates of the government institutions
- Understand the areas of activity of other institutions
- Collect information such as policies and legislation, & existing and planned projects
- Identify weaknesses, gaps, and potential opportunities for JICA intervention.

4.1. Government organisations

Tunisia has a large number of ministries, agencies, departments and other government bodies that have some degree of responsibility for biodiversity and forestry / forest conservation issues. Although many government stakeholders are involved, the mission identified a small number of institutions that have the majority of the responsibility for the fields of concern to the study aims. These are:

- The Ministry of Agriculture, Water Resources and Fisheries (MARHP); specifically the
  - General Directorate for Forests
  - General Directorate for Fishing and Aquaculture

- The Ministry of Environment and Sustainable Development (MEDD); specifically the
  - General Directorate for Environment and Quality of Life
  - National Environmental Protection Agency
  - Coastal Protection and Management Agency
  - National Gene Bank
- The Ministry for Development and International Cooperation (MDCI)
- The National Institute for Rural Engineering, Water and Forests (INRGREF) – Under shared responsibility of MARHP and the Ministry of Higher Education

All of the above were interviewed during the course of the study mission except for the General Directorate for Fishing and Aquaculture[13]; some of them more than once, and further information is provided on each institution below.

Other government organisations that have a more minor role to play in the field include:

- The General Directorate for Water Resources (under MARHP)
- The General Directorate for Management and Conservation of Agricultural Land (under MARHP)
- The General Directorate for Dams and Large Water Projects (under MARHP)
- The General Directorate for Sustainable Development (under MEDD)
- The National Office for Drainage and Water Treatment (under MEDD)
- The Tunis International Centre for Environmental Technology (CITET - under MEDD)
- The National Institute for Marine Science and Technology
- The Ministry for Tourism

The above institutions were not visited during the study mission, either due to meetings not being granted, or due to the level of responsibility not being deemed sufficiently important to warrant a meeting.

Due to the large number of actors in the sector, no one body is likely to be the sole implementing agency for future JICA projects in the fields of biodiversity conservation, climate change, and forestry. A summary of the mandates, characteristics, and capacities of the various stakeholders is provided below.

4.1.1 Ministry of Agriculture, Water Resources and Fisheries (Ministère de l'Agriculture et des Ressources Hydrauliques et Pêche)

The central ministry appears to have little direct involvement in conservation, management and legislative issues; the vast majority of responsibilities are assigned to the individual directorates responsible for different areas of intervention. The central ministry "cabinet" missions are to engage in public relations, manage international cooperation, financial issues, project follow up and controls, administration, documentation and protocol.

General Directorate for Forests (Direction Générale des Forêts)

The General Directorate for Forests (DGF) is an important actor in the conservation of biodiversity in Tunisia. It was formed in 1882, a year after the colonisation of the country, and is the oldest public institution in Tunisia. The DGF is responsible for, *inter alia*:

- Management of all terrestrial protected areas, including wildlife conservation

[13] A meeting was not granted unfortunately, despite numerous attempts

- Applying the Forest Code
- Conducting research into forest and protected area management
- Promotion of forest and pastoral activities within the agricultural sector
- Managing anti-desertification measures
- Managing social and economic development of forest / protected area populations
- Issuing licences.

DGF is organised into 4 main departments, as follows:

- Forest Conservation Department
  - Sub-department for hunting and protected areas
  - Sub-department for forest protection
- Sylvo-pastoral Development Department
  - Sub-department for reforestation
  - Sub-department for anti-desertification
  - Sub-department for use of Rangeland and Alfasteppe
- Social and Economic Development Department
  - Sub-department for integrated forest management
  - Sub-department for economics and development
- Regulation and Control Department

DGF has a fifth temporary department that sits outside the above structure and is accountable directly to the Director General; the JICA PGIF project department[14].

In terms of regional operations, DGF have a number of regional offices, and 102 nurseries across the country, raising 32 million plants annually.

The Forestry directorate have a broad spectrum of responsibilities, and are mandated to implement the various government strategies summarised in the previous section of this report, including the increase of forest cover to 16% by 2020[15], the preparation and management of 20 new protected areas, management and restoration of common grazing land, and anti desertification measures.

At present, despite considerable successes in recent years, in particular in terms of integrated forest management, and the reintroduction and multiplication of wild fauna, much work remains to be done in the areas under DGF's control. Key gaps on the ground include the lack of management plans for some protected areas, and the lack of implementation of plans where they exist. A large problem exists with regards to the social dimension in and around DGF's forests and protected areas, and although a push to improve livelihoods and sustainable management is underway, further efforts are needed. A third area of responsibility that is almost completely neglected due to lack of resources is the monitoring and control of fauna and flora exports, and invasive species. The legislative framework is relatively robust, but DGF have organisational issues, and a lack of capacity in the field and at head office. It has also been reported (but not confirmed) that DGF staff numbers have been gradually decreasing, and average age of staff has been gradually increasing, as the government has not been recruiting in this area, despite the importance assigned to forests and protected areas within national strategy. It therefore appears that the objective of modernising and reorganising DGF, as stated in the National Forest Strategy, has not occurred.

[14] JICA is DGF's principal IFI partner, though they also work with WB, UNDP, GTZ and others
[15] Forest cover currently stands at 13.04% (5.4 million ha), up from 4% in 1956 and 7% in 1987

General Directorate for Fishing and Aquaculture (Direction Générale de la Pêche et Aquaculture)

The General Directorate for Fishing and Aquaculture (DGPA) is responsible for:

- Ensuring sustainable use of fisheries resources
- Preparing strategies, plans and projects for development of fishing and aquaculture, and for protection of fish stocks and fisheries
- Attracting private investment into the sector
- Researching and introducing innovative and sustainable fishing and aquaculture technologies
- Improving working conditions, and improving product quality
- Developing legislation
- Promoting international cooperation projects.

Due to the Study Mission not being granted a meeting with the DGPA, the current status and needs cannot be reported upon or assessed, nor can the latest information with regards to fisheries and aquaculture strategy.

4.1.2 Ministry of Environment and Sustainable Development (Ministère de l'environnement et du développement durable)

The Ministry of Environment and Sustainable Development (MEDD) is a relatively new institution, having been independent from MARHP for the last five years. As with MARHP, the central body of the appears to have little direct involvement in environmental issues, being an umbrella administration to its various member institutions and departments, and being responsible for communications, public relations, finances and tenders, etc. The vast majority of responsibilities are assigned to the individual directorates responsible for different areas of intervention. The responsibilities and activities of the directorates and subsidiary institutions relevant to the present study are described below.

General Directorate for Environment and Quality of Life (Direction générale de l'environnement et de la qualité de la vie)

The General Directorate for Environment and Quality of Life (DGEQV) is responsible for:

- Planning and implementation of actions for the protection of the environment
- Preservation of natural resources and landscapes via projects and programmes
- Improvement of quality of life via pollution control, landscape improvements, urban and rural rehabilitation, legislation, and sustainable environmental management
- Developing strategies and action plans for pollution prevention and control
- Ensuring genetic diversity, via the National Gene Bank
- Coordination of national programmes relating to protected areas
- Managing industrial and commercial pollution and wastes
- Scientific research, capacity building and awareness-raising related to all the above.

DGEQV has three departments; Quality of Life, Ecology and Natural Environments, and Industrial Environment. It is the focal point for both the CBD and the UNFCCC, and as such is responsible for biodiversity assessments and strategic planning, and for planning and implementation of climate change projects. There is no dedicated authority for biodiversity or wildlife conservation in Tunisia.

As is evident from the above, DGEQV is responsible for a broad range of areas, and has a large number of projects and activities. It is supported heavily by the GTZ (who have an office inside the MEDD building), the World Bank, and other donors. In spite of this support, the directorate has a considerable lack of finance and capability in comparison to its broad objectives, for example the country has just added an extra 11 protected areas to its network, and more are underway. Furthermore, DGEQV has very little capacity to implement their biodiversity action plan. DGEQV therefore has a large list of climate

and other projects for which it is trying to attract donors, however they are not really interested in loans at present. CDM projects are attracting finance in Tunisia, via the directorate, but to date none have involved forestry due to the difficulties involved with permanence, leakage etc.

The National Agency for Environmental Protection (Agence Nationale de Protection de l'Environnement)

The National Agency for Environmental Protection (ANPE) was created in 1988 by law N°88-91. It is a MEDD agency, reporting directly to the minister. Its mandates are generally in line with its nominal function of environmental protection, but the agency does have some activities and responsibilities relating to biodiversity conservation, forestry and climate change. ANPE's main responsibilities include:

- Development of environmental protection policy, legislation and standards
- Implementation of environmental protection policy and legislation
- Assessment of EIA studies
- Encouragement of investments and projects that fight pollution and promote environmental protection
- Monitoring and control of wastes and waste treatment
- Collaboration with other stakeholders in scientific and economic research in environmental issues
- Management and improvement of urban parks and public places
- Promotion of awareness-raising, training, and dissemination for environmental issues.

ANPE has numerous divisions related to environmental protection but the Control and Monitoring of the Environment department has a subdirectorate for monitoring of ecosystems, which is in turn split into sensitive ecosystems and a dedicated unit for monitoring the Ichkeul Protected Area (see below). In addition to the central office, the agency has eight regional representations across Tunisia.

The ecosystem management and scientific research element of ANPE is focused on the flora and fauna of Ichkeul, but they have been trying to expand their monitoring activities both within Ichkeul and in other areas, however they lack support. It is unclear how ANPE have become involved in the Ichkeul Protected Area, when the mandate for its protection appears to rest with DGF and BNG. ANPE stress that they do not actually perform dedicated management but rather are focussing on monitoring activities, as ANPE claim to be the leading body for scientific monitoring of protected areas in Tunisia[16], despite not being responsible for that function. ANPE are of the opinion that there is a lack of integration between government departments and policies for biodiversity and protected area management, and a failure to recognize the inter-relationships of climate, water, biodiversity, environmental protection and so forth.

To date ANPE has received technical assistance mainly from GTZ and GEF, although JICA apparently provided the ANPE predecessor's laboratory back in the 1980s[17]. The agency also collaborates with several NGOs in their monitoring activities.

Coastal Protection and Management Agency (Agence de Protection et d'Aménagement du Littoral)

The Coastal Management and Protection Agency (APAL) was created in 1995 with the following formal responsibilities:

- Management of coastal zones and monitoring of operations to ensure conformity with the laws
- Solving the coastal land ownership issues that predate the formation of the agency

[16] INRGREF may contest this status!
[17] In its present incarnation, ANPE has not worked in collaboration with JICA

- Preparation of studies relating to coastal protection, benefitting from coastal zones, and development and research
- Observation and monitoring of coastal ecosystems and implementation of specialist information systems.

Furthermore, following a recently approved law (2009), APAL is responsible for the conservation of coastal and marine areas of ecological or landscape value and sites that are threatened by degradation or unsustainable use. These areas are formally classified and are called “sensitive zones” of which 25 exist. In addition, two Marine Protected Areas have been established under the new law, also falling under APAL’s responsibility. All these zones and areas have management plans in place, but APAL currently lacks funds and capacity to implement the management plans in most locations.

As APAL is concerned with coastal management and not just marine management, it has a certain degree of overlap with DGF, who manage terrestrial protected areas. The specific arrangements here are not clear, but it appears that any sensitive zone management overrides the jurisdiction of DGF. APAL also have links with MEDD and DGPA, however they do not work closely together.

APAL is currently under the responsibility of MEDD, and a recent law has extended its powers and responsibilities. The agency has 133 staff, 70 of which are based in regional offices. Its day to day activities are varied, and include beach clean-up, public awareness, protected area management, marine inventories, dune stabilisation. Key projects include the National Marine Protected Areas Programme, the MedWet Coast Project (which included numerous marine and coastal biodiversity assessments), and the protection of coastal and marine resources in the Gulf of Gabes project.

The agency has a long history of support from AFD and FFEM (including assistance with the development of the recent legislation, and the establishment of the marine protected areas, however according to both APAL and AFD, there is a huge amount of work to be done in this area, and more assistance is needed.

The National Gene Bank (Banque Nationale de Gènes)

The National Gene Bank (BNG), under the responsibility of MEDD, was inaugurated by the president in Nov 2007[18]. They have the well defined mandate of conserving, evaluating and promoting use of biodiversity and Tunisia’s genetic resources. It is officially the national focal and coordinating institution for the conservation and sustainable use of the biodiversity. They are a relatively small organisation of 20 or so scientists, but their key operational method is to manage and involve all stakeholders (e.g. universities, NGOs, government agencies etc) in the efforts to collect and preserve biodiversity.

The site comprises well-equipped scientific laboratories for the assessment of genetic resources, secure cold rooms with a storage capacity of 200,000 accessions, greenhouses and conference facilities. Off site they have a number of botanical gardens, and field regeneration stations for multiplying seed.

BNG has 9 thematic areas of work: cereals, fodder, forests, medicinal plants, vegetables, fish, microorganisms, fruit trees, and animals. Its responsibilities include:

- Development and updating of national strategies and action plans, including the implementation of international and regional agreements related to biodiversity conservation and sustainable use
- Coordination of all activities related to genetic resources conservation and sustainable use
- *Ex-situ* and *in-situ* / on-farm conservation of biodiversity
- Coordination of access and exchange of genetic resources
- Monitoring and evaluation

[18] Although BNG was officially created in 2003; bringing it into being took 4 years

- Capacity development
- Awareness-raising.

Specific daily activities of BNG include:

- Gathering genetic resources from different institutions
- Repatriation of genetic resources outside the country
- Phenotype characterizations.
- Seed collection, cleaning and regeneration
- Genetic characterization, evaluation and finger printing
- Research on candidate genes
- Publishing the "Genes of Tunisia" newsletter
- Maintaining and updating the database for genetic resources
- Gathering all published data on national genetic resources.
- Specialized seminars, workshops and training sessions.

As described in the preceding chapter, in just two and a half years, BNG have gathered over 28,000 accessions, prepared them, described their morphologies, grown them for multiplication needs and for obtaining genetic material, logged them in their database and stored them in their cold rooms. In addition they have been ramping up their *in-situ* / on farm activities, via provision of local/rare strain seeds to farmers.

Despite being decreed the leading body for conservation of biodiversity (according to the presidential programme), BNG is not the CBD focal point and does not manage protected areas – they are principally concerned with genetic collections at present, but as they get older and cover their first task of creating the gene bank, they hope to expand their role.

Overall, the visit to BNG was impressive; the Director General was a knowledgeable man, who clearly exhibits a passion for his responsibilities, and an awareness of development issues, and the facilities themselves were of a high quality. BNG apparently have no funding issues, but they would like to increase international cooperation for technical transfer, information sharing, shortcuts, ideas and so on. BNG are doing some excellent work in terms of genetic preservation, however they are not currently fulfilling their mandated role as the lead body for biodiversity conservation in Tunisia.

The National Institute for Rural Engineering, Water and Forests (INRGREF)

INRGREF is a public institution that reports to both the MARHP and the Ministry of Higher Education. It performs research assignments according to government need, as well as providing opportunities for student research. Research themes include scientific, technical and socio-economic investigations into water usage and re-use, soil salinity issues, agricultural technology, forest management and reforestation, NFTPs, and renewable energy.

INRGREF has roughly 50 researchers, split between soil, water and forests. In addition INRGREF has a rolling pool of around 100 students, supported by around 30 technicians and 15 administrative staff.

Most of INRGREF’s research assignments are conducted upon request by other government departments, when they need solutions or research, or as a part of internationally funded projects (for example the two JICA forest projects had large research elements conducted by INRGREF). They do have some small

direct donor-funded research projects[19] but their major projects are via loan projects in other government offices, most notably DGF.

INRGREF has a botanical garden on site and 30 arboreta across the country; many of which are poorly managed and need attention. INRGREF is very accustomed to working with JICA and appreciate what JICA has done for the country and are very pleased to hear that an increase in interest of forestry and biodiversity has arisen, as they think the sector is often neglected.

INRGREF suffers from the same capacity deficiencies as many government institutions, i.e. lack of field equipment and staff, and poor organisation. In terms of technical areas requiring attention, INRGREF would like to see increased attention devoted to endemic species, and introduced / invasive species and their effects. Another key area of need is the detailed understanding of the interactions within Tunisia's ecosystems.

The Ministry for Development and International Cooperation (MDCI)

Although the Ministry for Development and International Cooperation (MDCI) is not directly responsible for management, protection or research of environmental issues such as biodiversity and climate change, it holds considerable powers in terms of deciding which projects with international donors are applied for, and hence deserves mention under the stakeholder analysis.

It was understood prior to the mission to Tunisia that a principal aim was to find and develop a potential loan project in the fields of biodiversity and forestry-related measures against climate change. Furthermore, as explained in the present report, it is a strong desire of the DGF, the agency responsible for forestry, protected area management and to an extent biodiversity conservation, to obtain loan funds for its ambitious plans. But the activities of DGF are reportedly closely controlled by MDCI, and the agency has had a restriction imposed on it by the ministry, preventing further loan agreements in the above fields. The current JICA loan project in the forest sector was in fact almost halved in size by MDCI, against the wishes of DGF.

4.1.3 Analysis

The various meetings with government institutions revealed that biodiversity, climate change and forestry are relatively well managed in Tunisia, and the institutions involved have good levels of competency and knowledge, as well as a robust legal and strategic framework. The institutions also have demanding targets, and in most areas progress in meeting these is advancing well.

In spite of the above, there appear to be numerous weaknesses in the Tunisian system. The most immediately obvious problem is that there are too many stakeholders involved, and the delineation of responsibilities is unclear, despite the legislation. As a result, there are many areas of gaps and overlaps and these are aggravated by a widely reported lack of communication and coordination between stakeholders.

Without wanting to detract from the considerable achievements made in Tunisia in recent years, but there appears to be an element of the institutions "running before they can walk" i.e. attempting to address complex issues before the basic issues are functioning correctly. This is particularly true for protected areas; whilst it is undeniably better to have protected areas established by law than not having them, the study mission perceived that many of the targets achieved are done so on paper alone, so as to satisfy the demands of the various guiding strategies, with insufficient attention paid to actually managing these areas. The institutions themselves do recognise the deficiencies in this and other areas, and all stakeholders visited were keen to receive additional support in implementing their activities.

Development partners are clearly important to the project activities conducted by the institutions visited, and almost all of the major projects, strategies and programmes were heavily supported by donors, with

[19] Funded by Canada, Portugal, EU, and France

assistance from NGOs also being commonplace. It should be noted that the vast majority of development partners involved in biodiversity and climate change in Tunisia do so on a grant and technical assistance basis. In fact although other donors provide loans within other sectors (such as energy, infrastructure etc), the current JICA forestry project is, as far as can be discerned, the only loan project currently underway in the sector.

4.2. Donors and international organisations

Tunisia has a reasonably large presence in terms of donors and international development agencies, and the government receives considerable support in the fields of biodiversity conservation, forestry and climate change. A selection of some of the major players in the relevant fields was visited during the mission, as follows:

- World Bank
- African Development Bank
- GTZ
- UNDP
- AFD
- FAO

Many of the activities of the above institutions have already been described earlier in the report, however the major relevant activities that they are involved in are summarised below.

Development partner	**Major activities**
World Bank	- Gulf of Gabes Marine and Coastal Resources Protection Project - Beja silvopastoral project - Protected Areas Management Project (recently finished) - Natural Resource Management Project
JICA	- Gulf of Gabes Sustainable Fisheries Project - Integrated Forest Management Project - South-South cooperation - Borj Cedria Technology Park - Medicinal Plants Study - One Village One Product
GTZ	- Assessment and analysis of the effects of climate change on cork oaks and alfa grass ecosystems - Ecotourism Development - Harmonisation of Environmental Legislation
FAO	- Land Assessment for Degradation in Drylands - South-South cooperation
UNDP	- Africa Adaptation programme - Integrated Protected Area Management in Kroumerie and Mogods - Medicinal plants study - Grassroots artificial reef project - Pilot project for restoring monoculture date plantations to traditional tri-layer practice
AFD	- Marine Protected Areas Legislation Development - Marine Protected Areas Project - Agroecology Project - Gulf of Tunis Cleanup Project

4.3. Others (NGOs and private sector)

The mission met with NGOs during the visit to Tunisia, but did not have any meetings with any private sector stakeholders. Although private sector investment is a strategic goal of the government, there appears to be only a nascent NFTP industry, and ecotourism is only just starting to gain momentum.

Tunisia is home to a relatively large number of NGOs, but they are in general very small, and lack any real powers or capability. Empowerment and involvement of the NGO sector is part of the government strategy, but it is clear that this goal is more focussed on the second element of these two, i.e. involvement, rather than any meaningful empowerment; the government still clings to the responsibility for certain minor areas of activity for which it is responsible, despite being incapable of implementing the necessary, and having received offers of assistance from NGOs.

Although the above may sound somewhat pessimistic, NGO activities are on the increase in Tunisia, and although these are predominantly in the areas of publicity and awareness raising, NGOs are increasingly expanding their capacities to scientific and socio-economic research. A key mechanism for achieving this is the GEF Small Grants Programme (SGP), and a selection of recent GEF SGP projects[20] is provided below:

NGO	Value ($)	Project
Association for Saving Chenini Oasis	35,000	Chenini Oasis Development and Protection Project
Tozeur UNESCO Club	13,000	Role of Farmers in Biodiversity Conservation for Desert Oases
Medenine UNESCO and ALESCO Club	15,000	Awareness-raising for Adaptation and Mitigation of the Effects of Climate Change
Chatt Mariem Agricultural College Alumni Association	17,000	Conservation of Local Horticultural Strains for Climate Change Adaptation
El Mostaqbel Agricultural Development Group	30,000	Dmaien Integrated Forestry Development Project
Association for the Promotion of Employment and Housing	35,000	Ecotourism Development in Rural Tabaraka
Sfax Lions Club	50,000	Strategy and Action Plan for Adapting Kerkennah to the Effects of Climate Change
GDA Galaat	22,000	Reinforcement of Pastoral Systems in Remtha-Tataouine
Kettana Agricultural Development Group	40,000	Rehabilitation of Kettana Oasis

The areas of activity of the NGOs visited are provided below.

NGO	Major activities
WWF	- Marine Protected Area Management (SMAP III Pilot Project) - Forest conservation – specifically Cork Oak forests - Wetland conservation – Assistance in classifying and developing Ramsar sites - Ecotourism development
National Society for Natural Sciences	- Supporting government research in general - Financial assistance to struggling science students - Awareness raising - Journal publication - Studying biodiversity in protected areas - Studying value-adding methods for agricultural waste

[20] In total, 136 grants have been awarded to Tunisian NGOs

5. Needs Assessment

5.1. Important Areas

Ecosystems and areas of particular importance for biodiversity are recognised in both government and donor strategy.

- Wetlands
- Protected areas for wildlife – e.g. south
- Protected forest, in particular cork oak
- Alfa steppes
- Marine environment (particularly Gulf of Gabes)

It should be mentioned that in addition to biodiversity, a strong focus of both national and JICA policy in Tunisia is addressing the socio-economic disparity between the country's regions. Whilst this is essentially a human-related issue, one of the key vehicles to achieving the goals of the strategy is via development and sustainable use of natural resources and biodiversity. Zones that are important in terms of biodiversity and also social development should therefore be given special priority.

5.2. Needs for Further Cooperation

It is clear from talking to the various stakeholders that there is a great deal remaining to be done in Tunisia to conserve biodiversity, achieve sustainable natural resource management, restore degraded land, reforest the country, and to deal with the ever increasing effects of climate change. The country has put in place a strong strategic and legislative framework, and its institutions, though lacking in means, are relatively well set up. The country now needs assistance principally with implementation of the strategic actions, and with enforcement of legislation. Assistance should be closely aligned with government policy and strategy, and cannot be offered solely at the will of the donor, as in many less developed countries.

The following needs have been provisionally identified as requiring attention in the fields of biodiversity conservation and forestry-related measures against climate change:

Category of Need	Specific Actions Required
1. Institutional	1-1 Streamlining the number of actors involved in the sector, or clarification and delineation of responsibilities 1-2 Increased communication and cooperation between ministries and agencies 1-3 Assessment and improvement of field enforcement and management arrangements and capacity 1-4 Empowerment of NGOs
2. Materials and Infrastructure	2-1 Financial or "in kind" assistance for field and operational equipment for ANPE, DGF, and NGOs
3. Research	3-1 Increased research and development of NTFP products; in particular for marketing issues 3-2 Increased biodiversity inventory activities and *in-situ* research and conservation
4. Awareness-Raising	4-1 Increased awareness-raising of the importance of biodiversity conservation among local communities and decision-makers 4-2 Increased publicity of relevant laws
5. Practice and Projects	5-1 Increased integrated forest management coverage 5-2 Preparation of management plans for new Ramsar sites, and general assistance with wetland management 5-3 Coastal and marine protected area management implementation 5-4 Improving forest and steppe based livelihoods via sustainable natural resource management 5-5 Support to large mammal reintroduction programmes

Category of Need	Specific Actions Required
	5-6 Expanding protected areas environmental monitoring (ANPE and others)
	5-7 Establishment of self-financing mechanisms for sustainable conservation and protection of protected areas and livelihood development (e.g., PES, Eco-tourism, NTFP development, etc.)
	5-8 Development of the eco-tourism sector, and help with attracting private investment and partners
	5-9 Assistance to MEDD in implementing its biodiversity strategy
	5-10 Strengthening of activities regulating trade of animals and animal products, and controlling invasive species
	5-11 Increased coordination with the neighbouring countries trans-boundary protected areas on the south
	5-12 Protection of ecosystems that form a barrier to desertification or assist with climate change adaptation
	5-13 Facilitation of CDM and REDD in the forest sector
	5-14 Social development and poverty reduction in and around protected areas, as well as more generally in unprotected forest and rangeland areas
	5-15 Increased community participation in wildlife and ecosystem conservation
	5-16 Improvement to anti-poaching measures and other law enforcement
	5-17 Addressing illegal fishing activities
	5-18 Addressing coastal pollution
	5-19 Addressing regional socio-economic disparity

6. Conceptualization of Potential Interventions

6.1. Basic Principles for Formulation of the Potential Interventions

The following principles are taken into account in the conceptualization of the potential JICA's interventions for biodiversity conservation.

- The possible JICA interventions should be in line with the existing government strategies and programs, such as: i) PEP, ii) Environmental Policy iii) Protected Areas Strategy, iv) Forest and Pastoral Development Strategy, v) NAPA, and vi) NBSAP.
- The possible interventions should avoid overlapping with existing activities but should rather align with them
- The possible interventions should respect the government's initiatives and focus on maximizing the efforts made by the government as well as development partners.
- The possible interventions should consider the framework of coordination with neighbouring countries.

6.2. Long-list of Potential Interventions

Using the above analysis of needs and the basic principles of formulation listed above, a "long-list" of potential interventions has been prepared. This long list includes specific projects where sufficient information existed to formulate them, and where there was a lack of specific information, general interventions have been proposed[21]. The long-list does not take into account any technical, regional or other priorities that JICA, the Government of Tunisia, or other stakeholders may have; it is intended as a comprehensive list of required interventions to use as a basis for the present and future project formation exercises.

Potential interventions have been categorised below according to the dominant characteristic for ease of reading, however many of the actions are somewhat integrated in their nature and cover more than one

[21] Many of the interviewees were happy to prepare concept notes for projects upon specific request, but were reluctant to produce them speculatively

objective or area of activity; this aspect is highlighted via the third column, which indicates which of the above needs a given intervention addresses.

It should further be noted that, according to JICA's desired project type and size of intervention, to be determined during NK/JICA discussions following submission of the present field report, certain of the interventions could be further combined to form fully integrated projects (some examples are provided)[22].

Main Intervention Area	Potential Intervention	Duration	Needs Addressed
1. Forestry	1A *Upscaling of the current Integrated Forest Management Project (TS-P33)* Upon initial application for the above project, DGF wanted to cover all regions in Tunisia, however MDCI refused the loan that would have been required to allow for such a project. This upscaling project therefore proposes to extend the IFM project to those regions currently not covered. This is clearly not an acceptable proposition at present, but should be borne in mind for the future. *Discussion with JICA Tunisia regarding this option led to a request for technical cooperation sub-projects to include within the existing project. Unfortunately, although information was provided on the existing project, there was insufficient detail on project elements to allow for conceptualisation of further complementary studies.*	Long	3-1, 3-2, 4-1, 4-2, 5-1, 5-4, 5-7, 5-12, 5-14, 5-15, 5-19
2. Dedicated Biodiversity Interventions	2A *Biodiversity Inventory Making* There is a lack of recent, reliable and comprehensive data on the status, health, range etc. of Tunisia's biodiversity. The project, providing technical assistance to DGF via a combination of local and international experts to make biodiversity inventories would be very beneficial. The project or programme would also make an ideal basis for Cooperation with Japanese Universities. This project concept has no specific location assigned, as there is a widespread need across the country. It is, however suggested that this project be carried out in one of the country's protected areas or wetlands.	Short – Med	3-2, but informs many other areas
	2B *Large Mammal Conservation Project* JICA is already contributing c. 200,000 USD towards DGF's large mammal breeding and reintroduction scheme, however further funding for this ambitious project is needed. The project is focussed in the centre/south.	Short – Med	2-1, 3-2, 5-5, 5-11
	2C *Support to ANPE Environmental Monitoring Programme* ANPE are in need of a wide range of support towards their Environmental Monitoring Programme, ranging from large scale funding right down to provision of hand-held analysis equipment. JICA would therefore be free to make this project as large or small as desired. It is suggested that a mid-level capacity building and support project could take on one new national park, to add to ANPE's current monitoring of Ichkeul.	Short	2-1, 3-2, 5-6
3. Protected Area Interventions	3A *Integrated Management of 5 Protected Areas in Tunisia* This is a Technical Assistance type project that may lead to future loan applications. The project aims to use an integrated approach to managing 5 new National Parks, to conserve biodiversity, restore ecosystems, improve socioeconomic conditions, research and develop innovative solutions, and improve capacity. This is a project already developed by DGF, and seeking support. The project idea stems from the recommendations of previous JICA work in protected area management. The proposed sites are the Kuryat Islands in Tunisia and El Kala National Park in Algeria. *During the JICA debrief meeting concern was raised for precisely what role JICA are required to fulfil for this project, and what AfDB are not able to manage themselves. Unfortunately the meeting with AfDB did not permit such detailed questioning, but AfDB are open to approach from JICA for further discussion.*	Long	3-1, 3-2, 4-1, 4-2, 5-1, 5-4, 5-7, 5-12, 5-14, 5-15, 5-19

22 Following submission of a draft of this report, discussion with JICA requested a column indicating the timescale of the proposed interventions. This has been duly added.

Main Intervention Area	Potential Intervention	Duration	Needs Addressed
	3B *Marine Protected Areas Project in Algeria and Tunisia* This is an opportunity for co-financing / technical cooperation with the AfDB, on a project that they are currently developing. The project aims are to provide support to the management of two established but deficient Marine Protected Areas (one in Algeria and one in Tunisia). The objective is to establish criteria for MPA management (including as biological indicators, economic and spatial) to address the issues of regional development and the specific local ecological contexts, whilst strengthening the interaction between science and policy in the field of marine biodiversity (in accordance with the mechanisms promoted by UNEP and the CBD).	Med	3-1, 3-2, 5-3, 5-11, 5-15
	3C *Provision of Protected Areas Expert to DGF* DGF have expressed the desire to receive an expert to work from their offices to provide general technical assistance and advice for PA management. This would also allow a far close and better appreciation of the present situation than this study mission has achieved, and the expert could, in parallel with his general activities, work on developing a new loan project for when the present IFM project ends	Short – Med	1-2, 1-3, 3-1, 4-1, 5-11, 5-16
	3D *Ramsar Support Project* Provision of an expert to assist DGF with the preparation of management plans for its 19 newly created Ramsar sites.	Med – Long	1-2, 1-3, 3-1, 4-1, 5-2
4. Marine / Fisheries	4A *Artificial Reef Extension Programme* JICA's innovative use of artificial reefs as part of the Project for Sustainable Management of Coastal Fisheries Resources has already been seized upon by both the government and UNDP. These activities remain at a small scale. The proposed programme is for a nationwide study to identify the potential for upscaling this technique, potentially leading to a loan project for implementation of the resulting plan. *The JICA debrief revealed that a second phase of the above mentioned project is under preparation, and will include a component to . The extension programme currently proposed should therefore not take place until after the second phase of the Project for Sustainable Management of Coastal Fisheries Resources.*	Med	3-2, 5-3, 5-14, 5-15, 5-17, 5-19
	4B *Aquaculture Development Study* Master-plan type study for development of aquaculture in Tunisia. Aquaculture features in government strategy as a way of contributing to food security and alleviating coastal fishing pressures, however activities are limited. Using Japan's considerable experience in aquaculture, and lessons learned during the Project for Sustainable Management of Coastal Fisheries Resources, it is proposed to conduct a nationwide study to determine potential future options and techniques for on shore and offshore aquaculture in Tunisia.	Long	None specifically, but in line with strategy and positively impacting many areas
5. Capacity-Building Interventions	5A *South-South Programme Extension* JICA is already working for South-south cooperation in Tunisia. It is also involved in successful forest and fisheries conservation projects. It would seem that considering JICA's desire to increase its activities in the area of biodiversity conservation, modifying existing mechanisms that JICA already has experience of (i.e. south-south), and using existing project experience, would be an effective way of achieving this goal. It is therefore proposed that JICA might develop a south-south biodiversity element, possibly related to protected areas development and management.	Long	Depends on specific focus decided upon

Main Intervention Area	Potential Intervention	Duration	Needs Addressed
6. Other Interventions	6A *Combating Desertification through Integrated Conservation of Acacia tortilis* This project involves conserving existing *Acacia tortilis* populations, and planting new saplings. The project would be based in the mid-southern arid areas of the country. *Acacia tortilis* is the only wild and native acacia in Tunisia It grows well in arid and Saharan areas and is a pioneer plant, playing an important role in preservation and fertility of poor and eroded soils in Africa. However it is generally overused by local people, who have little other fuel wood, resulting in loss of biodiversity, pasture, and increased desert encroachment. The project aims to adopt an integrated approach to re-establishing *Acacia tortilis* in the arid areas, resulting in reduced desertification, improved pasture and biodiversity, and livelihood development. DGF would be the counterpart agency, but although they have shown a keen interest in this project concept, to date no concrete details or project plan are available.	Long	3-1, 4-1, 5-4, 5-7, 5-12, 5-14, 5-15, 5-19
	6B *Multipurpose Jatropha curcas Plantation Project* Jatropha is widely planted in arid and semi-arid regions, including successfully in Africa (e.g. Mali). It is a multipurpose plant but its most interesting application is the combination of soil stabilization and carbon sequestration via the plant itself, and biodiesel production from the fruits / seeds. A Jatropha plantation programme in degraded areas of semi arid land in southern Tunisia could assist with anti-desertification, provide livelihoods for poor farmers (assisting in regional equalization), and could potentially be eligible for carbon finance. Although Jatropha has some benefits over *Acacia tortilis* (see above), it is not indigenous to Tunisia or indeed the African continent, coming from the Americas. Note this is a ready prepared project (MEDD) seeking support.	Med – Long	3-1, 4-1, 5-4, 5-7, 5-12, 5-19
	6C *Promoting Biodiversity and Socio-economic Sustainability via Oasis Restoration* With the advent of modern agriculture, around 50% of Tunisia's traditional three-layer system oases were converted to monoculture date plantations. These plantations are susceptible to wind and water erosion, the monoculture crop is susceptible to disease and the plantations have only one crop per year. With a three layer system (dates, fruit trees and vegetables/pasture, biodiversity is increased, erosion is avoided, and livelihoods are improved via diversification and providing income across the year. UNDP has successfully piloted this project and it is ready for upscaling.	Long	3-2, 4-1, 5-4, 5-19
	6D *Strengthening Control of Biological Exports and Imports* Tunisia's border controls, as well as internal policing, are currently lacking sufficient knowledge, capacity, and methodologies to adequately control the export of rare species, and the import of potentially harmful invasive species. It is also known that considerable activity in these areas occurs, most widely for the illegal export of tortoise and terrapin species. The proposed project would first conduct a baseline study into the situation, followed by a technical assistance and capacity building programme aimed at tightening the controls and limiting criminal activity that is damaging to the country's biodiversity and ecosystems.	Short - Med	4-1, 4-2, 5-10
	6E *Ecotourism Development Study* Master Plan style study of ecotourism options, including locations, required infrastructure, finance mechanisms etc.	Short	5-7, 5-8, 5-14, 5-15, 5-19
	6F *Integrated Alfa Steppe Management Study* Integrated style study developed by MEDD to manage and restore degraded Alfa steppe (around 12,500 ha), and involving soil preparation techniques, replanting, cactus planting and reforestation.	\Long	5-4, 5-12

6.3. Priority Interventions

The long-listed projects were evaluated in terms of: i) relevance to JICA preferences ii) appropriateness of size (compared with the capacity of the corresponding government agency), iii) necessity, iv) urgency, v) expected impact, and vi) underlying risks.

The preliminary assessment matrix is provided overleaf, and the five highest priority activities are tentatively listed below. It should be noted that many of the potential interventions not listed as top priority would be highly valuable, and it would only need a slight shift in one of the contributing factors (principally JICA focus) to make many interventions a top priority. The original list of priority actions proposed by the study mission was modified following a wrap-up meeting with JICA Tunisia office, in which the options were discussed, and JICA Tunisia reservations, limitations and ideas were provided. Some of the potential projects, while highly relevant, were deemed to be somewhat premature. It is recognised that JICA HQ may have somewhat differing opinions, and further discussions are needed.

1. *Integrated Management of 5 Protected Areas in Tunisia*, to conserve biodiversity, restore ecosystems, improve socioeconomic conditions, research and develop innovative solutions, and improve capacity.
2. *Provision of Protected Areas / Ecology Expert to DGF*, to discharge expert advice and general assistance, and to develop new projects. Note that as the technical cooperation budget for Tunisia is relatively low, this intervention could potentially be integrated with the above project.
3. *Combating Desertification through Integrated Conservation of Acacia tortilis*, resulting in reduced desertification, improved pasture and biodiversity, and livelihood development.
4. *Promoting Biodiversity and Socio-economic Sustainability via Oasis Restoration.* Restoration of monoculture oases to the traditional three-level type, with the objective of increasing biodiversity, increasing disease resistance, improving livelihoods, and preventing erosion.
5. *Ecotourism Development Study: S*tudy of ecotourism options, including locations, required infrastructure, finance mechanisms etc.

Some of the minor interventions, which although not addressing multiple areas of need, and hence not assigned a high priority, would make very valuable interventions for relatively little outlay on JICA's behalf. Examples include support through provision of field equipment, etc.

Finally, although not included in the potential list of projects due to already being in the JICA pipeline, it should be mentioned that the phase II of the Project for Sustainable Management of Coastal Fisheries Resources is closely related to the present study, will be very beneficial. The precise status of phase II is unknown, but the study mission believes that approval should be facilitated for this important study.

Results of Prioritization of Long-listed Potential Interventions (Draft)

(1) Forestry

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Upscaling of the current Integrated Forest Management Project	Project Loan	High	Med.-High	Med.-High	High	High	Project likely to be refused by MDCI, and in any case for future given current project.	High

(2) Biodiversity

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Biodiversity Inventory Making	Tech. cooperation type project	Low	High	Med.-High	Med.-High	Medium	None	Med.-High
Large Mammal Conservation Project	Financial assistance/ Tech. cooperation type project	Medium	High	Med.-High	Med.-High	Med.-High	None	Med.-High
Support to ANPE Environmental Monitoring Programme	Financial assistance / provision of equipment / Dispatch of expert	Medium	High	Medium	Medium	Medium	None	Medium

(3) Protected Areas

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Integrated Management of 5 Protected Areas in Tunisia	Tech. cooperation type Project, leading to potential Project Loan	High	High	High	High	High	None	High
Provision of Protected Areas Expert to DGF	Dispatch of expert, leading to potential Project Loan	High	High	High	High	Medium	Technical cooperation budget to Tunisia is very low, so this is unlikely as a stand alone intervention, despite high priority. Consider integrating this with the above PA project?	High
Marine Protected Areas Project in Algeria and Tunisia	Financial assistance/ Tech. cooperation type project	Med.-High	Med.-High	Med.-High	Med.-High	High	Project developed by Uni professor outside APAL. Algerian involvement could also be a risk	Med.-High
Ramsar Support Project	Dispatch of expert	Med.-High	High	High	High	Medium	None	Med.-High

(4) Marine / Fisheries

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Artificial Reef Extension Programme	Development planning, leading to potential Project Loan	High	High	High	Med.-High	Med.-High	Good potential project for the future but second phase sustainable fisheries project first needs to refine the methodologies.	High, but needs developm ent
Aquaculture Development Study	Development planning type Project	High	Med.-High	Med.-High	Med.-High	Med.-High	None	Med.-High

(5) Capacity Building

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
South-South Programme Extension	Tech. cooperation type project	High	Med.-High	Med.-High	Med.-High	Med.-High	May be too early for Tunisia in the field of biodiversity	Med.-High

(6) Other

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Combating Desertification through Integrated Conservation of *Acacia tortilis*	Financial assistance/ Tech. cooperation type project	Med.-High	Med.-High	High	High	High	Long term sustainability would need close focus	High
Promoting Biodiversity and Socio-economic Sustainability via Oasis Restoration	Tech. cooperation type project leading to potential Project Loan	High	High	Med.-High	Med.-High	High	None, but would JICA want to take up a UNDP idea?	High
Ecotourism Development Study	Development planning type Project	Med.-High	High	High	Med.-High	High	Other donors working in this area, but not from Japanese perspective	High
Multipurpose *Jatropha curcas* Plantation Project	Financial assistance/ Tech. cooperation type project	Medium	Med.-High	Med.-High	Med.-High	High	Unknown if Jatropha is present in Tunisia at present	Med.-High
Strengthening Control of Biological Exports and Imports	Dispatch of expert / Tech. cooperation type project	Medium	Unknown	High	High	Med.-High	Ease of working with custom officials, police etc is questionable	Med.-High
Integrated Alfa Steppe Management Study	Tech. cooperation type project	Med.-High	High	High	Med.-High	Med.-High	None	Med.-High

7. Further Activities

Due to unforeseen issues such as cancellation of meetings and failure to provide certain documents, obtaining a full picture of the present situation in Tunisia was not possible during the short field visit. Further time is required for stakeholders to respond, and for discussions between team members and JICA, before firm conclusions or recommendations can be made.

This field report should be therefore be regarded as a summary of the situation and initial intervention ideas, to be developed following the field visits when the initial ideas will be further examined and discussed with relevant development partners working in the field of biodiversity conservation in Tunisia, as well as JICA HQ.

The final report, to be submitted at the end of July 2010, following the above activities, will provide final recommendations to JICA HQ.

It was understood prior to the mission to Tunisia that a principal aim was to find and develop a potential loan project in the fields of biodiversity and forestry-related measures against climate change. Furthermore, as explained in the present report, it is a strong desire of the DGF, the agency responsible for forestry, protected area management and to an extent biodiversity conservation, to obtain loan funds for its ambitious plans. A visit to MDCI revealed that all projects must be submitted to MDCI for their approval, and that in general, the projects must already be either listed in, or fall very closely in line with activities described in the MDCI development plan. This document was in Arabic only and not yet available to the public. MDCO stressed that they are moving away from the “1990s” method of cooperating with donors, i.e. accepting any projects proposed, but are becoming very selective in the projects implemented. Furthermore, they like to be involved from the very beginning in project formulation. Whilst they were pleased to hear of JICA’s intention to increase its activity in the biodiversity and climate change fields in Tunisia, MDCI highlighted that they should have been involved in developing the project options from the very beginning (i.e. starting with the country selection exercise), and that they should also be involved in subsequent discussions with JICA to refine the project list provided above. It is therefore strongly recommended that a closer line of communication be set up with MDCI in terms of project development and selection, as they clearly wield a lot of power in terms of project selection, and are not willing to accept projects that have been developed in their absence.

In view of the above, it is an inescapable conclusion of the present mission that another loan project in the natural resource management / biodiversity area is not possible until at least 2015, unless national strategy changes. JICA should therefore focus its efforts on technical cooperation and project development in the areas discussed in the preceding chapter. It is also recommended that a JICA specialist be seconded to DGF to assist with these development activities and to provide a close working relationship.

The debrief discussion with JICA Tunisia was very useful in refining the potential options, however it was clear that for some of the project concepts, there is still a lack of sufficient information, mainly due to the Tunisian counterparts not having fully prepared project concepts. Most were willing to work with JICA to develop the concepts and focus on areas of particular interest, but indicated that they would need a more formal approach rather than the speculative approach employed for the present study. It is therefore suggested that this report is used to refining JICA’s desired actions, which should then be further refined in cooperation with the relevant counterpart agency.

Appendix 1: Meeting Memos

Meeting / Field Memo

No. of Memo: 1	
1. Topic/Purpose	Meeting with JICA Tunisia office
2. Participants	Mr. Yodo Kazuken (Deputy Director), Mr. Asahiko Karashima (Deputy Director - Loans), Ms. Ritsuko Yamagata (Representative – TA), and Pirran Driver (NK)
3. Place	JICA Office
4. Date & Time	18 June 2010, 08:00 – 09:30

5. Points of Discussion/Observation

(1) Following general introduction, JICA briefly described the Tunisia strategy. The main pillars of activity are:

- Industrial Development
- Environment
- Regional imbalance
- "South-South" technical cooperation

(2) South South Technical cooperation is an interesting system that use's Tunisia's relatively strong institutions and facilities as a regional training centre for Middle East and Sub Saharan Africa

(3) Key projects related to the mission include the Integrated Forestry Project (Phase 1 complete – phase 2 just underway) - loan, a research project on productive trees in semi-arid regions, and desalination of wells in the southern region. JICA also has a project for rural electrification with solar power for 500 houses. There is also a fisheries management project underway in the Gold of Gabes, using participatory approach (TA).

(4) A WB forestry project is being funded by Japan

(5) Tunisia has a 40 project Solar power programme

(6) JICA Tunisia is not yet involved in CDM or REDD, but the Tunisian government independently developed the rural electrification project into a CDM project. JICA has been told by the Direction generale des forets that as the forest project is not new plantation it is not possible to use CDM. Also, a forthcoming Sewerage project may have a CDM element to the treatment process. Last year the CDM director from JICA HQ paid a visit to Tunis, and so it seems JICA is keen to promote CDM involvement, but is somehow not quite ready to take the plunge.

(7) REDD is not known to JICA.

(8) JICA has had little contact with HQ about the current mission, but ***is open to receive ideas for new projects.*** Of the areas that the mission is concerned with, climate change is of most interest to JICA Tunisia. ***However they had not really considered dedicated biodiversity projects, due to a lack of information and time. They may well be interested.***

(9) The government capacity is reportedly very good in Tunisia, so needs little attention on the one hand, and can be beneficial to projects on the other. JICA therefore thinks the government is a good target for financial cooperation and is trying to increase lending.

(10) When Tunisia moves to upper middle income status, the focus has to switch from current pillars to

Natural disaster, HR, Environment (no change) and international cooperation/transboundary projects ***(11) One project possibility proposed was to use South-south as a vehicle for biodiversity/climate change training for other African countries*** ***(12) JICA have received a project proposal for erosion control on the Kerkenna islands - coastal erosion is a high priority in Tunisia – vaguely linked to biodiversity conservation*** (13) In fact JICA receive many project proposals, (mainly from MEDD). (14) The biggest donor in Tunisia is EIB, then AFD, and then JICA. AfDB and WB loans are expensive and hence not competitive. AfDB mainly involved in private sector in Maghrib. (15) Another relevant project is the Borj Cedria science park, which includes a biotechnology centre. – JICA are financing the equipment (16) JICA have been informed by the embassy to reduce TA projects in Tunisia, but due to COP 10, an exception may be made for biodiversity related projects.
6. Notes/Issues: (1) Various items of information were provided (2) Follow-up meetings will be held

Meeting / Field Memo

No. of Memo: 2	
1. Topic/Purpose	Meeting with Ministry for Environment and Sustainable Development (MEDD)
2. Participants	Prof. Dali Najeh (Director General, Environment and Quality of Life Dept.), Mr. Nabil Hamada (Deputy Director of Ecology, Environment and Quality of Life Dept.), Mr. Imed Fadhel (UNFCCC Focal Point, Environment and Quality of Life Dept.), Mr. Chokri Lezghani (Environment and Quality of Life Dept), Mr. Mustapha Laroui (Manager, Ecotourism, Environment and Quality of Life Dept.) and Pirran Driver (NK)
3. Place	MEDD
4. Date & Time	18 June 2010, 10:00 – 13:00
5. Points of Discussion/Observation	
(1) Brief intro made by Prof. Najeh before he left for a meeting with an ambassador. Prof Najeh emphatically declared MEDD's interest in the relevant areas, and commitment to improving the management of biodiversity and climate change, as well as increasing forest cover. Apparently Tunisia is very advanced on climate change projects. ***He would be keen to increase JICA cooperation***. (2) Following the introduction, the other meeting members took the main lead. (3) MEDD are more interested in grant aid than loans, however only marginally, and they recognize the good value and favourable terms of JICA loans. (4) Tunisia is a beneficiary of the Cool Earth Initiative, which is Japanese funded.	

(5) MEDD is focal point for both CBD and UNFCCC. However MoAg, water and fisheries is responsible for wildlife, biodiversity and protected areas, and there is no dedicated authority for biodiversity or wildlife conservation. There is a good level of cooperation between ministries.

(6) MEDD in its present form (i.e. independent from Agriculture) has existed for 5 years.

(7) Tunisia has 35 PAs at present, recently increased from 24 (3-6%) – aim is 10% coverage

(8) GTZ and slightly behind that the World Bank, are MEDD's main partners. Also UNDP and GEF.

(9) CDM is well advanced in Tunisia, but not in forestry (industrial, SWM etc) due to all the usual issues of permanence, leakage, etc. REDD is all but unknown – the theory is understood but the mechanics and processes not. CDM projects were prepared in Forestry (see hard copy leaflets) but these, unlike other projects, have been stagnant and not attracted investment. To date the portfolio has 250 million tones Co2, with 50 million tonnes of approved projects. Note that MoAg is directly responsible for forestry, not MEDD.

(10) Tunisia has done relatively little on the climate adaptation front – mainly discussion and paper pushing for the time being.

(11) The biodiversity action plan has just been updated and has 80 or so projects across all areas ***(could be good area for JICA involvement to choose projects?)***

(12) Regarding forests – previously they were not valued as not a high-value as other countries in terms of timber etc…however things are changing. In 1960 there was just 400,000 Ha of forest, by 1990 this was 800,000 Ha (7%), and by 2010 was 13% or 1,500,000.

(13) Tunisia is trying to promote the participatory approach. ***This fits well with JICA activities.***

(14) There is a current project with IUCN assistance to transfer the IUCN approach to inventories to Tunisia

(15) The National Gene Bank, a body under MEDD, has 9 thematic work groups, e.g. crops, livestock, medicinal plants etc, and 200,000 samples in its cold rooms. Other bodies under MEDD include ONAS, ANGED (SWM), ANPE(Env protection), APAL (coastal protection) and CITET (Research)

(16) Regarding policies and strategies, apparently although there are some sectoral strategies, such as for forestry, there is no overall environmental strategy worked to, and no quantitative goals or indicators. Projects can therefore be a bit ad hoc. All projects for approval go through the ministry of finance, planning and external affairs. There is a commission for sustainable development, but this is just a meeting of government stakeholders so cannot be met with – their mission however is to integrate SD into sectoral policy. There is a national development strategy that is developed every 5 years, and within that are goals for each ministry to implement.

(17) MEDD has a directorate for cooperation (i.e. external donors), however they were not available for the meeting.

(18) MEDD generally have relatively little contact with JICA, though this conflicts with JICA staff opinions that Prof Najeh frequently submits proposals.

(19) MEDD have a large ecotourism project with GEF, which follows a participatory model and involves biodiversity, culture, communities etc (OVOP?). ***MEDD are in general moving towards PFM style projects for PAs, using sustainable management to make PAs pay for their conservation. This is a model that suits JICA activities***

(20) When asked about gaps and needs, MEDD report that ***they have little capacity to implement their biodiversity action plan, and therefore financial assistance would be gladly received. Examples of projects include management of cork oak forests. They also need help for management of the national adaptation programme, and details of projects were provided on a CD***.

(21) Most protected areas do not have management plans, and no overall integrated plan exists.

Likewise, 20 Ramsar sites have been identified, but again they have no management plans, therefore assistance in this regard would be very beneficial.
(22) Prof Najeh wrapped up the meeting very rapidly, and mentioned that the Tunisia NAMA will be submitted to Cancun (??) and would like to develop projects with JICA for proposing – "perhaps at a side event". As increasing forest area is in the Action Plan of Tunisia this is also a big area requiring support – they would particularly like to use treated WW for forests in the south.
6. Notes/Issues: (1) Several documents were provided, with more to follow, including possibly concept notes

Meeting / Field Memo

No. of Memo: 3	
1. Topic/Purpose	Meeting with The National Forestry Directorate – Forest Department
2. Participants	Mr. Mongi Ben Mohamed (Director of the PGIF Project) and Pirran Driver (NK)
3. Place	DGF Office, Ministry of Agriculture, Hydrology and Fisheries
4. Date & Time	21 June 2010, 10:00 – 11:30

5. Points of Discussion/Observation

(1) DGF has 4 divisions: forest conservation, sylvopastoral development, socio-economic development of forest population, and regulation and control. The JICA PGIF project is outside this structure, as it is a special project.

(2) The meeting was interesting, however full information was not obtained, as Mr Ben Mohamed has reluctant to provide information or opinions other than for his specific area of operation – a meeting has therefore been scheduled with the Director General.

(3) The National Strategy aims to increase forest cover to 16% by 2020. It is currently (2009) at 13.04%, up from 4% in 1956 and 7% in 1987.

(4) The Forest Strategy has 4 pillars – Extension of vegetation cover and desertification measures, Sustainable forest management, Conservation of flora and fauna, and institutional.

(5) Further individual strategies exist, e.g. cork oak forests, fire protection etc.

(6) DGF is the oldest institution in the country, formed a year after colonization in 1882. Mr. Ben Mohamed did not know staff numbers.

(7) DGF has 102 nurseries, 16 of which are hydroponic, and they raise 32 million plants annually.

(8) 10% of the population now live in forest areas.

(9) Tunisia produces 250,000m^3 of timber per year, 8,000 tonnes of which is oak/cork oak.

(10) Woodland forage makes up between 10 and 25% of the country's animal fodder.

(11) 1995 saw the first forest inventory of Tunisia, and the second is underway and almost finished.

(12) All DGF projects now try to work on an integrated basis, involving the community rather than working on a exclusion basis as before.

(13) They try to have partnerships with private sector, e.g. for timber, essential oils, herbs and other NTFPs

(14) NFTPs include zgougou (aleppo pine for moulid), honey, mushrooms, snails, and pine nuts

(15) Previous fire levels was 2,500 ha per year, but now with 160 guard posts and 10 fire protection centres, that figure has dropped to just 400 ha per year.

(16) Reported problems in the sector include: financial and lack of investment, lack of interest of private sector investment due to slow return, Land ownership and land-use system is very cumbersome and slow, and there is a lack of staff and capacity on the ground.

(17) DGF is responsible for management of all PAs (National Parks, Reserves and Wetlands) in Tunisia (policy is joint between DGF and MEDD). A categorization project has been completed, but Mr Ben Mohammed thought it was not successful, and doesn't have any information (with conservation dept.). DGF plan to raise protected areas coverage from the current 17% to 20% by 2024

(18) The projected cost of all the DGF strategies is 470 million dinars

(19) The JICA project is their main project, and they have nothing like it with other donors. They have a small sylvopastoral project in Beja with the WB.

(20) When asked about the assistance needed, ***Mr Ben Mohamed said that they would like more loan projects, as these provide not only TA, but equipment, and funds to make a big difference. They are not so interested in small projects. This could be a good JICA opportunity for projects in other areas of forestry than Integrated management*** (as the JICA integrated management II project is only just underway).

(21) DNF like working with JICA, and they seem to grant all projects that are requested (however he assumes these have been authorized at a higher level before proposals are submitted).

(22) Mr. Ben Mohamed was not able to answer questions on CDM/REDD, strategies, or project needs – and directed NK to the Director General and the conservation dept.

6. Notes/Issues:

(1) DNF will prepare a compendium of relevant data

Meeting/ Field Memo

No. of Memo: 4	
1. Topic/Purpose	Meeting with Agence Nationale du Protection de 'Environnement (ANPE)
2. Participants	Mr. Mrabti (Director of International Cooperation), Ms. Nabiheh Mubarak (Deputy Director - Ecosystems) and Pirran Driver (NK)
3. Place	ANPE offices
4. Date & Time	21 June 2010, 15:00 – 16:15
5. Points of Discussion/Observation	
(1) ANPE sits under the Ministry for Environment and Sustainable Development, and is responsible primarily for environmental protection (pollution control, EIA etc), however they do have some biodiversity/climate change activities, and are involved in protected area management. Most of its mission statement relates to env protection, however two elements are of interest – scientific or	

economic research into the natural environment, and education and awareness raising. (2) ANPE was created by law N°88-91 of 02 August 1988. It has numerous divisions related to environmental protection but the Control and Monitoring of the Environment department has a subdirectorate for monitoring of ecosystems, which is in turn split into sensitive ecosystems and a dedicated unit for monitoring the Ichkeul Protected Area. ***(3)*** The ecosystem management and scientific research element is focused on the flora and fauna of Ichkeul, but they have been trying to expand their monitoring activities both within Ichkeul and in other areas, however they lack support. ***They would be glad of JICA assistance and will prepare concept notes*** (4) Background on Ichkeul National Park – in 1993 large GEF study recommended it was further protected due to its importance, and recommendations included monitoring of indicators. It was designated a UNESCO world heritage site and a Ramsar site. Whilst PAs are nominally the responsibility of the Forest department, they lack funding and capacity to manage things and so ANPE are assisting. Monitoring started in 1995 with basic parameters only and at present there is a full time monitoring team stationed at the site. The site previously had a marble quarry and 500 families, now that that has been closed only 100 families remain, mainly fishing in the lake. (5) ANPE work with the Association des Amis des oiseaux (association of friends of birds) in the Ichkeul area, and also the Tunisian association for the protection of nature and the environment. The Ichkeul annual report is sent to UNESCO. Since 2003 they also have students on site assisting with the work. (6) DGF are apparently not able to manage PAs, nor Ramsar sites (7) ANPE previously had assistance from GTZ, and an environmental lab was provided by JICA in the 1980s, but currently survives on meagre national budget. There was a GEF project for three national parks, but ANPE received no benefits from the study (8) ANPE have not prepared proposals for JICA but would be happy to do so. (9) ANPE is the leading body for scientific monitoring of PAs in Tunisia, despite not being responsible for that function. ANPE complain that there is a lack of integration between departments and policies, and a failure to recognize the inter-relationships of things like climate, water, biodiversity etc
6. Notes/Issues: (1) Concept notes to be prepared, and further meeting to be arranged

Meeting / Field Memo

No. of Memo: 5	
1. Topic/Purpose	Meeting with The African Development Bank
2. Participants	Mr. Ken Johm (Manager – Agriculture and Agro-industry), Mr. Mobido Traore (Chief Natural Resource Management Officer), Ms. Mwila Musumali (Environmental / NRM Specialist) and Pirran Driver (NK)
3. Place	AfDB Headquarters
4. Date & Time	21 June 2010, 16.30 – 17.15
5. Points of Discussion/Observation	
(1) The meeting was somewhat brief but AfDB were helpful. Rather than discussing general activities and	

situation in Tunisia they were more interested in locating one or two projects in Tunisia and Ethiopia for collaboration, which was appreciated. ***(2)*** For Tunisia, they mentioned that they had received a proposal from the Tunis University, in association with Algeria (though AfDB suspect little input from Algeria) to work on the biodiversity conservation along the coast of the two countries, including wetlands and migratory birds. The proposal identified specific locations, and AfDB made comments and are expecting a revised proposal soon. The government endorsed the proposal, and the university is ready to begin the technical studies. ***AfDB would be pleased to work with JICA on this project.*** ***(3) In Ethiopia, the Koga Irrigation project contains some soil and forestry restoration, and may be of interest to JICA.*** (4) AfDB will do some internal preparation and will then revert to the NK team. (5) AfDB HQ has relatively little communication with JICA, but they suspect that country offices have more. ***(6) Mention was made of other big projects in Africa that are biodiversity focused, e.g. the Mano river project and others. Although the present study is focused on specific countries, it would be a shame not to collect this information and consider cooperation in view of Japan's TICAD IV pledges.*** (7) ***Another project in Zambia and Botswana was mentioned – conservation of an endemic Teak species. Details will also be forwarded.***
6. Notes/Issues: (1) further information to be provided.

Meeting / Field Memo

No. of Memo: 6	
1. Topic/Purpose	Meeting with Institute for Rural Engineering, Water and Forest Research (INRGREF)
2. Participants	Mr. Mohammed Rejeb (Director General), Dr. Lahbib Ben Jamaa (Researcher – worked on JICA forest project and others), Dr. Abdelhamid Khaldi (Researcher – worked on JICA forest project and others) and Pirran Driver (NK)
3. Place	INRGREF HQ
4. Date & Time	22 June 2010, 15:00 – 17:00
5. Points of Discussion/Observation	
(1) INRGREF is a public institution that reports to both the Ministry for Agriculture and the Ministry for Education. It performs research assignments according to government need, as well as providing opportunities for student research. (2) Roughly 50 researchers, split between soil, water and forests. They also cover biodiversity research, steppe, etc, so not just restricted to forests. (3) Most of their work is handed to them by other government departments, when they need solutions or research, or as a part of internationally funded projects (e.g. JICA forest projects, GEF protected areas project etc). They do have some small donor-funded research projects (Canada, Portugal, EU, France),	

but their larger projects are via loan projects in other government offices. Their main "client" is DNF.

(4) INRGREF has a botanical garden on site, and 30 arboretum across the country (some of which need attention)

(5) INRGREF are very accustomed to working with JICA and other funding agencies. They very much appreciate what JICA has done for the country and are very pleased to hear that an increase in interest of forestry and biodiversity has arisen, as they think the sector is often neglected. This is particularly true in Tunisia, as because it is now a middle income country, donors and funding agencies tend to focus more on industrial development etc.

(6) For the JICA project and others, they have conducted research into various forestry issues, such as degradation and solutions, population decline, erosion, regeneration, insect pests, NFTPs and MFTP development etc. They usually have kick off workshops, develop methodologies, conduct the work and then host 3 day seminars with a widely invited guest list, to disseminate findings. They also produce manuals, "technical sheets" (for farmers and field staff – see hard copy samples) and guide books, as well as academic articles and journals.

(7) INRGREF say that the National Gene Bank is new (few years) and have only been focusing on crops to date – they rely on INRGREF to conserve forest species for the time being.

(8) 90% of their work is for DGF, but they have good relationships with MEDD, ANPE etc.

(9) ***They were keen to work more with JICA, either through small donor projects directly to INRGREF, or via larger loan projects to other bodies, through which INRGREF would benefit via research work (e.g. the current JICA forestry project). They will prepare some basic concept notes for the former***.

(10) INRGREF mentioned the lack of capacity of DNF and others to manage the protected areas system, particularly since there are many new PAs and Ramsar sites, where there is no demarcation, no management plans, and no on site conservation or infrastructure. ***This could be another opportunity for JICA assistance. Furthermore, the GEF funds to create the PAs apparently came from Japan, so managing the PAs as a follow on project would seem logical.***

(11) INRGREF were very interested and keen, and very willing to help – they invited NK back for further discussions.

(12) 5 PAs were inaugurated just this year.

6. Notes/Issues:

(1) Lots of literature was provided. More information on Forests, biodiversity etc, can be provided

(2) Basic concept notes for donor ideas to be prepared, and a second meeting to be arranged.

Meeting / Field Memo

No. of Memo: 7	
1. Topic/Purpose	Meeting with National Society for Natural Sciences (NGO)
2. Participants	Prof. Sadok Bouzid (President), and Pirran Driver (NK)
3. Place	University Campus

4. Date & Time	23 June 2010, 10:00 – 11:30

5. Points of Discussion/Observation

(1) Prof. Bouzid was initially very suspicious of NK / JICA's intentions, and reluctant to provide any information at all. With time, he realised that the intentions of the study were good, and he then became cooperative, and recognized the value of Japanese assistance to Tunisia. He mentioned the Biotech park at Borj Cedria.

(2) SSNT publish two journals – one national level an one international (examples provided) and they also have an annual conference, with a topic (e.g. this year it is "Biology and quality of life"). They also conduct excursions, activities and education missions, plus they carry out research work for government departments, as well as in cooperation with other countries.

(3) ***The NGO would be extremely happy and proud to work with JICA/Japan on technical cooperation/exchanges etc in the fields of biodiversity. They are also in very desperate need of equipment, such as a vehicle, computer, GPS, portable test equipment etc. This would be a good way to have publicity for relatively small investment***.

(4) Their cooperations on multilateral projects (e.g. EU *atriplex* study) receive some small funds for equipment and costs, but the bilateral are generally technical only (other than exchanges, which are paid for by the other party)

(5) SSNT have worked for DNF and MEDD, most recently studying biodiversity in protected areas, studying Cork Oak, and studying value-adding methods for agricultural waste e.g. orange peel.

6. Notes/Issues:

(1) None

Meeting / Field Memo

No. of Memo: 8	
1. Topic/Purpose	Meeting with the Coastal Protection Agency (APAL)
2. Participants	Dr. Habib Ben Moussa (Director), and Pirran Driver (NK)
3. Place	APAL building
4. Date & Time	23 June 2010, 15:00 – 16:30

5. Points of Discussion/Observation

(1) APAL, under MEDD, is responsible for the management and protection of all coastal zones in Tunisia, (including wetlands) plus marine and coastal protected areas. The protected areas include "sensitive zones" and "marine protected areas".

(2) There are 25 SZs and 2 MPAs, all with management plans, but many lacking management on the ground. More MPAs are planned, but the legislation is new (2009).

(3) APAL does some terrestrial management on the coastal side of things, including e.g. coastal forest (crossover with DGF).

(4) APAL are preparing integrated coastal management plans under Japanese finance via the Africa

Adaptation Programme. (5) A key supporter of APAL's activities is AFD and their FFEM (French Environmental Fund) – they have been working together for 15 yrs or so. (6) FFEM are helping with the establishment of MPAs, ***but APAL would love to have extra assistance from JICA,*** who they thought were not interested in biodiversity until now. (7) Working in the MPA area would be very easy for JICA as Tunisia is well known for its efforts in this regard in the Mediterranean – although around 70% of the med's Protected areas are on the northern coast, around 80% of those on the southern coast are in Tunisia. (8) ***They particularly need assistance with implementing management plans, but are open to other project ideas,*** particularly regarding integrated management, and larger projects aimed at sustainable management, and including capacity building, rather than management of a particular zone. (9) APAL were unfortunately very reluctant to provide project ideas, and mentioned that they can only prepare project proposals, or even concept notes, under ministerial authority. (10) FFEM were present at the same time as NK, discussing project possibilities (11) APAL have links with MEDD, MoAg and fisheries, but do not work too closely with them. (12) APAL have not received JICA assistance to date, but would be very interested to start cooperation. They warned that they are not looking for loan projects though, and are mainly interested in technical assistance. (13) APAL very much placed the emphasis on JICA to formulate projects of interest to JICA, rather than proposing projects themselves.
6. Notes/Issues: (1) Several documents were provided, and a return visit was welcomed.

Meeting / Field Memo

No. of Memo: 9	
1. Topic/Purpose	Meeting with The National Forestry Directorate (DGF) – Conservation Department
2. Participants	Mr. Habib Abid (Director of Conservation), and Pirran Driver (NK)
3. Place	DGF Office, Ministry of Agriculture, Hydrology and Fisheries
4. Date & Time	25 June 2010, 10:00 – 11:45
5. Points of Discussion/Observation	
(1) Protected Areas are a key component of the Presidential Programme 2009-2014 (for DGF, there are 4 key components – 20 new National Parks, reinforcing forest plantations, management of public areas under casual grazing, and desertification). (2) Tunisia has a good strategic and legal framework, but issues with implementation due to lack of resources. ***Many protected areas lack management plans, and others lack implementation of the plans, and DGF really need foreign specialists to assist them. Mr Abid really appreciates JICA support, has been working with Japan for 13 years, and would love to see increased cooperation***.	

(3) DGF try to implement integrated management, involving technical, scientific and social interventions, which fits well with JICA's way of working.

(4) DGF have prepared a project request, for assistance with protected area management in 5 priority zones, with a cost of 2.5 million dollars.

(5) The above is for technical assistance rather than loan, as the Ministry for Economic development and International Cooperation will not allow DGF another loan project until the present phase II forest project with JICA is complete. Even for the phase II project, the ministry reduced the coverage from the 20 PAs originally planned (nationwide) to just 9 (in 5 regions) so as to reduce the budget from 120 million to 40 million dollars. ***This could be a serious setback for JICA's intention for another loan project in the field of biodiversity.***

(6) A second area of need is for conservation/repopulation of *Acacia tortilis*, which would also be an anti-desertification measure.

(7) A third area needing support is inventory making for biodiversity – as range and extent of rare species is little known.

(8) A fourth area is the reinforcement of CITES type measures, e.g. education, customs officers etc – as there is no knowledge and lots of illegal export (largest is tortoises). The above two could perhaps be rolled into one project?

(9) DGF have ambitious plans for reintroduction of species such as gazelle, ostrich etc, and they are working in partnership with ZSL and others in this regard – with success. The only problem is a lack of management of the protected areas in which the gazelles live in the south of the country, plus their movements over the borders to Algeria and Libya, where hunting / poaching is not controlled. DGF are trying to organize a transboundary park, but this is proving difficult. ***In general they also need equipment and technology for the translocation of animals from one area to another – tracking equipment would also be good.*** DGF are aiming for a wildlife sector similar to Kenya/Tanzania etc!

(10) DGF have done no work in terms of sustainable hunting, and the quotas allocated are educated guesswork. ***They would be pleased for JICA assistance, but don't expect JICA would be interested in this area. It could however form part of an integrated project! Perhaps hunting, ecotourism, gazelle improvement etc?***

(11) The current JICA forest project has 200,000 USD devoted to gazelle management - this is much appreciated but not sufficient.

(12) 20 projects for different PAs were proposed under the previous JICA project, but only 9 have been followed up on in the phase 22 project, leaving 11 left to manage, 5 of which are particularly important (see concept note).

(13) In summary, areas that DGF would like Japanese assistance are

a) protected areas management for 5 priority areas

b) *Acacia tortilis* conservation/reintroduction plus anti desertification measures

c) Biodiversity inventory making and study plus export controls

Integrated project would seem a good idea. Furthermore, DGF are very happy and comfortable working with Japanese, and are familiar with the guidelines and methodologies. Japan is their most important partner. In recognition of the lack of loan possibility, ***DGF would love to see a Japanese specialist working for DGF, to provide technical assistance in general for PA management, and to develop a new loan project for when the current project ends.***

6. Notes/Issues:

(1) Several documents were provided, and a return visit was welcomed.

Meeting / Field Memo

No. of Memo: 10	
1. Topic/Purpose	Meeting with World Bank
2. Participants	Ms. Lucie Tran (Operations Officer, NRM), and Pirran Driver (NK)
3. Place	Sheraton Hotel
4. Date & Time	25 June 2010, 17:00 – 18:00

5. Points of Discussion/Observation

(1) WB does not have any forest projects in Tunisia, primarily as they are aware of JICA's work in this area. The bank is however heavily involved in natural resource management, social development, and protected areas. Where possible they try to have integrated projects to combine all these areas.

(2) Current WB projects of interest include the PNO3 and PNO4 (3 just finished, 4 just under preparation), which are integrated projects in the north west, making use of an effective parastatal formed by GTZ some 20 years ago. The project covers forest conservation, biodiversity management, marketing and value chain development, and agroforestry.

(3) Another current project is the "natural resource management project" – in three regions, of which one Lucie is TTL. The project aims to decentralise and mainstream sustainable NRM via community participation, by empowering and involving the local governments and communities. A big element of the project is development of OVOP style initiatives, particularly for women.

(4) Tunisia is apparently a very big proponent of participatory management, and the country is usually very keen to have such projects. According to the WB this is also a good way to increase the speed of decision making and actions, which can be rather slow in more traditional project set-ups.

(5) Under the NRM project, local govornerats are responsible for managing the work, and they decide on actions along with the community. The plan is then provided to the WB and other donors, who then finance individual elements. WB say that JICA would be welcome to assume certain elements of the plan, as WB/GEF will not cover all activities. A big element of the activities relates to NTFPs, but also includes water and soil conservation, forest management, etc.

(6) The WB is also trying to avoid splintering – as all the funding agencies (Lucie mentioned EU, WB, AfDB, IFAD) are using participatory management, the Ministry for Development and International Cooperation decided to mainstream the approach into government institutions.

(7) Attached to the project is a 1 million dollar Japanese grant (though WB) for adaptation of cork forests in the North.

(8) Ecotourism is also an area that the WB are interested in. WB also mentioned the large Gulf of Gabes GEF conservation project

(9) Not so relevant to current mission, but WB mentioned that credit and microfinance is a big restraining problem in Tunisia for rural development, and the BRT control everything but do not lend easily and on small amounts. As a result lots of motivated people with great small business ideas are left with no possibilities, and rural poverty remains.

(10) When directly asked where JICA could potentially help in Tunisia, the response was somewhat vague – in addition to involvement in the NRM project, Lucie said assistance with rural income generation (via forestry/biodiversity) would be good, also development of NFTP, as there is huge potential in Tunisia, e.g. aromatic oils, capers etc. There is also a huge demand for fisheries projects, as catches

and sizes are reducing, however as the fishing industry, in particular the tuna industry, is controlled by a small number of powerful families, intervention is very difficult. (11)Lucie said that the WB would love JICA to assist in funding gaps, but if JIA are serious about collaboration then they should send a formal panel to discuss options.
6. Notes/Issues: (1) None

Meeting / Field Memo

No. of Memo: 11	
1. Topic/Purpose	Meeting with WWF
2. Participants	Mr. Faouzi Maamouri (Head of Tunis Office) and Pirran Driver (NK)
3. Place	WWF Tunis Office
4. Date & Time	28 June 2010, 10:00 – 11:30

5. Points of Discussion/Observation

(1) WWF has 3 main work areas in Tunisia – Forests, wetlands and marine protected areas. Within these areas they focus on issues that the government cannot cover very well, for example certification for forest production, and ecotourism within protected areas.

(2) WWF mentioned that to their knowledge, JICA does not support civil society in Tunisia. Most other bilateral donors have two programmes, one for government and one for civil society, and WWF think that as civil society is crucial for development, JICA would be well advised to become a little more involved in this area. WWF tried to get JICA cooperation a few years ago but were unsuccessful.

(3) WWF partners in Tunisia include AFD, FFEM, EU, GTZ and the Spanish government.

(4) ***WWF thinks a good area for intervention for JICA is in implementation of protected area management plans*** – plans exist but there are no means for implementation. If the work could include community development and Payment for Environmental Services that would be even better.

(5) ***What is also needed is innovation*** - introduction of new concepts etc.

(6) WWF were the main drive behind the government's 19 new Ramsar sites, and they are preparing another 20 for registration.

(7) WWF try to find things in the national strategy that are being ignored – the major projects all get implemented due to use of international consultants and contractors, but WWF see that most of the day to day implementation and smaller projects is simply not carried out due to lack of government capacity.

(8) The government are reputedly ageing and retiring staff are not being replaced. Another problem is that the government do not wish to allow sufficient empowerment of NGOs and want to keep absolute control, despite NGO empowerment being in the presidential plan. WWF would like to see privatisation or NGO partnerships for e.g. protected areas management, as the government is simply not capable of managing these at present. ***JICA support in promoting PPP etc would be appreciated***.

(9) Tunisia is one of the most difficult countries that WWF work in – they find it extremely difficult to work effectively with government. Despite external appearances of effective governance, the reality is

not quite the same. (10) Overall, Tunisia has plenty of good ideas, plenty of legislation, plenty of management, plans, but simply no capacity or will to implement things properly. Government work planning is apparently also severely problematic, which affects efficiency. Restraining civil society is also a problem.
6. Notes/Issues: (1) none

Meeting / Field Memo

No. of Memo: 12	
1. Topic/Purpose	Meeting with FAO
2. Participants	Mr. Abdelwahab Belloum (Land and Water Officer), Mr. Cherif Toueileb (Fisheries and aquaculture officer) and Pirran Driver (NK)
3. Place	FAO Tunis office
4. Date & Time	28 June 2010, 12:00-12:45
5. Points of Discussion/Observation	
(1) FAO Tunis office represents all north Africa. In Tunisia, they have a relatively small number of projects that relate to biodiversity, including the SIPAM project (Information for protection of aquaculture in the Mediterranean), and agrobiodiversity pilot project, and various water projects (which in turn affect biodiversity preservation. FAO are also working on the Land Assessment for Degradation in Drylands, and Tunisia has been selected as a pilot country for this programme. FAO are also involved in the South – South initiative, as in common with JICA they believe Tunisia can be used as a regional centre for development. (2) FAO do not yet work in forestry in Tunisia – they have recruited a specialist though but are still awaiting his arrival. (3) FAO thought that a useful area for JICA intervention, and where ***Tunisia is lacking is in awareness raising and institutional development*** ***(4) FAO would be pleased to develop cooperation with JICA, but has no immediate ideas for a shared project or programme.*** ***(5)*** FAO are aware of JICA's heavy involvement in fishing - including artisanal fishing ports, market development, etc, ***and feel that JICA could complement FAO efforts in this area in Tunisia*** – currently FAO are promoting coastal fisheries management, training and awareness raising amongst fishermen, and are hoping to fund a fisheries research centre.	
6. Notes/Issues: (1)None	

Meeting / Field Memo

No. of Memo: 13	
1. Topic/Purpose	Meeting with the National Gene Bank (BNG)
2. Participants	Mr. M'Naouer Djemali (Director General), and Pirran Driver (NK)
3. Place	BNG
4. Date & Time	28 June 2010, 14:00 – 15:30

5. Points of Discussion/Observation

(1) BNG were inaugurated by the president in Nov 2007. They have the well defined mandate of conserving, evaluating and promoting use of biodiversity and Tunisia's genetic resources. They are a relatively small organisation of 20 or so scientists, but their key operational method is to manage and involve all stakeholders (e.g. universities, NGOs, government agencies etc) in the efforts to collect and preserve biodiversity.

(2) BNG has 9 thematic areas of work: cereals, fodder, forests, medicinal plants, vegetables, fish, microorganisms, fruit trees, and animals.

(3) The BNG missions include in situ and ex-situ conservation, coordination of all genetic activities, capacity building, awareness raising etc. They have a collection programme for obtaining accessions from Tunisia (and repatriating foreign accessions), a research component, designed to complement study undertaken by others, an information programme (digitising all their records and making them available), a capacity building component and an international cooperation component. They also have a component identifying climate change tolerant genes.

(4) Despite being decreed the leading body for conservation of biodiversity (presidential programme), BNG is not the CBD focal point and does not manage protected areas – they are principally concerned with genetic collections at present, but as they get older and cover their first task of creating the gene bank, they hope to expand their role. In theory, BNG should have the lead role, and in many ways they do due to their organising mandate, however they are just 2.5 years old, and despite considerable success and accomplishment, changing the attitudes of other government departments etc is a slow process.

(5) The mission was very impressed with the facilities, which include coldrooms for 200,000 accessions, laboratories, conference facilities, greenhouses etc. The facilities were excellent, the staff were excellent too. The DG was a very impressive and knowledgeable man, who clearly exhibits a passion for his responsibilities, and an awareness of development issues.

(6) In 2.5 years they have gathered over 28,000 accessions, prepared them, described their morphologies, grown them for multiplication needs and for obtaining genetic material, etc. Rare species, in particular agricultural, are studied for their genetics, and also regenerated to distribute to farmers and others.

(7) BNG have no funding issues, and it is clear that their needs are provided for by the government. What they would like is international cooperation for technical transfer, information sharing, shortcuts, ideas etc.

(8) BNG have agreements with APAL and others, and are trying to develop their role in accordance with the legislation.

(9) BNG have an arboretum, and 12 regional collections.

(10) BNG would be very pleased and grateful for JICA/Japanese cooperation - as mentioned they do not

need funds but would appreciate technical interest, information sharing etc. Unfortunately, the director general has had a very bad experience of JICA to date. He has invited them to visit the BNG but had his invitation refused. He was told that JICA only cooperate with the ministry for higher education, with whom JICA is working on the medicinal plants project (that BNG are also working on). He was very disappointed in the lack of interest from Japan on this new and important institution, and was therefore very pleased but surprised to receive a visit from a JICA mission. He thinks it important that JICA should visit BNG and open a dialogue, particularly given the objectives of the current mission to increase JICA support in biodiversity issues. At a recent meeting for the medicinal plants project the DG enquired regarding benefit sharing (a key strategic pillar of the CBD) and was told by JICA that it was not their mandate to share benefits. The DG was very upset by this lack of interest from JICA and it must be said that it is surprising that JICA has not visited, considering Japan's presidency of the CBD, and the invitation extended by the BNG.

(11) In addition to the above comments, the DG added that JICA seems to be keen on personal relationships rather than institutional relationships – he acknowledged that this is a natural instinct in many ways, but highlighted that it is not a sustainable way of working, as if a key contact departs, all actions halt.

(12) To reinforce the above, the DG would still love to have Japanese cooperation for the BNG, although financial cooperation is not needed.

(13) In summary, it appears to the mission that the BNG is an important stakleholder in biodiversity conservation in Tunisia, who have made considerable progress in just 2.5 years and who have an impressive facility and an impressive work ethic. Whilst they do not require financial support, they are keen to cooperate and reinforce the global importance of biodiversity, and JICA would be foolish to ignore BNG and its activities. The sour relationship could easily be repaired to the benefit of both countries, as well as the international community.

6. Notes/Issues:

(1) None

Meeting / Field Memo

No. of Memo: 14	
1. Topic/Purpose	Meeting with Agence Francaise de Developpement (AFD)
2. Participants	Ms. Melanie Moussours (FFEM Project Manager) and Pirran Driver (NK)
3. Place	AFD Tunisia Office
4. Date & Time	29 June 2010, 09:30 – 11:00

5. Points of Discussion/Observation

(1) AFD strategic pillars are commercial competitiveness assistance, access to services, and promotion of sustainable development

(2) Most of AFD environmental and biodiversity work in Tunisia is via FFEM grants, with almost no loan projects in the field.

(3) Key FFEM projects include support to APAL for marine protected areas, a forest management project in the west, and the PASMED cooperation strategy.

(4) The APAL project is a grant of 1.5 million euros to assist with the creation of marine protected areas. This is almost at an end, and AFD are preparing to assist with a follow on project (in 2011) to develop a marine protected areas strategy. The recent (2009) MPA law was a result of AFD work. AFD are trying to move APAL away from simple protection to making PAs pay. *(5)* The forest project is in a forest that was created as a PA in 1980 but which lacks management. It is fenced and there are severe problems with surrounding community – so the project is focussing on community development and sustainable NRM etc. This is a new project for AFD. 900,000 Euro grant. *(6)* AFD outside FFEM have several projects that indirectly affect biodiversity, e.g. clean up of gulf of Tunis via sewage treatment upgrades, energy efficiency projects, and an agri-conservation project aiming to eliminate ploughing up of soil etc for conservation. ***(7)*** AFD confirm that the institutional set up is a huge problem in Tunisia – lots of overlap between institutions, and poor cooperation and willingness to communicate. ***AFD think that JICA help here would be beneficial, but they admit it is a very difficult challenge.*** *(8)* AFD have no dedicated biodiversity projects, no carbon finance projects, and no fisheries projects, but they advised from their knowledge in MPAs that the fisheries laws are good, ***the problem is in implementation – no fisheries officers etc. Potential area for assistance?*** *(9)* AFD cooperate with AFDB, EIB, WB, GTZ but not JICA *(10)*All FFEM credits are co-finance – either with another agency or with e.g. GEF ***(11)AFD think marine biodiversity and coastal protection still need a lot of attention, despite their long involvement, and JICA assistance would be welcome*** *(12)****The stakeholder organisation, capacity, and coordination area also needs attention***
6. Notes/Issues: (1) None

Meeting/ Field Memo

No. of Memo: 15	
1. Topic/Purpose	Meeting with GTZ
2. Participants	Mr. Anselm Duchrow (Team Leader) and Pirran Driver (NK)
3. Place	GTZ Project Office, MEDD
4. Date & Time	29 June 2010, 14:00 – 15:00
5. Points of Discussion/Observation	
(1) GTZ suggested visiting UNDP in addition to those visited thus far. GTZ provided numerous documents and CDs of interest *(2)* GTZ have 2 key areas of interest – adaptation and mitigation for climate change, and regional development *(3)* Regarding projects, GTZ are currently heavily involved in UNFCCC climate change projects in Tunisia, particularly CDM, but none of them are forest related, due to lack of real opportunity. Other	

relevant projects include

- an assessment and analysis of the effects of climate change on cork oaks and alfa grass ecosystems – using GIS, etc, and then following up with adaptation recommendations. This project is ongoing, with studies and workshops
- Water and agriculture climate adaptation study (copy provided on CD) – Strategie nationale d'adaptation de l'agriculture tunisienne et aux ecosystems aux changement climatique
- Ecotourism development
- Pilot project in the south for date plantations – somewhat integrated style project to manage water use, regressing of pasture around plantations, and adding value and marketing to dates (currently, organic dates sold to Switzerland), as well as trying drought resistant garden vegetables.

(4) ***GTZ would love to see JICA work in the above area – as they have good experience with OVOP and integrated management projects. GTZ are already working in this area, but there is apparently so much to do - GTZ would be pleased to cooperate on scaling up, or even just for JICA to work separately in this area***. Alternatives could include increasing marketing skills and agri methods for olive and olive oil production. Tunisia is very poor at marketing its products.

(5) ***GTZ think that although in general it is difficult to sell a loan to Tunisia in the biodiversity sector (due to easy availability of free money e.g. GEF), certain areas are seen as national and social priorities, e.g. rangeland management/pasture, and agriculture, and therefore an attractive loan in a priority area, perhaps with a part grant, would possibly be accepted by the government.***

(6) There is also a great need for agrobiodiversity projects e.g. in the olive industry – ***promoting local olive strains? In partnership with BNG?***

(7) The bottleneck is always in situ conservation and marketing. ***Help with labelling, certification scheme etc would be great for JICA to take up***.

6. Notes/Issues:
(1) None

Meeting / Field Memo

No. of Memo: 16	
1. Topic/Purpose	Meeting with JICA re Fisheries
2. Participants	Mr. Abdelmajid Belhaj (Ass. Resident Representative) and Pirran Driver (NK)
3. Place	JICA Office
4. Date & Time	30 June 2010, 15:00 – 17:00

5. Points of Discussion/Observation

(1) The meeting was principally to learn about the JICA sustainable fisheries project.

(2) The project ran from 2005 until 2010 (23 June). It was considered a successful project, with some innovative approaches and interesting results. It is a Tech cooperation project.

(3) The background is that the Gulf of Gabes is heavily overfished by illegal trawlers, and is polluted by industry in Gabes. Furthermore, the bay is very shallow, and recent scientific study has found that it is an important Mediterranean nursery, including potentially for Tuna species.

(4) The project used participatory techniques to pilot regeneration activities, with heavy interventions

from coastal fishermen that were determined to see their livelihood improve and to combat the illegal fishing.

(5) The project had the following components:

- Rehabilitation of seagrass beds – this element is a first outside Japan – pilot areas were revegetated with posidonia
- Creation of artificial reefs
- Release of fish fry (again, an experimental technique) – mainly bass and bream species, at a rate of 40,000 per year.
- Alternative incomes and value-adding; including pilot sponge and clam farming and product value adding by fishermen wives.

(6) The project involved numerous partners, including an association/union of fishermen, research bodies, etc. It also had a Joint Coordination Committee.

(7) The project includes the following as elements of success:

- To date the seagrass beds are in good health
- Artificial reefs have been very successful in regenerating fish and other species.
- Technology transfer – both to the local population and to Morocco
- Huge involvement in project from fishing community (though this was mainly due to the huge problems caused by the illegal fishers).

(8) Lessons learned include needing some further refinement of reefs is a lesson learnt to include in a follow on project, plus the sponge growing needs attention regarding shape, plus the valorisation element was not successful.

(9) Mr Majid is concerned about the post-project situation, and has tried to form a Sustainable development mechanism/association. This has not happened to date. Furthermore, there is a problem with regards to the illegal fishing in that it is conducted by important families that are well connected and thus above the judicial system.

(10) A request has been received for a second phase of the project – essentially similar to the first, with some refinements, though in a different area.

(11) Apparently the WB Gulf of Gabes project is going rather badly.

(12) Tunisia is no longer eligible for grants in fishing projects – solely environment. (what about crossover i.e. overfishing/fish conservations are very much environment related?)

(13) Mr Majid mentioned that ANPE are difficult to deal with, as are MDCI – ***he mentioned that the task of obtaining a loan project in Tunisia for biodiversity is not as simple as it sounds – finding a project is difficult enough, but getting MDCI to accept it is another big challenge. JICA may need to reassess their relationship with MDCI.***

(14) Mr Majid mentioned the possibility of JICA taking on the remnants of the WB project, but acknowledged that this would not be easy as JICA may not want to, and MDCI are unlikely to go for it either.

(15) Many clients would rather take a loan from non Japanese agencies rather than a grant from Japan (let alone a loan!) due to the problems of language and communication

(16) ***Possibility of a loan for Tunisia to expand the artificial reefs programme nationwide, but again MDCI will be a problem***. MDCI are focused on renewable at the moment apparently.

(17) Aquaculture development would also be a good idea, but is very expensive, and again may not be of

interest to MDCI, despite it being a strategic objective, and environmentally sound. (18)The approach of identifying projects in the way that the present mission is doing is not ideal – really these projects should emerge from master plans and development studies.
6. Notes/Issues: (1) None

Meeting / Field Memo

No. of Memo: 17	
1. Topic/Purpose	Meeting with UNDP
2. Participants	Mr. Noureddine Nasr (Programme Officer, Environment and Gender) and Pirran Driver (NK)
3. Place	UNDP Tunisia
4. Date & Time	1 July 2010, 14:00 – 15:00
5. Points of Discussion/Observation	

(1) Key UNDP relevant activities include:

- Support to MEDD for its CBD activities, such as preparation of 4th report to the CBD, NBSAP, CHM support, etc.
- Previously they supported the creation of regional botanical gardens
- Via the GEF small grants programme, UNDP assist numerous NGOs with biodiversity related projects, workshops etc.
- UNDP are also implementing a grass-roots version of the JICA artificial reef project, via GEF SGP
- They have helped BNG with celebrating / promoting the international year of biodiversity
- Date plantation diversification pilot project in the south
- Collaboration with WWF/EU on Kromarie/Mogod Protected areas.

(2) Comments on issues in Tunisia:

- Mr Nasr is convinced by BNG's system of having a network do the collection work – the network simply doesn't have the means to carry this out, and nor does BNG
- There is a need to rationalize the institutions involved in biodiversity, PA management etc, however this is a difficult task due to the political situation

(3) Project ideas for JICA:

- Due to modernization, population increase etc, there is now a severe problem in the steppe areas – there is no longer any fallow time (traditionally ensured by tribes moving north). There is a need to implement a project to allow fallow periods for regeneration around Kairouan and Sidi Bouzid. DGF tried to implement a management programme, and conducted many studies, but the project fell through due to lack of local cooperation (they were scared that DGF were going to restrict access, steal land etc). IFAD then successfully implemented a pilot project on 15,000 ha, with beneficial results for economics, social issues and biodiversity. ***There remains almost a million ha to manage, so scaling up the successful elements of the IFAD model could be a good project***.
- The policy of exclusion of new inhabitants in PAs and the restrictions of those already present is causing huge socio-economic as well as biodiversity issues. Converting land is not possible, building houses for children likewise. Cork Oak revenue goes straight to the state, and Aleppo pine nuts yield a very poor revenue (around 30 USD per ha). T***here is therefore a dire need for integrated management, and for finding livelihoods for the million inhabitants of forest***

areas.

- Upscaling of the UNDP date plantation project. Essentially, the French encourage monoculture of deglet nour dates, replacing many of the three-level traditional oases (i.e. dates on top, fruit trees below, and vegetables and pasture below that). The monoculture plantations are susceptible to disease, climate change, wind and water erosion, and other problems. They also provide a crop only once a year, and make worker requirements difficult. UNDP did a small (239 Ha) pilot project via GEF grant to help farmers convert back to the traditional and far more sustainable method. ***The project was a success, and UNDP would be happy to see JICA scale this up "by a factor of 100".***

6. Notes/Issues:
(1) None

Meeting / Field Memo

No. of Memo: 18	
1. Topic/Purpose	Meeting with the Ministry for Development and International Cooperation
2. Participants	Mr. Khelil Kammoun (Public Services Director), Ms. Asma Bouzaouache (Public Services Advisor), and Pirran Driver (NK)
3. Place	MDCI Building
4. Date & Time	5 July 2010, 11:30 – 12:15

5. Points of Discussion/Observation

(1) The main objective of the mission was to determine the powers of MDCI with regards to selecting donor projects, the strategy for selection, and the project application approval process. Unfortunately due to the meeting being at short notice (NK request), MDCI had not had much time to prepare, and hence the meeting was relatively short. Despite this, however, some important information for JICA's consideration was obtained.

(2) MDCI were pleased to hear about the mission, however they questioned the JICA methodology – MDCI should have been the first place that the study mission visited, and any new projects should have been developed closely with them. Furthermore, the country selection process should also have involved MDCI and JICA Tunisia office.

(3) All projects, including technical assistance and loan projects, are authorised by MDCI, and all projects must form part of the project programme (2004-20011 – only in Arabic and not available publicly yet). Even if technical departments promote a project, it is MDCI who decide on whether or not to proceed with it. They clearly have a great deal of power in terms of project development.

(4) The 2004-2011 programme was developed through various ministries and committees. Additional projects can be added (e.g. the latest JICA forest project) however this is only done under exceptional circumstances.

(5) JICA needs to pay more attention to the needs of Tunisia, and the Tunisian national strategy than it does at present – unsuitable studies are not generally welcomed. Nor are studies that are formulated in advance with no MDCI involvement, and then brought to MDCI at the last minute (an example of such a situation was provided).

(6) Despite the above, MDCI are very grateful for JICA support, and are keen to collaborate further, however the correct process must be followed, and JICA need to modernise their project identification methodologies.

6. Notes/Issues:

(1) MDCI offered to review the project ideas resulting from the field visit.

Appendix 2: Contact list

Name	Position	Organisation	Tel	email
Mr. Yodo Kazuken	Deputy Director	JICA	+216 71 786 386	Kazuken.yodo@jica.go.jp
Mr. Asahiko Karashima	Deputy Director (Loans)	JICA	+216 71 786 386	Karashima.asahiko@jica.go.jp
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Ms. Nabiheh Mubarak	Deputy Director - Ecosystems	National Association for Environmental Protection (ANPE)		
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Name	Position	Organisation	Tel	email
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Field Survey Report for the Data Collection Survey on Biodiversity Conservation in Asian and African Regions

Ethiopia

1. Outline of the Survey

1.1. Background of the Overall Survey

Mankind heavily depends on biodiversity. Nevertheless, it is reported that the biodiversity on earth is in a critical condition as over 40,000 species become extinct every year due to various anthropogenic activities, such as deforestation, hunting/poaching, water pollution and others. Efforts to conserve biodiversity have been reinforced internationally after the adoption of the Convention on Biodiversity (CBD) at the United Nations Conference of Environment and Development in 1992. The Government of Japan has also actively worked on the conservation of biodiversity since then as a country that ratified the convention. This year is the last year of the 2010 biodiversity target adopted by the Conference of the Parties (COP 6) held in the Netherlands in 2002. Furthermore, Japan will host the tenth meeting of the COP in October 2010 as the chair country and is expected to play an important role in leading the activities on biodiversity conservation not only domestically but also internationally.

The Japan International Cooperation Agency (JICA) has successfully implemented a number of cooperation projects/programs on biodiversity conservation. Because of its long and successful achievements, the international community expects JICA to make more contributions, towards COP 10, to the conservation of biodiversity in developing countries. In particular, the countries in Asian and African regions need further assistance in biodiversity conservation since there are many biodiversity hot spots and untouched natural forests still remaining in the regions.

Given this background, JICA was determined to conduct a survey to collect and analyze relevant information/data concerning biodiversity conservation and forestry-related measures against climate change, identifying the needs for future cooperation/assistance in the same subjects in the Asian and African regions.

1.2. Objectives of the Overall Survey

The main objective of the overall survey is to identify the needs for official development assistance in the fields of biodiversity conservation and forestry-related measures against climate changes in the Asian and African regions. Toward this end, the survey team's aims are to:

i) Collect and analyze relevant data and information concerning biodiversity and forest conservation as well as forestry-related measures against climate change in the ODA recipient countries in Asian and African regions;

ii) Establish a database using data and information collected;

iii) Identify the needs for future cooperation in the conservation of biodiversity and mitigation of/adaptation to climate change;

iv) Select eight countries in the regions, four in Asia and another four in Africa, for further examination of the possible cooperation that JICA might be able to implement; and

v) Conceptualize a/ potential project/s in the fields of biodiversity conservation and mitigation/adaptation measures in the forestry sector against climate change.

Following initial desk study and discussions with JICA, the following eight countries were selected from the possible 78 countries; four in Asian and another four in Africa:

- Vietnam
- Philippines
- Cambodia
- Lao RDP
- Uganda
- Botswana
- Ethiopia
- Tunisia.

1.3. Background of the Field Survey

As described in the objectives of the overall survey, a total of eight counties among the 78 countries, which are strategically important for biodiversity conservation in the regions and in need of JICA's ODA assistance in this field, were selected for further examination of potential JICA' cooperation.

The field surveys consisted of numerous activities, including:

- Discussion of the work plan with JICA branch office and relevant government organisations;
- Interviews with relevant organisations for data collection;
- Discussions on needs for assistance in biodiversity conservation and forestry; and
- Examination of possible project potential.

The structure of this report follows as closely as possible that agreed upon with JICA at the inception stage.

1.4. Field Survey Activities

The survey team was composed of five consultants, with each visiting one or two countries to conduct the field surveys described above. The team members were assigned countries based on past experience, language ability, etc.

Specific tasks carried out by the consultant assigned to Ethiopia are as follows:

- Collection and review of existing acts and regulations in the forestry, biodiversity and environmental sectors;
- Collection and review of existing policies, strategies and plans in the same sectors;
- Discussions with government offices and other organizations concerned with biodiversity conservation in the country;
- Collection of data and observations of the major ecosystems in the country and potential areas for future interventions under the JICA's cooperation; and
- Identification of the needs for future JICA's cooperation in the field of biodiversity conservation, in consultation with the relevant government and non-government organizations.

1.5. Schedule of Survey

The Ethiopian Survey was conducted between the 27th May and the 16th June 2010. A detailed breakdown of the survey activities is provided below.

Date	Activities
May 27 (Thu)	Arrival in Addis Ababa (pm)
May 28 (Fri)	Public Holiday. General planning and preparation of questionnaires, documentation, report format etc
May 29 (Sat)	General planning and preparation of questionnaires, documentation, report format etc
May 30 (Sun)	Internet-based research and preparation
May 31 (Mon)	Kick off meeting with JICA Ethiopia Meetings with EWNHS, IBC, and local assistant

Date	Activities
June 1 (Tue)	Meetings with WB and EENGO (EPA cancellation)
June 2 (Wed)	Meetings with EPA, EIAR (Forest Institute), Oromia State Forest and Wildlife Enterprise
June 3 (Thu)	Meetings with MOARD, and FARM Africa/SOS Sahel (BERSMP) (Disaster Preparedness Agency cancellation)
June 4 (Fri)	Update meeting with JICA Ethiopia Meetings with AfDB, EU PFM project (Peter McCarter), MOARD, and JICA specialist at MOARD
June 5 (Sat)	Data preparation, report writing etc
June 6 (Sun)	Data preparation, report writing etc
June 7 (Mon)	Attended “Conference on climate change adaptation strategies, capacity building, and agricultural innovations to improve livelihoods in Eastern and Central Africa – Post Copenhagen (UNFCCC/COP15)” on behalf of JICA
June 8 (Tue)	Return to agencies for collection of prepared data Meeting with Ethiopian Wildlife Conservation Authority
June 9 (Wed)	Am: Data preparation, report writing etc Pm: Meeting with UNDP
June 10 (Thu)	Am: Return to agencies for collection of prepared data Meeting with FAO Pm: Meeting with GTZ
June 11 (Fri)	Am: Travel to Jimma for field visit. Pm: Join JICA team / report writing
June 12 (Sat)	Visit to Balete-Gera project
June 13 (Sun)	Am: visit to potential new project site at Sigma Satama Pm: Return to Addis Ababa
June 14 (Mon)	Am: Debrief with JICA MOARD specialist Pm: Report writing
June 15 (Tue)	Report writing
June 16 (Wed)	Departure (am)

Appendix 1 provides a summary of the above meetings and field visits.

1.6. Overview of Field Visit

Overall, the visit went smoothly. Although it was difficult to arrange some of the meetings, and some meetings were cancelled, the stakeholders were in general very cooperative. Access to information was varied, with some institutions providing more than others; many key documents were collected, but several were not accessible or not provided.

In terms of potential projects, stakeholders provided a selection of ideas, and again some were more forthcoming than others. However the project ideas were, with one or two exceptions, very general information on areas requiring support, rather than prepared projects needing finance, or even concept notes. The field team requested preparation of basic outlines but in many cases these were not prepared. It was thus very difficult to formulate concrete project concepts, and for the same reason, preparatory work such as assistance with applications and proposals could not take place.

A very brief site visit was undertaken towards the end of the visit to Ethiopia. This consisted of a one day visit to an existing JICA project site (accompanied by the JICA evaluation team) and a half day visit to a potential project site near to the existing project. Further details are provided in Section 4.4.

2. Situation Analysis

2.1. Brief Introduction to Ethiopia

Located in the Horn of Africa, Ethiopia is bordered to the north by Eritrea, the east by Djibouti and Somalia, the south by Kenya and the west by Sudan. The country is characterized by three key physical features:

- The central highlands of old Abyssinia which range from 1,300 metres to 4,450 metres above sea level. The highest point being the snow covered Ras Dejan mountain. The central highlands contain Lake Tana which is the source of the Blue Nile;
- The Great Rift Valley which splits the country diagonally on a line from Djibouti in the north-east to Lake Turkana in the south-west; and
- The broad low-lying plains of the Ogaden desert to the south-east which run into Somalia.

With a population of approximately 80.7 million and an area of 1,127,000 km^2 the population density is approximately 72/km^2.

Ethiopia is the oldest independent country in Africa and one of the oldest in the world. The last Ethiopian Emperor, Haile Selassie, who had ruled from 1930, was toppled in 1974 by a Marxist junta led by Colonel Mengistu Haile Mariam. The regime, known as the Derg, murdered and imprisoned thousands of Ethiopians. The regime was finally toppled in 1991 by a coalition of rebel forces, the Ethiopian People's Revolutionary Democratic Front (EPRDF). A constitution was adopted in 1994 and Ethiopia's first multiparty elections were held in 1995. The 2005 elections were won by Prime Minister Meles Zenawi among wide-spread claims of election fraud. The very recent elections in May 2010 passed peacefully, but accusations of vote-rigging were widespread.

Today Ethiopia remains a poor country and almost two thirds of its people are illiterate. The economy revolves around agriculture (approximately 70%) with coffee being the key crop, although in recent years horticulture has become increasingly important. Recent estimates of *per capita* GDP in African countries indicate a figure of US$ 859 for Ethiopia and a ranking of 47 out of the 53 countries studied.

2.2. Natural Characteristics of Ethiopia

2.2.1 Introduction

An introduction to the general geographical characteristics of Ethiopia is provided above. It is a very diverse country with a wide variety of ecosystems, including *inter alia* desert, semi-arid rangeland, tropical lowland forest, montane grassland and Afro-alpine zones. As a result of the wide range of habitats, the biodiversity of Ethiopia is very rich, both in terms of numbers of species[1], but also in terms of endemic species. Despite significant deforestation and other environmental degradation over the past 50 years or so, comprehensive known information on the natural environment of Ethiopia exists in numerous reports, books and studies, so it not the intention of this section to be an exhaustive description of the environment and biodiversity.

2.2.2 Climate

The climate of Ethiopia is varied, due principally to the wide variation in latitude, longitude, and altitude. Although there are extremes of weather in the arid areas and moist tropical forests, most of the country is above 1,500 m, and hence the prevailing climatic condition is temperate, with two annual rainy seasons; the major and minor rains (Mid-June to September and February to March respectively). The rainfall pattern in Ethiopia is influenced by two rain-bearing wind systems, one bringing the monsoonal wind

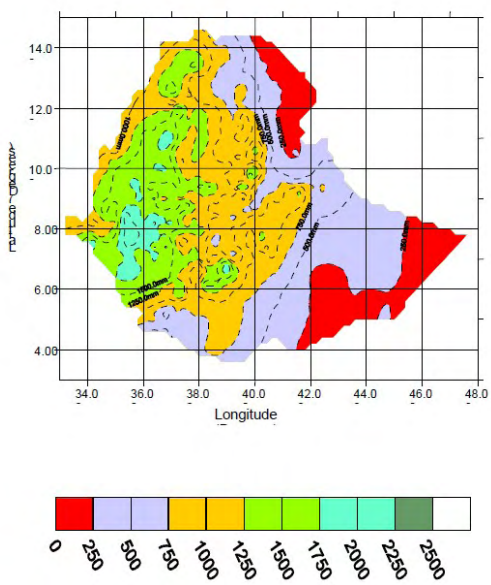
[1] Although the national biodiversity inventory is far from complete

systems from the South Atlantic and the Indian Ocean and the winds from the Arabian Sea. The two wind systems alternate, causing different rainfall regimes in different parts of the country.

In addition to the predominate temperate zone, the two other major climate zones are:

- Dega or Cool Zone: Areas above 2,600 m where temperatures range from 0 to 16 degrees Celsius;
- Qola or Hot Zone: Areas below 1,500 m with both tropical and arid conditions where temperatures range from 27 degrees Celsius to 50 degrees Celsius.

Mean annual rainfall ranges from about 2000 mm over some areas in the Southwest to about less than 250 mm over the Afar lowlands in the Northeast and Ogaden in the Southeast. The figure to the right shows mean annual rainfall across the country[2]. Daily maximum temperature varies from more than 37 ^{o}C over the lowlands of the Northeast and Southeast to about 15 ^{o}C over the highlands of central and northern Ethiopia.



It was reported that in recent years climate change has become increasingly discernable, with greater extremes in weather, and more erratic and unpredictable weather patterns. The year prior to the study was very poor for crop yields, and even during the survey mission, the rainy season began, roughly 2 weeks ahead of schedule.

2.2.3 Hydrological Systems

Although much of the interior of Ethiopia is dominated by highland plateau, these are interrupted by deep gorges and twelve major valleys formed by large rivers and their tributaries. The three most important rivers are the Tekezé, the Abay, and the Sobat, together discharging around 80 % of the country's water, almost all of which empties into the Blue Nile. The annual runoff amounts to around 122 billion m^3, and at present much of this water is not harnessed for either irrigation or power, although this situation is gradually improving due to irrigation dam projects and an ambitious hydropower development programme. Ethiopia's rivers are in general highly turbid due to the severe erosion problems in the country.

Annual runoff from major drainage basins in Ethiopia is summarized in the table below[3]:

Basin	Sharing countries	Area (km^2)	Annual runoff (x10^9 m^3)
Wabi Shebele	Somalia	202 697	3.16
Abay (Blue Nile)	Sudan, Egypt	201 346	52.60
Genale-Dawa-Weyib	Somalia, Kenya	171 042	5.88
Awash	-----	112 697	4.60
Tekeze-Angereb-Goang	Sudan, Egypt	90 001	7.63
Omo Gibe	-----	78 213	17.96

[2] Source: NC1 to the CBD (2001)
[3] Source: Ethiopian Valleys Development Studies Authority (1989)

Basin	Sharing countries	Area (km^2)	Annual runoff ($x10^9 m^3$)
Baro-Akobo	Sudan, Egypt	74 102	11.89
Ogaden	-----	77 121	-----
Afar	-----	74 002	0.86
Rift Valley Lakes	-----	52 739	5.64
Mereb-Gash	Sudan, Eritrea	23 932	0.88
Aysha (Gulf of Aden)	-----	2 223	-----

2.2.4 Soils and Geology

As a primarily agricultural nation, Ethiopia is reliant on its soils. Fortunately the country is blessed with generally productive soils. The majority of soils, nitrosols and andosols, are formed from volcanic material and have a relatively high potential for rain-fed agriculture. The soils of the upper highlands are red-brown clay loams, whilst those of the remainder of the highlands are a blacker soil with a higher clay content. Sandy desert soils cover much of the arid lowlands in the northeast and in the Ogaden area. These soils have limited agricultural potential, except in some areas where rainfall is sufficient for the growth of natural forage. These areas are used by pastoralists who move back and forth in the area following the availability of pasture for their animals.

The plains and low foothills west of the highlands have sandy and gray-to-black clay soils. Where the topography permits, they are suitable for farming. The soils of the Great Rift Valley often are conducive to agriculture if water is available for irrigation.

As mentioned above, soil erosion is a serious concern in Ethiopia. Deforestation, desertification, climate change and poor agricultural practices have greatly eroded the soils of the country, and major efforts are underway to prevent the continued loss of fertile soils and destruction of natural habitats. During the survey large areas of land across many land use types were observed to be severely eroded. The Ethiopian Highland Reclamation Study (EHRS – 1985) estimated that 1.9 billion tonnes of soil are eroded annually.

Soil Type[4]	% Cover	Soil Type	% Cover
Calcic Arenosols	5.0	Gleyic and Orthic Solonchaks	4.5
Calcaric and Eutric Fluvisols	8.5	Gypsic Yermosols	3.0
Calcaric and Eutric Regosols	11.0	Haplic, Calcic and Luvic Xerosols	5.0
Chromic Eutric and Calcic Cambisols	7.5	Humic, Mollic and Vitric Andosols	1.0
Chromic and Orthic Luvisols	5.0	Lithosols	17.0
Chromic and Pellic Vertisols	10.0	Orthic Acrisols	4.5
Dystric Nitosols	7.5	Rendzinas, Haplic and Luvic Phaeozems	4.0
Dystric and Humic Cambisols	2.0	Vertic Cambisols and Vertic Luvisols	3.0
Dystric and Humic Cambisols	2.0	Vertic Cambisols and Vertic Luvisols	3.0

In terms of geology, Ethiopia has deposits of gold, silver, tantalite, iron ore, manganese, nickel and platinum. Other metal deposits include. Small deposits of uranium have been discovered in the Bale

[4] Source: Ethiopian Mapping Agency (1988)

mountains. The country also produces a number of industrial minerals such as gypsum, kaolin, limestone, and pumice, and gemstones, the most notable of which are opals. Gas reserves have been found in the Ogaden region but remain unexploited.

2.3. Present Condition of Biodiversity and Ecosystems

The 4th Ethiopian Country Report to the Convention on Biodiversity (CBD) reports that there are eight major terrestrial ecosystems in the country, from afroalpine and sub-afroalpine grasslands, through to moist evergreen and montane forest to desert and semi-desert scrubland ecosystems. With broad latitudinal and altitudinal ranges, Ethiopia encompasses an extraordinary number of ecological zones, which in turn host rare and endangered species and high rates of endemism. The country is also a centre of origin and diversity for a number of crop and animal genetic resources, with a particularly high diversity in crop species, including many wild or old strains[5]. reflecting its long history of agriculture. Overall it is clear that the biodiversity of Ethiopia is of global importance, but the country's large population and limited capacity to manage natural resources means that widespread environmental degradation has occurred over recent years, and faces many serious challenges to conserve its biodiversity and forests.

Ethiopia has between 6500 and 7000 higher plant species of which about 12 per cent are endemic. In terms of fauna, there are known to be 284 wild mammal, 861 bird, 201 reptile, 63 amphibian, 188 fish and 1225 arthropod species with rates of endemism of between 0.6 % (amphibians) and 54 % (reptiles).

According to the World Conservation Union's (IUCN) "red list", Ethiopia has 6 critically endangered species, 23 endangered species, and 70 vulnerable species. The newly formed Ethiopian Wildlife Conservation Authority (see section 4.1) is gradually increasing the number of protected areas and levels of protection, with the present tally being 15 national parks, 4 wildlife sanctuaries, 8 wildlife reserves, and 18 designated controlled-hunting areas.

The rich biodiversity summarised above is under serious threat, due primarily to anthropogenic reasons such as deforestation and land degradation, overexploitation, overgrazing, invasive species and water pollution. These problems are principally caused by population growth, poverty, and a failure to sustainably manage resources due to political and institutional problems. A lack of sufficient importance being allocated to biodiversity considerations at the political level, combined with very weak institutions and deepening poverty has resulted in unsustainable harvesting of natural resources. As a result, processes such as deforestation, overgrazing, soil erosion, and desertification have become major threats to the remaining biodiversity in Ethiopia.

In response to the above threats, the Government and various donor agencies and NGOs have been gradually increasing their efforts and activities in the field of biodiversity conservation, through a number of activities described in section 4.2 below. Successes in conservation and habitat preservation have been slowly rising, but in spite of these increased efforts, the general consensus on the ground is that far more needs to be done to support Ethiopia's institutions, and far more projects and programmes are needed to arrest deforestation and soil degradation.

A brief summary of the various ecosystems in Ethiopia, and their biodiversity, is provided below.

2.3.1 Terrestrial Ecosystems

Forest Ecosystems

Ethiopia has a wide variety of forest types and forest ecosystems, many of which are extremely rare (e.g. Oromia has around 70% of Africa's tropical highland forest, as well as significant wild coffee populations) however the total forest area is in serious decline. It was reported during the study visit that

[5] More than 100 crop plant species are cultivated ,with a fair proportion of them having their centre of origin or diversity in Ethiopia

Ethiopia used to have a forest cover of around 40 % just 100 years ago. This has now dwindled to around 3.5 % at the present time, 95 % of which is found in Oromia, Gembella and SNNPR (Southern Nations, Nationalities and People's Region) regions. The enormous reduction in tree cover is attributed to fuelwood cutting[6], clearing to make way for agricultural land, and cutting for construction timber or other wood products. Fuelwood demand alone has been estimated to be 3.5 times greater than sustainable supply. The high demand coupled with an aggressive agricultural extension policy and weak institutional oversight has led to increasing deforestation, despite numerous initiatives to arrest it.

Forest Type[7]	Area (Ha)	
	2000	2005
Forest	3,651,935	3,337,988
High woodland	10,049,079	9,632,616
Plantations	509,422	509,422
Low woodland and shrubland	46,297,530	46,297,530
Other land	53,169,093	53,899,503

Descriptions of the various forest types in Ethiopia vary according the source, but the common and major types are described below.

Forest Type	Description
Woodlands	Woodlands are a broad category with several sub-categories - defined as "a continuous stand of trees with a crown density of between 20 - 80%. The total area of woodland in Ethiopia is 29.24 million hectares. The three Regions with the largest area of woodlands in order are Somalia (45%), Oromia (34%), and Benshangul (8%).
Natural High Forest	The total area under natural high forest is estimated to be 4.07 million hectares or 3.56 % of the area of the country and some 95 percent of the forest area is located in three Regions: Oromia, SNNPRS and Gambela Regions.
Upland Dry Forests	These forests, usually dominated by *Juniperus procera*, are found on the southern escarpments and hills of the Borena Zone of the Oromia Regional State, and along the Eastern Escarpment of Amhara and Tigray Regional States, generally between at altitudes of between 1,500 m and 2,000 m. Other common species include *Barbeya oleoides, Catha edulis, Olea europaeao africana, Pistacia aethiopiica*, and *Schrebera alata*.
Mixed Juniper-Podocarpus Upland Evergreen Forest	These forests are found as dispersed patches of forest in Oromia, and Amhara Regional States. They are found between 1,500 to 2,700 m where annual rainfall is between 700 and 1,100 mm. The main canopy species are *J.procera and P. gracilor* between 20 and 30 meters high, with a well developed strata of small to medium trees.
Humid Upland Broadleaved with Podocarpus	These forests are found on the southern and southwestern side of the Bale Mountain Massif at altitudes of between 1,500 and 2,600 m. Mean annual rainfall is between 800 and 2,000 mm. The forests are characterized by *Podocarpus gracilior* mixed with broadleaved species as dominants.
Humid Upland Broadleaved with Aningeria dominant	These forests, characterised by *Aningeria adolfi-friederici, Ficus* spp, and *Syzygium guineense*, are most common in Oromia and Gambela. They are found at between 1,500 and 2,600 m. Below the highest stratum of trees 30 to 50 m high, are small trees and bushes includes *Galinera coffeodes* and *Coffea arabica*.
Broadleaved Deciduous woodlands:	These woodlands are also referred to as *Combretum-Terminalia* woodlands, and they occur at between 300 - 1,700 m. They dominate the woodland and shrublands of the western and southern lowlands and escarpments, and extend deep into the valleys of the Tekazze, Abay and Omo-Gibe valleys. A considerable area of these woodlands are infested with tsetse fly (Glossina spp.) precluding or restricting their use for livestock production.
Acacia Woodlands:	Acacia dominated woodlands are the climax vegetation for the higher rainfall areas of the Rift Valley and along the Eastern Escarpment in Amhara and Tigray Regions. These woodlands are dominated by Acacia

[6] Around 96 % of fuel consumption in the country is woody biomass

[7] Source: Ethiopian Biodiversity and Forest Assessment

Forest Type	Description
	species (A. *tortilis, A. seyal, A. etbaica, A. mellifera, A. nilotica*) as well as *Balanites aegyptica* and *Commifera* spp.
Highland Bamboo	Highland bamboo (*Arundinaria alpina*) areas are estimated to cover 129,626 ha. However it is very difficult to distinguish on satellite images and this figure is likely an underestimate.
Lowland Bamboo	Lowland bamboo (*Oxytenanthera abyssinica*) areas are estimated to cover 494,546 ha, all of it in Beneshangul-Gumuz Region, although small patches mixed in with woodland occur in Amhara, Oromia and Tigray Regions.
Shrubland	Shrublands are defined as "a continuous stand of shrubs with a crown density of between 20 -100 %. There may be scattered individual trees with a crown cover of less than 20% or scattered clumps (i.e. less than 0.5 hectare) of trees (as modifiers)." The total area of scrublands in Ethiopia is 26.4 million hectares. Covering 23.1 percent of the country. The three Regions with the largest area of Shrub land are in order Oromia Region (29%), Somalia (20 %) and Amhara (16%).

Other Terrestrial Ecosystems

Montane grassland ecosystems occur in the areas where human activity has been largest and most intense for several thousand years, and are found at altitudes of between 1,500 and 3,200 m. Characteristic species of the montane grassland ecosystems include many endemics. Typical flora species include the grasses *Pennisetum, Hyparrhenia, Cynodon, Eragrostis, Panicum, Cymbopogon, Chloris, Andropogon,* and legumes, particularly *Trifolium*, sedges and rushes. These ecosystems are those used for the traditional mixed farming of Ethiopia and are densely inhabited by people. They are, therefore, highly disturbed. As a result, the mammalian wildlife resource is extremely poor, except for Spotted Hyaena, and Golden Jackal.

Desert and Semi-desert Scrubland Ecosystems occur below 500 metres and are characterized by drought tolerant species of including woody *Acacia bricchettiana, A. stuhlmanii, A. walwalensis, Boswellia ogadensis, Commiphora longipedicellata, C. staphyleifolia, Hyphaene thebaica*, and the grasses *Dactyloctenium aegyptium, Panicum turgidum* as well as succulents including species of Euphorbiaceae and Aloaceae. The characteristic birds include Kori Bustard, Arabian Bustard, Blackheaded Plover, Temminck's Courser, Two-banded Courser, Tawny Pipit, Chestnut-bellied Sandgrouse, Lichstenstien's Sandgrouse, Singing Bush Lark and Masked Lark. The desert and semi-desert scrubland ecosystems are threatened by grazing, bush encroachment and invasive exotic species, such as *Prosopis juliflora.*

Ethiopia possesses a great diversity of wetland ecosystems, which are widely distributed in all climatic regions of Ethiopia and support a wealth of flora and fauna, including many endemic plant species and several of Ethiopia's endemic birds. Typical characteristic species of wetland ecosystems include *Cyperus, Eleocharis, Scirpus, Echinochloa, Panicum, Alisma, Nymphaea, Typha, Paspalidium, Potamogeton, Wolffia, Aeschynomene, Phragmites, Urochloa, Veronica, Hydrocotyle, Polygonium*, and *Kyllinga*. Tree species include *Ficus sycomorus, Tamarindus indica, Celtis africana, Mimusops kummel, Syzygium guineense, Terminalia brownii, Acacia polyacantha, Kigelia abyssinica, Phoenix reclinata, Trichilia* spp., *Diospyros* spp. Bird species include the Spot-breasted Plover, Blue-winged Goose, Rouget's Rail, White-winged Flufftail, Wattled Crane, Corn Crake, Shoebill, Black-winged Pratincole, Great Snipe, and Lesser Flamingo.

2.3.2 Aquatic Ecosystems

Ethiopia has an abundance of rivers and lakes, extending from below sea level in the Dallol depression to above 4,000 m. Aquatic resources in these ecosystems include over 188 fish species of which 37 are endemic. Lake Tana has the only remaining stock for Barbus flock. The Baro and Akobo rivers are also 'hotspots' for aquatic biodiversity. The aquatic ecosystems hold over 200 species of phytoplankton, including many important blue-green algae such as Spirulina (*Arthrospira* spp.). These diverse aquatic habitats serve as feeding sites for a large number of resident and migrant birds. These ecosystems are also

home to many species of reptile, including the Nile Crocodile. Hippopotamus is the only larger mammal species found in these ecosystems.

2.3.3 Species

In addition to those outlined above, certain species of note deserve mention. The country has a very high genetic diversity of food crops, with many local and regional varieties present. Of particular importance are numerous varieties of tef (*Eragrostis tef*), barley (*Hordeum vulgare*), and Emmer and other wheat species (*Triticum* spp). 887 medicinal plants are also reported for the country, and Ethiopia is the "cradle" of coffee, the world's most important cash crop, of which various local strains exist.

In terms of wild animals, Ethiopia is endowed with diverse wild animal species, some of which are endemic to the country. There are 284 recorded species of mammals, 861 species of birds, 201 species of reptiles (over 87 snakes, 101 lizards and 13 species of tortoises and turtles), 188 species of fish, 324 butterflies and 63 species of amphibians.

2.3.4 Trends

The overall trend within Ethiopia across all ecosystems and species is one of decline, though there are some individual increases in population numbers for certain species under concerted conservation programmes, such as the endemic Swayne's Hartebeest (whose numbers have quadrupled since 2001) and the endemic Ethiopian Wolf (*Canis simensis*) and Mountain Nyala (*Traglaphus buxtoni*) which have shown a remarkable increase in Bale Mountains National Park. Some ecosystems are also improving and extending their range with the assistance of conservation programmes; a key example of this being the highland forests conserved as a result of the various PFM projects occurring in the Oromia region.

2.3.5 Threats

The immediate threats to biodiversity in Ethiopia are predominantly anthropogenic, and include *inter alia* poaching, deforestation, land degradation, unsustainable harvest of natural resources, pollution, siltation, fire, invasive species, and introduced agricultural species.

The above threats essentially stem from the effects of poverty and population growth, accompanied by the effects of conflict (i.e. conflict itself as well as increased pressure due to migrants). The failure to address these threats is due primarily to institutional and judicial issues, such as a lack of capacity within research institutions, management institutions, and enforcement institutions, and a lack of political will and capacity to integrate biodiversity considerations into sectoral policy. Unfortunately, current policies can be conflicting, for example the agricultural extension policy, whilst honourably aiming to increase food security, is having a detrimental effect on biodiversity preservation.

2.4. Biodiversity Conservation Activities

As with the above section on ecosystems and species, it is not the intention of this section to provide an exhaustive description of Ethiopia's protected areas system. Plentiful literature exists in this regard, and the objective of this report is to discern the latest activities rather than the general situation.

2.4.1 In-situ Conservation

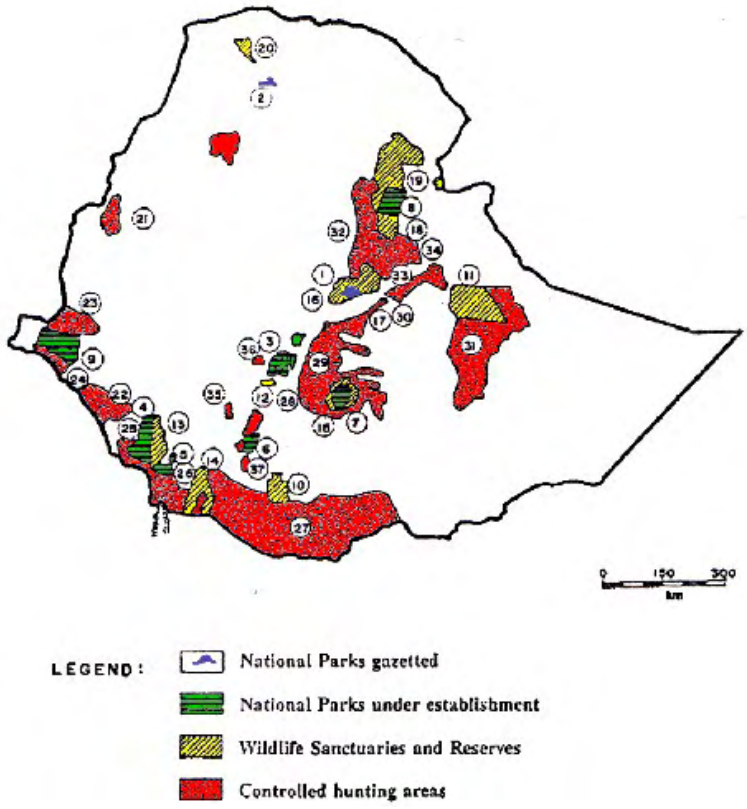
Protected areas in Ethiopia are managed by the Ethiopian Wildlife Conservation Authority, and the Regional authorities, according to the table below:

Protected Area Type	EWCA	Regional
International Interest/significance	✓	
Trans-regional	✓	
Trans-national	✓	
All other protected areas		✓

Ethiopia is gradually increasing the number of its protected areas, with the latest tally being 15 national parks, 4 wildlife sanctuaries, 8 wildlife reserves, and 18 designated controlled-hunting areas. Due to the recent addition of numerous protected areas, no information is available on the present land area that is protected in the country. In addition to the fairly standard protected areas system outlined above, Ethiopia has also identified Important Bird Areas (IBAs) and declared 58 Forest Priority Areas (FPAs) covering 2.8 million hectares, however these areas are reported to be inadequately protected and managed.

The protected area categories listed above are compatible with IUCN categories as follows:

Protected Area Category	IUCN Equivalent
National Park	II / None
Wildlife Sanctuary	II
Wildlife Reserve	IV
Controlled Hunting Area	VI
National Forest Priority Area	None



The Institute for Biodiversity Conservation (IBC) also manages several small in situ conservation areas, but these fall outside the formal protected area management system, and on an area basis are reported to be practically insignificant.

Activities

EWCA's activities are broad, and include:

- Establishing new protected areas & trans boundary national parks
- Demarcation of national parks and wildlife sanctuaries
- Controlling and monitoring poaching and wildlife trafficking
- Conducting research on wild animals and habitats
- Preparing management plans for the conservation areas
- Preventing and controlling disease
- Increasing capacity and infrastructure in protected areas
- Establishing a national management system for protected areas
- Encouraging community participation in biodiversity conservation
- Strengthening wildlife conservation education
- Relocating communities encroaching in protected areas
- Encouraging private investors.

The above activities are reported to be poorly implemented at present, and are probably more of a list of responsibilities than current activities. Management of the more significant protected areas is improving, however, as the relatively young EWCA continues to increase its capacity, profitability, relations with donors, and as it continues to fill vacant positions and train staff. EWCA is receiving considerable assistance in its push to increase its management capacity and co-ordination via the nine million dollar UNDP/GEF Sustainable Development of the Protected Area System of Ethiopia (SDPASE) project, which is also implementing a protected areas system plan, and the preparation and implementation of management plans for selected priority protected areas.

In terms of overall *in-situ* conservation activities (i.e. both in PAs and outside PAs), some key activities and initiatives include:

- ***Participatory Forest Management:*** PFM was pioneered in Ethiopia by GTZ, and both pilot projects and "scaling up" activities are currently under implementation by a number of donors, and NGOs.
- ***The FAO Forest Program Facility:*** The FPF has been supporting forest management in Ethiopia since 2008, by creating a forestry forum, promoting forestry to policy makers, reviewing the Forestry Action Plan, promoting conservation and sustainable harvesting of NFTPs, and improving knowledge management and efficient information sharing.
- ***Sustainable Land Management:*** SLM is a key World Bank activity in Ethiopia, the objective of which is to reduce land degradation in agricultural landscapes and to improve the agricultural productivity of smallholder farmers. Whilst the project is not specifically focussed on *in-situ* conservation, the project is in line with the global environment objective to reduce land degradation, leading to the protection and restoration of ecosystem functions and diversity in agricultural landscapes.
- ***Indigenous tree planting***: In 2007 the Government of Ethiopia pledged to plant more than 60 million trees across the country, and this initiative has been assumed by a number of different government, donor and NGO bodies, and its simple aim is to reforest rural and urban areas with slow-growing indigenous tree species rather than the relatively widespread eucalyptus varieties. The scheme, whilst honourable in intent, has some critics due to a lack of a holistic approach, i.e. a failure to address the fuelwood needs of local communities.

- ***Mainstreaming Agro-biodiversity Conservation in the Farming Systems of Ethiopia:*** This ongoing UNDP project seeks to provide farming communities with incentives (policies, capacity, markets and knowledge) to mainstream conservation of agro-biodiversity, including wild crop relatives into the farming systems of Ethiopia.
- ***Capacity Building for Access and Benefit Sharing and Conservation and Sustainable Use of Medicinal Plants:*** This ongoing UNEP project seeks to ensure conservation and sustainable use of biological diversity and associated traditional knowledge through conservation and sustainable use of medicinal plants, and the effective implementation of a revised national access and benefit sharing (ABS) regime. The World Bank also has a similar medicinal plant conservation project
- ***NGO activity***: In addition to the PFM and tree-plating activities outlined above, NGOs met with during the study mission are involved in public awareness and education on biodiversity issues, and in-situ conservation of threatened species (in particular of birds).

In-situ Conservation Issues

The various meetings held during the course of the study mission revealed that the following needs relating to *in-situ* conservation are present in Ethiopia:

- Demarcation of protected area boundaries and IBC *in-situ* conservation areas
- Preparation of management plans for IBC *in-situ* conservation areas and national protected areas not covered by the SDPASE project
- Digitization of biodiversity information / creation of GIS
- Biodiversity inventories, and increased *in-situ* research
- Strengthening of the institutional capacities of EWCA and other government institutions involved in *in-situ* conservation, such as EIAR and IBC (budget allocation, staff, and facilities/equipment)
- Improved infrastructure in protected areas
- Establishment of self-financing mechanisms for sustainable conservation and protection of protected areas by the respective responsible bodies (e.g., REDD and PES)
- Establishment of self-financing mechanisms or livelihood development mechanisms for maintaining *in-situ* conservation activities (e.g., Eco-tourism, NTFP development, etc.)
- Increased awareness-raising of the importance of biodiversity conservation among local communities and decision-makers
- Increased community participation in wildlife conservation
- Increased coordination between federal and regional organizations and stake holders
- Increased anti-poaching measures
- Solving the conflict between agricultural extension and biodiversity conservation (in terms of both genetic diversity and land issues) possibly through preparation of a multi-sectoral land use / spatial plan on a sub-national level
- Increased information and experience sharing between development institutions active in the field.
- Shift of donor focus from moist forest to dry forest and arid/semi-arid areas.

2.4.2 Ex-situ Conservation

The vast majority of *ex-situ* conservation activities in Ethiopia are carried out by the IBC, either independently or in partnership with international agencies. IBC has a national gene bank, 12 “community gene banks”, coldrooms holding over 65,000 samples, and basic laboratories. Further details of IBC’s *in-situ* activities are provided in the stakeholder analysis section below.

Addis Ababa has a zoo, however despite conserving the Abyssinian Lion, little in the way of *ex-situ* conservation in the form of breeding programmes occurs, and it is understood to be seriously underfunded.

As part of Ethiopia's NBSAP, botanical gardens were pledged to be established, and this is underway at several locations, including in Addis Ababa, where 709 hectares of land have been allocated for a botanical garden.

Specific projects in addition to the IBC's day-to-day activities include:

- ***The Forest Coffee Conservation Project*** (FCCP): funded by the CGIAR and other partners, has an *ex-situ* component that seeks to conserve and preserve the germplasm of forest coffee plants in centralised and field gene banks with the aim of maintaining the genetic wealth of the country and producing improved coffee cultivars
- ***Various academic research programs***, for example the collection and characterisation of wheat, barley, teff, sorghum and other seed varieties grown by farmers was carried out by the Tigray Agricultural Research Institute and Mekelle University. The Institute for Agricultural Research (EIAR) is also working with various overseas universities in projects that contain *ex-situ* elements.

Ex-situ Conservation Issues

The various meetings held during the course of the study mission revealed that the following needs relating to *ex-situ* conservation are present in Ethiopia:

- Increased funding and technical assistance to IBC's *ex-situ* activities
- Increased interest in supporting the development of zoos and botanical gardens

2.5. Other Activities

Other activities in the field of forest measures to combat climate change principally involve carbon finance initiatives. A summary of present activities identified during the study mission is provided below:

- ***CDM:*** CDM activities in Ethiopia are limited, but are underway. Ethiopia has considerable CDM potential, however projects are notoriously difficult to set up, particularly in Africa[8]. At present there is only one CDM project registered in the country; the Humbo Ethiopia Assisted Natural Regeneration Project (World Bank/BioCarbon Fund). This project is directly relevant to the current study, being a natural forest restoration project in an area of 2,728 hectares. EPA is the CDM Designated National Authority and, with the assistance of the World Bank and UNDP, is trying to increase the CDM portfolio in the country, however there are numerous restraints to the process.
- ***REDD:*** Again the World Bank are key drivers in this area, and have been funding a countrywide REDD preparedness programme in Ethiopia, and the country is implementing "Forest Carbon Partnership Facility Readiness Fund Grant" project. In parallel, the Bale Mountains EcoRegion Emission Reduction Project, a spin-off from the FARM Africa/SOS Sahel BERSMP, looks likely to go ahead. If successful, this REDD project could act as a model project for the national REDD programme.
- ***The UNDP African Adaptation Programme:*** funded by the Japanese government, is currently in its early stages. The programme will assist 21 African countries, including Ethiopia, in implementing integrated and comprehensive adaptation actions and resilience plans against climate change. The projects will ensure that national development processes incorporate climate change risks and opportunities to secure development gains under a changing climate, and will help countries establish an enabling environment and develop the

[8] Africa now hosts a total of 38 projects, or just 1.84% of all registered projects worldwide

capacity required to manage and implement cost-effective adaptation policies and plans, as well as the large climate change projects that are expected to be a part of these plans

- ***GTZ*** have also been involved in climate/forest cross cutting projects such as provision of energy efficient stoves, and peri-urban plantations for biomass supply.
- ***SNV*** have been heavily promoting the use of small scale biogas development as a means of conserving forests, providing clean energy, and restoring land fertility.

3. Policy Analysis

3.1. Current relevant policies, strategies and plans

The principal government strategy document is the Plan for Accelerated and Sustained Development to End Poverty (PASDEP). This strategy was developed to cover the period 2005-2010, and although a new strategy is due for publication, it is some way off completion. As such the PASDEP still guides government programmes and policies at the strategic level. The key pillars of the PASDEP strategy for poverty eradication are development of infrastructure (transport, power etc), agriculture, trade, governance, and health and education. Although the PASDEP considers environmental issues and acknowledges the value of biodiversity and environmental services, conservation of biodiversity, forest conservation and climate change receive relatively little attention. A key provision, however, is the commitment to develop natural resource management, and to survey and map 1.44 million hectares of forest land.

The PASDEP is supported by a number of more relevant national policies and strategies, including:

- The National Conservation Strategy
- The National Biodiversity Strategy and Action Plan
- The National Policy on Biodiversity Conservation & Research
- The Environmental Policy of Ethiopia
- The Rural Land Administration and Registration Policy
- The Agricultural and Rural Development Policies and Strategies
- The Forest Development, Conservation and Utilization Policy and Strategy
- The Wildlife Development, Protection and Utilization Policy and Strategy

International agreements and commitments also inform and guide policy and strategy in Ethiopia. Examples of agreements related to biodiversity and climate change include:

- The Convention on Biodiversity (CBD)
- The United Nations Framework Convention on Climate Change (UNFCCC)
- The United Nations Convention to Combat Desertification (UNCCD)
- Convention on Migratory Species of Wild Animals
- Nile Basin Initiative (NBI)[9].

A summary and review of the key elements of the above national strategies is provided in the table below:

[9] Provides for community-level land, forest and water conservation as well as wetlands and biodiversity conservation

Policy/Strategy	Summary and Review of Relevant Items
Plan for Accelerated and Sustained Development to End Poverty (2005)	The PASDEP contains various provisions which are relevant for forest resources conservation and development including surveying and mapping of 1.44 million ha of natural forest resources to understand the extent and spatial distribution, to determine their capacity and to implement a sustainable management plan. The PASDEP also calls for the conservation and management of natural resources via integrated development and sustainable use of the resource bases.
National Biodiversity Strategy and Action Plan	A more extensive summary of the NBSAP is provided elsewhere under the current study. The key principles of the strategy are to conserve representative examples of Ethiopia's remaining ecosystems; to have all natural ecosystems outside protected areas are under sustainable use management by 2020; to equitably share the costs and benefits on biodiversity conservation; and to conserve agro-biodiversity. These strategic objectives are implemented via a large number of specific objectives and actions. The strategy and action plan is a comprehensive document, assigning roles and responsibilities to the different stakeholders and agencies, however it seems that the capacity to see the actions through is hugely lacking.
National Conservation Strategy / The Conservation Strategy of Ethiopia	The Conservation Strategy of Ethiopia (CSE) was launched in 1989. Its aim was to study the natural resources, environmental imperatives and development demands in the country and to harmonize them. The harmonization process was activated through the formulation of an appropriate environmental policy, which was itself to be translated into action through the development of laws and the setting of standards, and through the development of regional action plans and 11 regional conservation strategies. The Environmental Policy, which impinges on all sectors of development and all sections of society, was approved in 1997 (see below).
Environmental Policy of Ethiopia (1997)	The overall aim of the Environmental policy is to improve and enhance the health and quality of life of all Ethiopians and to promote sustainable social and economic development. The policy is elaborated via 10 sectoral policies, and 10 cross-sectoral policies (relevant examples include sustainable agriculture, forestry, biodiversity conservation and climate change), with each policy item consisting of a number of objectives and actions. The key climate / forest related provision is "to maximize the standing biomass in the country through a combination of reforestation, agroforestry, the rehabilitation of degraded areas, a general re-vegetation of the land and the control of free range grazing in the highlands and to seek financial support for this from industrialized countries for offsetting their carbon dioxide emission". In terms of biodiversity, the policy is fairly comprehensive, covering numerous issues such as in-situ and ex-situ conservation, community participation, protected area management, and restoration of corridors. Forests and woodlands are equally well covered by the policy, which inter alia promotes sustainable management, community participation, fuel wood replacement, and assistance to reforestation and afforestation.
The National Policy on Biodiversity Conservation & Research (1990)	This policy document was the first recognition of Ethiopia's commitment to the importance and value of biodiversity preservation. The Policy objectives are broad, and include general items covering overall biodiversity conservation, improvement in biodiversity research and capacity, integration of biodiversity issues into sectoral policy, encouragement of community participation, valuing of indigenous knowledge and practice, and promotion of regional and international cooperation. The Policy directives go on to provide numerous commitments to establish bodies

Policy/Strategy	Summary and Review of Relevant Items
	and systems to achieve the above objectives, however specific actions are not provided in detail.
Rural Land Administration and Registration Policy	*This document could not be obtained or found on the internet, however it is understood from meetings that biodiversity resources are susceptible to encroachment due to the lack of clear ownership. Because of the lack of clear policy and law on investment, several intact natural forests have been cleared and changed into other land use types.*
Agricultural and Rural Development Policies and Strategies (2002)	In the context of combating deforestation and degradation the most relevant principles of these policies and strategies are: improving farming skills; improving the supply, replication and dissemination of technologies; ensuring access to land and tenure security; resolving problems of drought prone regions; improving the agricultural marketing systems; promoting rural finance; and developing the rural energy sector.
Forest Development, Conservation and Utilization Policy and Strategy (2007)	The overall aim of the policy is to sustainably meet the timber and forest product needs of the country via appropriate conservation and resource management. The policy has 5 specific objectives, each containing a number of actions: • Encourage sustainable forest development • Enhance forest production • Foster the contribution of forest resources to food sec • Promote and benefit from the services offered by forest resources • Ensure maintenance of the natural ecological balance
Wildlife Development, Protection and Utilization Policy and Strategy (2005)	The principal aim of the policy is to protect the country's wildlife and habitat, but with sustainable use of resources to allow economic development of the country. The policy is elaborated via a number of provisions including improved inventories, management of protected areas, issuance of regulations, creation of an early warning system, improvement to the animal health system, developing the benefits of wildlife, and education.

Most donors align their activities as much as possible with the Government's national policy, focusing on issues and objectives mentioned in the PASDEP, and as such, there are few dedicated biodiversity projects, but a number of projects that involve biodiversity conservation as a secondary objective.

The overall findings of the field visit are that whilst a considerable array of relevant policies exist, there is simply not the institutional or material capacity to implement these policies beyond the basic level. Furthermore, some of the policies can in places conflict; an example of this is that in some cases natural forests have been cleared under the agricultural extension policies, directly conflicting with the forestry and biodiversity policies.

The above should not detract too much from the achievements of recent years; Ethiopia is making considerable and continued progress in the conservation, biodiversity and climate change fields, and the overall impression was one of eagerness to build on successes, learn lessons, and continue improvement and growth, in partnership with the international community.

3.2. Current legislative set-ups, regulations and guidelines

The Constitution of The Federal Democratic Republic of Ethiopia, amended and approved in 1994, is the basis of all laws in the country. Following on from the Constitution[10], numerous laws and regulations

[10] The Constitution (Art.51 (5) authorizes the Federal Government to "enact laws for the conservation of land and other natural resources" and Art.52 (5)(d) authorizes the Regional States to "administer land and other natural resources in accordance with the federal laws".

have been passed over the years, many of which relate to forest and biodiversity conservation. Being a federation, Ethiopia has a tiered government system consisting of a federal government overseeing nine regions and two "chartered cities" (Addis Ababa and Dire Dawa). The constitution assigns extensive power to these regional governments, and as a result different regions can have slightly different legislative set ups and mechanisms.

The Ministry of Agriculture and Rural Development (MOARD) is responsible for the development of most policies and laws relating to biodiversity and forest management, and provision of technical support. The Bureau of Agriculture and Rural Development are responsible for the enforcement of these laws.

Although MOARD is the principal institution legislating in the relevant field, other bodies that develop policy and legislation include the Environmental Protection Agency (EPA)[11], and the Ethiopian Wildlife Conservation Authority.

Whilst the field team was not able to obtain copies of all relevant documentation, the following relevant laws have been summarised and reviewed:

- Management of Protective Forests Regulations (No. 347 of 1968)
- Protection of State Forests Regulations (No. 344 of 1968)
- Forest and Wildlife Conservation and Development Proclamation (No. 192/1980)
- Forest Conservation and Development Proclamation (No. 94/1994)
- Forest Development, Conservation And Utilization Proclamation (No. 542/2007)
- Federal Rural Land Administration Proclamation (No. 89/1997)
- Environmental Impact Assessment Proclamation (No. 299-2002)
- Environmental Protection Organs Establishment (No.295/2002)
- Regulation to provide for the establishment of Oromia Regional State Forest and Wildlife Enterprise (No. 122/2009)
- Draft Proclamation (2005) to Provide for the Development, Conservation and Utilization of Wildlife
- Regulation to provide for the establishment of Bale Forest Enterprise (No. 88/2007)
- Proclamation to provide for access to genetic resources and community knowledge and community right (No. 482/2006)
- Proclamation to Provide For the Establishment of the Ethiopian Wildlife Conservation Authority (No. Xxx/2008)

A number of guidelines also exist in Ethiopia, and whilst many relate principally to environmental protection, some of these are either directly or indirectly relevant to biodiversity conservation, climate change and sustainable land use management.

Law/Guideline	Summary and Review of Relevant Items
Management of Protective Forests Regulations (No. 347 of 1968)	This outdated set of regulations was one of the first legislation relating to forestry in Ethiopia. It defined forest types, set out aims for management plans, marketing, and afforestation. The regulations also defined infringements and penalties.
Protection of State Forests Regulations (No. 344 of 1968).	This outdated set of regulations was one of the first legislation relating to forestry in Ethiopia. It gives precautions regarding the kindling of fires, procedures for dealing with forest fires, and mentions other threatening damages, including grazing.

[11] The EPA, like MOARD, is responsible for formulating policies and legislation, with implementation being carried out in the regions under the Bureau of Agriculture and Rural Development (specific bodies vary from region to region, but are commonly called the Department of Environmental Protection

Law/Guideline	Summary and Review of Relevant Items
Forest and Wildlife Conservation and Development Proclamation (No. 192/1980)	This proclamation established a Forest and Wildlife Conservation and Development Authority having its own juridical personality. The Authority was given the responsibility of establishing and administering national parks, game reserves and other conservation areas. In addition to the establishment of the Authority, numerous rules on use of the resources were establishes, such as hunting rights, grazing, forestry and settlements. This proclamation has since been repealed by the more recent legislation outlined below.
Forest Conservation and Development Proclamation (No. 94/1994)	The 1994 proclamation brought together and updated the various laws described above, with additional provisions included, for example relating to the duties of landowners, transport of forest products, and duties of forest guards. This proclamation is replaced by 2007 Forest Proclamation.
Forest Development, Conservation And Utilization Proclamation (No. 542/2007)	This law essentially replaces the earlier forest laws described above. The policy recognizes two types of forests: state and private. State forests are any protected or productive forests owned by the federal or a regional state. Protected forests are "to be conserved and developed free from human or animal interference for the purpose of water shade management and the conservation of genetic resources, biodiversity and the environment in general, as well as for the purpose of training and research". Private forests are forests other than state forests that are developed by any private person or members of any association organized by private individuals or NGOs. The proclamation has considerable relevance to the study, including for example the requirement for management plans to be developed with local community participation, promotion of forest technology, provision of training and technical support. Laws on the protection and use of forests are also provided. Whilst the proclamation is comprehensive in theory, the lack of practical and operational capacity means that much of the proclamation's provisions are at present very difficult to implement. For example state forests are not available for use or settlement, but the location of these forests is uncertain as no official maps exist, and no management plans have been prepared (though demarcation is a key priority at present). The policies do not refer to the location of state forests or explain how they can be identified. This means that there are no legal grounds to resolve any conflict regarding the boundaries and locations of these state forests.
Federal Rural Land Administration Proclamation (No. 89/1997)	This proclamation states that land is a common property of the nations, nationalities and people of Ethiopia and shall not be subject to sale or other means of exchange. It also emphasizes the need to share benefits to manage and protect land and other resources.
Environmental Impact Assessment Proclamation (No. 299-2002)	This proclamation sets out the requirement for EIA; which projects require EIA, duties of the proponent, contents of the study/report, and approval, dissemination and monitoring. It is a fairly standard EIA law.
Environmental Protection organs Establishment (No.295/2002)	This proclamation empowers the EPA to prepare procedures, regulations, guidelines and standards to effectively implement and enforce the EIA proclamation and other relevant national environmental objectives. The proclamation also sets out the various other responsibilities and objectives of the EPA, for example environmental education and awareness, establishment of an information system, etc.
Regulation to provide for the establishment of Oromia Regional State Forest and Wildlife	The regulation establishes the Oromia Regional State Forest and Wildlife Enterprise and sets out its responsibilities, which include protection of forest through PFM, increasing forest cover in the area, improvement of socio-economic conditions in the area via community involvement, and the preservation of biodiversity. The

Law/Guideline	Summary and Review of Relevant Items
Enterprise (No. 122/2009)	Enterprise is required to develop sustainable supplies of forest resources, develop and implement management plans, develop local value adding (generate revenue), conserve wildlife, provide technical support to farmers, develop local communities using revenue generated, and manage hunting. The allotted concessions are also defined.
Draft Proclamation (2005) to Provide for the Development, Conservation and Utilization of Wildlife	The key objectives of this proclamation are to conserve, manage, develop and properly utilize the wildlife resources of Ethiopia; to create conditions necessary for discharging government obligations assumed under treaties regarding wildlife protection, development, and utilization; and to promote wildlife-based tourism and to encourage private investment. It also outlines which bodies are responsible for management of conservation areas, hunting, tourism, trade in wildlife and wildlife products, as well as detailing their powers and responsibilities. The text is clear and concise, and interviews during the visit have shown that the institutions are adhering to the provisions.
Regulation to provide for the establishment of Bale Forest Enterprise (No. 88/2007)	The regulation establishes the Bale Forest Enterprise and sets out its responsibilities, which include sustainable use of natural resources, improvement of socio-economic conditions in the area via community involvement, and the preservation of biodiversity. The Enterprise is required to develop sustainable resources, develop and implement management plans, and generate revenue. The allotted concessions are also defined.
Proclamation to provide for access to genetic resources and community knowledge and community right (No. 482/2006)	The Proclamation establishes all genetic resources as belonging to the Ethiopian people, and provides local communities with rights to community knowledge and the right to share from the benefits of their genetic resources (inc. 50% of any financial proceeds). The Proclamation sets out access arrangements and permitting, enforcing the authority of the relevant institutions in this regard. Finally, detailed directives on exploitation, permits, and penalties are provided.
Proclamation to Provide For the Establishment of the Ethiopian Wildlife Conservation Authority (No. Xxx/2008)	This brief proclamation sets out the organization and responsibilities of EWCA – and is essentially the same as the responsibilities listed for EWCA in the stakeholder section below.

It can be seen from the above summary that biodiversity conservation, environmental protection and forests are well covered by the existing legislation[12]. Climate change issues are not well covered in the above legislation, but the study team assumes that this issue is covered in a proclamation or regulation that was not provided to the study team, as during meetings it was explained that the EPA has a clear mandate for managing and adapting to climate change, as well as being the focal point for UNFCCC.

Although the legislative framework appears to be relatively robust, little information was available with respect to the effectiveness of the judiciary in Ethiopia. The study interviews, however, revealed that although the situation is continually improving, two key restraining factors are currently affecting the value and applicability of the laws described above:

- Awareness of relevant laws by local authorities, police, and the public is very low; and
- Regional government, police, and other institutions lack the capacity and ability to effectively implement the laws.

Levels of corruption were not investigated but this is presumed to exist at least in a minor form (for example bribes for access to bushmeat or illegal wood cutting), and will no doubt undermine the effectiveness of the legal framework.

[12] In fact numerous other laws exist in this field, some of which were collected by the study mission (e.g. Ratification of the *Agreement For Conservation Of African Eurasian Migratory Water Birds*, but which were not of sufficient interest/relevance to the aims of the present study

4. Stakeholder Analysis

The primary task of the mission to Ethiopia was visiting all possible formal stakeholders in the relevant fields, including government institutions, International bodies and funding agencies, and domestic and international NGOs. The purpose of the meetings was to:

- Understand the areas of responsibility and mandates of the government institutions
- Understand the areas of activity of other institutions
- Collect information such as policies and legislation, & existing and planned projects
- Identify weaknesses, gaps, and potential opportunities for JICA intervention.

4.1. Government organisations

As has been described in the previous chapter, Ethiopia is a Federal Country and as such its institutions are split into federal government institutions and regional government institutions, with considerable powers devolved to the regional government.

According to literature collected and information provided in the mission interviews, it seems clear that over the past 20 years or so, government institutions working in the fields relevant to the current study (i.e. biodiversity, forestry and climate change) have faced frequent restructuring and changes in mandate, responsibilities and funding arrangements. It appears that the forestry and wildlife bodies have been most affected by these changes, with the worst hit being the forestry management body, which has changed a reputed 11 times in around 15 years, and has been at various times a dedicated ministry, section, unit and division under other ministries. Staff numbers in all these configurations have varied wildly.

Institutional responsibilities for forestry and climate change, and in particular for biodiversity, overlap in many areas, and fail to meet in others. Government organizations involved in the management of biodiversity, climate change, and forestry include:

- The Ministry for Agriculture and Rural Development (MOARD)
- The Bureaux of Agriculture and Rural Development
- The Ethiopian Institute for Agricultural Research (EIAR) – Forestry Directorate: under MOARD
- The Institute of Biodiversity Conservation (IBC): under MOARD
- The Environmental Protection Authority (EPA)
- The Ethiopian Wildlife Conservation Authority (EWCA): under the Ministry of Culture and Tourism (MCT).

With the exception of the rural bureaux, all the above organizations were visited during the mission, most of them more than once.

Due to the large number of actors in the sector, no one body is likely to be the sole implementing agency for future JICA projects in the fields of biodiversity conservation, climate change, and forestry. The main responsibility for these three fields falls under at least two different agencies, and many of the others have a key role to play. A summary of the mandates, characteristics, and capacities of the various stakeholders is provided below.

4.1.1 The Ministry for Agriculture and Rural Development (MOARD) and the Bureaux of Agriculture and Rural Development

The Ministry of Agriculture and Rural Development's main mandate is assuming lead responsibility for coordination, policy making and legislating in the forest and agriculture sectors. The ministry is also charged with research, extension, and education in these fields. The regional bureaux are responsible for implementation of forestry and forest conservation (unless concessions have been awarded), though MOARD is responsible for pilot activities and dissemination. Although there is slight variation in how

these regional institutions are named, they have similar mandates in all regions. Commonly used names are Department of Environmental Protection, and Department of Forestry and Natural Resources Management.

MOARD is split into four main divisions, each having a State Minister, each reporting to the Minister, and each having several subsidiary divisions or bodies. These are:

- Natural Resources
  - Natural Resources Management Directorate
  - IBC
- Agriculture Development
  - Agricultural Extension Directorate
  - Animal and Plant Health Regulatory Directorate
  - Agricultural Investment Directorate
- Early Warning and Response and Food Security Coordination
  - Food Security Coordination Directorate
  - Early Warning and Response Directorate
- Agriculture Input and Marketing

MOARD has recently been given the objective of restoring forest cover from 3 % to 9 % within 5 years. They have exceeded their goal, with a present cover estimated at around 11 %. In addition to afforestation and reforestation, the ministry has also been pushing soil and water conservation, management and restoration.

Regarding climate change issues, MOARD has a task team for REDD and CDM, which reports to the EPA. It also manages implementation at the federal level for all agricultural climate change adaptation programmes.

MOARD has developed strong links with international agencies, and currently works with *inter alia* JICA, GTZ, EU, AfDB, WB and UNIDO. Despite the mission revealing institutional weaknesses within MOARD, the overall impression is that this ministry is in a better position than other government stakeholders in the fields of biodiversity, forestry and climate change.

4.1.2 The Ethiopian Institute for Agricultural Research (EIAR) – Forestry Directorate

The Forestry Directorate of EIAR, in turn under MOARD (directly below the Minister), is responsible for research and practical and theoretical dissemination of its findings. The Forestry Directorate is not, however confined to research, and does have a number of functional pilot projects, including a Participatory Forest Management project financed by the Spanish Government. They have good cooperation with their parent agency, MOARD, as well as other government bodies and donors.

The Directorate has four divisions; Plantations and agroforestry, Natural forests, NFTPs, and Forest products utilization. Staff are also provided from the Forestry Directorate to EIAR's field research centres.

The Forestry Directorate was keen to highlight that it suffers from the same gaps and weaknesses as many other Ethiopian institutions; lack of operational funds for manpower, field equipment, laboratories, but that these problems were further aggravated by the marginalisation of forestry issues in favour of the agricultural extension policy.

4.1.3 The Institute of Biodiversity Conservation (IBC)

The Institute of Biodiversity Conservation (IBC), a semi autonomous body under MOARD, was originally formed as a plant genetic resource centre[13], but as national and international interest in

[13] Funded by the German Government

biodiversity conservation grew, the mandate was expanded to include the conservation of all aspects of biodiversity. Recent restructuring in line with CBD has produced two “processes”: Genetic Resource Conservation, and Genetic Transfer, Access, and Benefit Sharing.

The IBC’s principal responsibility is the *in-situ* and *ex-situ* conservation of biodiversity resources of the country. This it achieves via numerous activities, programmes and projects, many of which are funded by international donors. IBC is divided into seven departments, as follows:

- Animal Genetic Resources
- Biotechnology and Biosafety
- Ethnobiology
- Forage and Pasture Genetic Resources
- Horticultural Plants Genetic Resources
- Medicinal Plants Genetic Resources
- Microbial Genetic Resources.

Key *ex-situ* conservation infrastructure includes the national gene bank, 12 “community gene banks”, coldrooms holding over 65,000 accessions, and laboratories.

Importantly for the present study, IBC are the national Focal Point for the CBFD, and as such are responsible for the preparation of CBD reports and strategies, including the Ethiopian NBSAP.

Although IBC has well qualified staff and their main gene bank is of a high standard, the institute struggles with its very wide-reaching mandate, and reports many areas that require strengthening and assistance.

In summary, IBC is responsible for assessing, collecting and preserving Ethiopia’s genetic diversity, promoting the value of biodiversity and recommending management methods, whereas other agencies are responsible for management of protected areas and habitats, research and guiding policy. That said, IBC, whilst not having the lead responsibility, does get involved in these areas.

Areas that IBC most need assistance include:

- Capacity building at all levels, including visiting specialists/exchanges
- Finance for a duplicate national seed bank
- National inventories of biodiversity are still far from complete
- Technical and/or financial assistance with demarcation, inventories and management plans for its *in situ* conservation sites.
- Assistance with PR, publicity etc. (e.g. paying for “year of biodiversity” events).

4.1.4 The Environmental Protection Authority (EPA)

The Environmental Protection Authority was established in 1995 with the mandate of developing environmental policy and legislation, setting environmental standards, monitoring pollution, managing EIA, managing climate change issues, and undertaking support and capacity development in relevant federal and regional agencies. EPA has recently developed eight thematic areas:

- Development of enabling policy and regulatory frameworks;
- Preparation and implementation of proactive environmental management systems;
- Enforcement and compliance mechanisms;
- Community empowerment;
- Improving education and awareness;
- Availing information and fostering participation in decision taking;
- Identification and availing of environmentally sound technologies and best practices and

- Resource mobilization and channelling.

The Authority works to achieve the above via fourteen functional units, as follows:

- Ecosystem Department
- Education Department
- Pollution Control Department
- Projects Department
- Women's Affairs Department
- Environmental Economics and Social Affairs Department
- Human Resources Department
- Finance Department
- Environmental Policy and Laws Department
- EIA Service
- Environmental Information Centre
- Regional Affairs Service
- Audit Service
- Environmental Laboratory Service

In addition to its more traditional environmental protection role, which is of relatively minor importance to the present study, EPA is responsible for ensuring the sustainability of agriculture and rural development projects, and although no longer the focal point of the CBD, they are the focal point for UNFCCC, and therefore have the key role in CDM and REDD projects in the country. The management of forest and wildlife resources does not rest with EPA but with MOARD and the Rural Bureaux.

Although the EPA is one of the older and better established agencies in the field, and is heavily supported by the World Bank, UN, and several bilateral agencies, EPA is still a very weak institution, and needs further assistance, including:

- Financial assistance or "in kind" assistance for field and operational equipment
- Technical and/or financial assistance to early warning assessment and preparedness for climate change
- Capacity building, training, etc.

4.1.5 The Ethiopian Wildlife Conservation Authority (EWCA)

The EWCA in its present form is a relatively new institution; in a situation similar to that for government responsibility for forestry, the Authority has had numerous previous incarnations, under different ministries and with differing levels of power, funding, staffing etc.

It was only two years ago that the EWCA was created with proper powers, mandate, structure and staffing, now under the oversight of the Ministry of Culture and Tourism.

EWCA's mission is to "*sustainably conserve and manage Ethiopian wildlife resources through active participation of local communities, mainly for the benefit of Ethiopians and moreover the global community and pass to the next generation as a heritage***".**

The above mission is pursued via three themes:

- ***Wildlife Protection and Development:*** focused on identification of areas known for their wildlife potentials and representative ecosystems, demarcating and legalizing them, and controlling poaching and trafficking.

- ***Improving National parks & wildlife sanctuary management:*** Creating attractive national parks and wildlife sanctuaries for tourists via appropriate management, developing infrastructure and protecting them from all illegal activities
- ***Sustainable use:*** This Strategic theme is focused on the sustainable utilization of wildlife resources to maximize the economic benefit to the nation by attracting and retaining entrepreneurs and tourists.

As described in earlier sections of this report, EWCA has primary responsibility for management and implementation for the more important of Ethiopia's protected areas.

In its short period of existence the EWCA has managed to accomplish considerable results, and is well on the way to becoming an effective institution, however despite the early successes, it has a long way to go by its own admission. Wildlife management and related tourism is a major source of income in most east African countries, and to date Ethiopia has been failing to capitalize on its potential, and to use income to grow and improve sustainable management of wildlife and its habitats.

EWCA work in partnership with numerous development partners, and are currently in discussions with JICA regarding the "Community tourism development around Simien Mountains National Park Project".

4.1.6 Analysis

The various meetings with government institutions revealed that despite considerable recent improvement and progress, Ethiopian institutions responsible for biodiversity, forestry and climate change issues are all weak and facing considerable challenges to meet their mandates and objectives, and their obligations to international agreements such as the CBD. Whilst some are stronger than others, lack of facilities, budgets, equipment, and human resources is hampering development.

Development partners are clearly important to the development of these institutions, both in terms of general assistance and dedicated capacity building programmes, however it was reported by numerous sources that these same development partners have "poached" many of the better staff from the government institutions, which cannot match the salaries offered. Another widespread complaint from the biodiversity conservation perspective was the conflict between conservation and the agricultural extension policy; a problem that is further aggravated by poor communication between ministries, and a lack of integration of biodiversity conservation in sectoral policy[14].

By all accounts there is a widespread lack of systematic monitoring of progress and a failure to set indicators. A further observation of the study mission was considerable inefficiency within the government institutions, with relatively large numbers of staff present but apparently idle, or with far too many people assigned to a task.

Unfortunately the study mission was not able to properly investigate the functioning of regional authorities, and their coordination with the federal government. Reports on this issue were surprisingly positive; but the reality of the situation cannot be confirmed.

4.2. Donors and international organisations

Ethiopia has a large donor and international support presence, and the government receives considerable technical and financial support in the fields of biodiversity conservation, forestry and climate change. A selection of some of the major players in the relevant fields was visited during the mission, as follows:

- World Bank

[14] in some cases natural forests have been cleared under the agricultural extension policy, which is in conflict with the forestry and biodiversity policies

- African Development Bank
- GTZ
- UNDP
- EC

Many of the activities of the above institutions have already been described earlier in the report, however the major relevant activities that they are involved in are summarised below.

Development partner	Major activities
World Bank	- REDD preparedness programme - Medicinal plants conservation and sustainable harvest - Sustainable Land Management
JICA	- PFM Project in Balete-Gera Regional Forest Priority Area - Provision of agricultural development advisor - One Village One Product - Lasta Woreda community based rural development project (w. Futaro Forest Fund)
African Development Bank	- Agriculture Sector Support Project, which includes an Integrated Ecosystem Management component, including rehabilitation of degraded mountain and lowland areas (2500 ha of hillside plantation; 1500 ha of lowland plantation)
GTZ	- Sustainable Land Management, including PFM - Energy efficiency - Currently leading 2 UNESCO biosphere projects
UNDP	- Africa Adaptation programme - CDM / REDD - Mainstreaming Agro-Biodiversity Conservation into the Farming Systems of Ethiopia
EC	- PFM project in Oromia

All of the development institutions met during the study mission expressed considerable interest in improving communication and information sharing with JICA, and all were likewise keen to cooperate with JICA for co-financing of projects. Much of the co-financing interest was accompanied with specific offers of integration within ongoing projects and programmes, and if JICA is seeking to find fast and effective ways to increase its assistance with minimum burden on local office staff, then co-financing presents an attractive proposition.

4.3. Others (NGOs and private sector)

The mission met with several NGOs during the visit to Ethiopia, but did not have any meetings with any private sector stakeholders. Although private sector investment is a strategic goal of the Government, current economic and financial conditions in the country do not present a particularly attractive proposition to most foreign investors. Some private sector companies[15] should be taking an interest in biodiversity conservation but no mention of such an interest was made during the mission, and although some must exist, no private companies were easily identified, and hence no meetings took place. The private sector involvement initiated by the JICA Balete-Gera project through the sale of certified forest coffee is a rare example of private sector involvement in biodiversity/forest projects, but the mission was not able to interview the company involved.

Ethiopia is home to a large number of NGOs, many of which are foreign based. Largely as a result of the highly publicised famine of the 1980s, the majority of NGOs operate within the humanitarian and human rights fields. Some however operate at different levels within the fields of conservation, natural resource management and climate change. Four NGOs were met with during the mission:

- FARM Africa/SOS Sahel – together forming the Bale EcoRegion Sustainable Management Project (BERSMP) partnership;
- The Ethiopian Wildlife and Natural History Society (EWNHS); and

[15] Such as tourism, handicraft, wood production, charcoal, pharmaceutical etc.

- The Ethiopian Environment NGO (EENGO).

As with the donor agencies, many of the activities of the NGOs have already been described earlier in the report, however the major relevant activities that they are involved in are summarised below.

NGO	Major activities
FARM Africa	- BERSMP - Participatory Forest Management Programme - Afar *Prosopis juliflora* Management Project - Strengthening Sustainable Livelihoods and Forest Management Project
SOS Sahel	- BERSMP - Participatory Forest Management Programme
EWNHS	- *In-situ* conservation activities, particularly avifauna - Biodiversity inventories - Promotion and planting of indigenous trees (including Trees for Cities project) - Community participation and education
EENGO	- Environmental Protection in the Oromia region - Agroforestry & forestry - Education on NTFPs, and their sustainable harvest

In addition to the above development agencies and NGOs, a third type of institution, also a key stakeholder in forestry in Ethiopia, exists, the Oromia Regional State Forest and Wildlife Enterprise (ORSFWE).

ORSFWE was formed by a visionary government forester, who realised that the standard government managed, protection-focused model of forest management, with central finance, was not working for Ethiopia. The vision was to employ sustainable management and use of natural resources to make the forests pay for their conservation, as the same time as providing sustainable livelihoods and land regeneration.

ORSFWE is an autonomous enterprise, managing around 1.7 million ha of forest concessions in Oromia[16]. The enterprise receives no income from government and is self-sustaining. Income from the enterprise pays for the operation, and profits go into a forest fund, to be used for various applications.

ORSFWE has around 2000 employees, with 9 branch offices. The board of directors has several members from the State Bureau of agriculture, so relations are good. ORSFWE manages only its concessions, so the State Bureau of agriculture is also active in Oromia.

Over the past two years, ORSFWE has grown to be successful; financially, technically, and socially. Other regions are now interested in following a similar model.

ORSFWE is already working with JICA (and other donors) in the Oromia region on the Balete-Gera PFM project, and have proven to be very good partners to work with. They are keen to extend their cooperation with JICA, either via similar PFM-style projects to the current cooperation, or via alternative project types, such as plantations (including CDM and REDD possibilities) and technical training.

[16] Oromia has 70% of Africa's tropical highland forest, as well as significant wild coffee populations, and as such is of international conservation interest

5. Needs Assessment

5.1. Important Areas

Ethiopia has such a wide variety of landforms, ecosystems, and climates, that it is difficult to justify promotion of some areas of others. Of course, certain areas hold more rare or endangered species and ecosystems than others, and these areas, such as Oromia's highland forests, have to date been receiving more attention than other areas. Although not quite as important internationally to biodiversity, many of the areas that have not been focussed on to date are very important nationally with respect to biodiversity but also with respect to human development. A shift in focus on behalf of funding agencies to some of the less well-known areas could help to address regional imbalance, and improve livelihoods in the poorest areas, whilst conserving nationally important ecosystems and species.

Two of the respondents interviewed strongly argued that more attention could be directed towards the semi-arid areas in the Somalia and Oromia region (which have a lower overall biodiversity than Oromia's moist forest, but a higher level of endemism and a more severe poverty issue) would be a suitable zone for new investments and technical assistance.

5.2. Needs for Further Cooperation

It is clear from talking to the various stakeholders that despite some recent successes, there is a great deal remaining to be done in Ethiopia to conserve biodiversity, achieve sustainable natural resource management, restore degraded soils, reforest the country, and to deal with the ever increasing effects of climate change.

The following needs have been provisionally identified as requiring attention in the fields of biodiversity conservation and forestry-related measures against climate change:

Category of Need	Specific Actions Required
1. Policy	1-1 Solving the conflict between agricultural extension and biodiversity conservation (in terms of both genetic diversity and land issues) possibly through preparation of a multi-sectoral land use / spatial plans 1-2 Harmonisation between sectoral policies and objectives 1-3 Facilitate land ownership/concessions for forestry projects
2. Materials and Infrastructure	2-1 Financial or "in kind" assistance for field and operational equipment for government authorities and institutions involved in biodiversity conservation and research 2-2 GIS systems are needed for demarcation and management of protected areas 2-3 Technical and financial/"in kind" assistance for digitization of biodiversity information 2-4 Establishment and operation of an internationally certified environmental laboratory 2-5 Improved infrastructure in protected areas 2-6 Increased support to genetic resource infrastructure, and operational management and costs
3. Research	3-1 Increased research and development of NTFP products; including sustainable harvesting, processing, marketing techniques etc. 3-2 Increased biodiversity inventory activities and *in-situ* research and conservation 3-3 Technical assistance for microbiological genetics (Japan is a world-leader in this field)
4. Capacity Building / HR	4-1 Strengthening of the institutional capacities of EWCA and other government institutions involved in *in-situ* conservation, such as EIAR and IBC (budget allocation, staff, and facilities/equipment) 4-2 Capacity building at all levels for all institutions, including visiting specialists/exchanges. 4-3 Increased coordination between federal and regional organizations and stake holders 4-4 Addressing the loss of government staff to funding agencies, NGOs etc.
5. Awareness-Raising	5-1 Increased awareness-raising of the importance of biodiversity conservation among local communities and decision-makers

Category of Need	Specific Actions Required
	5-2 Increased publicity of relevant laws
	5-3 Assistance with PR and publicity for biodiversity conservation
6. Practice and Projects	6-1 Increased community participation in wildlife conservation
	6-2 Increased anti-poaching measures and other law enforcement
	6-3 Arrest/retard destruction of forest resources
	6-4 Expand the forest resources base to meet demand for biomass-based energy, construction, wood-based industries and NTFPs
	6-5 Preparation of management plans for IBC in-situ conservation areas and national protected areas not covered by the SDPASE project
	6-6 Establishment of self-financing mechanisms for sustainable conservation and protection of protected areas by the respective responsible bodies (e.g., REDD and PES)
	6-7 Establishment of self-financing mechanisms or livelihood development mechanisms for maintaining in-situ conservation activities (e.g., Eco-tourism, NTFP development, etc.)
	6-8 Development of the eco-tourism sector, and help with attracting private investment and partners is desperately needed
	6-9 Increased information and experience sharing between development institutions active in the field
	6-10 Shift of some donor focus from moist forest to dry forest and arid/semi-arid areas.
	6-11 Increased coordination with the neighbouring countries for protection and management of trans-boundary biodiversity conservation
	6-12 Protection of ecosystems that form a barrier to desertification or assist with climate change adaptation
	6-13 Facilitation of CDM and REDD
	6-14 Social development and poverty reduction

6. Conceptualization of Potential Interventions

6.1. Basic Principles for Formulation of the Potential Interventions

The following principles are taken into account in the conceptualization of the potential JICA's interventions for biodiversity conservation.

- The possible JICA interventions should be in line with the existing government strategies and programs, such as: i) PASDEP, ii) Wildlife Development, Protection and Utilization Policy and Strategy, iii) Forest Development, Conservation and Utilization Policy and Strategy, iv) The Environmental Policy of Ethiopia, v) NAPA, and vi) NBSAP.
- The possible interventions should avoid overlapping with existing activities but should rather align with them
- The possible interventions should respect the government's initiatives and focus on maximizing the efforts made by the government as well as development partners.
- The possible interventions should consider the framework of coordination with neighbouring countries.

6.2. Long-list of Potential Interventions

Using the above analysis of needs and the basic principles of formulation listed above, a "long-list" of potential interventions has been prepared. This long list includes specific projects where sufficient information existed to formulate them, and where there was a lack of specific information, general

interventions have been proposed[17]. The long-list does not take into account any technical, regional or other priorities that JICA, the Government of Ethiopia, or other stakeholders may have; it is intended as a comprehensive list of required interventions to use as a basis for the present and future project formation exercises.

Potential interventions have been been categorised below according to the dominant characteristic for ease of reading, however many of the actions are somewhat integrated in their nature; this aspect is highlighted via the third column, which indicates which of the above needs a given intervention addresses.

It should further be noted that, according to JICA's desired project type and size of intervention, to be determined during NK/JICA discussions following submission of the present field report, certain of the interventions could be further combined to form fully integrated projects (some examples are provided).

Main Intervention Area	**Potential Intervention**	**Needs Addressed**
1. Policy	1A *Policy Facilitation Project* This intervention would require dispatch of an expert in government and environmental policy to provide assistance with solving the conflict between agricultural extension and biodiversity conservation, harmonisation between sectoral policies and objectives, and assistance with land ownership/concessions for forestry projects.	1-1, 1-2, 1-3
2. Forestry	2A *Participatory Forest Management in Coffee Forests* This project is a repeat of the existing successful model of JICA PFM project (Balete-Gera), in similar ecosystems in the Oromia region (e.g. Sigma Satama). As lessons have been learned, and many materials, documents and systems developed, this would be a relatively cost effective and very beneficial intervention. Afforestation and reforestation could also be implemented in the Sigma Satama region.	2-1, 3-1, 5-1, 6-1, 6-3, 6-7, 6-14
	2B *Participatory Forest Management in Semi-arid Areas of Oromia* This project is a repeat of the existing successful model of JICA PFM project (Balete-Gera), but in Oromia's semi-arid areas, where there is more need for social improvement, and anti-desertification forest conservation. Furthermore, this would plug a current gap, as all other donors are operating in the highland areas.	2-1, 5-1, 6-1, 6-3, 6-10, 6-12, 6-14
	2C *Participatory Forest Management in the Somalia Region* This project is based on the existing successful model of JICA PFM project, but in the dry forests of the Somalia region, and concentrating on the threatened *Boswellia papyrifera* frankincense[18] and gum Arabic rather than forest coffee as sustainable NTFPs. A further benefit of the preservation of these species is combating desertification. The Somalia region has pressing socio-economic needs, and is under pressure from climate change induced desertification.	2-1, 3-1, 5-1, 6-1, 6-3, 6-7, 6-10, 6-12, 6-14
	2D *Farm Forestry Development Project* Employing the Farmer Field Schools (FFS) methodology that was successful under the JICA Belete-Gera PFM Project to improve farmer livelihood through diversification, and provision of biomass through reforestation and rehabilitation of damaged vegetation. This project is a departure from JICA's forest conservation activities, but would be a potential way of using positive experiences from an existing project to support biodiversity and climate change projects, plus livelihood improvements via small scale forestry. Potential use of evergreen agriculture techniques for improving livelihoods and climate change adaptation in semi-arid areas.	2-1, 3-1, 5-1, 6-4, 6-7, 6-10, 6-12, 6-14

[17] Many of the interviewees were happy to prepare concept notes for projects upon specific request, but were reluctant to produce them speculatively

[18] It is understood that the Japanese company that purchases the Balete-Gera forest coffee in fact specialises in incense and scents, and would therefore be an ideal partner to work with again in marketing frankincense products in this region

Main Intervention Area	Potential Intervention	Needs Addressed
3. Dedicated Biodiversity Interventions	3A *Operational support to seed project* It is expected that forthcoming Japan Embassy-funded seed project, which focuses on infrastructure and equipment only, will lack support for operations and capacity building. This intervention is essentially to plug this expected gap, with the aim of ensuring project sustainability.	2-6
	3B *Program to support National Biodiversity Assessment (NBA) and other biodiversity inventory-making* This study would provide technical and "in kind" support to biodiversity assessments across Ethiopia, with the aim of improving the available knowledge-base, allowing improved management plans, and for biodiversity conservation.	2-1, 3-2, 4-2
	3C *Gene Bank Project* This project would provide the infrastructure necessary for IBC to create a duplicate seed bank	2-1, 2-6
	3D *Livestock Genetics Improvement Project* Technical interventions to assist IBC with their indigenous livestock breeds improvement programme and community based Sheko cattle conservation project	3-2, 6-14
	3E *Identification of fish genetic resources in warm waters of Afar Region* Seeking to identify and research fish living in the very warm waters of lakes Ertale and Yarde, as potential candidates for conservation due to climate change	6-12
	3F *EWCA IT Support Project* Technical and financial/"in kind" support to EWCA for digitization of biodiversity information and GIS for EWCA demarcation and management of protected areas	2-2, 2-3 4-1
4. Protected Area Interventions	4A *Dati Protected Area Project* Assistance to OSFWE and EWCA in setting up new protected areas in the Dati area (431km^2, home to many of the mega fauna of the country including African Buffalo [*Laxodonta africana*], Hippopotamus [*Hippopotamus amphibius*], and Defasa Waterbuck [*Kobus ellipsiprymnus*], none of which are present in any of the primary wildlife conservation areas so far designated within Oromia State). The project could become "integrated" by also including other elements such as awareness raising, community participation, anti-poaching measures, ecotourism development etc.	4-1, 5-1, 5-2, 5-3, 6-1, 6-2, 6-7, 6-8, 6-14
	4B *Yabello Wildlife Sanctuary Improvement* Assistance to OSFWE and EWCA in developing and strengthening the conservation status of Yabello Wildlife Sanctuary, which, although holding numerous endangered and endemic species and hence designated a protected area 30 years ago, is in fact severely lacking in management and protection measures. Again, this project could be expanded to become "integrated".	4-1, 5-1, 5-2, 5-3, 6-1, 6-2, 6-7, 6-8, 6-14
	4C *Addis Highlands Consolidated Protected Area Project* Technical support to OSFWE in working to designate all the highland areas around Addis Ababa as one protected area ecosystem and to set appropriate conservation and development mechanisms. Possibility for "integrated" style project once the consolidated area is established.	4-1, 5-1, 5-2, 5-3, 6-1, 6-2, 6-7, 6-8, 6-14
	4D *Wildlife-based Ecotourism Development in Ethiopia* Assistance to EWCA in developing its infrastructure and capacity to provide world-class ecotourism and hence attract investment and revenue to pay for conservation (based on e.g. Kenyan model).	2-1, 2-5, 6-1, 6-2, 6-7, 6-8, 6-14
	4E *Preparation of management plans for IBC in-situ conservation areas and national protected areas not covered by the SDPASE project*	6-5

Main Intervention Area	Potential Intervention	Needs Addressed
5. Capacity-Building Interventions	5A *Establishment and operation of an internationally certified environmental laboratory for Ethiopia*	2-1, 2-4, 2-6
	5B *Forestry and Natural Resource Management Technical and Vocational Education and Training Centres* Support to OSFWE in establishing four centres to train field technicians, farmers and the community (including women) in forest and natural resources conservation, farm and community forestry, watershed management and water harvesting, management of natural forests and woodlands, and production, processing and marketing of NTFPs.	2-5, 3-1, 5-1, 5-3, 6-1
	5C *Capacity building project for EWCA* Programme to develop infrastructure, equipment, and training; in particular on relevant knowledge and skills for protected area management and biodiversity conservation	4-1, 4-2, 4-4
	5D *Capacity building project for the Forestry Research Institute* Development of infrastructure, equipment, and training for FRI. Note that 5C and 5D could be combined to form a larger capacity development project, or combined with other interventions, such as 4A, to form "integrated" projects.	4-1, 4-2, 4-4
	5E *Development of a regional forestry research institute for South-Eastern Africa* (Ethiopia, Eritrea, Southern Sudan, Somalia, and Djibouti)	4-1, 4-4, 6-11
	5F *Lead an information sharing / clearing house network for PFM*	5-1, 5-3 6-9, 6-11
	5G *Establishment of fund to finance competitive salaries for high-performing government staff*	4-4
6. Other Interventions	6A *IBC PR Support Initiative* Technical and "in kind" assistance to IBC with PR, publicity and awareness-raising for biodiversity conservation, particularly in the current "year of biodiversity"	5-1, 5-3 6-1
	6B *World Bank Sustainable Land Management Project* Technical and / or financial collaboration with the World Bank for the Sustainable Land Management Project	6-7, 6-13
	6C *African Development Bank Koga Irrigation and Watershed Project* Collaborate with the AfDB for soil conservation and forestry elements of this project	5-1, 6-1 6-3
	6D *Collaborate with UNDP and WB on CDM and REDD*	6-6, 6-13 6-14
	6E *Timber and NTFP import substitution and export opportunities* study Provision of expert to research import substitution and export opportunities, with the aim of reducing imports, maximizing value of domestic and invasive species, and increasing exports, hence improving livelihoods.	3-1, 6-4, 6-14

6.3. Priority Interventions

The long-listed projects were evaluated in terms of: i) relevance to JICA preferences ii) appropriateness of size (compared with the capacity of the corresponding government agency), iii) necessity, iv) urgency, v) expected impact, and vi) underlying risks.

The preliminary assessment matrix is provided overleaf, and the eight highest priority activities are tentatively listed below. It should be noted that many of the potential interventions not listed as top priority would be highly valuable, and it would only need a slight shift in one of the contributing factors (e.g. JICA focus, IMF traffic light system etc) to make many interventions a top priority.

1. *Participatory Forest Management in Semi-arid Areas of Oromia*, where there is more need for social improvement, and anti-desertification forest conservation.
2. *Participatory Forest Management in the Somalia Region*, concentrating on the threatened *Boswellia papyrifera* frankincense and gum Arabic rather than forest coffee.
3. *Farm Forestry Development Project*, employing Farmer Field Schools (FFS) methodology that was successful under the JICA Belete-Gera PFM Project.
4. *Participatory Forest Management in Coffee Forests*, using the existing successful model of Balete Gera, in similar ecosystems in the Oromia region (such as Sigma Satama)
5. *Integrated Protected Area Management in the Dati Area*: Capacity building and assistance to OSFWE and EWCA in setting up new protected areas and preparing biodiversity inventories, and using community based methods for developing ecotourism, maximising sustainable NFTP harvest etc.
6. *Capacity building project for EWCA* (infrastructure, equipment, and training); in particular on relevant knowledge and skills for protected area management and biodiversity conservation
7. *IBC PR Support Initiative:* Assistance with PR and publicity for biodiversity conservation, and related legislation.
8. *Timber and NTFP import substitution and export opportunities study*

Finally, there are a number of minor interventions, which although not addressing multiple areas of need, and hence not assigned a high priority, would make very valuable interventions for relatively little outlay on JICA's behalf. Examples include provision of experts, support through provision of field equipment, etc.

Results of Prioritization of Long-listed Potential Interventions (Draft)

(1) Policy

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Policy Facilitation Project	Dispatch of expert	Medium	High	Med.-High	Medium	Med.-High	Political interference	Med.-High

(2) Forestry

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Participatory Forest Management in Semi-arid Areas of Oromia	Tech. cooperation type Project	High	High	High	High	High	None	High
Participatory Forest Management in the Somalia Region	Tech. cooperation type Project	High	Unknown	High	High	High	Unknown	High
Farm Forestry Development Project	Tech. cooperation type Project	High	Unknown	High	Med.-High	High	None	High
Participatory Forest Management in Coffee Forests	Tech. cooperation type Project	High	High	Med.-High	High	High	Some overlap with other donors	High

(3) Biodiversity

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Operational support to seed project	Financial assistance / Dispatch of expert	High	High	High	High	Medium	None	Med.-High
Program to support National Biodiversity Assessment (NBA) and other biodiversity inventory-making	Financial assistance / Tech. cooperation type Project	Med.-High	Medium	Med.-High	High	Med.-High	Requires considerable local capacity	Med.-High
EWCA IT Support Project	Financial assistance / provision of equipment / Dispatch of expert	High	High	High	High	Med.-High	None	Med.-High
Gene Bank Project	Financial assistance / Dispatch of expert	Med.-High	High	Medium	Medium	Medium	None	Medium
Livestock Genetics Improvement Project	Financial assistance / Tech. cooperation type Project	Medium	High	Med.-High	Medium	Medium	Livestock is unusual area for JICA	Medium
Identification of fish genetic resources in warm waters of Afar Region	Financial assistance / Dispatch of expert	Medium	High	Medium	Medium	Medium	None	Medium

(4) Protected Areas

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Dati Protected Area Project	Tech. cooperation type Project	High	High	High	High	Med.-High	None	High
Yabello Wildlife Sanctuary Improvement	Tech. cooperation type Project	High	High	Med.-High	High	Med.-High	None	Med.-High
Addis Highlands Consolidated Protected Area Project	Tech. cooperation type Project	High	High	Med.-High	High	Med.-High	GTZ operating in this area already	Med.-High
Wildlife-based Ecotourism Development in Ethiopia	Financial assistance / Dispatch of expert	High	Medium	High	Medium	Med.-High	Requires good support under operation	Med.-High
Preparation of management plans for IBC in-situ conservation areas and national protected areas not covered by the SDPASE project	Tech. cooperation type Project	High	Med.-High	Medium	Medium	Medium	None	Medium

(5) Capacity Building

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
Capacity building project for EWCA	Financial assistance / Dispatch of expert	High	Med.-High	High	High	High	None	High
Establishment and operation of an internationally certified environmental laboratory for Ethiopia	Financial assistance / Dispatch of expert	Medium	Med.-High	High	High	High	Requires good support under operation	Med.-High
Forestry and Natural Resource Management Technical and Vocational Education and Training Centres	Financial assistance / Dispatch of expert	High	High	Med.-High	Med.-High	Med.-High	None	Med.-High
Capacity building project for the Forestry Research Institute	Financial assistance / Dispatch of expert	Med.-High	Med.-High	Medium	Medium	Medium	None	Medium
Development of a regional forestry research institute for South-Eastern Africa	Financial assistance / Dispatch of expert	Medium	Unknown	Medium	Med.-High	Med.-High	International issues	Medium
Lead an information sharing / clearing house network for PFM	Dispatch of expert	High	High	Medium	Medium	Medium	None	Medium
Establishment of fund to finance competitive salaries for high-performing government staff	Financial assistance	Medium	Medium	Med.-High	High	High	Not known if such interventions are acceptable	Medium

(6) Other

Potential interventions	Type	Relevance	Appropriateness	Necessity	Urgency	Impact	Risk	Priority
IBC PR Support Initiative	Dispatch of expert	High	High	Med.-High	High	High	None	High
Timber and NTFP import substitution and export opportunities	Dispatch of expert	High	High	High	Med.-High	High	None	High
World Bank Sustainable Land Management Project	Multilateral Assistance – Technical and / or Financial	Medium	High	High	Med.-High	Med.-High	None	Med.-High
African Development Bank Koga Irrigation and Watershed Management Project	Multilateral Assistance – Technical and / or Financial	Medium	High	High	Med.-High	Med.-High	None	Med.-High
Collaborate with UNDP and WB on CDM and REDD	Multilateral Assistance	High	Med.-High	High	Med.-High	High	Complicated and lack of knowledge?	Med.-High

7. Further Activities

Due to time constraints and other unforeseen issues such as cancellation of meetings and failure to provide certain documents, obtaining a full picture of the present situation in Ethiopia was not possible during the short field visit. Further time is required for stakeholders to respond, and for discussions between team members and JICA, before firm conclusions or recommendations can be made.

This field report should be therefore be regarded as a summary of the situation and initial intervention ideas, to be developed following the field visits when the initial ideas will be further examined and discussed with relevant development partners working in the field of biodiversity conservation in Ethiopia, as well as JICA HQ.

The final report, to be submitted at the end of July 2010, following the above activities, will provide final recommendations to JICA HQ.

JICA Ethiopia office has shown an interest in following up with stakeholders on some of the issues discussed by the consultant during the survey meetings, and this should be done using the meeting notes in Appendix 1 and the contact list in Appendix 3. Although outside the scope of the present project, the African Development Bank were keen to collaborate with JICA on some of their flagship biodiversity projects in Africa, although these are outside the target countries; should JICA be interested in cooperation, the relevant contacts are to be found in Appendix 3.

Finally, a word of caution regarding communication between JICA Headquarters and its country offices, and the capacity of JICA Ethiopia: It appears to the study mission that there is a minor lack of communication on country-level strategy and capacity, meaning that although JICA HQ may desire to implement certain studies, the country office may not have the required staff or means to manage such a project. Furthermore, it was reported that the country office experiences problems in attracting Japanese consultants to Ethiopia to carry out its work, and this could pose further problems for project implementation.

Meeting / Field Memo

No. of Memo: 1	
1. Topic/Purpose	Meeting with JICA Ethiopia office
2. Participants	Mr. Taka Nakamura (Representative, Agriculture & Rural Development), Mr. Gezahegn Tadesse (Senior Program Officer) and Pirran Driver (NK)
3. Place	JICA Office
4. Date & Time	31 May 2010, 08:30 – 10:30

5. Points of Discussion/Observation

(1) Following general introduction, JICA mentioned the key donors in the biodiversity and climate sectors:

- FAO
- GTZ (Dr. Andrea?)
- EC – staff in MoAg – "Mr. Peter"
- Farm Africa (NGO)
- JIRCAS (V successful CDM project in S America)
- EIAR
- Oromia Forest Enterprise (GM is very good) – counterpart from Belete-Gera but have Addis office
- Embassy of Japan (2-3 million USD grant aid for seedling centre)

(2) JICA's Agriculture pillars used to focus on productivity and marketing more than Natural Resource Management, however the success of Belete-Gera has made them very keen to continue with this type of project. They would therefore like to increase investment in this area and type of project.

(1) Belete-Gera ends in October, but there are plans for a 1 or 2 year extension, possibly involving REDD or CDM. This is being prepared by a Japanese specialist working at FAO in Rome – he knows the project very well – would be good to get this document. Nakamura-san wants to add afforestation/reforestation to the Belete-Gera model (which is currently conservation driven).

(2) JICA Ethiopia would therefore be very appreciative if the current study promoted Belete-Gera follow ons, or other projects in the area based on the same model.

(3) Another interesting project is the JALIMPS (JICA Amhara Livelihood Improvement…) – watershed management. Also the Lasta Woreda CBFM project, but this is run by a Japanese NGO and is of minor significance.

(4) JICA capacity in Ethiopia is low, and following the questioning of JICA regarding efficiency, costs are being cut further.

(5) NK enquired about livestock projects – these are not of interest to JICA, however livestock related add ons to other projects (e.g. biogas/sylvopastoralism for forestry management) are acceptable. JICA is

very keen not to widen focus but concentrate on participatory forest management.

(6) Nakamura-san thinks that it would be more beneficial of this study to focus on stakeholder analysis – who is responsible for what etc, rather than project preparation.

(7) Ethiopia is still on IMF yellow light, so no grant aid for the foreseeable future, despite opinions of JICA economist.

(8) JICA have 40 OVW in Ethiopia, most involved in education

(9) There is no co-financing in Ethiopia at present, though JICA are keen to cooperate with WB for seeds and irrigation

(10) When asked about budget support, basket funds etc, Nakamura-san thought that despite JICA's reluctance, it is better to be "around the table" than not. Also, funds currently provided to AfDB have no accountability, so it might be an idea to pull some from AfDB and use in Basket funds.

(11) Priority geographical area is Oromia region, but there have been issues over counterparts, as the Oromia Forest Partnership is the counterpart, but Agricultural and Rural Development Bureau is providing the staff on the ground. This is a key institutional problem for Belete-Gera. A new project would be difficult in this regard, as if ARDB were made counterparts, OFP would become upset.

(12) NK asked about issues regarding to federal vs. regional – the JICA response is that as there is no fund disbursement, it is easier to work with the regional government. OVOP was at federal level but the partnership was slow and difficult.

(3) In summary, it seems that whilst there are lots of potential options for projects, a follow up to Belete-Gera is really what is needed, however JICA would like to see some good outputs in terms of stakeholder analysis and data.

6. Notes/Issues:

(1) List of current JICA projects in Ethiopia was provided, and a small pamphlet on forestry, which is to be returned after copy.

(2) Follow-up meetings will be held

(3) JICA will provide further contacts resulting from the discussion

Meeting / Field Memo

No. of Memo: 2	
1. Topic/Purpose	Meeting with Ethiopia Wildlife & Natural History Society
2. Participants	Mr. Mengistu Wondafrash (Executive Director), Mrs. Zewditu Tassema (PR and training officer) and Pirran Driver (NK)
3. Place	EWNHS Office
4. Date & Time	31 May 2010, 11:00 – 12:30
5. Points of Discussion/Observation	

(13) EWNHS is 44 years old. It started as a simple society, hosting talks and field trips, but has recently become more and more like an NGO. It is now a serious conservation institution, with international partners and funding.

(14) Partners include international NGOs such as Conservation International, Birdlife International, RSPB, etc, plus bilateral partners include SIDA, FINIDA, Netherlands, DFID, etc, but they have not worked with JICA to date.

(15) EWNHS have two main pillars – education/awareness raising, and biodiversity conservation.

(16) In terms of Biodiversity conservation, they focus on birds (not exclusively) – including specific projects (e.g. conservation of White winged fluff tail) but also general work and research, e.g. inventories (recent book published is "Important Bird Areas of Ethiopia"). Other areas of work include promotion of indigenous trees, via community participation in nurseries, planting etc. and the Trees for Cities project.

(17) EWNHS would be pleased to work in partnership with JICA, in any format needed (i.e. provision of information, assistance with implementation, funding etc). They have many projects requiring funds – they exist to fill gaps in government projects.

6. Notes/Issues:

(1) Several documents on Biodiversity were provided, with more to follow

(2) An important document for NK/JICA to follow up on is a large report on the biodiversity hotspots of Ethiopia – this is in draft format but due for publishing in July/August (Netherlands finance)

Meeting / Field Memo

No. of Memo: 3	
1. Topic/Purpose	Meeting with Ethiopia Institute of Biodiversity Conservation
2. Participants	Dr. Kassahun Embaye (Deputy Director General), Dr. Ganele (Head of Microbiological Division), Dr. Musuke (Head of Animal Resources Division), Dr. Kiflu (Head of PR Division), Dr. Tesfaye (Head of Gene banks and labs Division), Mr. Shetala (Deputy Head of Horticultural Division) and Pirran Driver (NK)
3. Place	IBC Head Office
4. Date & Time	31 May 2010, 14:00 – 16:00

5. Points of Discussion/Observation

(1) Dr Kassahun is involved in CBD, had just returned from CBD talks in Nairobi (well represented by Japanese specialists) and will be going to Japan for COP 10.

(2) IBC, a semi autonomous body under the Ministry for Agriculture and Rural Development, is 35 yrs old – originally formed as a plant genetic resource centre, with assistance from the German government, but then when interest in biodiversity conservation grew, the mandate was expanded to include all aspects of biodiversity. Recent restructuring in line with CBD has produced two "processes": Genetic resource conservation, and genetic transfer, access, and benefit sharing. Under these are numerous divisions, including those represented by the heads of department listed above.

(3) IBC has 220 employees, 30% professionals. Funding is direct from the Ministry of Finance for operations, but project basis funding comes from other sources (at present, mainly GEF via UNEP, WB etc)

(4) IBC follows both in-situ and ex-situ approaches. In-situ includes 12 community gene banks for farmers, inventories of protected area sand areas of interest, 12 so called "in situ conservation sites" (not protected but managed by IBC). Ex-situ includes cold rooms with 65,000 samples (mainly crops), and 10 field gene banks holding around 10,000 species (combined these are just the tip of the iceberg of Ethiopia's biodiversity). ***"in situ conservation sites" are lacking delineation, inventories and management plans, and help would be greatly appreciated.***

(5) The department heads then summarized the areas that they need help in. Many shared the same problems, and a summary of these is as follows:

- Big capacity building needs at all levels; need funds, training, and also visiting specialists/exchanges. Japan is the leading country of the World Microorganism Collection Centres initiative, and has great facilities and expertise that IBC would love to benefit from.
- Assistance with inventories – Ethiopia has a very rich biodiversity, and many endemics, but very little inventory has actually occurred for both wild and domestic species. Field inventory also needs lab back up. Applications to funding agencies have been submitted but no success yet
- Lack of funds for PR department – "biodiversity day" activities, literature etc. Would also appreciate support in kind, such as video equipment for promotional videos.
- Lack of funds to develop gene banks, including a duplicate bank for reasons of emergency. (government is willing to support but would need around 50% external investment)

(6) IBC is responsible for assessing diversity and recommending management methods, whereas other agencies (e.g. Wildlife Authority, Agricultural and Rural Development Bureau etc) are responsible for management of PAs, farming etc.

(7) IBC were reluctant to mention that they had lost faith in JICA providing them with support. Apparently they have received many JICA delegations, but nothing has happened, and they have had too many empty promises. Proposal submissions to JICA have not just been turned down, but have gone completely unanswered. Despite the above criticism, all the staff were very keen to see a change in JICA's working and would happily cooperate with any proposals or suggestions from JICA

6. Notes/Issues:

(1) IBC will prepare a compendium of relevant data, as well as a list of potential projects

Meeting / Field Memo

No. of Memo: 4	
1. Topic/Purpose	Meeting with Mr. Tefera – potential survey assistant
2. Participants	Mr. Tefera and Pirran Driver (NK)
3. Place	Ministry of Water Resources
4. Date & Time	31 May 2010, 16:15 – 17:00

5. Points of Discussion/Observation
(1) NK discussed potential ways in which Ato Tefera could assist with data collection, meeting arrangement, and accompanying on field trips. Assistance is not initially needed, but some may be needed later in the assignment.
6. Notes/Issues: (1) none

Meeting / Field Memo

No. of Memo: 5	
1. Topic/Purpose	Meeting with World Bank Ethiopia office
2. Participants	Mr. Ken Ohashi (Country Director for Sudan and Ethiopia), Dr Achim Fock (Senior Economist, Agricultural and Rural Development), Mr Edward Dwumfour (Senior Environmental Specialist) and Pirran Driver (NK)
3. Place	WB Office
4. Date & Time	1 June 2010, 9.30 – 10.45

5. Points of Discussion/Observation

(1) ***The World Bank were very interested in Collaborating with JICA on forestry and land management projects,*** in particular they see that JICA could provide technical and financial assistance on the Sustainable Land Management Project. This project may also involve REDD or CDM.

(2) WB have been funding a REDD preparedness project in Ethiopia, though this is going slowly. The funding is under the WB Forest Carbon Partnership Fund (FCPF). Apparently very few Ethiopians within the ministries are aware about or understand carbon finance.

(3) The Humbo project is the only successful CDM project in Ethiopia to date, managed by the WB. The WB are keen to scale this out, and hope that if JICA are keen to scale out the successful Belete Gera project then there could be room for cooperation. http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTSDNET/0,,contentMDK:22499557~menuPK:64885113~pagePK:64885161~piPK:64884432~theSitePK:5929282,00.html

(4) In terms of available data, WB will provide some information, but say that for policy etc, EPA should be consulted.

(5) In terms of specific Biodiversity projects, WB only has small medicinal plants project (docs provided)

(6) Regarding the Agricultural Growth Project, things are moving slowly –in particular regarding seed, donors are all uncertain

(7) A large potential project for co-finance is the ***Bale Mountains project***. This is already a potential project under REDD, managed by two NGOs (Farm Africa and SOS Sahel) but is due for expansion – this could be interesting to JICA, particularly as it is in Oromia region. WB has just been asked to join – others involved include the Irish, Dutch and Norwegian governments.

(8) NK asked the WB about the loan status of the country, now that there has been a peaceful election.

JICA may be interested to learn that the WB expect the IMF traffic light to move from yellow to green in the next year or so, allowing loan projects.

(9) WB say that the EPA is responsible for many of their projects, and that EPA is a very weak institution, requiring help. Many of their staff have left and joined funding agencies, and may of the remaining staff prefer to go on workshops etc rather than tackle their work and the problems they face. The WB is doing some gap analysis on this problem at the moment and may then move into institutional support.

(10) When asked specifically where JICA may be able to help, the WB said that in two areas, infrastructure (mainly transport) and food security, the government is focusing hard, and donors are funding hard, however in the field of sustainable land management, investment is very low in comparison to the scale of the problem. ***Any cooperation therefore on sustainable land management would be greatly appreciated, in particular afforestation and reforestation. They would be keen for JICA to link in with their SLMP. Independent extension and upscaling of JICA's existing forestry project would also be greatly appreciated.***

(11) WB would be pleased to meet with JICA soon or after the present study in order to discuss more seriously potential collaboration on forestry projects.

6. Notes/Issues:

(1) Edward to provide some further information by email.

(2) WB invited NK to a CDM workshop but due to other engagements NK declined.

Meeting / Field Memo

No. of Memo: 6	
1. Topic/Purpose	Meeting with Ethiopia Mapping Authority
2. Participants	Mr. Urgetcha (Map library manager), and Pirran Driver (NK)
3. Place	Ethiopia Mapping Authority
4. Date & Time	1 June 2010, 11:00 – 12:00

5. Points of Discussion/Observation

(1) NK visited the mapping Authority hoping to obtain data on biodiversity and forestry related issues, e.g. land cover and land use maps, species maps, protected area maps etc.

(2) Unfortunately EMA is clearly living in the past and is a woefully underfunded and inefficient institution. The only maps available were 1:50,000 general maps of the country, surveyed in 1985. One example map was purchased, as the maps do in fact hold relatively precise (if old) information on forest and plantation types, etc.

(3) No work is underway to produce any updated maps, or specific geological or biological maps. NK spotted an "atlas of Ethiopia" which contained some old subject specific maps, however there are no copies available for copy or purchase.

6. Notes/Issues: (1) No issues, but clearly the authority could benefit from a massive overhaul project.

Meeting / Field Memo

No. of Memo: 7	
1. Topic/Purpose	Meeting with Ethiopian Environment NGO (EENGO)
2. Participants	Mr. Bakele Hambiss (Executive Director), and Pirran Driver (NK)
3. Place	Jupiter Hotel
4. Date & Time	1 June 2010, 16:00 – 16:45
5. Points of Discussion/Observation	
(1) EENGO is small and focuses on Environmental Protection in ***the Oromia region*** (2) Project focus is on ***agroforestry, forestry***, rural water supply, and lately support to women in small scale agriculture. They particularly focus on combating deforestation, via education on NTFPs, sustainable harvest etc, but also have a seedling planting program. (3) As they have limited funding they tend to start up sustainable projects and then let them run themselves. (4) EENGO has been funded by a number of overseas partners, including the Dutch government, Irish government, Methodist church, and SIDA, however at present they are "looking to the sky" for funding, as a number of partners have pulled out, citing the need to focus on human rights (which EENGO are not concerned with). EENGO would therefore be keen to receive funding from JICA for specific projects, but were also interested in receiving individual specialists or even JICA volunteers to assist with their education/awareness program. (5) Mr. Bakele reviewed the meetings lined up and agreed that they were suitable, and could not recommend any other institutions to visit.	
6. Notes/Issues: (1) None	

Meeting / Field Memo

No. of Memo: 8	
1. Topic/Purpose	Meeting with Ethiopian Environmental Protection Agency (EPA)
2. Participants	Dr. Tesfaye Woldeyes (Head, Environmental Information Center), and Pirran Driver (NK)

3. Place	EPA building
4. Date & Time	2 June 2010, 09:00 – 10:30
5. Points of Discussion/Observation	
(1) EPA is no longer the CBD focal point (this is now IBC). EPA are however responsible for environmental protection and increasingly on climate change matters. Their mandate is to develop policies, strategies, standards, plans and programmes in the environment field. Regional implementation is via the Bureau of Agriculture and Rural Development. ***EPA is also the focal point for numerous international agreements, such as CDM, REDD*** (they coordinate all CDM REDD projects, e.g. Bale Mountains), UNCCD etc. EPA has 125 staff. (2) EPA tries to follow up policy with implementation and support to the regions. Communication and relationships with the regional EPAs are good. Regional EPA setup is not uniform so can at times be challenging, despite the good relations (3) EPA have developed numerous laws, guidelines and "state of environment" type reports, all of which were provided to NK. Key documents include the Ethiopia National Conservation Strategy, and the National Environmental Policy. (4) Forest and wildlife is outside EPA's mandate - this is under MOARD. The wildlife authority is also involved - a new agency under the Ministry of tourism. (5) EPA has had little cooperation with JICA to date, though they have received Japanese funds via UNDP for the Africa Adaptation Project. (6) EPA has tremendous need for capacity building (UNEP recently supported a National Capacity Needs Assessment".) ***They would be pleased for JICA technical or financial assistance in this regard. Another key gap in funding is in the area of Early warning assessment and preparedness for climate change, and here they particularly need expert technical support.*** (7) Principal partners include WB, UNEP, UNDP, with minor support from bilaterals, including Norway and Netherlands.	
6. Notes/Issues: (1) Numerous documents were provided, and follow-up meeting offered if required.	

Meeting / Field Memo

No. of Memo: 9	
1. Topic/Purpose	Meeting with Ethiopian Institute of Agricultural Research
2. Participants	Dr. Wubalem Tadesse (Director of Forestry Research), and Pirran Driver (NK)
3. Place	EIAR building
4. Date & Time	2 June 2010, 13:45 – 15:30
5. Points of Discussion/Observation	
(1) The Forestry Research Directorate comes under the Ethiopian Institute of Agricultural Research which in turns falls under the Ministry for Agriculture and rural development.	

(2) The FRD is of course primarily concerned with research, however they also have a strong focus on disseminating and implementing their findings. An example given was research conducted into tapping methods for gum harvest – a new method was devised that doubled the harvest speed, and this was then disseminated to farmers via workshops, handbooks etc. (3) FRD has 4 divisions – Plantations and agroforestry, Natural forests, NFTPs, and Forest products utilization. FRD also has staff within regional EIAR offices. (4) FRD suffer from the same gaps and weaknesses as many other Ethiopian institutions – lack of operational funds (they are funded principally by government) for manpower, field equipment, laboratories etc. (5) Current external partners include the Spanish government and UN, both working on PFM. (6) ***FRD would be pleased to work on PFM with JICA, and will prepare some basic project concepts***. In fact they have submitted proposals to JICA before, but were not successful- DR. Wubalem was pleased to receive information about JICA's technical and geographical focus to assist with their proposals in the future.
6. Notes/Issues: (1) FRD will prepare some basic project concepts (2) FRD will prepare some forestry related data.

Meeting / Field Memo

No. of Memo: 10	
1. Topic/Purpose	Meeting with Oromia Regional State Forest and Wildlife Enterprise
2. Participants	Dr. Girma Amente (Director General), and Pirran Driver (NK)
3. Place	EPA building
4. Date & Time	2 June 2010, 15:45 – 16:55
5. Points of Discussion/Observation	
(1) ORSFWE was formed by Dr.Girma when he returned from overseas study and realised that the standard government driven, protection focused model, with central finance, was not working for Ethiopia. He thought that sustainable management, and providing livelihoods is a far better way to engage local communities into conservation, whilst improving livelihoods and land regeneration. (2) ORSFWE was therefore set up as an autonomous enterprise, managing around 1.7 million ha of forest concessions in Oromia. The enterprise receives no income from government and is self-sustaining. Income from the enterprise pays for the operation, and profits go into a forest fund, to be used for various applications. (3) Oromia has 70% of Africa's tropical highland forest, as well as significant wild coffee populations, and as such is of international conservation interest. Application for UNESCO biosphere is underway. (4) Over the past two years, ORSFWE has started from meager beginnings and is now extremely successful, financially, technically, and socially. Other states are beginning to follow the same model	

as they have seen first hand the success.

(5) ORSFWE has around 2000 employees, with 9 branch offices. The board of directors has several members from the State Bureau of agriculture, so relations are good. ORSFWE manages only its concessions, so the State Bureau of agriculture is also active in Oromia.

(6) The forest enterprise has recently received the additional mandate of managing wildlife in its concessions, though little has been done in that regard to date. Regulation 122/2009 sets out the new responsibilities, and designates the concessions.

(7) 95% of the concessions are natural remnant forest, and although some NFTPs (e.g. wild coffee, honey etc) are produced in these areas, 90% of the ORSFWE revenue comes from the 5% of concessions that are plantations.

(8) Dr Girma firmly believes in participatory forest management (PFM), and sustainable natural resource harvest and development for social development. He is a knowledgeable and committed person and clearly a good partner for development agencies. PFM is not just for donors- he genuinely believes in it.

(9) ***Dr Girma is also focused on developing CDM and REDD***, and was a participant in COP 15 in Copenhagen. ORSFWE work with Farm Africa, SOS Sahel etc on Bale mountains project.

(10) Despite successes, there is still a huge amount of work to do, both in terms of managing current forest (e.g. inventories, NFTP development etc), but also the new wildlife element, with demarcation, management plans, tourism/trophy hunting etc to develop. Also, most existing forestry projects (e.g. JICA, GTZ etc) are at pilot scale, and all of these need scaling up.

(11) ORSFWE particularly rely on donor partners for technical assistance and community level work, and he is very grateful for this, but wishes to scale up operations. Pilot projects are expensive by their nature, due to experimentation and scale, so Dr Girma believes it is only through scaling up that value for money can be achieved.

(12) GTZ are helping with scaling up of their pilot project in 4 regions, and this is going well to date. The ownership that ORSFWE has is very conducive to donor funding.

(13) ORSFWE are keen to scale up the successful JICA Balete Gira project, however Dr Girma understands that a decision on this can only be taken after the project evaluation is complete (currently underway).

(14) Other alternatives for JICA support include PFM projects in 6 forests near to and similar to Balete Gira, as well as assistance with the planned technical training centres, and any assistance with regards to the new wildlife mandate that ORSFWE have been given.

(15) Dr Girma is very grateful to JICA and in particular Nakamura-san, for their support and enthusiasm, and hopes the partnership will continue.

6. Notes/Issues:

(1) Regulation on formation of ORSFWE provided

(2) Invitation to view potential project sites was also provided and may be carried out if sufficient time is available.

(3) ORSFWE will prepare some basic concept notes for potential projects.

Meeting / Field Memo

No. of Memo: 11	
1. Topic/Purpose	Meeting with Ministry of Agriculture & Rural Development (MOARD)
2. Participants	Mr. Taraken Tsigie (Director of Public Relations), Mr. Girma Dante (PR Officer), Dr. Melaku Tadesse (Director, Natural Resource Management Directorate) and Pirran Driver (NK) – later met Mr Techane Adugna (Director, Planning and Programming Directorate)
3. Place	MOARD building
4. Date & Time	3 June 2010, 09:00 – 10:30

5. Points of Discussion/Observation

(1) MOARD is responsible for setting national legislation, policy, guidelines etc for agriculture, including forestry and all other natural resources. They are also responsible for research, extension, and education. Regions are responsible for implementation, though MOARD are responsible for pilot activities and dissemination.

(2) Over the last century, forest cover dropped from 40% to 3%, and they have recently had the aim of restoring this to 9% within 5 years. They have exceeded their goal, with a present cover estimated at around 11%. In addition to afforestation and reforestation, the ministry has also been pushing soil and water conservation, management and restoration.

(3) A key document is the Ethiopian Forestry Action Program

(4) EPA is the host for climate issues, but MOARD have a task team for REDD and CDM, and they are working on both areas, reporting to EPA. June 17th is the 2nd REDD preparedness workshop, and they hope to publish the draft readiness plan in July.

(5) MOARD have numerous projects with other donors, including the AfDB Agricultural Sector Support Project (irrigation, forestry and Sustainable Land Management), UNIDO East African Bamboo project, IFAD Small Scale Irrigation Project, WB Rural Capacity Building Study, and they are just preparing for the JICA OVOP project (bamboo and seed oils).

(6) They ***would appreciate further JICA support, possibly in horticulture (??!!), and CDM***

(7) ***Overall, MOARD seemed less keen to cooperate with JICA on projects or technical assistance relevant to the present study than other institutions met*** – even though there are JICA staff embedded within MOARD. Mr Melaku was quite keen, but did not really have any concrete ideas for projects. When instructed to visit the Director of the planning department, to find out about current and planned projects, the Director was a bit upset that we had not officially written to him first (even though we wrote to MOARD as a whole) and was reluctant to provide any information. Hopefully he will do though.

6. Notes/Issues:

(1) MOARD will project lists, provide legislation, REDD documentation, and the Ethiopian Forestry Action Program

(2) NK or JICA should follow up in July to get the REDD preparedness plan.

Meeting / Field Memo

No. of Memo: 12	
1. Topic/Purpose	Meeting with Natural Disaster Preparedness Agency
2. Participants	NA
3. Place	NA
4. Date & Time	3 June 2010, 11:00
5. Points of Discussion/Observation	
(1) NK arrived for a meeting but despite earlier emails clearly arranging the meeting, there was some confusion and the person to be met was not available. He will also be going on a field visit so it seems a rescheduling of the meeting will not be possible. Fortunately the agency is likely only to be a minor stakeholder in the fields concerned with the present study.	
6. Notes/Issues: (1)None	

Meeting / Field Memo

No. of Memo: 13	
1. Topic/Purpose	Meeting with FARM Africa / SOS Sahel NGOs
2. Participants	Mr. Tsegaye Tadesse (Programme Manager, FARM Africa), Mr. Ben Irwin (Field Coordinator, SOS Sahel) and Pirran Driver (NK)
3. Place	FARM Africa offices
4. Date & Time	3 June 2010, 15:00 – 16:00
5. Points of Discussion/Observation	
(1) SOS Sahel and FARM Africa joined forces on the Bale Eco-region Sustainable Management Programme (BERSMP) to try and overcome "flag-waving" and form a unified effort for PFM in Ethiopia, as well as to maximize impacts. (2) Although both NGOs have other projects (e.g. GEF protected areas) a key area is PFM, and Bale is the flagship project. The 10 year pilot has been very successful, and they are now scaling up in 4 regions. Although Bale is applying for REDD, this is not the only focus, and PFM is key. REDD status is that PIN has been prepared, cooperatives formed, and investors have given feedback. They are about to start the PDD. If successful, Bale will the model for the countrywide REDD programme under WB. (3) A key lesson learnt from the pilot study is that small areas have a large problem of leakage, and Bale is now scaling up – to 20,000km^2. (4) They are aware of JICA's PFM activities but don't know a great deal. They also report that whilst	

JICA is a member of the PFM working group of Ethiopia, they are not very active participants. ***The programme would love to see more involvement from JICA, and are pleased with this initial visit***. One of their main targets is harmonization between funding agencies' PFM efforts, so they would welcome JICA's involvement.

(5) BERSMP had assumed that because JICA has their own PFM project, that JICA would not be interested in collaboration with them, even though they work along very similar lines and with the same stakeholders (e.g. Oromia State Forest and Wildlife Enterprise).

(6) When asked specifically how JICA might assist, technical cooperation was not high on the agenda due to the advanced and successful status of their own project. Volunteers are a possibility, though they were a little reluctant in this regard, due to the risk involved.

(7) Ironically, considering the current study's mission of data gathering, BERSMP think that JICA could improve their information dissemination – they would love to hear more about Balete Gera, JICA's innovations etc, but have not seen any workshops, meetings or literature. ***Plugging this gap, one potential "niche" area for JICA to work in within a PFM partnership in Ethiopia could be to take on the role of managing and promoting information exchange.***

6. Notes/Issues:

(1) BERSMP provided a large amount of hard copy and electronic material in the field of PFM.

Meeting/ Field Memo

No. of Memo: 14	
1. Topic/Purpose	Meeting with JICA
2. Participants	Mr. Taka Nakamura (Representative, Agriculture & Rural Development) and Pirran Driver (NK)
3. Place	JICA Ethiopia Office
4. Date & Time	4 June 2010, 08:30 – 09:30

5. Points of Discussion/Observation

(1) NK explained the progress to date, and broad discussion on the direction of the study took place. Key points are below.

(2) ***JICA mentioned a recent meeting of JICA directors in Nairobi, where JICA discussed how to increase its forestry lending/projects in Africa***

(3) In Ethiopia, only Balete Gera, with the embassy seed production project and OVOP just starting.

(4) JICA would like NK to keep the report broad, and look at all options, although forestry should be the main focus

(5) JICA would like a review and advice within the report on how to implement the Rome FAO application. This is more plantation based, so may not interest Dr Girma (?), so possibly it would be carried out with the Rural bureau instead.

(6) JICA mentioned the report could look at two "lines" – the conservation line (e.g. management of existing forest) and afforestation.

(7) ***For conservation projects (e.g. Balete gera), we should wait until BG is over, however options could include continuing BG as a model area/education area, or scaling up.***
6. Notes/Issues: (1) None

Meeting / Field Memo

No. of Memo: 15	
1. Topic/Purpose	Meeting with AfDB
2. Participants	Mr. Peter Mwanakatwe (Deputy Director), Dr. Harouna Dosso (Senior Agronomist) and Pirran Driver (NK)
3. Place	AfDB Ethiopia Office
4. Date & Time	4 June 2010, 10:15 – 11:30
5. Points of Discussion/Observation	

(1) All work with JICA is based on the 2008 MoU (excerpts provided).

(2) AfDB is cooperating with JICA in some areas, e.g. CARD, but would be pleased to increase that cooperation.

(3) Despite requests from NK, AfDB were not very helpful in terms of information on projects and pipelines, as well as lessons learned etc. NK was simply informed that there are no specific biodiversity projects in Ethiopia.

(4) The details of the mission had been sent to AfDB HQ in Tunis, and several comments and questions were provided, as follows:

- What was the reason for selecting the countries? Ethiopia is understandable but many countries have much more important biodiversity, and more important threats than e.g. Tunisia (such as Madagascar, Congo, etc).
- Why is JICA not simply adopting the results of the national biodiversity plans instead of conducting a new study?
- AfDB prefer to focus on what is most urgent for the continent, rather than selecting countries. As such it sees the Mano river union countries (S Leone, Guinea, Liberia, C Ivoire) and other areas as more urgent than the countries selected by JICA. Furthermore many projects should be transboundary. ***AfDB would be keen to do cofinancing with JICA on the Mano River program, and can send the draft preparation report if necessary. JICA are also welcome to collaborate on the Congo basin initiative, and would be welcome to visit Yaounde in that regard.***

(5) The above were answered as best as possible by NK, however no logical explanation could be given for the question regarding country selection.

6. Notes/Issues:

(1) None

Meeting / Field Memo

No. of Memo: 16	
1. Topic/Purpose	Meeting with JICA specialist within MOARD
2. Participants	Mr. Hisato Suzuki (JICA expert), Mr. Teshome Negussie (Rice research and development Coordinator), Mr. Taka Nakamura (Representative, Agriculture & Rural Development) and Pirran Driver (NK)
3. Place	MOARD offices
4. Date & Time	4 June 2010, 13:30 – 14:30
5. Points of Discussion/Observation	
(1) Suzuki-san, a JICA expert embedded in MOARD, was confused about the current study mission objectives, and was slightly surprised that he was not informed about the mission. The JICA office representative apologized to both Suzuki-san and NK for this lack of communication. (2) NK explained the aims of the mission, and Suzuki-san was very pleased to have someone assisting in this area. ***He was particularly keen that the study team collects data on what is going on in the sector in Ethiopia, who the key stakeholders are, what their organization is, etc***, as he has had little time available for such exercises. (3) Suzuki-san provided various materials, and offered to make some introductions. ***He also requested information of people met to date, for invitation to his planned PFM workshop***. ***(4) Nakamura-san mentioned the possibility of his idea to develop PFM close to Addis so that it can be easily visited***	
6. Notes/Issues: (1) NK to provide details of people met to date. (2) Final debrief to be held with Suzuki on 14th am.	

Meeting / Field Memo

No. of Memo: 17	
1. Topic/Purpose	Meeting with EU
2. Participants	Mr. Peter McCarter (Forestry Specialist – EU PFM project) and Pirran Driver (NK)
3. Place	MOARD offices
4. Date & Time	4 June 2010, 14:30 – 15:30
5. Points of Discussion/Observation	
(1) EU are supporting the scaling up of PFM in Ethiopia, in partnership with the other stakeholders	

already mentioned in previous meetings (FARM Africa, GTZ etc). The EU project is actually only just starting up, and Peter has been in Ethiopia preparing the project, preparing the tender documents, hiring local staff etc. The project is worth 6million Euros.

(2) MOARD are very understaffed and have no capacity. Responsibility for forestry has changed so many times over the past years that there is no stability in the sector in Ethiopia. However things are now improving, and it is an exciting time, with some big goals to tackle the serious deforestation problem in the country.

(3) Peter is impressed with JICA technical staff, but says that the JICA approach is quite different from the other funding agencies and partners, and hence harmonization, which is one of the PFM working group's goals, may be most difficult for JICA.

(4) EU and Bale project overlapped in many regions, so they decided that only one agency would work in each warda.

(5) When asked about lessons learnt, the main one was that MOARD have no capability. When he arrived, MOARD did not even know about the project!

(6) When asked where JICA might take advantage of gaps or linkages, ***it was suggested that scaling up PFM and becoming more involved in harmonization would be a good link, with a potential gap being support to the commercial forestry sector.*** Also, ***development of new forestry enterprises for other regions, following the Oromia model (e.g. Amhara) could be an opportunity.***

(7) Interestingly, Peter thought that indigenous planting and uprooting eucalypts has been a retrograde step, due to not being accompanied by alternative fuel methods (i.e. indigenous are slow growing, but people are still cutting firewood).

6. Notes/Issues:

(1) none

Meeting / Field Memo

No. of Memo: 18	
1. Topic/Purpose	"Conference on climate change adaptation strategies, capacity building, and agricultural innovations to improve livelihoods in Eastern and Central Africa – Post Copenhagen (UNFCCC/COP15)"
2. Participants	Numerous!
3. Place	Addis Ababa Hilton Hotel
4. Date & Time	7 June 2010, 08:30 – 18:00

5. Points of Discussion/Observation

(1) This conference ran for 2 and a half days but NK were present only on the first day. The conference followed the standard format of presentations followed by break-away working groups etc. NK were asked to attend by JICA for data collection purposes. Unfortunately little data was available. The presentations were interesting but not hugely relevant to the project. Several other contacts were made, however.

(2) ASARECA covers 10 countries, 8.5 million square km, and 280 million people, so decisions made at

the conference have great scope for improvement of many peoples' lives. (3) There is much scope for intensification of Africa's agricultural production, to offset climate change and provide food security. Example: world average of Maize production per hectare = 4 tonnes, the Africa average is 1.6 tonnes, and the EC Africa average is 1.4 tonnes. (4) Talk re post-Copenhagen – essentially summed up the process, and concluded that the Copenhagen Accord is a failure, as first of all it is non binding, secondly the process has undermined CDM etc, and thirdly, the commitments are far too low to avoid dangerous climate change. The pledges were to cut emissions to achieve a 2 degree rise over 100 years, however the reality of the best case scenario is a 2.9 degree rise; well into "dangerous" territory. (5) 9 of 10 of the ASARECA countries have prepared NAPAS and uploaded these to UNFCCC. They include inter alia forestry, livestock, agriculture, energy, land management etc. (6) The problem with NAPAS is that there are 26 plans overall, but only 2 are common to all countries, none are prioritised, and none have a financial plan.
6. Notes/Issues: (1) none

Meeting / Field Memo

No. of Memo: 19	
1. Topic/Purpose	Meeting with the Ethiopian Wildlife Conservation Authority (EWCA)
2. Participants	Dr. Kifle Argaw (Director General), Mr. Lakew (National Projects Coordinator), and Pirran Driver (NK)
3. Place	EWCA offices
4. Date & Time	8 June 2010, 14:00 – 16:00
5. Points of Discussion/Observation	
(1) Firstly, all of the background on EWCA, its history, mandate, objectives, activities, weaknesses, partners etc is provided in the excellent presentation, which NK obtained in soft copy. In summary, EWCA is a young but ambitious institution, under the Ministry for culture and tourism, and which is responsible primarily for development, management and promotion of protected areas. They have a small budget but are increasing income, and receive technical and financial support from many donors. (2) EWCA are currently in discussions with JICA regarding the "Community tourism development around Simien Mountains National Park Project". (3) Overall, EWCA were very helpful and interested to cooperate for increased JICA support. (4) NK asked for clarification regarding overlap of EWCA responsibilities with EPA and IBC. In response, EPA have a much wider mandate, and are accountable to the PM. EWCA is accountable to the State Minister. Day to day management of PAs is with EWCA, though they must go through EPA e.g. with regards to e.g. GEF / CITES (EPA are focal point). IBC is concerned with policy and genetic conservation, with only a very small number of in situ conservation projects. In terms of regional management of PAs, EWCA is responsible for all PAs of international interest, plus any trans-regional	

PAs, plus transboundary PAs. Regional authorities are responsible for all other PAs.

(5) EWCA now have a good working relationship with other institutions, though this was not always the case in the past.

(6) In terms of capacity to enforce regulations – they are still working on this as police and locals are not aware of the regulations, and there is a lack of field capacity for enforcement, but this is improving.

(7) Their current flagship project is the GEF/UNDP SDPASE project – 9 million USD over 8 years, to build capacity.

(8) NK asked if they follow the NBSAP or NAPA and the answer is yes they do, however there is a minor lack of integrity that impedes things (improving).

(9) ***EWCA would be pleased to receive more JICA support, whether on project basis as per the above, or in terms of individual experts or materials. EWCA said that between the late 70s and early 90s, they had 4 JICA staff assisting them, with great success*** (even a mountain is named after Mizino-san!). ***They would welcome more technical experts***.

(10) Since the early 90s they have had no support from JICA. ***They do however have a good relationship with the Japanese embassy, who they asked for assistance with marketing of crocodile skins in Japan. Possibility for OVOP?***

(11) EWCA say that they are poorly promoting Ethiopia overseas, including in Japan. Most Japanese go to Kenya or Tanzania on Safari, but not Ethiopia – ***they would therefore welcome assistance with promotion of tourism (may fit with the project currently under negotiation?)***

(12) ***Another area that they would be appreciative of support in is the setting up of GIS and ITC systems*** – they want to digitize plus demarcate. Japan is strong is strong in this sector, and ***EWCA would love to have JICA financial support for this, and also they would love to receive a specialist to assist them***.

(13) When asked if they have any specific project ideas, they stated that as each donor has individual preferences, they tend to prepare them upon request, rather than having "off the shelf" projects ready – as a result, they could not provide specific projects. NK informed them of the areas that JICA are interested in, and EWCA said that they could prepare project summaries following official request from JICA.

6. Notes/Issues:

(1) Various documents provided, and ***EWCA are willing to prepare specific project briefs or proposals if requested officially by JICA to do so***.

Meeting / Field Memo

No. of Memo: 20	
1. Topic/Purpose	Meeting with UNDP
2. Participants	Mr. Valdemar Holmgren (Director, Genetic Resources Directorate), Dr. Aloanesh Tasema (CDM National Project Coordinator), and Pirran Driver (NK)
3. Place	UNDP

4. Date & Time	9 June 2010, 15:00 – 16:00

5. Points of Discussion/Observation

(1) UNDP said that they could not add much to the people already met, however they still offered some useful insight!

(2) A key project is the African Adaptation Programme, for which ***Japan is already a key donor – in fact the only country supporting all 20 countries.*** The Programme is helping to build capacity for governments to manage big climate projects, which are likely to come up in the future. All AAP is through EPA

(3) Most UNDP projects are GEF funded, but most donors in Ethiopia channel funds through them (but not JICA).

(4) They have been restructuring and environmental issues will now become more important. Whilst they manage many large projects, they have few technical staff and so welcome further cooperation

(5) UNDP have little communication with JICA and would be interested to have more communication and cooperation

(6) UNDP would be interested for JICA to become more involved in CDM and REDD issues. UNDP are helping to prepare several CDM projects at present (industrial, WWT and SWM) – CDM in Africa in general and in Ethiopia has not been successful due to complicated rules, lack of capacity, upfront investment etc etc. Likewise REDD has insufficient support. ***Support from JICA/Japan in these areas would be welcome***. UNDP would be happy to be brokers and work between GoE and JICA on this.

(7) When discussing Japanese technical expertise, UNDP mentioned that Ethiopia lacks a globally certified environmental lab of any sort, and ***hence this could be an excellent gap for JICA to fill***.

(8) UNDP is interested in mating carbon finance with rangeland management. This is a potentially huge area, but is possibly not within JICA Ethiopia's area of interest.

(9) Ethiopia has particular interest for biodiversity due to wide biogeographic variety. Water is also a big issue, including climatological issues (e.g. current unseasonal rains) and in terms of developing water harvesting/harnessing.

6. Notes/Issues:

(1) UNDP is happy to send any relevant information, and in return would like a copy of the field report or draft report. They were also interested in NK's previous work on slaughterhouse waste and rangeland management, and these reports will be passed on.

Meeting / Field Memo

No. of Memo: 21	
1. Topic/Purpose	Return visit to IBC
2. Participants	Dr. Gemedo Dalle (Policy & Technical Adviser on Sustainable Land Management and Partnership building), Dr. Aloanesh Tasema (Team Leader, Plant Genetic Resources), Dr. Kiflu (PF Director) and Pirran Driver (NK)

3. Place	UNDP
4. Date & Time	10 June 2010, 08:30 – 09:30
5. Points of Discussion/Observation	
(1) Although a return visit to collect the prepared information, as two staff members were not present at the original meeting, NK explained the mission to them and asked for their opinions. (2) The ideas for support were similar to those mentioned in the previous meeting, however IBC were keen to put in place a working relationship with JICA (e.g. MoU) rather than just focus on project basis work.	
6. Notes/Issues: (1) Information collected	

Meeting / Field Memo

No. of Memo: 22	
1. Topic/Purpose	Return visit to EIAR – Forestry Research Centre
2. Participants	Dr. Wubalem Tadesse (Director of Forestry Research), Dr. Yitebu Moges (Agroforestry National Coordinator), Dr Adefires Worku (NTFP specialist) and Pirran Driver (NK)
3. Place	EIAR
4. Date & Time	10 June 2010, 14:00 – 15:00
5. Points of Discussion/Observation	

(1) Although a return visit to collect the prepared information, as two staff members were not present at the original meeting, NK explained the mission to them and asked for their opinions.

(2) EIAR provided an overall concept note on the needs of EIAR plus several project briefs for specific projects

(3) The ideas for support were similar to those mentioned in the previous meeting, but some further ideas were proposed:

- EIAR know that JICA helped the Kenya Forestry Research Institute so hope that they might be keen to help EIAR.
- EIAR feel a bit marginalized, and feel that such an important centre needs more support – their newest vehicle is 12 yrs old.
- Corruption can be a problem in mountain forest concessions due to local government
- Government therefore need a push to be more concerned with Forest research, and ***EIAR hope that JICA might lobby the GoE for this.***
- Dry forest in Somalia region may be of less interest to funding agencies, but it has very high endemism, and very high value, however is being deforested and degraded. The area is also an important desert buffer. Gum Arabic trees and frankincense trees are threatened - ***their***

preservation could be potential OVOP or PFM.

- EIAR mentioned again the clash between agricultural extension and forestry, which considering the value of the forests in many aspects, and the "wood famine" - is a serious mistake
- Overall, EIAR would appreciate JICA support (in order) to strengthen their capacity, lobby government, and provide project level support.

6. Notes/Issues:

(1) Excellent Information collected, and they are happy to provide any further information, or provide more detailed information/briefs.

Meeting / Field Memo

No. of Memo: 23	
1. Topic/Purpose	Meeting with GTZ
2. Participants	Dr. Tesfaye Mebrahtu (Deputy Director - SLM), Dr Amare Worku (PFM specialist) and Pirran Driver (NK)
3. Place	GTZ offices
4. Date & Time	10 June 2010, 15:30 – 16:30

5. Points of Discussion/Observation

(1) GTZ have around 1000 staff in Ethiopia, with two major programmes – the Sustainable Land Management Programme, and the Urban development programme.

(2) Dr. Tesfaye Mebrahtu is President of the Ethiopia Forestry Association

(3) The SLM programme consists of agriculture, food security and forestry (PFM). Donors include GEF, UNDP, WB, KfW, DED. Most of SLM uses watershed approach (following government direction). They are now upscaling their PFM pilot in 4 areas of Oromia, in partnership with the Oromia Regional State Forest and Wildlife Enterprise. ***One of these forests is around 35 km from Addis – Manageshe Suba.***

(4) The areas of interest to JICA are becoming increasingly of interest to the government, and are areas that GTZ have been working in for years. GTZ were the first to introduce PFM to Ethiopia, back in 1996

(5) GTZ have had good cooperation with JICA through the SLM platform, but would welcome an increased effort from JICA in these areas

(6) The Ethiopian Strategic Investment Framework for Forestry (GTZ doc?) sets out PFM and Biodiversity as key goals.

(7) GTZ have also been involved in climate /forest cross cutting projects e.g. energy efficient stoves, and peri urban plantations for biomass supply.

(8) GTZ think PFM would be good for JICA to increase their input as it is very cost efficient compared with Watershed management.

(9) In terms of pure biodiversity projects, GTZ have been supporting IBC since its inception, and are

currently leading 2 UNESCO biosphere projects, have worked on a coffee improvement project, and have been involved in a seed programme.

(10) GTZ encourage NTFP development also, via seed collection and honey projects.

(11) GTZ are not linked up with EIAR forestry research, but plan to do so.

(12) If ***JICA would like to join GTZ in PFM/SLM and any other areas, they would be most welcome*** – GTZ's experience, plus support network, regional offices etc, mean that JICA could slip in to projects and programmes quickly and with relatively little effort or admin trouble. ***JICA would be welcome to adopt a particular niche area*** – for example either specific watersheds (in Oromia), or specific tech areas (e.g. Finland support only land administration elements – another option could be forest plantation.)

(13) GTZ and JICA are similar in being strongly focused on technical, they have similar volunteer networks, and dislike basket fund style work, so there is potential for very successful collaboration.

(14) Regarding lessons learnt in PFM, the results are resounding successes, and just show how traditional forest management does not work in Ethiopia. Over the past years in their PFM area, the project area forest has increased by 15% whereas the non-project elements have deforested by over 15%.

6. Notes/Issues:

(1) GTZ will send the Ethiopian Strategic Investment Framework for Forestry by email

Meeting / Field Memo

No. of Memo: 24	
1. Topic/Purpose	Balete Forest Field Visit
2. Participants	JICA team and Pirran Driver (NK)
3. Place	Balete Forest
4. Date & Time	12 June 2010, 07:30 – 16:00

5. Points of Discussion/Observation

(1) Although not part of the ToR, as a JICA end of project review was visiting the Balete-Gera project the study team accompanied them.

(2) The team attended a community meeting preparing management plans for the homestead/community areas, and it was a very successful day. The community was very pleased to see the JICA team, was very grateful for the work done, and were eagerly involved in managing their own development. The field leaders from OSFWE were impressive.

(3) Farm training pilot plots were visited and showed that the community had been learning by doing regarding composting, growing techniques etc.

(4) The coffee cooperative created under the project was also visited and this appeared to be functioning well.

(5) Overall, despite the brevity of the visit, the project appeared to be having truly meaningful and

beneficial effects at the community and forest conservation level.
6. Notes/Issues: (1) None

Meeting / Field Memo

No. of Memo: 25	
1. Topic/Purpose	Meeting with JICA Chief Advisor – Balete Gera PFM Project
2. Participants	Mr. Tsutomu Nishimura (Chief Advisor), and Pirran Driver (NK)
3. Place	Balete Gera PFM Project office
4. Date & Time	12 June 2010, 16:00 – 16:30
5. Points of Discussion/Observation	

(1) Nishimura-san provided details of the project, background etc. This was followed by provision of statistics on the success of the project based on indicators, and a demonstration of all the materials created under the project (manuals, contracts, training materials etc).

(2) It is clear that while the project is slightly behind in terms of schedule (all communities in the forest will be under WaBuB by the end of the project, but management plans are not all in place), it is clear that the project has been very successful in terms of forest conservation, community development and livelihood improvement (mainly through improved agriculture, more effective apiculture, and increased coffee income).

(3) Key features that distinguish the JICA project from other PFM projects in the region are a) others are all pilots – Balete Gera phase 1 was a pilot, but phase two covered all the communities in the forests b) the development of NTFPs as a viable and sustainable business and c) the forest is conservation only. The project has also made excellent use of Development Agents from the Rural Bureau of Agriculture, developing their capacities – something others have not done.

(4) JICA's role is mainly coordination and technical expertise – the day to day management and implementation is with OSFWE and the DAs.

(5) It seems that the project has been very successful, and will continue to increase its success even after JICA's departure. As lessons have been learnt, and perhaps more importantly, as all the documents, contracts, training materials, and so forth are all prepared, rolling out a new PFM project on the same basis as Balete Gera would be relatively easy and cost effective.

(6) Nishimura-san said that this would be easy in a similar forest, but mentioned something that ties in with what EIAR mentioned – that in fact lots of attention is already given to this region, and that a slightly altered PFM project is needed far more in the semi-arid regions of Ethiopia – both by the biodiversity/environment needs, and by the people. NK mentioned the EIAR meeting and the possibility of developing frankincense and gum Arabic in lieu of forest coffee – in fact the Japanese buyer of forest coffee's main business is with incense and perfumes, so this could be a perfect opportunity.

6. Notes/Issues: (1) None

Meeting / Field Memo

No. of Memo: 26	
1. Topic/Purpose	Sigma Satama Forest Field Visit
2. Participants	Ato Tesfaye (OSFWE representative) and Pirran Driver (NK)
3. Place	Sigma Satama Forest
4. Date & Time	13 June 2010, 07:00 – 13:00
5. Points of Discussion/Observation	
(1) The field visit was limited to just half a day, and so it is clear that with such a short time period, truly meaningful investigations into the huge forest area, interviews with local communities, etc, could not take place. The visit consisted of viewing the potential project area and discussing the area with local forestry staff. (2) The forest is generally of a similar type / composition as the existing Balete-Gera forest, as Sigma Satama backs on to the Gera forest. Some parts are higher than Balete-Gera, and thus do not hold wild coffee – this means that these areas may be less attractive in terms of rolling out the same project model as Balete Gera, but due to the lack of income, the needs are greater. (3) The forest is also suffering from degradation – mainly due to extension of agriculture and increasing population in the area. The field team was shown areas that 10 years ago were natural forest that had now been converted to agriculture/homesteads. Fragmentation is increasing. (4) Unlike Belete-Gera, areas of Sigma Satama are under active plantation/harvest by OSFWE (2,241 ha of around 130,000 ha total). (5) The local forestry manager is extremely concerned about the area. He reports that OSFWE do not provide enough support, and that without intervention soon, the area may be irrevocably damaged. He mentioned that no other donors have shown any interest in working in the area.	
6. Notes/Issues: (1) None	

Meeting / Field Memo

No. of Memo: 27	
1. Topic/Purpose	Email exchange with FAO specialist (due to cancelled meeting)
2. Participants	Mr. Malo Meshak (Forestry specialist), and Pirran Driver (NK)
3. Place	NA
4. Date & Time	NA

5. Points of Discussion/Observation

(1) The need for biodiversity conservation cannot be over-emphasized especially in agricultural systems in the face of climate change. Changing climate will call for a revert to agro-biodiversity that potentially stand to provide a rich genetic pool from which scientists can maneuver genes. Adaptation will largely depend on a large genetic pool to work on genetically.

(2) In Ethiopia and eastern Africa in general as they are within the Somalia Centre of endemism, most ecosystems are vulnerable and would definitely be destroyed in light of current poverty and hunger issues. It's unrealistic to call for communities to conserve the only tree even if it's the one they use for shelter if they can't have the next meal. It's a simple econometric model of discounting.

(3) REDD remains a great possibility in theory however in practice it remains a mirage unless philanthropists would assist in getting baseline data- very unfortunate case (unless things drastically change).

(4) Capacity in the relevant government remains low- quite common and needs no research. The challenge is how to sustainably develop it. Organizations have been in Africa for decades capacity building but what has been the problem? Such international organizations need to re-evaluate their strategy.

(5) Overlaps? Not a major concern the strategy is the issue in my perspective.

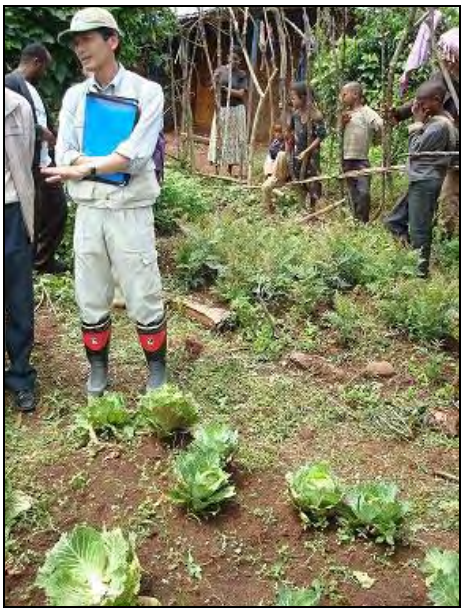
6. Notes/Issues:

(1) None

Appendix 2: Photos from Field visit to Balete-Gera PFM Project and Sigma Satama Forest

Balete Gera Project Area

Community meeting to develop management plans



Test Area for Farmer Field School

Honey from improved bee hives

Forest Coffee at Cooperative

Cut Plantation forest near Sigma Satama

OSFWE nursery near Sigma Satama

Sigma Satama Forest Showing Fragmentation

Appendix 3: Contact list

Name	Position	Organisation	Tel	email
Mr. Taka Nakamura	Representative, Agriculture & Rural Development	JICA	011 550 47 55	Nakamura.takahiro@jica.go.jp
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Mrs. Zewditu Tassema	PR and training officer	Ethiopia Wildlife & Natural History Society	0911 162306	
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Dr. Misikire Tessema	Head of Animal Resources Division	Ethiopia Institute of Biodiversity Conservation	0911 252583	misikiretessema@yahoo.com
Dr. Kiflu	Head of PR Division	Ethiopia Institute of Biodiversity Conservation	0911 1470 31 011 651 2039	
Dr. Tesfaye	Head of Gene banks and labs Division	Ethiopia Institute of Biodiversity Conservation	NA	NA
Mr. Shetala	Deputy Head of Horticultural Division	Ethiopia Institute of Biodiversity Conservation	NA	NA
Mr. Ken Ohashi	Country Director for Sudan and Ethiopia	World Bank	011 517 6001	kohashi@worldbank.org
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Mr Edward Dwumfour	Senior Environmental Specialist	World Bank	0910 902345	edwumfour@worldbank.org
Mr. Urgetcha	Map library manager	Ethiopia Mapping Authority	NA	NA
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Mr. Taraken Tsigie	Director of Public Relations	Ministry of Agriculture & Rural	0913 315217	

Name	Position	Organisation	Tel	email
		Development		
Mr. Girma Dante	PR Officer	Ministry of Agriculture & Rural Development	0911 474739	
Dr. Melaku Tadesse	Director, Natural Resource Management Directorate (?)	Ministry of Agriculture & Rural Development	0911 655976	Mela635@gmail.com
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Mr. Tsutomu Nishimura	Balete-Gera PFM Project Chief Advisor	JICA	0917 802981	Tnishimura2@yahoo.co.jp

Field Survey Report for the Data Collection Survey on Biodiversity Conservation in Asian and African Regions

Country surveyed: The Republic of Uganda

June 13, 2010

1. Outline of the Survey

1.1. Background of the Survey

Mankind heavily depends on biodiversity in our lives. Nevertheless, it is reported that the biodiversity on earth is in a critical condition as over 40,000 species become extinct every year due to various human activities, such as deforestation, over hunting, water pollution and others. Efforts to conserve biodiversity have been reinforced internationally after the adoption of the Convention on Biodiversity (CBD) at the United Nations Conference of Environment and Development in 1992. The Government of Japan has also actively worked on the conservation of biodiversity since then as a country that ratified the convention. This year is the last year of the 2010 biodiversity target adopted by the Conference of the Parties (COP 6) held in the Netherlands in 2002. Furthermore, Japan will host the tenth meeting of the COP in October 2010 as the chair country and is expected to play an important role in leading the activities on biodiversity conservation not only domestically but also internationally.

The Japan International Cooperation Agency (JICA) has successfully implemented a number of cooperation projects/programs on biodiversity conservation. Because of its long and successful achievements, the international community expects JICA to make more contributions, towards COP 10, to the conservation of biodiversity in developing countries. In particular, the countries in Asian and African regions need further assistance in biodiversity conservation since there are many biodiversity hot spots and untouched natural forests still remaining in the regions.

Given this background, JICA was determined to conduct a survey to collect and analyze relevant information/data concerning biodiversity conservation and forestry-related measures against climate change, identifying the needs for future cooperation/assistance in the same subjects in the Asian and African regions.

Following initial desk study and discussions with JICA, the following eight countries were selected from the possible 78 countries; four in Asian and another four in Africa:

- Vietnam
- Philippines
- Cambodia
- Lao RDP
- Uganda
- Botswana
- Ethiopia
- Tunisia

The selected countries are considered strategically important for biodiversity conservation in the regions and in need of JICA’s interventions.

The field surveys consisted of numerous activities, including:

- Discussion of work plan with JICA branch office and relevant government organisations

- Interviews with relevant organisations for data collection
- Discussions on needs for assistance in biodiversity conservation and forestry
- Examination of possible project potential.

1.1. Survey Team

The survey team was composed of five consultants, with each visiting one or two countries to conduct the field surveys described above. The team members were assigned countries based on past experience, language ability, etc.

Name	Position	Responsible for
Yoji Mizuguchi	Team Leader	Cambodia & Philippines
Hideki Imai	Co-team Leader for Asian region	Vietnam & Lao PDR
Yayoi Yoshioka	Biodiversity/Climate Change (forest conservation) for Asian region	Philippines
Hiromi Yasu	**Co-team Leader for African region**	**Uganda & Botswana**
Pirran Driver	Biodiversity/Climate Change (forest conservation) for African region	Ethiopia & Tunisia

1.2. Schedule of Survey

The Survey in Uganda was conducted between the 19th May and the 3rd June 2010. A Detailed breakdown of the survey activities is provided in below.

Date	Activities
May 18 (Tue)	Arrival at Kampala, Meeting with JICA Uganda Office
May 19 (Wed)	Meeting with the Fishery Resource Department of MAAIF, Meetings with Uganda Wildlife Society, Meeting with JICA Uganda Office
May 20 (Thu)	Meetings with Lake Victoria Environmental Program, Meeting with NFA, Meeting with Climate Change Unit
May 21 (Fri)	Meetings with MWE and Wetland Management Department
May 22 (Sat)	(Data arrangement)
May 23 (Sun)	(Data arrangement)
May 24 (Mon)	Meeting with UWA, Meeting with Department of Meteorology, Meeting with JICA Uganda Office
May 25 (Tue)	Meeting with UWA and NFA, Meeting with Wetland Management Department
May 26 (Wed)	Meeting with REDD unit of NFA, Meeting with Crop Resource Department, Meeting with JICA Expert of irrigation project
May 27 (Thu)	Meeting with IENR in Makerere University, (Data arrangement)
May 28 (Fri)	Meeting with NFA, Meeting with Wetland Management Department
May 29 (Sat)	Meeting with JOCV in Mabira forest reserve, (Data arrangement, Report making)
May 30 (Sun)	(Data arrangement, Report making)
May 31 (Mon)	Meeting with Wetland Management Department, IUCN and UNEP
June 1 (Tue)	Meeting with NEMA, Move from Kampala to Mbale
June 2 (Wed)	Meeting with the district administration office in Kumi district, Visit to Wetland and irrigation sites
June 3 (Thu)	Move from filed back to Kampala
June 4 (Fri)	Reporting to JICA, Wetland Management Department and NFA
June 5 (Sat)	(Data arrangement, Report making)

Date	Activities
June 6 (Sun)	Move from Kampala to Gaborone via Johannesburg

Appendix 1 gives memos of some of the meetings that the survey team has had during the assigned period.

2. Situation Analysis of the Biodiversity Conservation and Forestry Sectors

2.1. Current relevant policies, strategies and plans

2.1.1 National Development Plan 2010/2011-2014/2015

The most recent policies in biodiversity and forestry conservation are presented in the National Development Plan (2010/2011-2014/1015) which was issued in April 2010 by the Government. The strategy of the Plan is **"to intertwine economic growth and poverty reduction. Policies and strategies will be focused towards achieving accelerated and sustainable growth in the priority areas, creation of gainful employment and socio-economic transformation for prosperity"** (underlined by the author).

The objectives and strategies in relation to biodiversity conservation are presented in the following four sectors in the Plan such as 1) environmental sector, 2) wetland management sector, 3) forestry sector, and 4) climate change sector. Followings are the highlights of the policy objectives and strategies declared in these sectors.

(1) Biodiversity conservation

The objective and strategy in relation to biodiversity conservation are summarized in the environment and wetland management sector as in the following tables.

Policy objective and strategy in the environmental sub-sector,

Objective	Strategy
Objective 1 Restore degraded ecosystems (wetlands, forests, range lands, and catchments) to appropriate levels	**Strategy 1**: Restore the forest cover to 1990 levels **Strategy 2**: Restore the wetlands, rangelands and monitor restoration of all ecosystems **Strategy 3**: Support environmental improvement initiatives
Objective 2 Ensure sustainable management of environmental resources and minimize degradation	**Strategy 1**: Integrate environmental concerned in all development initiatives **Strategy 2**: Strengthen the policy, legal institutional framework to support environmental management **Strategy 3**: Develop national, regional and international partnerships and networks to enhance trans-boundary environmental management **Strategy 4**: Enhance institutional collaboration between key actors to assist in regulating counterfeits and other non-environmental friendly products **Strategy 5**: Increase public awareness and environmental education **Strategy 6**: Promote compliance with environmental laws and regulations **Strategy 7**: Increase and enhance access to environmental information for investment and environmental management
Objective 3 Identify and address emerging environmental issues and opportunities	**Strategy 1**: Improve electronic and other hazardous waste management **Strategy 2**: Sustainable management of Oil and Gas resources **Strategy 3**: Improve the management of chemicals

Source: National Development Plan 2010/2011-2014/2015

Policy objective and strategy in the wetland management sub-sector,

Objective	Strategy
Objective 1 Enhance the sustainable use of wetlands in order to achieve the optimum, ecological value and socio-economic benefits for development	**Strategy 1**: Conserve the biodiversity value of wetlands **Strategy 2**: Ensure the ecological value of wetlands **Strategy 3**: Ensure sustainable use of wetlands for economic purposes **Strategy 4**: Institute and operationalise appropriate policy, legal and institutional frameworks **Strategy 5**: Restore degraded wetlands and ensure sustainable management **Strategy 6**: Promote trans-boundary cooperation for sustainable management of wetlands

Source: National Development Plan 2010/2011-2014/2015

(2) Forest conservation

The objective and strategy in relation to forest conservation are summarized in the forestry and climate change sectors as follows.

Policy objective and strategy in the forestry sub-sector,

Objective	Strategy
Objective 1 Restore Forest Cover from 3,604,176 ha (2005) to 4,933,746 ha (level of 1990) by 2015	**Strategy 1**: Reforestation and afforestation of 1,266,000 ha in 698 forest reserves and 730,000 ha in national parks and game reserves **Strategy 2**: Promote greening along and around public infrastructure and establishments **Strategy 3**: Promote commercial tree planting on private land **Strategy 4**: Increase involvement of the population in tree planting **Strategy 5**: Support research and development to promote new high-yielding and appropriate tree varieties **Strategy 6**: Strengthen the capacity of relevant sector institutions to effectively enforce forest and environmental laws and regulations
Objective 2 Restore degraded natural forests in forest reserves and private forests	**Strategy 1**: Improve low stocked natural forests using the landscape approach **Strategy 2**: Protect the government permanent forest estate
Objective 3 Reduce pressure on forest cover as a source of wood fuel and construction material	**Strategy 1**: Speed up implementation of the rural electrification program **Strategy 2**: Scale-up incentives to promote investment in generation and use of alternative energy **Strategy 3**: Promote the use of efficient energy saving sources **Strategy 4**: Invest research and development for alternative energy source **Strategy 5**: Promote efficient use of timber in the construction and furniture industries **Strategy 6**: Regulate forestry activity on private land in line with the land use policy
Objective 4 Promote forestry-based industries and trade	**Strategy 1**: Promote forest habitat-based livelihoods and products (fore example apiculture and natural medicines) **Strategy 2**: Promote Eco-tourism **Strategy 3**: Introduce and popularize the use of timber and timber product substitutes, and processing technologies **Strategy 4**: Strengthen networks for participation of local private sector in the global carbon credit market

Source: National Development Plan 2010/2011-2014/2015

Policy objective and strategy in the climate change sub-sector,

Objective	Strategy
Objective 1 Developing national capacity for coordination and implementation of climate change adaptation and mitigation activities in the country in support of social welfare and national development	**Strategy 1**: Address legal and institutional frameworks necessary for the implementation of the UNFCCC
Objective 2 Ensure climate proof development planning	**Strategy 1**: Re-define climate change as a development issue
Objective 3 Promote low carbon economic development path	**Strategy 1**: Provide and promote incentives for clean development
Objective 4 Meet Uganda's international obligations	**Strategy 1**: Implement climate change conventions

Source: National Development Plan 2010/2011-2014/2015

2.1.2 Sector policies, strategies and plans

Beside the National Development Policy, there are several policies and plans of the sectors in relation to biodiversity conservation such as land, forest, wetland and fishery. Followings are the list of the main policies and plans in those sectors. The details will be provided in the final report of the survey.

Sector policy, strategy and plans in biodiversity and forest conservation

Sector policy, strategy and plan
Uganda's Biodiversity Strategy and Action Plan (BSAP)-Wetlands resources sub-sector component (1999)
Land Sector Strategic Plan (2001-2010)
A National Land Policy/A National Land Use Policy
Uganda Forest Policy (2001)
National Forest Plan (2002)
National Policy for the conservation and Management of Wetland Resources (1995)
Wetlands Sector Strategic Plan 2001-2010
Wetland Sector Strategic Plan 2011-2020 (Draft)
Uganda Wildlife Policy (1999)
Uganda Wildlife Authority (UWA) Strategic Plan (2007-2012)
Wetland Action Planning and Budgeting at District and Sub-country level
Frame work management plan for target wetlands (2008)
Wetland community management plan for three years (2004)

2.2. Current legislative set-ups, regulations and guidelines

2.2.1 Government laws and regulations

The Government issued laws and regulations for providing the protection and the sustainable uses of the natural resources in terrestrial and water environments in the country. Followings are their highlights in relation to biodiversity and forest conservation.

Government laws and regulations in relation to biodiversity and forest conservation

Government law, regulation and guidelines	Contents in relation to biodiversity and forest conservation
The Constitution of the	The Constitution is the supreme Law of the country. It provides adequately for

Government law, regulation and guidelines	Contents in relation to biodiversity and forest conservation
Republic of Uganda (1995-)	the management of the ENR in various articles. Objective XIII strongly states **"the State shall protect important natural resources including land, water, wetland, minerals, oil, fauna and flora on behalf of the people of Uganda"**. In objective XXXVVII, the national Constitution also pronounces itself distinctly on balanced and sustainable use of NRs for the present and future generations. Other related articles regarding the ENR in the Constitution include articles 39, 237, 242, 244 & 245. Article 39 in particular states **"every person has a right to a clean and health environment"**.
The Land Act Cp. 327	The Land Act came into force on July 2nd 1998 as a new law and was amended on March 18th 2004. It is an Act to provide for the tenure, ownership and management of land. Deriving from Article 237 of the Constitution, the Act stipulates that all land in Uganda shall vest in the citizens of Uganda and shall be owned in accordance with four tenure systems- customary, freehold, malio leasehold. Specifically on utilization of land, section 43 of the Act stipulates that: **A person who owns or occupies land shall manage and utilize the land in accordance with the Forest Act, the Mining Act, the National Environment Act, the Water Act, the Uganda Wildlife Act and other law**. The Act gives direction on the control of environmentally sensitive areas in section 44. It provides in Section 45 for land use planning and zoning in reference/parallel with the Town and Country Planning Act.
The National Environment Act, 1995	The legal framework for environmental management was established in the early 1990s with the enactment of the National Environment Act (1995). The Act is to: a) Provide for sustainable management of the environment; b) Establish an authority as the coordinating, monitoring body for that purpose; and c) For other matters incidental to or connected for the foregoing The Act guides on the general principles of environment management, establishment of the National Environment Management Authority (NEMA).
The National Forestry and Tree Planting Act, 2003	The Act is to: a) provide for the conservation, sustainable management and development of forest for the benefit of the people of Uganda; b) provide the declaration of forest reserves for purposes of protection and production of forest produce; c) provide for the sustainable uses of forest resources and the enhancement of the productive capacity of forests; d) provide for the promotion of tree planting; e) consolidate the law relating to the forest sector and trade in forest produce; f) establish a National Forest Authority Under the Act, several regulations have been prepared e.g. The Environmental Impact Assessment Regulations (1999).
The National Environment Regulation	The National Environment Regulations were prepared since 1999 for the specific areas in relation to biodiversity conservation, such as: a) Standards for discharge of effluent into water or on land (1999) b) Hilly and mountainous area management (2000) c) Wetlands, river banks and lake shore management (2000)
The Uganda Wildlife Act Cap. 200	The Act was put in place since August 1996 to provide for sustainable management of wildlife in Uganda through effective coordinating, monitoring and supervisory mechanisms. The Act specifically desires to promote conservation of wildlife throughout Uganda so that the abundance and diversity of their species are maintained at optimum levels.
The Game (Preservation and Control) Act.	The Act was issued in 1959 stipulating the animal species which are not to be hunted or captured except under special permit and those which may be hunted

Government law, regulation and guidelines	Contents in relation to biodiversity and forest conservation
	under basic and supplementary licenses. In the forth schedule of the Act (Cap.226, 1964 revision) the game reserves in the country are identified with their geographical boundaries.
The Fish Act Cap.128	The legal framework for the fisheries sub-sector is derived from the Fish Act Cap 128 of 1967. The law stipulates the details of restriction on fishing and processing of fish, transfer of fish or their eggs, issuance of licenses, powers of authorized persons, fishing vessels, immature fish, penalties and other procedures related to the sub-sector activities.
The Water Act, 1997	This law was enacted and commenced April 1997 to provide for the use, protection and management of water resources and supply; to provide constitution of water and sewerage authorities; and to facilitate the devolution of water and sewerage undertakings.
The Kumi District Wetland Resource Management Ordinance, 2004	An example of the ordinance of the wetland management at the local government level.

Source: Environment and Natural Resource Sector: Sector Investments Plan: 2008/2009-2017/2018

2.2.2 Guidelines

In order to implement the policies and guideline listed in the former sections, there are several technical guidelines prepared by the relevant departments in relation to biodiversity conservation which include guidelines for the management of Ramsar site and the rice cultivation in wetland and surrounding environments. Followings are the list of the major guidelines which details will be provided in the final report of the survey.

Technical Guidelines in relation to biodiversity and forest conservation

Title of the guidelines
Soil conservation measures and guidelines (2000)
Guidelines for small holder paddy rice cultivation in wetlands
Practical guidelines for constructing and operating finger ponds in east Africa
Guidelines for the compliance monitoring of wetlands
A Guide to the Management of Ramsar Sites in Uganda
Guidelines for Capture Fisheries in Wetland
Guidelines for Prioritizing Wetlands in need of Management
District Rapid Appraisal of Wetlands
Guidelines for Clay and Sand Mining in Wetlands
Guidelines for Wetland Edge Cultivation
Guidelines for Defining Wetlands Boundaries

Source: Department of Wetland Management, Ministry of Water and Environment

2.2.3 Others

Among others, some papers regarding wetland management are issued by the Department of Wetland Management such as 1) A vision statement for wetland management in Uganda, 2) Gazetting vital wetlands: Issues and way forward- Position Paper, 3) Glossary of wetland terms and definitions.

2.3. Present situation of the sectors

2.3.1 Biodiversity conservation

Uganda is located in the inland of east Africa which lies between latitudes and longitudes 4.2^{o} and 1.5^{o}S and 28^{o}E and 35^{o}W. Its neighboring countries are Kenya, to the east, Tanzania and Rwanda to the south and south east respectively, the Sudan to the north and the Democratic Republic of Cong to the west. Uganda covers an estimated total area of 241,551 km^2. The present situation and the threats which the biodiversity in the main ecosystems in the country are facing are highlighted in the next table.

Present conditions of biodiversity in Uganda

Ecosystem	Present situation
General	1) Area: 241,551 km^2 (including fresh water surface) accounting 0.18% of the world's terrestrial and freshwater surface 2) Major ecosystems: - Mountains: high altitude moorland and heath - Forests: high altitude forests, medium altitude forests, woodlands - Savanna: composed of thickets, dominating the drier areas of the country - Wetlands: areas with impeded drainage , papyrus and grass swamps - Freshwater (aquatic): five major lakes, 160 minor lakes and extensive river systems 3) Main species recognized with high percentage: 7.5% of mammals, 10.2% of bird species, 6.8% of butterflies, 4.6 % of dragonflies which are globally recognized. 4) Primates: 12 species of primates in Kibale National Park covering 760 km^2 , the mountain gorillas in Bwindi Impenetrable National Park 5) Fungi: 173 species of polypore fungi in Bwindi Impenetrable and Kibale National Park (16 % of the total species known in North America, Tropical Africa and Europe) 6) Threat: Rapid population growth and expansion of human activities to convert the major ecosystems into agriculture, construction, etc.
Wetland	1) Area: 29,000 km^2 occupies 13 % of the total area of the country including seasonally flooded grassland, swamp forest, permanently flooded papyrus, grass swamp and upland bog. Wetlands which are flooded seasonally reaches 76% of total area of wetland while 24% are regarded as permanent flooded wetlands. Encroachment for farming and unplanned conversion to the building areas have widely took place all over the country, which results the significant decrease of the areas of wetland. 2) Distribution: Many wetland systems distribute in the water basin of major lakes such as Lake Victoria, Albert, Kyoga, etc. The system consist of the main wetlands extends around the lake region and the micro wetlands extending along the rivers and streams flowing in the lakes. The major wetlands have their areas of thousands of hector while the micro wetlands account only 20 to 30 hectare. Those micro wetlands are located in all over the country. 3) Classification: Although the area and vegetation of the wetland vary largely, no classification has been made by the Government except high valued 12 wetlands including their major lakes were designated to be as Ramsar site by the international community. 4) Threat: Except the high valued wetlands most of the wetlands are prone to encroachment by the local population to open the rice farms and vegetable production. They sometimes are converted to the land for construction without sufficient consideration and measurements against environmental impacts. Those threats are considered to change the balances of the in/outflow of the water to the wetlands and give unknown impacts to the existing biodiversity in the area.
Lake region	1) Area: Four major lake region such as Lake Victoria, Tyoga, Albert, Edward, and

Ecosystem	Present situation
	George accounts for 46 % of the total lake region in the country. The major lake region provides the bulk of inland fishery production. Other than this, there are 156 small lakes with its size between 8~10 km^2 in the country. 2) Distribution: Lake Albert, Edward and George extend along with the Great African Lift Valley located in the western part of the country while Lake Tyoga and its water basin extend in the central and eastern part of the country. Several rivers and streams originate in Mt.Elgon (4,321m) located on the border of Uganda and Kenya. Lake Victoria expand in the south of terrestrial area of the country which shares the international boundary with Kenya and Tanzania. 3) Classification: The major lakes such as Lake Edward, George and a part of Albert are included in the areas of national parks or wildlife reserves to which the relevant regulation are applied in their resource management. As mentioned above 12 lakes are designated as Ramsar sites which have the management plan to conserve their high valued natural environment. The rest of the lake region are subject to the government regulations to control the human activities such as the fishery, water use, land development for construction, etc. 4) Threat: Illegal fishing and water pollution are the main threats in relation to biodiversity conservation which the lake regions are currently facing with. Because the resources of the government fishery sectors are limited to comply with the existing regulation and guideline, illegal activities such as to catch fry is hardly to be eradicated. Water pollution is prevailing in the lake region because of the water sanitation in the rural and residential areas are not fully constructed. This poses an international issue in Lake Victoria, Albert and Edward where they share the boundary with the neighboring countries.
Agriculture and range land	1) Area: Current estimates indicate Uganda has 7.2 million hectares of arable land under permanent crops which accounts approximately 30 % of the terrestrial area of the country while the rangelands for grazing occupy about 8.4 million ha in the country. 2) Distribution: Most of the potential area for cultivation have been converted to the farmland in the eastern part of the country while other regions still have unexploited area for cultivation. Rapid growth of rural population is accelerating the expansion of farmland in those areas. Estimates indicate the country will be depleted of unexploited land available for the rural population around 2020. 3) Classification: The agriculture and rangeland are classified as the land of communal uses. No demarcation and issuance of land title have been done by the government to date, which allows the rural community uses their land according to their customary rules and regulations. Because the government does not grasp the reality of land uses by the community, little has been known the status of biodiversity and its sustainability in the farm and range land. 4) Threat: Although little has been known, the impact of land use of farming and grazing to the existing biodiversity are not avoidable to some extent. Furthermore, it is reported that exotic fast growing tree species planted by local community in their farmlands are threatening the regeneration of natural vegetation in the protected areas. Because the exotic plants have high potential to adapt in unfamiliar environments, they expand into the adjacent natural forests by seeds of roots then generate under the gaps to formulate the lower layer of natural forest, which interferes with the natural regeneration of indigenous tree species.

2.3.2 Forestry

The present situations of the forests in Uganda are summarized in the next table.

Present conditions of forest in Uganda

Type of forest	Present situation
General	1) Vegetation: The forests in Uganda have wide range of vegetation. Early analysis determined 22 main vegetation types with 96 subtypes (Langdale-Brown et al.,1964). 2) Area: 3,604,176 ha in 2005 which is composed of Broadleaved plantations (14,786 ha), Conifer plantation (18,741 ha), Tropical high forests well stocked (600,957 ha), Tropical high forests low stocked (191,694 ha) and Woodland (2,777,998 ha). 3) Classification: Around 30 % of the forests belong to Central Forest Reserves (CFRs), Local Forest Reserves (LFRs) and the forest areas in the National Parks which are maintained by the central/local governments. The rest of the forests (70%) are regarded to be outside of these protected area which is owned by the community or the individual households. Details of each type of forest are provided in the following columns. 4) Biodiversity: This is as described in Chapter 2.3.1. 5) Threats: The major threats to the existing forests are (1) over harvesting, (2) invasion of exotic species to the natural vegetation, (3) encroachment and (4) human population pressure in general. Over harvesting is caused by poor planning, weak enforcement of laws and inappropriate processing technologies. All these factors lead to unsustainable harvesting of forest products and degradation of resource bases. Exotic species which are commonly used in plantation in the rural areas such as *Lantana camara* and *Senna siamea* are expanding beyond their plantation area eastern and north west regions and invade into the adjacent natural forest threatening the regeneration of indigenous tree species. Encroachment has been taking place in most of the regions to clear the forest to convert to the settlement, farming and grazing and other uses of development. Human population gives continuous pressure to the forest resources such as schools in the rural area and other types of public institutions (hospital, prison, local government offices) depending their dairy source of energy on the fire woods produced in the natural forests.
2. Central Forest Reserve (CFRs)	The central forest reserve was established during the British colonial time to conserve the high valued natural forests distributed in the whole country. It is under the management of NFA. Because of their high values as a timber resources and weak capacity of NFA to execute the existing policies, illegal cuttings and the human activities such as encroachment for farming and firing to graze livestock are prevailing in the Central Forest Reserves.
3. Local (District) Forest Reserve (LFRs)	Local (District) Forest Reserves were created in accordance with the Forest Reserve Ordinance (1998) to transfer the jurisdiction of designated forests to the district government. Since the resources to implement the proper management of the reserves are always limited in the district and local governments, the forest resources in LFRs are always prone to the threats as mentioned above and declining year by year.
4. Community and Individual Forest (CIF)	Community and Individual Forest are to be managed by the individual owner or the group of the individuals. Although it is privately owned, the CIF has multi-functions to provide benefit to the forest owners and to the public in the community. In this sense it is essentially significant to monitor the present status of their management and utilization but little has been grasp and documented by the communities and the local governments.

2.4. Stakeholder Analysis

2.4.1 Government organisations

Biodiversity conservation is a cross-cutting issue among several sub-sectors under the Environment and Natural Resources (ENR) sector. It is lead by the Ministry of Water and Environment (MWE). Other ministries such as the macro-economic planning and development, land management, agriculture and fishery are brought on as relevant organizations in the

government. The next table shows the organizations and their mandates in relation to biodiversity conservation.

Government Organization relevant to Biodiversity Conservation

Organization	Mandate
Ministry of Water and Environment (MWE)	MWE is the lead ministry in the ENR (Environment and Natural Resources) Sector owing to the sub-sectors currently under its administrative jurisdiction. The Ministry is responsible for the entire water and environment components in the country. Its mandate is to **"promote and ensure the rational and sustainable utilization, development and effective management and safeguard of water and environment resources including weather and climate for social welfare and economic development"**. The Minister who is assisted by the Minister of State (Water) and the Minster of State (Environment) takes charge of Political Leadership. The core responsibility of the ministers covers political guidance in policy, Law, budgetary resources mobilization, regional and international communities with respect to the ENR.
National Environment Management Authority (NEMA)	Established by an Act of Parliament, NEMA is the lead agency operating under statutory autonomy to undertake coordination on environmental policy, regulation, standards and monitoring.
National Forestry Authority (NFA)	Established under the provision of Section 52 of the National Forestry and Tree Planting Act (2003) as a semi-autonomous entity, under the general supervision of the Minister, the activity operates as a business entity with the core function of managing Central Forest Reserves. It is also mandated to supply other products and services for the benefit of the forest sub-sector, for example quality tree seeds, biomass data and any other expertise required in the sub-sector.
Uganda Wildlife Authority (UWA)	UWA is set up by statutory instrument of Parliament to conserve and sustainably manage the wildlife and protected areas of Uganda in partnership with neighboring countries and other stakeholders for the benefit of the people of Uganda and the global community. The Ministry of Trade, Tourism and Industry (MTTI) supervised UWA.
Ministry of Agriculture, Animal Husbandry and Fisheries (MAAIF, Fishery Department, Crop Resource Department)	The MAAIF through its technical department of Fisheries is mandated to oversee and regulate the activities of Fisheries sub-sector to be on sustainable basis. The crop resource department under the Ministry is responsible to promote the sustainable uses of land resources including the areas surrounding wetlands for poverty alleviation and socio-economic development.
Ministry of Lands, Housing and Urban Development	Created in June 2006, this Ministry is responsible for the management of land affairs including physical planning, surveys and mapping, valuation, land registration and urban development as well the Uganda Land Commission.
Ministry of Finance, Planning Economic Development (MFPED)	Overall macro-economic management and development planning is undertaken by MFPED. The Ministry is responsible for resource mobilization and is node for initiating budgetary allocation to other institutions of Government. The Ministry has compiled the National Development Plan (2010/2011-2014/2015) which raised for the first time the overall profiles of environment and natural resources in the country.
Other Ministry in the Government	A number of institutions need to be on board due to the cross-cutting nature of ENR such as Ministry of Health (with respect to environment and health), Ministry of Energy and Minerals (with respect of harnessing of biomass energy), and Ministry of Foreign Affairs (implementation of regional and international protocols and conventions).

Organization	Mandate
Local Government and other statutory institutions	There are 82 districts in Uganda which are all governed by the Decentralization Law mandated by the Ministry of Local Government. Under the Law, Planning, implementing and accountability on the use of natural resources are now undertaken at Local Government levels. Backup supports, policy guidelines and standards are regularly provided by the central governments whenever the need arise.

Source: Environment and Natural Resources Sector: Sector Investments Plan 2008/2009-2017/2018, Ministry of Water and Environment, December 2007

More focused on the environment and biodiversity, several departments are listed as below. These departments belong to and are supervised by the MWE in compliance with the existing law and regulations in the sector.

Departments under the Ministry of Water and Environment

Organization	Mandate
Directorate of Environmental Affairs	Promote and ensure effective cooperation and coordination of Environment, Meteorology (Weather and climate) and Climate change; forestry and wetlands sub-sectors for sustainable development. Monitoring of the autonomous and semi-autonomous bodies under MWE to ensure effective operations.
Department of Environment Support Services	Management of the environment, coordination, monitoring and supervision of all the field of the environment in accordance with the National Environment Act 1995
Department of Wetland Management	Ensure conservation, wise use and protection of wetlands in Uganda through increased appreciation and effective management as means to achieve sustainable development of the country
Department of forestry support services	Manage all central forest reserves on a sustainable basis. Supply high quality forestry-related products and services to Government and the private sector on a contractual basis in accordance with The National Forestry and Tree Planting Act 2003.
Environment and Natural Resources (ENR) Sector Working Group	Ensure sustainable use and management of the environment and natural resources

Source: Department of Environment Support Services, May 2010

2.4.2 Donors and international organisations

Main donors have been supported biodiversity conservation in Uganda. Main organizations, their policies and activities are summarized in the following table.

Donors and international organizations relevant to Biodiversity Conservation

Organization	Policy and activity
World Bank	Support for REDD Preparedness: World Bank is currently providing a grant support to climate change unit under the Cooperate Affairs in NFA for Readiness Preparation Proposal (RPP) for starting REDD project in the future. Accordingly the national strategy for REDD is currently under preparation by the climate change unit of NFA which will be completed in August this year. Provided the proposal is accepted by the World Bank the REDD demonstration will be planned and implemented in the target districts in the country.
UNDP	GEF/SGP(Small Grant Programme): UNDP is now implementing the Small Grant Program (SGP)using the resources of Global Environmental Facility (GEF). It aims to support the local community who prepare and

Organization	Policy and activity
	submit the project proposal in the field such as; 1) Biodiversity conservation, 2) Climate change mitigation, 3) Protection of International Water, 4) Prevention of land degradation (primarily desertification and deforestation) and 5) Elimination of persistent organic pollutants. The duration of each project is between two and three years. Currently around 20 projects are being implemented in the country.
EU	Support in wildlife conservation: The EU, European donor countries and International/local NGOs formed a group to support Uganda Wildlife Management in providing their services and implementing the research and survey on biodiversity in the National Parks and the Wildlife Sanctuaries. They have cooperated since 1990's with the Uganda Wildlife Authority (UWA). It includes the component of livelihood development support for the communities who reside the adjacent areas to the protected areas.
Belgian Government and SNV (Netherlands Government)	Support to formulate the first wetland management plan: Belgian Government and SNV (Netherlands cooperation) supported the wetland management department to formulate the first wetland management plan targeting to the high valued wetlands designated as Ramsar sites. Because the insufficient resources it focused to the limited area as its target which were smaller areas than the areas which should be covered in the plan. It was formulated in 2005 areas, which should be updated incorporating the latest data on wetland and surrounding conditions with expanding the target areas.

2.4.3 Others (NGOs and private sector, local communities)

Participation of the national NGOs and the communities in biodiversity conservation has been rapidly progressed in the recent years. National NGOs or civil society organization (CSO) who are working in the sector are counted more than 200 in the whole country. Although the extent of their involvement is varied according to the programs/project which they engage, their participation ensure the activities to be implemented successfully at the local community level. The main NGOs in relation to biodiversity conservation, their policy and activities and the significance of the community participations are summarized in the following table.

NGOs and private sector

Organization	Policy and activity
Uganda Wildlife Society (UWS)	Support to implement the community based natural resource management: As a supplemental organization UWS has been working for implementing the community based activities being contracted with the government or donor/international organization who conduct the program/project in relation to biodiversity conservation. UWS has the section of provision of expertise and consultancy in its organizational set ups, which make it possible to provide the experts, surveyors, researchers and facilitators according to the needs of the project. UWS is also a member of government board and committee to formulate the policy and program in the field of biodiversity as a representative of the Civil Society Organization (CSO).
IUCN	Support to the community wetland management: IUCN supported the local community in Bukedea and Isingiro districts to implement the wetland management plan formulated by the Department of Wetland Management. Because the scope of the support was limited to a few target villages, its impact was also limited to the adjacent areas. It was completed in 2007.
WWF	Support to the community wildlife management: WWF supported the local community to implement the conservation program of the wildlife in the National Parks and the Wildlife Reserves

Organization	Policy and activity
	located in the Great African Lift Valley. The program is supported by the European donor groups consisted of EU and GTZ, etc. It was started in the mid of 1990's and continues for more than 15 years. Owing this program, the numbers of larger mammals in the protected area have been recovered since 2000.
Local communities	Community participation and collaboration in the management of ENR has rapidly been strengthened. In all the sub-sectors, there has been a steady practice to organize communities into users groups to manage resources at local level. Success has been registered in beach management units, forestry resource users groups, land committees, environment committees, and others. The existence of these formal community structures and users groups offers significant potential for institutional strength to constantly oversee the management of ENR at the local level.

3. Needs Assessment

3.1. Policy direction

The Government of Uganda presents clear direction to develop the country by keeping its economic development rate to be 8% annually. Meanwhile the Government gears its perspectives to formulate the policy toward being more environmental conscious by rearranging the sub-sectors adding the new independent sub-sectors such as climate change and wetland management in the National Development Plan 2010. The Plan identified the policies, he programs and the strategies for those newly added sub-sectors.

However, the actual allocation of the government resources to these sub-sectors has not increased to date. Responding to the recent direction of decentralization of the Government, the main ecosystems which have a rich biodiversity such as wetlands and local forests are to be managed by the environment department under the district government. To implement it the district governments depend on the "conditional grants" provided by the central Government to the district, which the amount of fund allocated far from sufficient to cover those costs.

3.2. Activities undertaken

Under the recent and current policy directions, some activities have been already implemented by the department and ministries of the Government in the field of biodiversity and forest conservation as summarized in the next table.

Activities undertaken in biodiversity and forest conservation

Organization	Activities undertaken in biodiversity and forest conservation
Department of Wetland Management	Inventory survey: Provided the support by IUCN the Department of Wetland Management conducted the inventory survey of wetlands in the mid of 1990's. Since then the encroachment and conversion of wetland took place in many wetland in the whole country, it should be updated using the advanced GIS technologies. Formulation of wetland management plan, technical regulation and guidelines: The Department of Wetland Management formulated 32 wetland management plans and four (4) regional frame work plans targeting the high

Organization	Activities undertaken in biodiversity and forest conservation
	valued wetlands in the country supported by the Belgian and Netherlands government in 2005. Because of the restriction of fund and the conditions of wetlands have been changing since then, the plans should be revised in order to be adapted in the current situations in the target sites.
National Forestry Authority	Baseline survey of biodiversity and biomass: NFA conducted the biodiversity survey in the 34 Central Forest Reserves (CFRs) supported by UNDP/GEF fund and EU in the mid of 1990's. The nature of biodiversity in each CFRs has been investigated and documented which provide the baseline of species richness and the values of CFRs in terms of biosphere of natural forest in Uganda. No specific project follows this survey since 1990's.
Uganda Wildlife Authority	Conservation of wildlife: Cooperating with the European donors UWA has been conducting the conservation project in the national parks and wildlife reserves. The project has been continued more than 15 years involving various stakeholders such as local community and government, university researcher and students, CSO (civil society organizations)
UNDP/GEF/SGP	Community based biodiversity conservation activities: The UNDP/GEF (Global environmental facility) offers the small scale grants through SGP (Small Grants Program) to the local community who submit the proposal to implement the project according to the needs and ideas of the community. Around twenty projects are approved by the SGP board annually which normally continues from two to three years. Technical and managerial supports are provided from SGP office and the local governments. The activities and results are monitored and evaluated regularly by all stakeholders to improve the capacity of the community and come up with effective exit strategy after the proposed project completion.

3.3. Potential interventions required

3.3.1 Policy gaps identified between the target set in the Government policy, strategy and plans and the present situations of biodiversity

Through the review of the relevant documents and the interviews to the government personnel and NGOs, several issues and problems in relation to biodiversity conservation were identified as "policy gaps". They are summarized according to the main ecosystems such as wetland and forest as in the next table.

Issues and problems identified in Biodiversity Conservation

Ecosystem	Issues and Problems
1. Wetland	1-1. The wetlands in the country are prone to encroachment by the farming and conversion to other land uses such as constructions. The exact area of wetland and its threatened value of biodiversity are not monitored regularly. 1-2. The Government has not designated yet the twelve Ramsar sites and other vital wetlands the country as "national wetland reserve". 1-3. The present definition of wetland by the Government such as "permanently or seasonally flooded land" covers a wide range of wetland from small scale flooded area of 20 -30 ha to the vast wetlands surrounding the major lake such as 54,000 ha of Lake Bisina Ramsar site. Although the values of biodiversity and for

Ecosystem	Issues and Problems
	economic activities are considered to vary in those wetlands of different scales, the same management regulations, technical norms and guidelines to protect them are uniformly applied, which sometimes hinder the efficient and wise use of the wetlands. 1-4. In compliance with the current regulation and institutional set ups of the Government, the district administration offices are responsible to manage the wetlands. But little has been done because of several resources limitations such as budget, number of staff, etc. Coordination and collaboration of relevant sectors such as agriculture, water resource management, land use, etc. is also quite difficult because of the limitations. 1-5. The wetland management plan is to be formulated so that the district administration offices can fulfill their responsibilities to be assigned. But there are only 32 wetlands which already have their plan among hundreds of wetlands in the country. 1-6. The revision and upgrading of wetland need to be revised and upgraded in terms of 1) expanding the area covered by the plan, 2) empowerment of the community in wetland conservation and management, 3) provision of the alternatives/incentives to the community as means of wise use of wetland
2. Forest	2-1. Some part of the forest reserves were transferred to the district administration office as district forest reserve according to the ordinance in 1998. Since then very few data/information are available on the inventory and status of management of those reserves. The present situations of the district forest reserve are in general not grasped by any government organizations. 2-2. Although the community and individual forest have value of biodiversity, the managerial and technical regulations and guidelines have not been developed by the government. 2-3. The forest reserves in the country are constantly exposed to the threats such as wild fire, encroachment and illegal cutting. 2-4. The biodiversity of the national parks and the wildlife sanctuary are as a whole maintained and partly recovered through long-term international cooperation. Meanwhile they are facing with unanticipated threat such as invasion of exotic tree/shrubs species into the natural vegetation of their areas. Those exotic species were originally introduced in the communities surrounding the Parks and the Sanctuaries to be planted in their farmlands. 2-5 Although their importance are well recognized, the positive incentives for the local community to engage in forest conservation are in general not enough or do not exist in the community neighboring the forest reserves and national parks.

3.3.2 Potential interventions required

The activities were come up with to address the issues and problems listed in the above table. As shown in the next table, the activities include those which supposed to be done solely by the Governments and those which are possibly implemented through the support of ODA.

Activities needed to address the issues and problems

Ecosystem	Activities
1. Wetland	1-1. To conduct inventory survey of the wetlands in the country using the advanced technology of satellite image analysis 1-2. To designate the high valued wetlands in terms of biodiversity conservation as "national wetland reserve" based on the results of the survey mentioned in 1-1 1-3. To conduct assessment and valuations regarding 1) fauna and flora, 2) capacity as water resource, 3) capacity of carbon absorption as a carbon sink. In case the data are already available, updating of those data shall be done. 1-4. To upgrade the categorization of wetlands to focus conservation of "wetland reserve" and to revise/develop the regulation and guideline to promote wise use of small scale wetlands as "community wetland" 1.5 To develop the institutional set up to facilitate the instructions by the Department of Wetland Management in Kampala to the district administration offices 1-6. To formulate/revise, implement, monitor and evaluate the wetland management plan. The plan shall included activities to empower the community and provide incentives for them toward the conservation and wise use of wetland. Biodiversity indicators are used in monitoring and evaluation of the plan
2. Forest	2-1. To identify and evaluate the current forest resources using satellite image analysis. This is possibly implemented as the forest resource monitoring of REDD preparation 2-2. To develop technical guideline and manuals for the sustainable uses of community and individual forests and to support the district government to disseminate them to the local community 2-3. To strengthen the forest monitoring system by NFA. This should be done simultaneously with item 2-1. 2-4. To develop the method to reduce the invasion of alien species and to plant and grow indigenous tree species 2-5. To implement the tree planting and forest conservation project which is combined with the livelihood improvement support for the local community.
3. Crosscutting issue	3-1. To develop the capacity of the government staff in the relevant sectors 3-2. To empower the local community in conserving the biodiversity and doing wise use of wetland

3.4. Tentative evaluation of cooperation needs

Based on the activities listed in Chapter 3.2, cooperation needs with the types of scheme are identified. Those ideas are regarded as an initial idea come up with during the survey in Uganda.

Cooperation needs as an initial idea

Ecosystem	Activities
1. Wetland Target area: 1-1. Nation wide 1-2. Vital wetland	1-1. Development Study on nation wide inventory and formulation of the management plan enhancing conservation and wise use of wetlands This study is to formulate the foundation of the wetland management by improving the existing government legislative and institutional setups and using the expertise and technologies accumulated in the Department of Wetland Management. The objectives of the Study consist of 1-1, 1-3, 1-4, 1-5, and part of 1-6 listed in the table of activities needed. A small scale pilot activity may be included in the study. 1-2. Technical Cooperation on implementation, monitoring and evaluation of the

Ecosystem	Activities
	wetland management plan Through the technical support in implementing the management plan, this project is to build the capacity of the central and local government offices and empower the local community who are the main actor to conserve and do the wise use of wetland resources. The objectives mainly consist of 1-6 in the table of activities needed.
2. Forest Target area: 2-1. Nation wide 2-2. Vital area for forest conservation	2-1. Development Study on forest resource survey through satellite image analysis for REDD This study is to update the forest resource data base using the satellite images of high-level resolution and strengthen the capability of NFA to monitor and maintain the existing biodiversity and resources in the forest reserves, national parks and wildlife sanctuaries. The objectives of the Study consist of 2-1 and 2-3 as listed in the table of activities needed. 2-2. Technical Cooperation to implement the community based forest management and restoration of degraded vegetations. This Technical Cooperation Project is to build the capacity of the local community to conserve and utilize their community and individual forests in a sustainable manner. It also aims to develop the method of controlling the expanding exotic species and planting valued indigenous tree species wherever they are necessary. The objectives of the Study consist of 2-2, 2-4 and 2-5 as listed in tables of activities needed.
3. Cross cutting issue	Through the implementation of the Development Study and Technical Cooperation Project, the capacity of the government staff and the community will be developed and enhanced.

The listed cooperation needs are presented as “development study” and “technical cooperation”, which are supposed to be conducted for three to five years. It still poses the exit strategies for each activity, especially after the completion of technical cooperation. For the cooperation of wetland management, the development study is supposed to be launched prior to the technical cooperation in order to establish the basic environments to implement the wetland management plan. The study shall include a small scale pilot project to implement the revised wetland management plan incorporated with the community based livelihood support activities.

The technical cooperation will follow the completion and outputs of the study to focus the capacity building of the stakeholders to implement the revised management plan. Through a full course of implementation, a case of good practice in wetland management shall be created, which is supposed to be an incentive for the Government to allocate enough budgets (“conditional grants”) to the wetland sector in the district. The development study is supposed to continue three years followed by the technical cooperation of five years. The total length of the cooperation will be eight years. It is supposed in the same way for the cooperation to forestry sector.

3.5 Some keys to revise the proposal of “Wetland Management Project”

Suggestions were provided to the Department of Wetland Management by the JICA Study Team to revise the proposal on the “Wetland Management Project” prepared and submitted to the Japanese side in 2009. They are summarized as follows.

1) To revise the objectives and the outputs of the proposal to be more focused to inventory survey of wetland so that it can be fit to the Development Study supported by the ODA of Japan
2) To streamline the idea of the proposal in the way that the implementation of the wetland management plan to be supported by the Technical Cooperation Project. It is supposed to be launched after the completion of the Development Study.
3) To upgrade the basic concept of the proposal to be more balanced between the conservation and the wise use of the wetland and to include the scopes to revise the exiting regulations/guidelines to be more adaptive to implement the concept in the local level.

4. Further Activities

This paper presents primarily the main findings of the survey in Uganda. The JICA Study Team will review more in-depth the collected information and finally come up with the ideas on the directions to cooperate with the target countries in the field of biodiversity. Followings are the rough work schedule of the Study Team after the survey in the target countries.

From end of June till mid of July:
Report of the survey to JICA HQ in Tokyo and discussion to finalize the final report
Mid of July: Making of the final report
End of July: Submission of the final report to JICA

Hiromi Yasu
Data Collection Survey on Biodiversity Conservation
in Asian and African Regions

Appendix 1. Meeting Memo in Uganda

Meeting / Field Memo

No. of Memo: 1	
1. Topic/Purpose	Meeting with the Department of Fishery Resources under the Ministry of Agriculture, Animal Industry and Fishery
2. Participants	1) Mr. Eric NADIOPE (Senior Fisheries Inspector) 2) Yasu (JICA Survey Team)
3. Place	Office of Mr.Eric NADIOPE, in the Department of Fishery Resources
4. Date & Time	19 May 2010, 10:10 – 11:20

5. Points of Discussion/Observation

The member of JICA Study Team (Yasu) raised some key questions on the fishery sector in Uganda in relation to the Biodiversity Conservation. Mr.NADIOPE who is a senior fishery inspector responded as follows. He gave the following comments based on his professional experiences and partly on the relevant documents.

1. Current situation of the fishery resources in Uganda

(1) There are five major lakes in Uganda which are the main spot of fishery in the country namely Lake Victoria, Lake Tyoga, Lake Albert, Lake Edward and Lake George. Among them 46 % of the water surfaces belong to Lake Victoria. Other than these, there are 156 small lakes in the country. Those area are in average from eight to ten square kilometer but are also important spots of fisheries practiced by the local communities.

(2) Total amount of fishery production in Uganda in recent years is estimated to be 450,000 metric ton (MT) per year. Among them 80,000 MT is produced by aquaculture practiced mainly in Lake Victoria region.

(3) NAFIRI (National Fishery Research Institute) is a responsible entity of the Government which conducts several studies and researches on the fishery in Uganda. The Institute of fisheries provides higher education on knowledge and technologies in fishery. It gives the graduated students a Certificate and Diploma in fishery. Makelele University is the only entity to provide the academic expertise of fishery resources.

2. Issues and problems which the sector is currently facing and their possible solutions

(1) Weak enforcement of the government law and regulation: Among all the enforcement of the government regulation is quite weak. In accordance with the government rules and technical regulations, the department of fishery resources is responsible to control the capture fisheries conducted in the whole lake regions in order to realize the sustainable management of fishery resources. But because the number of fishery staffs is not sufficient in the local governments and the understanding of the community towards the regulation to control the fishery is generally weak, the regulations are not followed in most parts of the lake region. The most serious issue is “over-fishing” which means the fisher men capture the immature fishes to earn immediate profit, which threats the sustainability of the fishery resources in the future.

(2) Trans-boundary problem to manage the fish resources: Because the major lakes such as Victoria, Albert and George are shared by the neighboring countries, it is necessary to establish the international agreement with those countries (Kenya, Tanzania, Congo, etc.) to maintain the fishery resources in a sustainable manner. The region wide organization such as Lake Victoria has attained to

No. of Memo: 1

develop such an international mechanism to make the relevant counties to address the issues in a same manner while this kind of institutional set-ups have not been elaborated for Lake Albert, George and Edward.

(3) Lack of reliable data and information: Only one staff is assigned in the department to be responsible to develop and update the data base on fishery resources in the country. Systematic method to collect the quantity of fishery resources and its production does not exist in the government, which makes difficult for the department to formulate the detailed and practical development plan of the sector.

(4) Biodiversity conservation of 165 small lakes: Although the geographical scale is limited, the biodiversity of the small lakes is relatively maintained well which is consisted of various endemic fish species. Recently the diversity became to be threatened by the oil exploitation which could disturb significantly the existing composition and balances of endemic species. The department requested the support to mitigate the changes by introducing "Biodiversity offset system".

(5) Invasion and subsequent changes of aqua-ecosystem is not a serious issue while monitoring should be continued regularly to investigate unfavorable diverse and damages to the existing fishery resources. Biodiversity of endemic fishes is highest in the Lake Albert in which more than 300 endemic species have their habitat.

3. Needs of support by the international donor and agency

Based on the understanding of these issues and problems above, Mr.NADIOPA recommended the following ideas to address those issues.

(1) Transition of administrative system: This is currently progressed by the department of fishery resources as mentioned in the former section.

(2) Development of the strategy of the minor lake management: As a nature of the lake and surrounding area, each project should be a smaller scale. The fishermen and people need to be organized into a group to facilitate them to take part in the project. Together with conducting the conservation activities, livelihood improvement through small scale economic activities should be also introduced in this type of the project.

(3) Basic research and development of the data base: NAFIRI under the NARO (National Agricultural Research Organization) should implement the inventory of the current fishery resources especially in the small lakes. The result of inventory consisted of the correct data/information forms the basis of sector policy and program in the country.

(4) Development and enhancement of aquaculture: Most of the fishery production came from the capture fisheries which depend upon the existing resources. To develop the aquaculture is one of the key approaches to make the natural fishery management more sustainable. Currently aquaculture in Uganda produces 80,000 metric ton (MT) of fish products per year from aquaculture. Through improving its technology and infrastructure the aquaculture will be able to produce 350,000 MT/year on a sustainable basis. The fishery department receives technical advises from Egypt.

6. Notes/Issues: None

(1) A letter requesting the data on fishery sector with its list were sent to Mr.Nadiope. He agreed to arrange the data within 10 days.

Meeting / Field Memo

No. of Memo: 2	
1. Topic/Purpose	Meeting with Uganda Wildlife Society (UWS)
2. Participants	1) Mr. Herbert Mulyampanda (Project coordinator) 2) Ms. Patience Nyangoma (Programme Officer) 3) Mr. Martin Karamagi (Finance Officer) 4) Yasu, (JICA survey team)
3. Place	Meeting room of UWS office, Plot 1521, Mawanda Road, Kamwoka, Kampala
4. Date & Time	19 May 2010, 15:10 – 16:10

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Mr. Helbert talked about the policy and activities of UWS using 4 pages of handout, which is followed by the free discussion among the participants in the meeting. Followings are the highlights of UWS's comments during the discussion.

(1) UWS activities are focused on the two points those are 1) consultancy services to formulate the policy, programs, law and regulations of the government and 2) empowerment of the community through the contracted activities of the projects. UWS is a member of the government councils in the field of wildlife and environmental conservation. In the community empowerment, UWS plans, implements and monitors the activities to attain the poverty reduction which is most significant goals of the community development in Uganda. UWS has enough experiences to initiate the ecotourism by the local community, encourage them to understand and practice "wise use" of the wetland, etc.

(2) UWS has experiences to conduct the projects of forest conservation in Katungu and Bara district aiming to establish the community organizations and building their capacity to maintain the forest reserves. The natural forest in the national forest reserves in the eastern regions of the country are severely encroached by the local communities, which needs urgently some countermeasures.

(3) Wetland extending along with the main rivers in the country is regarded as one of the hot spots for biodiversity conservation. Central forest reserves also have rich fauna and flora consisted of endemic species but some of them are prone to the encroachment by the community. The sustainable management of the wetland ecosystem depends upon its "wise use" by the local communities. The "wise use" of wetland resources aims to co-exist the resource utilization e.g. farming, fishery practices and its conservation such as water, soil, pastures, farmland, etc. In order to realize the "wise use", the community members should be empowered to organize themselves to develop their own by-laws and monitor the compliance of their by-law.

(4) It is shared by all stakeholders in the country that community-based approach is regarded as the best way to maintain the ecosystems in the wetland and other hot spots for biodiversity conservation in the country.

(5) UWS also provides the consultancy services to the central governments who formulate the new strategy, policy and programs in the field of natural environment and biodiversity conservation. UWS is one of the members and sometimes the chairing organization of the board to support the government in the said services.

6. Notes/Issues: None

Meeting / Field Memo

No. of Memo: 3	
1. Topic/Purpose	Meeting with Climate Change Unit (CCU) in the Ministry of Water Resource and Environment
2. Participants	1) Mr.Martin Mgabe (Head of the CCU) 2) Yasu, (JICA survey team)
3. Place	Office of CCU in NFA
4. Date & Time	20 May 2010, 16:10 – 17:00

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Mr. Martin talked about the policy and the activities of CCU, which is followed by the free discussion between the both sides. Followings are the highlights of the discussion.

(1) CCU is in charge of planning, implementing and monitoring of REDD and AR-CDM and other negotiations with the international community and donor agencies. It is placed directly under the Ministry.

(2) CCU is currently working for the REDD Preparedness Phase (RPP) which is financially supported by the World Bank and making the strategy paper of the REDD preparedness to be submitted to the World Bank in July 2010. CCU has conducted the community hearings and workshops in the target locations for REDD demonstration activity which will be supported by the World Bank after the REDD Preparedness Phase. Still it is not clear how much the cost for demonstration of REDD is. Hence CCU welcome the donor agencies and international organizations to support the REDD demonstration activities in the target communities.

(3) CCU has six staffs including one coordinator, tow program officer (two for Adaptation and one for mitigation) and the driver/attendant.

(4) NAPA (National Action Plan for Adaptation) was issued as the first national communication in 2001 and the second national communication will be issued in 2010.

(5) Danish International Development Agency (DANIDA) and the Belgium government supported CCU/NFA to create the Climate Change Unit, to mainstream the climate change in the government policy and to build the capacity of the government. The project continues from 2008 until 2012. Especially the capacity of the public sector should be built in implementing the AD-CDM and REDD in the country.

(6) There is another CCU in the National Forestry Authority (NFA) which is responsible more specifically for planning, implementing and monitoring REDD and AR-CDM. The CCU under the Ministry collaborates with the CCU in NFA in negotiating with the international organization and donor agencies to receive technical and financial support REDD and AR-CDM demonstration project.

6. Notes/Issues: None

Meeting / Field Memo

No. of Memo: 4	
1. Topic/Purpose	Meeting with the Lake Victoria Environmental Program(LVEP)
2. Participants	1) Project Director 2) Project Coordinator 3) Yasu (JICA survey team)
3. Place	Office of the Project Director, LVEP
4. Date & Time	20 May 2010, 12:10 – 12:50
5. Points of Discussion/Observation	

After the briefing by Yasu on the objectives of the survey, the Project Director talked about the policy and activities of LVEP, which is followed by the free discussion among the participants in the meeting. Followings are the highlights of the discussion.

(1) Lake Victoria Environmental Program (LVEP) covers the countries such as Kenya, Uganda and Tanzania which share the international boundaries on the water surface of the lake. It also covers as its target their watersheds of the main rivers flew to the lake. The components of the project include water and land resource management and wetland conservation. The first phase of the project started in 1997 then continued until 2005 mainly focusing on the biodiversity conservation in and around the lake region. The second phase followed from 2010 to date to implement the land use planning and socioeconomic activities to improve the livelihoods of the local community.

(2) As one of the projects main activities, it strengthen the coordination and collaboration among the member countries and with the counterparts in/outside the country in formulating the policies and implementing the programs/projects in relation to the environmental conservation of the Lake Victoria. The project holds the regular meeting, workshop and conferences attended by the member countries. Currently Uganda is the host country to invite the members to the project wide events and activities.

(3) One of the future perspectives of the project is to expand the activities to other lakes and regions, such as Lake Albert, George and Rudolf which are located in the western part of the country. In this case the country such as Congo will be a member of the LVEP to share the ideas, policies and the project activities to maintain and improve the natural environments in those lakes.

(4) LVEP is currently focusing on the land use planning and socioeconomic activities in the rural areas but it is also possible to collaborate in the activities for biodiversity conservation proposed by other projects whose target areas are the lake region.

6. Notes/Issues: None

Meeting / Field Memo

No. of Memo: 5	
1. Topic/Purpose	Meeting with the coordinator of the National Forestry Agency (NFA)
2. Participants	1) Mr. Achaye Goldfrey (Acting director, Management of Natural Forest) 2) Yasu (JICA study team)
3. Place	Office of Mr.Achaye in NFA
4. Date & Time	20 May 2010, 15:00 – 16:00

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Mr. Achaye talked the mandate, the policy and activities of NFA, which is followed by the free discussion by both parties. Followings are the highlights of the discussion.

(1) The natural vegetation of Uganda is quite unique. The vegetation of Uganda is the mixture of the tropical rain forests in the African continent extend to Uganda which is the eastern edge of its distribution and the savanna vegetation covers the lowland of this country which extends from the arid and semi arid areas in east Africa which is dominated by the grasses and scattered Acacia and other indigenous trees. Adding to this condition the wide range of the altitude contributes the diversity of natural vegetation in this country. The natural forests and surrounding ecosystems in the Rift Valley region has the richest biodiversity in the country.

(2) The Forest reserves in Uganda are managed by the central and district government according to the forest reserve ordinance. There are around 70 forest reserves managed by NFA and nearly 800 local forest reserves managed by the district government.

(3) The threats to the natural forests are wild fires, encroachment and illegal exploitation. Although it is reported annually losses and damages of the forests caused by these threats, no effective means has been practiced so far because of insufficient resources in the government. More than that the current status and situation of the community/private forests are not monitored or recorded by the local governments. It is reported that the forest vegetation occupies 15% of the total terrestrial areas of the country but its actual coverage is estimated much lower than it because of those threats prevailing in all over the country.

(4) The survey to identify the level and the value of Biodiversity in the central forest reserve was conducted in the mid of 1990's supported by the European Union and UNDP. The reports were prepared for each surveyed forest reserve to describe the fauna and flora existing in the forest. But since then there is no other program and project in the field of biodiversity to utilize those data in forest conservation and community development. NFA needs to implement the project in relation to biodiversity conservation using the data base and findings recorded by the survey done in the mid of 1990's.

(5) NFA appreciate the support of the Japanese governments in developing the income generation activities for the local communities residing nearby the forest reserves. The Japanese volunteers who are working to assist the community members to train themselves to get the skills and knowledge to produce the local handiworks/crafts. NFA requests the programs to deploy volunteers to be continued in the future.

6. Notes/Issues: None

Meeting / Field Memo

No. of Memo: 6	
1. Topic/Purpose	Meeting with the Wetland Management Department (WMD)
2. Participants	1) Commissioner of the Wetland Management Department 2) Technical staff in charge of project proposal 3) Three sectional heads (research, management, information & extension) 2) Yasu (JICA survey team)
3. Place	Meeting room of WDM in Kampala
4. Date & Time	21 May 2010, 1:00 – 16:30

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, the commissioner of WMD talked about the mandates, policy and activities of WMD, which is followed by the free discussion between the participants. Followings are the highlights of the discussion.

(1) The wetlands in Uganda occupy around 13% of the total land area. WMD has the inventory data of wetland surveyed in 2004 which is the most recent data to show the distribution of wetlands and river systems in the country. It shows the large scale wetlands developed around the major lakes and the small wetland (flooded plain) distributed along with the small rivers and streams in the rural area. According to the definition of wetland in Uganda all these types are defined as wetland with no detailed categorization. Twelve large wetlands have been designated as Ramsar sites in Uganda. Those wetlands are conserved in accordance with Ramsar convention.

(2) Because of the population increase and urban development in the last decades, many parts of wetlands have been converted to the farmland and the construction areas, which give severe adverse effects to the biodiversity existing in the wetlands. Unfortunately those changes of wetland environment have not been monitored by WMD because of the shortages of several resources e.g. budget, staff, technology, etc.

(3) Belgium government supported WMD to develop the wetland management plan targeting Bisima lake region in the eastern part of the country. The plan targets some communities in one district to involve them to plan, implement and monitor the community-based activities. But in terms of water and pasture resource utilization, more communities and districts located in wider watersheds surrounding the wetland should have been involved in the plan. This lesson indicates that basic survey to identify the communities and district which relate to the utilization of wetland resources is critical in preparing the wetland management plan.

(4) WMD have developed four regional framework plans for wetland management and 32 plans specified to the wetland supported by the Belgium government. But those plans have not been put into practices because of the resource limitation of WMD.

(5) To address the issues and problems mentioned above, WMD prepared the proposal to request to the Japanese government the technical cooperation to carry out the activities such as 1) inventory survey to identify the current distribution of wetlands, 2) formulation of wetland management plan, 3) pilot implementation of wetland management plan, 4) capacity building for the stakeholder in wetland management. The goal of the propose project is to realize the “wise use” of the wetland which includes the sustainable resource use of wetland and its conservation. Today this idea is shared by all stakeholder in the country.

6. Notes/Issues: None

Meeting / Field Memo

No. of Memo: 7	
1. Topic/Purpose	Meeting with the Uganda Wildlife Authority
2. Participants	1) Wildlife Management Officer 2) Yasu, (JICA survey team)
3. Place	Office of Wildlife Management Unit
4. Date & Time	24 May 2010, 11:00 – 12:00

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, the wildlife management officer talked the mandates, the policy and activities of UWA Followings are the highlights of the discussion.

(1) Uganda Wildlife Authority under the Ministry of Environment and Water Resources is responsible for the conservation and management of the wildlife in the National Parks in the country. Since 1990's UWA has received the financial and technical support offered by the international organizations such as UNEP, UNDP, EU, IUCN, etc. and the donor agencies e.g. GTZ and NSV, etc. Those supports were provided mainly in the two fields such as the basic scientific research and the capacity building of the UWA staff and the local communities.

(2) Currently European Union supports to promote private sector oriented capacity building and program development. The support continues for two years from 206 to 2007. "Protected areas management & sustainable use project" (PAMSU) and "Wildlife Landscape & Development for Cooperation" (WILD) are being implemented by the support of European Union. Those projects target the national parks in the Great Lift Valley area in the western part of the country.

(3) Owing to the programs/project since 1990's, the number of the wildlife has been recovering in the national parks, such as elephant, antelopes, etc. Experiences of the projects indicate that the participation, understanding and cooperation of the local community are the most important key to the success of conservation and sustainable wildlife management.

(4) The botanical and zoological taxonomy networks in East Africa (BOZONET) has been established and utilized in the conservation project targeting the National Parks and the adjacent local communities. BOZONET records the fauna and flora distributing in the protected area in Uganda.

(5) Other than the main issues in wildlife conservation and management, improvement and upgrading of the infrastructure e.g. road, field station, are necessary in the national parks to ensure the management by the staff of UWA.

6. Notes/Issues: None

Meeting / Field Memo

No. of Memo: 8	
1. Topic/Purpose	Meeting with the Department of Meteorology
2. Participants	1) Mr. Herbert Mulyampanda (Director, DM) 2) Yasu, (JICA survey team)
3. Place	Meeting room of the Department of Meteorology
4. Date & Time	24 May 2010, 14:00 – 15:00

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Mr. Herbert talked about the mandates, policy and current programs of the Department of Meteorology, which is followed by the free discussion between the both sides. Followings are the highlights of the discussion.

(1) Department of Meteorology has four divisions such as 1) forecasting, 2) training research, 3) station networks, 4) data processing. The head quarter forecast office is located in Entebbe and twenty climate stations distribute in the country. 150 staffs are working in DM while 320 staffs are needed in fulfilling the mandates of DM. 40 staffs are currently under recruitment. Still there is serious shortage in the number of DM staff.

(2) Uganda government formulated in the National Action Plan for Adaptation (NAPA) responding to the request of UNDP. Forest management, improvement of agricultural technologies, water resource management, upgrading/improvement of weather forecasting systems, etc. Currently 2nd national communication is being prepared by DM collaborating with the Makelele university (climate forecasting unit), National Meteorology School under the Ministry of Education.

(3) The capacity of data processing and management of DM is quite weak. The improvement/upgrading is needed as a first priority to monitor the multifaceted effects of the climate changes in Uganda. The Japanese government is about to support DM through ODA in establishing/upgrading the nation wide meteorological facilities in response to the climate changes.

(4) Owing to the climate changes in recent years, there are some unfavorable effects to the domestic industries, such as prolonged drought to damage the agricultural production, too much rainfall causing floods and landslides, outbreak of malaria to threat the health conditions of the people. These issues are going on worse in recent years since 2000 in the whole country. Hence more exact monitoring and recommendation to the Government should be done by DM to mitigate/decrease these adverse effects of the climate changes to Uganda's society.

(5) In order to implement the countermeasures to the climate changes, the capacity and knowledge of the DM staff should be conducted urgently. Actually the number of staff of DM was largely deducted in the 1980's during the transformation of the central government. This affects seriously to the capacity and competency of DM as a whole in fulfilling their tasks and responsibility in forecasting of the climate. There is a large generation gap among the staff of DM such that it is consisted from those more than 50 years old and less than 30 years old. The staffs between 30 and 50 years old are quite few, which gives difficulties to DM to transfer smoothly the expertise, techniques and skills in weather forecasting. This is the biggest and most serious challenges for DM in implementing their policy and programs in the central as well as local levels.

6. Notes/Issues: None

Field Survey Report: Republic of Botswana
for the Data Collection Survey on Biodiversity Conservation in Asian and African Regions

June 27, 2010
JICA Survey Team
Nippon Koei Co., Ltd.
Hiromi YASU

1. Introduction

1.1 Background of the Survey

Mankind heavily depends on biodiversity in our lives. Nevertheless, it is reported that the biodiversity on earth is in a critical condition as over 40,000 species become extinct every year due to various human activities, such as deforestation, over hunting, water pollution and others. Efforts to conserve biodiversity have been reinforced internationally after the adoption of the Convention on Biodiversity (CBD) at the United Nations Conference of Environment and Development in 1992. The Government of Japan has also actively worked on the conservation of biodiversity since then as a country that ratified the convention. This year is the last year of the 2010 biodiversity target adopted by the Conference of the Parties (COP 6) held in the Netherlands in 2002. Furthermore, Japan will host the tenth meeting of the COP in October 2010 as the chair country and is expected to play an important role in leading the activities on biodiversity conservation not only domestically but also internationally.

The Japan International Cooperation Agency (JICA) has successfully implemented a number of cooperation projects/programs on biodiversity conservation. Because of its long and successful achievements, the international community expects JICA to make more contributions, towards COP 10, to the conservation of biodiversity in developing countries. In particular, the countries in Asian and African regions need further assistance in biodiversity conservation since there are many biodiversity hot spots and untouched natural forests still remaining in the regions.

Given this background, JICA was determined to conduct a survey to collect and analyze relevant information/data concerning biodiversity conservation and forestry-related measures against climate change, identifying the needs for future cooperation/assistance in the same subjects in the Asian and African regions.

1.2 Objectives of the Survey

The main objective of the overall survey is to identify the needs for official development assistance in the fields of biodiversity conservation and forestry-related measures against climate changes in the Asian and African regions. Toward this end, the survey team aims to:

i) collect and analyze relevant data and information concerning biodiversity and forest conservation as well as forestry-related measures against climate change in the ODA recipient countries in Asian and African regions;
ii) establish a database using data and information collected;
iii) identify the needs for future cooperation in the conservation of biodiversity and mitigation of/adaptation to climate change;
iv) select eight countries in the regions, four in Asia and another four in Africa, for further examination of the possible cooperation that JICA might be able to implement; and

v) conceptualize a/ potential project/s in the fields of biodiversity conservation and mitigation/adaptation measures in the forestry sector against climate change.

1.3 Background of the Field Survey

1.3.1 Countries visited

As described in the objective of the overall survey, a total of eight counties among the 78 countries, which are strategically important for biodiversity conservation in the regions and in need of JICA's ODA assistance in the same subject, are to be selected for further examination of potential JICA' cooperation. Following initial desk study and discussions with JICA, the following eight countries were selected:

Asian regions: Philippines, Lao PDR, Cambodia, and Vietnam
African regions: Tunisia, Ethiopia, Uganda, and Botswana

1.3.2 Purpose of the Field Survey

The main aim of the field survey is to further examine the needs for ODA support in the field of biodiversity conservation and conceptualize a/ potential project/s that JICA might be able to work on in the future. Specifically, the following activities are to be carried out in the field survey.

- Discussion of work plan with JICA branch office and relevant government organisations
- Interviews with relevant organisations for data collection
- Discussions on needs for assistance in biodiversity conservation and forestry
- Examination of possible project potential.

1.4 Scope of the Work

1.4.1 Major Activities done by the Survey Team

A member of the study team (referred to as "the Undersigned") has carried out the following activities to fulfill his tasks during his stay in Botswana.

- Collection and review of existing acts and regulations in the forestry, wildlife management, tourism and environmental sectors;
- Collection and review of existing policies, strategies and plans in the same sectors;
- Discussions with government offices and other organizations concerned with biodiversity conservation in the country;
- Field observation of the major ecosystems in the country and/or potential areas for future interventions under the JICA's cooperation; and
- Identification of the needs for future JICA's cooperation in the field of biodiversity conservation in consultation with the relevant government and non-government organizations.

1.4.2 Schedule of the Field Survey

The following table shows the work schedule of the Undersigned from June 7 to June 25, 2010.

Date	Activities
June 6 (Sun)	Arrival in Gaborone
June 7 (Mon)	Visit to DEA, DFRR, DWNP, DOT, DMS under MEWT to request the arrangement of the meeting and the data collection. Courtesy call to JICA/JOCV Botswana office
June 8 (Tue)	Visit to DWNP to request the arrangement of the meeting. Visit to MPED and government book shop to purchase the statistics and the documents relevant to Biodiversity Conservation. Visit to the University of Botswana to request the arrangement of the meeting. Visit and Meeting with BirdLife International in Botswana (NGO)
June 9 (Wed)	Meeting with NTSC and GIS Unit of DFRR. Visit and meeting with the Tropical Conservation Forest

Date	Activities
	Project supported by USAID.
June 10 (Thu)	Visit to DWNP to request the arrangement of the meeting. Meeting with the Institute of Research and Development of UB. Visit to Kalahari Conservation Society (NGO), UNDP, UNEP and EU to request the arrangement of the meeting.
June 11 (Fri)	Meeting with DEA, DMS and IRD of UB.
June 12 (Sat)	Data arrangement
June 13 (Sun)	Data arrangement
June 14 (Mon)	Visit to DWNP to request the arrangement of the meeting. Meeting with the staff of NTSC/DFRR. Visit to DOT to request the arrangement of the meeting.
June 15 (Tue)	Meeting with IDR/UB, UNDP/GEF/SGP and KCS.
June 16 (Wed)	Visit to DWNP to request the arrangement of the meeting. Meeting with the staff of NTSC/DFRR.
June 17 (Thu)	Meeting with the departments under DFRR, Meeting with Conservation International (NGO)
June 18 (Fri)	Meeting with NTSC/DFRR and DOT
June 19 (Sat)	Data arrangement and making of the field report
June 20 (Sun)	Data arrangement and making of the field report
June 21 (Mon)	Field Survey: Day 1. Move from Gaborone to Letlhakane in the Central District
June 22 (Tue)	Field Survey: Day 2. Visit to Khwee village to have a meeting with community organization members and to observe natural forest in the area
June 23 (Wed)	Field Survey: Day 3. Move from Letlhakane back to Gaborone. Visit to Khama Rhino Sanctuary and DFRR district office on the way
June 24 (Thu)	Making of the Report,
June 25 (Fri)	Presentation of the initial survey results to DFRR and DEA, Report to JICA/JOCV Botswana Office
June 26 (Sat)	Making of the field report
June 27 (Sun)	Move from Gaborone to Johannesburg in South Africa

Note: MEWT (Ministry of Environment, Wildlife and Tourism), MPED (Ministry of Planning and Economic Development), DEA (Department of Environmental Affairs), DFRR (Department of Forest and Range Resources), DWNP (Department of Wildlife and National Parks), DMS (Department of Meteorological Services), DOT (Department of Tourism), NTSC (National Tree Seed Center under DFRR), UB (the University of Botswana), IRD (Institute of Research and Development), KCS (Kalahari Conservation Society), SGP (Small Grants Program under GEF/UNDP)

Appendix 1 gives memos of some of the meetings that the Undersigned has had during the assigned period.

2. Policy Analysis

2.1 Review of the Constitution of Botswana relating to biodiversity conservation

The Constitution of Botswana (1967) contains the following chapters in relations to biodiversity conservation. Based on the stipulations in the chapters several subordinate regulations were developed as summarized in the next table. The regulations mostly issued during 1970's currently form the broad legal basis to ratify the international conventions and national strategy action plan of biodiversity conservation since 1990's.

Major regulations issued under the Constitution of Botswana

Chapters in the Constitution	Subordinate regulations
Chap. 38:01 Wildlife conservation and national parks	1. Controlled Hunting Areas Order 2. Declaration of Controlled Hunting Areas Order 3. Declaration of Private Game Reserves Order 4. Education Game Reserve Regulations 5. Fauna Conservation Regulation/Order 6. Gemsbok National Park Regulations 7. National Parks and Game Reserves Regulations 8. Wildlife Conservation and National Parks Order/Regulation
Chap. 38:03 Forest	1. Forest (Declaration of Forest Reserve) Order This order declares the area of all forest reserves in the county. 2. Forest (Declaration of Protected Trees) Order This order declares the tree species to be protected in the country. 3. Forest (Exemption of Certain Villages From Prohibited Acts in Forest Reserves) Order This order declares to permit the utilization of forest products by the local people in some target areas.

2.2 Review of Existing Policies and Strategies relating to the Target Sector

2.2.1 National Policies and Strategies

(1) Review of the National Strategies

The following table shows the key strategies relating to biodiversity conservation in "Vision 2016" and "National Development Plan 10 from April 2009 to March 2016". A report has been issued to monitor and evaluate the performances of "Vision 2016" as of 2009. They are also summarized below.

Major contents of national strategies in relation to biodiversity conservation

Source	Strategic objectives	Key strategies relating to biodiversity conservation
Vision 2016	Long-term perspective on national development until 2016	1) The year of 2016 is 50th years anniversary of Botswana's independence. Vision 2016 presents the long-term visions on the environment as one of the sectors to realize "Sustainable Growth and Diversification" which leads to "Build a Prosperous, Productive and Innovative Nation". It was issued in September 1997. 2) The vision recognizes the natural resources of Botswana are one of the greatest assets and they should be protected based on sound domestically based research. In order to realize this, the National Conservation Strategy Secretariat must be strengthened and made further proactive to implement relevant policies. 3) The results of research must be translated into effective measures that will protect the resource base and environment in a sustainable way. The management of the environment and the control of natural resources must be shifted to the level of the community, so that local people are able to benefit directly from the resources of the area where they live. This principal must be applied to the preservation and exploitation of wildlife. (Underlined by the author for emphasis)
Vision 2016 Botswana Performance report	Monitor and evaluate the performance of the activities declared in "Vision 2016"	The report gives overview of performance of environmental sector using indicators to track it. The achievements in policy formulation are shown as "improving" by the indicator "importance of environmental legislation to national agenda". Botswana has introduced the following policies such as the Environmental Impact Assessment (2005), seven multilateral environmental agreements between 1997 and 2003, and Agenda 21 which is the global environmental agenda for addressing the key challenges during this century. Meanwhile the evidences of conservation effort such as wildlife population trends are as a whole "no trend" overall. The population of selected species has been improved but others are in general declining. The elephant has increased its population two times during the period of 1994 and 2006 while five wild animals such as duiker, reedbuck, marshbuck, tshesebe, and warthog decreased at alarming speed between 1994 and 2004.
National Development Plan 2010	National development between 2009 - 2016	"National Development Plan 10" (NDP 10) presents the "Sustainable environment sector" which includes sub-sectors such as 1) natural resource management, 2) waste management and pollution control, 3) forestry and range resources, and 4) Wildlife and national parks. To attain the objectives of NDP 10, there are five programs in relation to the biodiversity conservation. Those are 1) Environmental Protection Program, 2) Natural Resources Management Program, 3) Environmental Information Management Program, 4) Environmental Governance Program, and 5) Support and Enhancement Delivery Program. In planning the fund allocation NDP 10 has six main areas to implement the mandates of MEWT. Those are 1) MEWT computerization which aim to improve the information technologies of the departments under MEWT, 2) MEWT consultation which includes investments to the Trans-frontier conservation areas supposed to benefit the country as a SADC member through revenues earned. 3) Natural resources management which aims to ensure the optima resource utilization in respect of land use. 4) Environmental management activities which aims coordination of

Source	Strategic objectives	Key strategies relating to biodiversity conservation
		national environmental management. More detail it provides for completion of the Management Plan for the Makgadikgadi pan system and assistance for NGOs undertaking various environmental management initiatives. 5) Development of DWNP which aims to facilitate wildlife management in the national parks and the sanctuary through improving the facilities of field stations and providing for execution of World Bank project for Human and Wildlife Coexistence Management and Biodiversity Conservation. 6) Community/Private sector support which aims to promote the Community Based Natural Resource Management (CBNRM) countrywide for the fulfillment of conservation and development roles. Assistance is to be provided to form trusts and engage in conservation project. 7) Tourism development which aims to accelerate private sector growth by improving accessibility to tourism services and to involve the community in tourism-related enterprises. (Underlined by the author)

MEWT: Ministry of Environment, Wildlife and Tourism

2.2.2 Sector Strategies and Strategic Plans

In addition, the following strategic plans and programs of the relevant sectors (forestry, fisheries and environment sectors) were also reviewed.

a. Botswana National Conservation Strategy-National Policy on Natural Resources Conservation and Development (December, 1990)
b. Revised Botswana Biodiversity Strategy and Action Plan (2007)
c. Community Based Natural Resource Management Policy (2007)
d. Vision for 2020 of Botswana Tourism (1990)

The following are key strategies/activities related to biodiversity conservation in the sector strategic plans/programs.

a. Botswana Biodiversity Strategy and Action Plan: Revised in 2007

The Botswana Biodiversity Strategy and Action Plan (NBSAP) was originally formulated in 2002 under the financial assistance of UNDP – GEF and revised in 2007. The strategy has eleven objectives with wide range in the said field as follows.

Objectives of Botswana Biodiversity Strategy and Action Plan (BSAP)

Objectives
1. Better understanding of biodiversity and ecological processes
2. Long-term conservation and management of Botswana's biological diversity and genetic resources
3. Sustainable utilization of all components of biodiversity through appropriate land and resource use practices and management
4. An institutional environment, including financial and human capacity, conductive to effective biodiversity conservation, sustainable management
5. Coping with environmental change and threats to biodiversity
6. Raised public awareness about the value and need to conserve Botswana's biodiversity, related indigenous knowledge and traditional practices, and related policies
7. Fair access to biological resources and equitable sharing of benefits arising from the use of biological resources
8. Safe industrial and technological development based on national biodiversity resources for future prosperity
9. Improved availability and access to biodiversity data and information, and promotion of exchange of information
10. Recognition of Botswana's international and regional role with regards to biodiversity
11. Implementation of this Biodiversity Strategy and Action Plan

The performance of implementation of NBSAP was reviewed in the "Botswana Fourth National Report to the Convention of Biological Diversity" issued in Nay 2009. Details are described in Chapter 1.3.

b. Botswana National Conservation Strategy: National Policy on Natural Resources Conservation and Development

Botswana National Conservation Strategy and National Policy on Natural Resources Conservation and Development were formulated in 1990. It presents the solution packages to address the key issues in the environment management. Among them those related to the biodiversity conservation are summarized in the following table.

Solution Packages of National Conservation Strategy and National Policy on Natural Resources Conservation and Development

Pillars of the solution packages	Contents
Conservation of wildlife, heritage and cultural resources	This package of measures is devised to assist wildlife utilization and tourism industries. The planning, management and incentive measures include; 1) the gazettement of the designated Wildlife Management Area 2) the upgrading of some game reserves so as to extend the protection given to all forms of wildlife; 3) the adjustment of some National Park boundaries to include a number of areas recommended in 1976 for gazettement; 4) the preparation and implementation of management plans; 5) the provision of increased anti-poaching controls; 6) the execution of wildlife cropping projects, primarily for the benefit of local communities, (Underlined by the author)

The strategy presents solution packages for other issues relevant to biodiversity conservation such as 1) depletion of wood resources, 2) rangeland pasture degradation, and 3) overuse of veld products. However the contents for these issues seem to be out-of-dated hence they are not described in the above table.

c. Community Based Natural Resource Management Policy 2007

The Community Based Natural Resource Management Policy (CBNRM Policy) was issued in 2007. The main pillars of the policy are summarized as in the next table.

Main contents of Community Base Natural Resource Management (CBNRM) Policy 2007

Pillars of the policy	Contents
Definitions	Community Based Natural Resource Management (CBNRM) is a development approach that incorporates natural resources conservation, the ultimate aim of which is to manage and protect the natural resource base. For the purpose of this Policy, CBNRM includes the management of cultural resources as defined in the National Ecotourism Strategy.
Intention of the Policy	The CBNRM Policy intends to; 1) provide guidance on CBNRM implementation on communal and state-owned land, 2) give communities incentives to engage in conservation activities leading to sustainable development and poverty reduction, 3) establish an institutional, regulatory and participatory framework for the implementation of CBNRM, 4) Promote and ensure a responsible, accountable and transparent decision making process in CBNRM.
Background	The CBNRM originates from the nation-wide land use planning exercise. The relevant policies are the Tribal Grazing land Policy (TGLP) in the mid of 1970's. The revised National Policy for Rural Development (2002) undertakes to "*promote natural resource utilization (wildlife and veldt products) to generate income and improve livelihoods of remote communities*" and recommends that "the CBNRM should be further pursued and modified based on the lessons learnt" and

Pillars of the policy	Contents
	"common property management for veldt products should be established by encouraging CBNRM". With the time and experiences CBNRM was adopted as a development approach which had the potential to bring about improved livelihoods through income and employment generation activities.
Objectives of the policy	The objectives of the CBNRM policy are as follows. 1) Specify land tenure and natural resource user rights, which may be developed to communities; 2) Establish a framework that provides incentives for community participation in natural resource management; 3) Create opportunities for community participation in natural resource management; 4) Promote conservation and CBNRM strategies that are based on sound scientific principles and practices; 5) Enhance the relationship between protected areas' management and CBNRM; 6) Protect the intellectual property rights of communities with regard to natural resources and the management of such natural resources; 7) Encourage communities to participate meaningfully in the monitoring of CBNRM; 8) Facilitate capacity building within communities to engage in natural resources-based tourism; 9) Establish an institutional support framework for the implementation of CBNRM; and 10) Promote communication, education and public awareness on CBNRM. To achieve the objectives the community organizes the Community Based Organization (CBO) and shall required appropriate administrative and financial management. Thirty-five (35%) percent of the proceeds of the sale of natural resource concessions and hunting quotas are to be retained by CBO. Sixty- five percent (65%) shall be deposited in the National Environmental Fund for the financing of community based environmental management and ecotourism projects, etc.
State of CBNRM in 2009	The implementation status of CBNRM was reported in 2009. Through the review of CBO's activities in the districts, wide range maladministration and abuse of the CBO fund were found. What is considered to contribute this problems are: 1) Lack of adequate capacity building within the leaders of CBO and the members in the community 2) Lack of political will to prosecute offenders who perpetrated various acts of corruption 3) Lack of capacity within the various extension agencies of the Government (Underlined by the author)

d. Vision for 2020 of Botswana Tourism

Tourism in Botswana obtains great benefits from the rich biodiversity of wildlife and various natural resources in the country. However "Vision 2016" states that the tourism strategy of aiming exclusively "at low volume high value tourism" should be reviewed by referring the evidence of neighboring countries suggesting that there is scope for increasing the volume of tourism without catastrophic environmental cost. Hence the development of tourism as a "force of growth" **which is compatible to biodiversity conservation** is a vital concern of the Government in the long term future of the country. In this sense "Vision 2020" for the tourism in Botswana presents the key areas in which sound policies should be developed and executed in relation to environment and biodiversity conservation. Those areas are 1) environmental and cultural resource management and 2) management and development of protected areas. The detailed provisions are summarized in the following table.

Solution Packages of National Conservation Strategy and National Policy on Natural Resources Conservation and Development

Key area	Contents
Environmental and cultural resource management	1) Promote and encourage sustainable tourism practices as highlighted in the core policy principles section and reward businesses that employ such practices.
Management and development of protected areas	Botswana's national parks, conservation areas and wildlife management areas are its tourism jewels and should be managed and developed with great care and in the interest of current and future generations. The following policy directives are relevant. 1) To draft a national protected areas tourism strategy and guide plan as an overarching game plan for future expansion and differentiation of these resources and taking into account the following guidelines: - Protected areas should be positioned and developed according to their unique

Key area	Contents
	characteristics and attributes. - Tourism facilities, amenities and activities should be planned and designed to compliment the unique position of each area. - Access conditions, costs and limitations should be varied to compliment the demand conditions and positioning of each protected area. - Assess restrictions should be considered to manage the carrying capacities in high-demand protected areas where visitor pressures are prevalent. - Accommodation facilities should be varied according to the capacity and positioning of areas. 2) To compliment the national guide plan with individual management plans for each park. 3) To implement a yield management strategy i.e. varying access costs to parks in accordance with demand and charging substantially higher access fees in parks where demand exceeds the carrying capacities of such areas.

2.3 Review of the Documents submitted UN Conventions: National Biodiversity Strategy and Action Plan (NBSAP)

Followings are the summary of the achievements and gaps of National Biodiversity Strategy and Action Plan (NBSAP) as of May 2009 when its implementation was reviewed in the "Botswana Fourth National Report to the Convention of Biological Diversity". In the next table some phrases are bolded and underlined by the author of this report to emphasize as key information associated with the initial ideas of cooperation needs described in the latter chapter.

Objectives of NBSAP	Main accomplishments and gaps
1. Better understanding of biodiversity and ecological processes	**1) Accomplishments**: Some inventories have been conducted. Regional initiatives looked at the effect of HIV/AID on biodiversity conservation. Main effect is on the management capacity of biodiversity conservation. **2) Gaps**: **Inventory on the most groups of fauna and flora has not been done. Still there are large gaps** in the objectives and achievements.
2. Long-term conservation and management of Botswana's biological diversity and genetic resources	**1) Accomplishments**: Good protected area network covering 45% of the national territory was established. Ecosystem management guidelines have been drafted. The threatened species policy has been drafted. The national forest policy has been approved. **2) Gaps**: Policy implementation in the local level for the protected areas is weak in some locations. **Conservation at the district level is not in a consistent manner.** There are no activities of planning and implementing the conservation plan.
3. Sustainable utilization of all components of biodiversity through appropriate land and resource use practices and management	**1) Accomplishments**: Wildlife Management Area (WMA) was established in the buffer zone of national parks. CBNRM policy was approved in 2008. The national forest policy made provision of enhancement of community participation to natural and forest resource management. Okavango management plan was formulated and put into implementation while the plan for Makgadikgadi area is being formulated. **2) Gaps**: District planning and reporting system was developed but has not been implemented. Regulation on veld products and wildlife quotas exist but not effective.
4. An institutional environment, including financial and human capacity, conductive to effective biodiversity conservation, sustainable management	**1) Accomplishments**: Okavango Delta Management Plan (ODMP) is implemented and efforts are visible in cross sectoral coordination and planning. Makgadikgadi Integrated Management Plan is now under preparation. Schedule to formulate a composite Biodiversity Policy has been prepared. DEA district offices have been established as a regional core. **2) Gaps**: Capacity building has taken place in National Parks (*in situ*) but very little has been done for *ex situ* conservation. Several funds for forest conservation have been established but are criticized by their low disbursement. Direct use valuation (economic valuation) has been conducted for water, livestock and mineral resources in Okavango but not yet incorporated into national accounts.
5. Coping with environmental change and threats to biodiversity	**1) Accomplishments**: National and district disaster management committees have been established and are functioning. Anti-poaching mechanism and hunting quotas are in place. Investigations on climate changes adaptation have been carried out by the University of Botswana. Some efforts in implementing ODMP show evidence. The Aquatic Vegetation Control Unit carry out the public awareness program to control the human activities in the

Objectives of NBSAP	Main accomplishments and gaps
	water area in accordance to the Aquatic Weed (Control) Act 1986. Continuous monitoring of water quality in effluent discharge back into natural system. **2) Gaps**: **Reduced levels of habitat destruction and degradation are unknown as there are no baselines to measure the changes**. The full effect of the some threats such as climate changes, wild fire and invasive species is poorly understood.
6. Raised public awareness about the value and need to conserve Botswana's biodiversity, related indigenous knowledge and traditional practices, and related policies	**1) Accomplishments**: DFRR are propagating indigenous tree species which will be distributed across the country. Botswana Tourism Board is actively promoting tourism. The New CBNRM policy has been adopted. **2) Gaps**: Public awareness about biodiversity is generally low in all sectors from government to individuals.
7. Fair access to biological resources and equitable sharing of benefits arising from the use of biological resources	**1) Accomplishments**: None. **2) Gaps**: Intellectual Property Bill is still a draft which addresses indigenous knowledge issue under Agreement on Trade Related Aspects of Intellectual Property and Patent Cooperation Treaty. It is related to CBNRM.
8. Safe industrial and technological development based on national biodiversity resources for future prosperity	**1) Accomplishments**: The national workshop on Bio-safety Clearing House was conducted in 2008. The national bio-safety framework is currently at al draft stage. **2) Gaps**: Nothing has been done yet to achieve the target of Bio-prospecting and citizen-based innovation encouraged through creation of an enabling environment
9. Improved availability and access to biodiversity data and information, and promotion of exchange of information	**1) Accomplishments**: The national workshop on Bio-safety Clearing House was conducted in 2008. The national bio-safety framework is currently at al draft stage. **2) Gaps**: No national standards have been developed yet for biodiversity data collection including meta data. Meta data has been established but need to be updated before it can be uploaded into the Botswana Government Data Network. **The Botswana Environmental Information System has been developed but availability of data is still limited**.
10. Recognition of Botswana's international and regional role with regards to biodiversity	**1) Accomplishments:** Capacity building is taking place through joining international meetings on biodiversity conservation. Active participation in the regional level including SADC Biodiversity Strategy, Trans-frontier conservation areas and regional workshops. High percentage of protected areas policies and programs positions Botswana at the frontline of biodiversity conservation in the SADC region. **2) Gaps**: Financial constrains impede participation in the international meetings and events on biodiversity conservation. Proactive role in globalization including bio-trade and biotechnology
11. Implementation of this Biodiversity Strategy and Action Plan	**1) Accomplishments**: Some components of BSAP were streamlined into National Development Plan 10. Sustainable financial provisions for implementing BSAP were partly ensured by the allocation of fund to assist NGOs in accordance with the departmental mandate. **2) Gaps**: There is political will towards environmental protection but little towards implementation of BSAP in particular. Achievements are fragment. The Body of coordination of the BSAP still lies with DEA.

3. Situation Analysis

3.1 Present Natural Conditions in Botswana

The issues and problems identified through the interviews and information reviews are summarized in the next table.

Issues and problems in Biodiversity Conservation in Botswana

Item	Issues and Problems
1. General	1-1. Mid and long term policy of the Government: The Government of Botswana presented in 1997 the mid and long term policy directions in "Vision 2016".The Vision declares the importance of sustainable environment management for the prosperity of the country. It says clearly the local community should be the main actor in conserving and utilizing the natural resources in a sustainable manner. The report issued in 2007 to review the performance of its implantation evaluated the government's ratification of major international conventions (Convention of Biodiversity, Climate Changes and Combat against

Item	Issues and Problems
	Desertification) to be improving situation while no detailed review were made on the implementation of natural resource management by the local community. 1-2. Development policy of the Government: "National Development Plan 10(NDP 10, 2010-2016)" presents key programs to be implemented in the environmental sector. In terms of conservation of natural environment, the plan uses the term of "sustainable environmental management" and does not refer to "biodiversity conservation", which indicates the concept and ideas on biodiversity have not been mainstreamed in the policy formulation. 1-3. Vital issue of biodiversity conservation: The National Biodiversity Strategy and Action Plan (NBSAP) of Botswana was revised in 2007. NBSAP presents the establishment of the data base of biodiversity in the country is the vital issue in the sector however almost no achievements were attained in the recent years by the Ministry of Environment, Wildlife and Tourism. Because the data base does not exist presenting the baseline of the richness of fauna and flora in the country, no assessments can be made on their changes in a certain period.
2. Forest and woodland	2-1.Forest and woodland: Although the forest is officially reported as covering 80% of the country's terrestrial area, most of them are the open woodlands or savanna woodlands which have less numbers of high trees forming the canopy layer than the closed forest. Those woodlands are continuously prone to the natural threats such as wild fires and droughts and human activities like livestock keeping by the local communities is also sometimes giving the pressure to the woodlands by intensive grazing. No exact monitoring and assessment on the forest and woodland resources has been made because of the restriction of several resources needed. 2-2. Unanticipated problem derived from "Species conservation approach": Owing to the conservation activities taken place in the northwestern region (Chobe forest reserve and surrounding national parks), the population of elephant has been doubled in the last decade. This has been causing the destruction of the forest and woodland in this area which has the richest terrestrial biodiversity in the country. To expand the protected area into the adjacent land as "corridor" and to control legally the number of elephants in the area are considered to be countermeasures to address the issues, however its implementations has been limited because of the insufficient resources and the difficulties to assure the consensus of the international community against controlling the number of elephants. 2-3. Threat of wild fire: Owing the prolonged droughts in the country the forest and woodlands are currently more threatened by the outbreak of wild fire than the past years. Measures to address it have been not sufficient because of the restriction of several resources in the Government. 2-4. Natural resource management by the local community: While the Government policy and programs have been focused on the protected areas such as National Park, Wildlife Sanctuary and Forest Reserve little have been done in the conservation of natural resources outside of those areas. Community Based Natural Resource Management (CBNRM) has started in the mid of 1990's in the model areas, however its achievements and effects has been limited because of the insufficient Government resources and lack of the proper guideline and technical manuals for the central/local government staffs. 2-5. Conservation and sustainable utilization of indigenous useful plants: Several indigenous plants which have high value as food and medicine were identified in Botswana. Those plants are considered to have potential to form a community based agricultural/forestry industries which could contribute the conservation of the natural resources and its sustainable utilization as well as improving the livelihoods of the community people through producing and selling them to the local market. However little has been researched on its habitat, ecology and sustainable method to utilize them through a scientific approach by the researchers of the University of Botswana. 2-6. Regional approach: Because Botswana is a "land closed" country, major protected areas extend to the neighboring counties. Kgalagadi Trans-frontier Park has the treaty between Botswana and South Africa on the conservation of wildlife migrating crossing the international boundary while other two protected areas (northeastern and eastern) only have the minutes of understanding (MoU) between the adjacent countries and the treaty has not been concluded yet.
3. Wetland (Okavango	3-1. Degradation of wetland environment by the human activities: Human activities have been expanding in the wetland areas in Okavango Delta such as

Item	Issues and Problems
delta)	encroachment for cultivation, exploitation of sands, unsustainable commercial fishing, which threats to various extent the existing ecosystems consisted precious and unique faunal and flora in the Delta area. 3-2. Extension of alien plant species: Alien plant species such as water hyacinth is expanding the water area which is threatening the existing flora in this area. 3-3. Expansion of epidemic diseases: An epidemic disease of fresh water fishes was found and is likely expanding along with the river systems in the area. 3-4. Broad needs of basic study versus limited activities of the projects: An epidemic disease of fresh water fishes was found and is likely expanding along with the river systems in the area. UNDP is supporting the Biokavango project to enhance conservation of the ecosystems in Delta area. To date several activities have been done such as information dissemination, monitoring of fauna and flora, periodical survey of water quality and sanitary conditions through UNDP's financial support to involve stakeholders e.g. the Government, the University, NGOs, SCO and the communities. However their achievements are limited in the target area compared to the vast wetland systems extending in the Delta area where basic researches and studies are rather needed to identify the complexity of existing ecosystems, prevailing threats and potential interventions.

4. Stakeholder Analysis

4.1 Government Organizations related to Biodiversity Conservation

Ministry of Environment, Wildlife and Tourism (MEWT) is the government organization which is responsible for biodiversity conservation. It was established in September 2002 in recognition of the need to bring environmental issues under one roof for better coordination of policies, strategies and programs. Hence the Ministry is poise to meet the current and emerging challenges for sustainable development. Its strategic agenda will be driven by the same objectives which guided its establishment i.e. to protect and conserve the environment and promote investment opportunities to derive maximum socio-economic benefits from our natural resources. The Ministry is made op of the seven departments. Among them following departments are relevant to biodiversity and ecosystems in the country. Their detailed profiles are described in the following sections.

a. Department of Environmental Affairs (DEA), Ministry of Environment, Wildlife and Tourism (MEWT)
b. Department of Wildlife and National Park (DWNP), Ministry of Environment, Wildlife and Tourism (MEWT)
c. Department of Forest and Range Resources (DFRR), Ministry of Environment, Wildlife and Tourism (MEWT)

4.1.1 Department of Environmental Affairs (DEA)

Department of Environmental Affairs (DEA) is responsible for coordination of formulation and implementation of environmental policies and programs to ensure its sustainable management. In 2009, DEA has *** staffs, of which *** persons work in the departments at the central level and the rest (**** persons) are deployed at the district offices.

The mandates of DEA is to ensure protection of the environment and conservation of natural resources by formulating, coordinating and monitoring the implementation of national environmental policies, programs and legislations.

4.1.2 Department of Wildlife and National Parks (DWNP)

Department of Wildlife and National Parks (DWNP) is responsible for managing the protected areas in the country such as National Parks and Wildlife Sanctuaries.

The mandates of DWNP is to ensure conservation of wildlife and natural vegetation protection in the protected areas and of the environment and conservation of natural resources by formulating, coordinating and monitoring the implementation of national environmental policies, programs and legislations.

4.1.3 Department of Forest and Range Resources (DFRR)

Department of Forest and Range Resources (DFRR) is responsible for protection of precious forests and trees in the country.

The mandate of DFRR is to ensure protection of the forest and trees in and outside of the forest reserves. It guides the local communities to implement the CBNRM to conserve and utilize the forest resources in their areas by organizing the community based organization, concluding the agreements between the local government and monitoring of compliance of local rules and regulations on forest conservation by the community members.

4.2 Donors and International Organizations

Donors and international organizations or development partners have supported the Government of Botswana in the conservation of protected area in relation to biodiversity. Their general policy is to provide the small scale financial support to the governments or the NGOs directly who is an entity to implement the activities in the field. Most of the past and current activities have been conducted in this way. There are no remarkable “stand-alone” type projects in the said field in this country because the resources of Botswana Government are critically limited.

Furthermore a few projects were done to study the richness of fauna and flora and to formulate the management plans of the national parks during the 2000’s. In this case the financial resources were used to hire the international experts and consultants to generate the solid outputs. Since then those gave a basis to formulate more comprehensive management plan of Okavango Delta area in 2008 and the frame work of the Makgadikgadi regional management plan.

Major Activities of the Donors and International agencies in Biodiversity Conservation

Development partners	Major activities
UNDP/GEF/SGP	Current Activities - Implementation of Small Grant Program through GEF/UNDP - Partnership Enhancing in the Protected Area (PEP): financial support for the trainings for communities located in the adjacent areas of the protected areas - Financial support for the preparation of Guide for community based tourism (Bird) - Protection of water environment: financial support for the monitoring of wetland ecosystems and community trainings
EU	Past Activities - Financial support to formulate the management plan of the national parks in the country during 1990’s and 2000’s - Financial support for taxonomic survey for the five protected areas
USAID	Current Activities - Financial support for the implementation of CBNRM
GTZ	Past Activities - Implementation of SADC’s forestry projects: Advisory support for the forestry administration Current Activities - Support for the production of tree seedlings at National Tree Seed Centers in the country (technical and small scale financial support)
Conservation International	Current Activities - Implementation of Biodiversity conservation project under the support of SADC - Implementation of western Makgadikgadi wildlife conservation project: 1) preparation of

Development partners	Major activities
	training manual, 2) Training of the trainers for the community based workshops and seminars
Kalahari Conservation Society	Current Activities - Publication of monographs/photography of wildlife (for sale) - Central Kalahari conservation project: training for the community on CBNRM
BirdLife International Botswana	Current Activities -Preparation of community based tourism on birds in the protected areas - Training for the community collaborating with the Botswana wildlife training institute in Maun city in the Okavango Delta area

5. Needs Assessment

5.1 Important Areas

Botswana has unique eco-regions in its terrestrial area. Followings are the eco-regions in Botswana and their global conservation status.

Eco-regions in Botswana and their global conservation status are summarized in the following table. Most of the woodlands and bushveld extend in the community areas where exploitation of wood resources, cattle grazing and farming are dominant.

Eco-region	Area in the country	Global conservation status
Kalahari Acacia Biakiaea woodlands	Southeast-Central-Northwestern region	Vulnerable
Southern African bushveld	Eastern region	Vulnerable
Zambezian Baikiaea woodlands	Northeastern region	Vulnerable
Zambezian halophytics	Mid-eastern region	Vulnerable
Zambezian and Mopane woodlands	Northwestern region (Surrounding Okavango system)	Stable/intact
Zambezian flooded grassland	Northwestern region (Okavango system)	Relatively stable/intact
Kalahari xeric savanna	Southwestern region	Relatively stable/intact

Among others, following areas and ecosystems are considered quite valuable in terms of biodiversity. Hence they need the comprehensive support to maintain and enrich their biodiversity.

- Okavango Delta – Unique inland delta and a Ramsar site
- Makgadikgadi pans – Unique halophytic seasonally flooded pan system. Breeding site for flamingos
- Chobe forest reserves (Miombo woodlands) – Very limited area in northern Botswana, but high value in biodiversity
- Molapo farming system in the northwest – unique dry land farming system based on

5.2 Needs for Further Cooperation

As a result of the quick reviews of the forestry and biodiversity conservation sectors in the country, the following topics/aspects are identified as needs to be addressed for biodiversity conservation in the country.

- Capacities of the staff in the departments under the MEWT need to be enhanced on planning, implementing and monitoring of biodiversity conservation in the fields of basic and applied research, natural resource management in and around the protected areas, interfaces and networking with other stakeholders such as university, NGOs and Social Civil Organization (SCO).
- The baseline data on fauna and flora should be set up focusing the important areas and ecosystems mentioned in section 1.4. The inventory of forest and woodland in the country needs to be conducted urgently to formulate its comprehensive management plan.

- Coordination through SADC and communications with the neighboring countries in formulating the treaty of conserving biodiversity in the trans-frontier areas should be strengthened.
- The high valued fauna and flora should be conserved in and outside of the protected areas. A comprehensive management plan for each eco-region needs to be formulated.
- The practices of Community Based Natural Resource Management (CBNRM) need to be expanded in the whole country. The guidelines/manuals for the government staff and the community members have to be developed.
- The communities need to have a plan for natural resource management. Based on the concept of sustainable resource management, the plan should indicate clear policy and materialize the community regulations and the mechanisms to conserve and utilize the existing natural resources in their areas.
- The basic and applied/action research are necessary to promote the more profitable and sustainable utilization of indigenous useful plants by the local community.
- The interface and networking between the scientific research and the policy formulation needs to be strengthen. More technical regulations and guidelines should be developed to materialize the conservation and sustainable utilization of natural resources.
- The nation wide data base of forests and vegetation should be improved. The capacity GIS/Information unit of DFRR in analyzing satellite images and developing thematic maps should be enhanced.
- The on-line “Botswana Environmental Information System” needs to be improved in its data sharing and updating system among the departments under the MEWT. More technical expertise is needed among the staff of information unit of the department of environmental affairs.

6. Conceptualization of Potential Interventions

6.1 Basic Principles for Formulation of the Potential Interventions

The following principles are taken into account in the identification of the potential cooperation needs as well as conceptualization of the possible projects.

a. The possible JICA’s cooperation should be in line with the existing government strategies and programs, such as: i) Vision 2016, ii) National Development Plan 10, iii) Botswana National Conservation Strategy, iv) BSAP, v) CBNRM Policy, and v) Tourism Policy, etc.
b. The possible cooperation should be appropriate with the availability of resources in the relevant departments in MEWT.
c. The possible JICA’s cooperation should be in line with respect the government’s initiatives and focus on maximizing the efforts made by the government as well as development partners.
d. The possible JICA’s cooperation should be in line with the JICA policy in Botswana and south African region.

Through the quick review of the relevant documents and the interviews to the personnel it was identified that the overall policy direction on biodiversity conservation has been geared according to the experiences and lessons learnt from the past programs/project implemented in the main protected

areas in the country. It is summarized as follows.

a. From "species conservation approach" to "ecosystem conservation approach"

This derives especially from the critical increase of elephant population in the Chobe National Park and in the surrounding forest reserves in the last decade. Policy and program focusing on the conservation of elephant without taking enough consideration and strategies on the ecological natural balances between the fauna and flora has brought serious degradation of high valued natural forests (Zambezian Baikiaea and Mopane woodlands). This experience gave a lesson that biodiversity conservation should take an approach to conserve the ecosystem as a whole which protect the threatened species and control the species increasing/extending excessively in a given ecosystem.

6.2 Long-list of Potential Interventions

Based on the assessment described above, followings topics are listed as the initial ideas on the potential interventions on biodiversity conservation.

a. Capacity development of the government staff in the central and district/sub-district levels on the expertise and skills to plan, implement and monitor the activities on biodiversity conservation.
b. Capacity development of the government staff and the local community through supporting them to conserve and utilize the natural resources in a sustainable manner in compliance with the government law and regulations.
c. Establishment of national fauna and flora data base to evaluate the current conservation status and the threats for biodiversity in the country
d. National inventories of forest and woodland vegetation by satellite image analysis and ground truth survey. This is regarded as a part of establishment of fauna and flora data base for biodiversity conservation in the country.
e. Improvement of the on-line "Botswana Environmental Information System" through setting up the data sharing and updating system among the departments under the MEWT and giving the training of IT technologies to the staffs of the information unit under DEA.
f. Assistance to DEA in formulating the comprehensive management plan for each eco-regions such as Makgadhikadhi area and socializing the plan to the stakeholders.
g. Enhancement of the capacity of DFRR and the communities who implement the Community Based Natural Resource Management (CBNRM) through developing the implementation guidelines/manuals for all stakeholders in line with the CBNRM policy.
h. Assistant to develop the technologies to produce tree seedlings of indigenous species and their maintenance after planting which is encouraged to conduct in CBNRM
i. Assistance the local community collaborating with the local/international NGOs in implementing the CBNRM through small scale grant scheme to implement small scale livelihood improvement project.
j. Basic and applied research by the scientists of the University of Botswana to investigate the nature and utilization of indigenous useful plants e.g. medical and food plants.

6.3 Prioritization of Long-listed Projects

The long-listed projects are evaluated in terms of i) relevance, ii) appropriateness of size (as compared to the capacity of the corresponding government agency), iii) necessity, iv) urgency, v) expected impact and vi) underlying risks, for prioritization.

As a result of the evaluation given in the table in the next page, the following projects/interventions are evaluated as priority ones. Most of the types of assistances are proposed to be "Technical

cooperation” as one of the main ODA schemes provided by JICA considering that the relevant organization in the government assumed to implement the project have number of staff, minimum facilities required while they mostly needs the technical training in fulfilling their mandates given by the current law and regulation of the government.

The long-listed projects are evaluated in terms of: i) relevance, ii) appropriateness of size (as compared to the capacity of the corresponding government agency), iii) necessity, iv) urgency, v) expected impact and vi) underlying risks, for prioritization.

As a result of the evaluation given in the next table, the following projects/interventions are tentatively evaluated as priority ones.

Initial Ideas of Possible Interventions/Programs relating to Biodiversity conservation

No.	Major activities	Possible interventions	Potential target sites	Type of assistance	Relevance to polices	Related projects /Donors	Priority
1	Establishment of forest and vegetation data base	Satellite image analysis and development of exact thematic map of vegetation which can provide the basis of sustainable management of forest and vegetative resources	Whole country	Technical cooperation with pilot project Financial support	Very High	None	Very High
2	Enhancement of implementing CBNRM	Capacity development of the stakeholders to implement CBNRM though developing implementation guideline of CBNRM	Priority areas (Eastern region)	Technical and Financial	Very High	USAID	Very High
3	Establishment of data base of Biodiversity	Extensive survey of existing fauna and flora in the protected areas utilizing the forest and vegetation data base developed through technical cooperation (No.1 as listed above)	Protected areas (National Parks, Wildlife Sanctuary, Forest Reserve)	Technical cooperation with pilot project Financial support	Very High	None	High
4	Formulation of comprehensive management plan for each eco-region	Data collection, field survey and analysis to formulate the comprehensive management plan for each eco-region in the country combined with trainings and workshops to socialize the plan to the stakeholders	Makgadhikaghi area, other eco-regions except Okavango area	Dispatch of the JICA Expert	High	UNDP	High
5	Implementation of CBNRM	Financial and managerial support to the community trust board to implement CBNRM	Priority area, especially eastern region of the country	Grass-roots grant scheme	High	USAID	Medium
6	Research of indigenous useful plants	Scientific research of the useful indigenous plants for medicine and food to conserve and utilize them in a sustainable manner	Eastern and central region	Technical cooperation with pilot project Financial support	High	None	High
7	Improvement of Botswana Environmental Information System	Training to the staff of information unit in DEA to develop and improve its sharing and updating system in MEWT	Information Unit of DEA	Dispatch of JOCV/JOSV	Medium	UNDP	Medium
8	Improvement of technology to produce tree seedlings	Experiments and training to produce tree seedlings of indigenous species and their maintenance after planting which are encouraged to conduct in CBNRM	Priority areas, especially eastern regions	Technical cooperation	High	GTZ	High

7. Activities in the Following Month

The list of the possible programs/interventions given above is the initial ideas made by the Undersigned based on his field work between June 7 and June 25, 2010. Due to time constraints, he was not able to analyze sufficiently the data collected or fully exchange ideas/opinions on the possible interventions with all the stakeholders concerned during his stay in Botswana. Hence, this field report should be regarded as the initial ideas based on the quick reviews of the relevant sectors.

In the in-country assignment in July 2010, the Undersigned will re-examine the initial ideas further reviewing the collected data and exchanging the ideas with relevant development partners working in the field of biodiversity conservation in Botswana as well as JICA HQ. In the end, the survey team will submit the final report with the proposed project ideas and recommendations to JICA HQ in the end of July 2010.

Hiromi Yasu

Data Collection Survey on Biodiversity Conservation
in Asian and African Regions

Meeting / Field Memo

No. of Memo: 1	
1. Topic/Purpose	Meeting with the National Tree Seed Centre (NTSC)
2. Participants	1) Mr. Motsereganyi Sekgopo (Director, NTSC) 2) Hiromi Yasu
3. Place	Office of Mr.Sekgopo , in the Department of Fishery Resources
4. Date & Time	9 June 2010, 10:10 – 12:00

5. Points of Discussion/Observation

The member of JICA study team visited the office of Mr.Sekhopo who is a director of NTSC and the focal person for the study. He prepared the project proposal in the field of resource assessment and conservation of the vegetation in Botswana. It has not been under the process to request the ODA of Japanese government. The JICA survey team intends to clarify the back ground information on the proposal as well as to collect the general information on the sectors of biodiversity and forest conservation.

The major issues discussed and the comments of Mr.Sekgopo area as follows.

(1) The project proposal is based on the project finding mission conducted by the Japanese consulting firm Kokusai Kogyo" in 2003. It focused on the vegetative resource assessment using the satellite image analysis and the ground truth survey, which was revised in 2005 by the Department of Forest and Range Resource Management focusing more on the north-east region where the degradation of woodland and tree savanna were going on rapidly by the increase of population of elephants.

(2) The proposal was submitted to the Ministry of Finance for further procedure but the communication was lost since then and the department did not followed if the proposal was approved by the Government and sent to the Japanese government.

(3) In 2009 the proposal was further revised to cover the whole country to conduct the vegetation resource assessment using the satellite image analysis. It responded to the call of the Japanese government to request the submission of the aid proposal for all the sectors in the government of Botswana. Mr.Sekhopo prepared the latest proposal and submitted to the DEA for further appraisal. He confirmed it was sent to the Ministry of Finance for the selection of priority proposal to submit to the government of Japan. It was finally confirmed that the proposal was sent to the embassy of Japan in Gaborone but was not clear it was submitted through official procedure or not.

(4) The revised proposal covers the whole country to conduct the vegetative resource assessment because they do not have the data base to show the resource distribution of the forest/woodland and grassland in the country, which force the Department of Forestry and Range Resources to report groundless data to FAO and World Research Institute for the annual forest resource assessment.

(5) The consultant of the JICA survey team and Mr.Sekhopo confirmed that because there is not any evidence to show the official submission of the proposal to the Japanese side, they have to follow the official proposal from the start, that is to revise the proposal according to the result of the survey this time and submit to DEA for further appraisal. Because the Japanese government cal for the request for the ODA aid proposal in July every year, the procedure within the department has to be complete before the end of June.

6. Notes/Issues: None

(1) A letter requesting the data on fishery sector with its list were sent to Mr.Nadiope. He agreed to arrange the data within 10 days.

Meeting / Field Memo

No. of Memo: 2	
1. Topic/Purpose	Meeting with the Institute of Research and Development/the University of Botswana
2. Participants	1) Prof.Labandauda (Biology) 2) Prof. 3) Yasu (Consultant, JICA survey team)
3. Place	Meeting room of DEA office,
4. Date & Time	10 June 2010, 9:00 – 11:00

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Prof.Labandauda talked the current activities, issues and problems in the field of biodiversity conservation in Botswana. After then the participants exchanged their views and opinion as a free discussion. Followings are some highlights during the discussion.

(1) The University of Botswana and the Institute of Research and Development has conducted the scientific research in the hot spots of biodiversity in Botswana in accordance with the international networks for biodiversity conservation (BD). BD in Botswana has been attained in a way like "unintentionally conservation" which means the high valued natural environment was conserved mainly because of the low population pressure and underdeveloped infrastructure and tourism industry since the independence of Bostwana. The challenge of BD which is faced with by all sectors of this country how the BD in Botswana can address the issues currently emerging in the hot spots in the country such as poaching, encroachment, degradation of vegetation and pollution of water all of which are caused by the recent expansion of human population and their settlement, weak enforcement by the government, underdevelopment of the peoples' understanding on BD in the whole country.

(2) In order to address the challenges it is a key to strengthen the interface of scientific research, policy making and implementation in the society. The BD network organized by all the sectors and entities in Botswana plays a key role in this issue. The networks consist of the government, university, NGOs, SCO, private entities, school organization, etc. Most of the project in BD is carried out through this network to ensure its objectives and goals.

(3) The hot spot in the county is 1) trans-frontier national parks which shares the international boundary with the adjacent countries, 2) the Chobe area in the north-eastern region where the natural vegetation is severely damaged by the rapidly increasing Elephant population, 3) Okavango delta in the northwestern region in the country where high valued natural fauna and flora exist in the marsh and wetland ecosystems. UNDP is currently supporting the implementation of the wetland management project in accordance with the framework of Okavango management plan formulated by the Department of Environmental Affairs.

(4) The Convention of Biodiversity Conservation is liked with other international conventions whch the Botswana Government has ratified such as Convention of Climate Changes and Convention for combating the desertification. Government's initiatives and policy/programs have to be in coordinated and cooperated with those other conventions in their implementation.

(5) A lot of indigenous useful plants have been identified in Botswana which distribute in mostly in the central Kalahari conservation area and in the Mopane and Miombo woodland in the eastern parts of the country. "Hoodia", a wild cactus used by the San people in the Kalahari dryland and the Mopane worm in the eastern woodlands have been recognized as high valued natural resources for the peoples' diet as well as for the medical plants. More research and study should be carried out to investigate how

to utilize and produce more using the current technologies.
6. Notes/Issues: None

Meeting/ Field Memo

No. of Memo: 3	
1. Topic/Purpose	Meeting with the Department of Environmental Affairs (DEA)
2. Participants	1) Ms. Ingrid M. Otukile (Chief Natural Resource Officer) 2) Ms.Dineo D. Oitsile (Natural Resources Officer, Convention of Bio Biodiversity desk officer 3) Mr.Mntana (Project coordinator – Makgadikgadi framework management plan) 4) Yasu (JICA survey team)
3. Place	Meeting room of DEA office, MEWT
4. Date & Time	11 June 2010, 9:00 – 11:00
5. Points of Discussion/Observation	

After the briefing by the consultant of the survey team on the objectives of the survey, Ms. Otukile and Ms. Oitsile explained the mandates of DEA and the ongoing programs/projects in relation to the biodiversity conservation, which was followed by the discussion between the consultant and the staff of DEA focusing on the issues and problems in the field of biodiversity conservation.

(1) DEA has revised the National Biodiversity Action Plan (NBAP) in 2007 which is currently effective in directing the policy and the programs in relation to the said field. DEA is the secretariat of the initiatives for Biodiversity Conservation in Botswana.

(2) DEA is responsible to hold the regular meeting attended by all kinds of stakeholders to monitor the progress and achievements set in the NBAP. The meeting is chaired by the University of Botswana. The participants at the meeting are the government (DEA), the University, the Civil Social Organization (CSO), the NGOs, etc. Progresses in the projects are reviewed and the issues and problems their implementations are shared and discussed to find out their solutions.

(3) DEA has been conducting the environmental education programs. The division of Environmental Education and Public Awareness is responsible for the program. It developed the National Environmental Education and Action Plan. Accordingly the division directs the local government to conduct the environmental programs in the primary school in the districts. The challenge is that the number of the teachers and school staffs are not sufficient to conduct the program in the whole country. Training programs are needed to increase the knowledge and build their capacity to do the environmental education in the classes. UNDP is providing the financial support to implement the program.

(4) The Environmental Information Management Division is preparing the Botswana Environmental Information System (BEIS) supported by UNDP during 2006 and 2008. The division needs the IT expert to complete the BEIS as a “CBD clearing house mechanism”.

(5) DEA is preparing the Makgadikgadi framework management plan to cover the Makgadikgadi National Park and its surrounding areas to maintain the existing ecosystems and their biodiversity. The plan is based on the Makgadikadi National Park management plan which was formulated in the mid of 2000’s under the financial support by European Union. The framework is scheduled to be completed in 2010 which is supposed to be followed by making the detailed management plan focusing the specific areas and locations in the target area.

6. Notes/Issues: None

(Meeting)/ Field Memo

No. of Memo: 4	
1. Topic/Purpose	Meeting with the Department of the Meteorological Services (DMS)
2. Participants	1) Mr.Phetolo Phage (Director) 2) Ms.Dorcas N. Masisi (Principal Meteorologist, DNA office, NCCC Secretariat) 3) Yasu, (Consultant, JICA survey team)
3. Place	Meeting room of DEA office,
4. Date & Time	11 June 2010, 14:30 – 15:30

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Mr. Phetolo, the Director of the Department of the Meteorological Services provided the mandates, current activities and their challenges in the meteorological services. Followings are the highlights during the discussion between the survey team and the DMS.

(1) There is no policy specified for the climate changes in Botswana. The DMS currently does not conduct any projects and activities in relation to the climate changes. There is no donor and international organization which provide the financial and technical support. Only some private company shows their interests in investing the solar power installations in the area of Gaborone city.

(2) Because of the recent climate changes in the southern African region, wild fires break out many times in the prolonged dry season. Hence it is urgently needed to set up the early warning systems of the fire outbreak in the districts and the rural areas. Also the introduction of monitoring fire monitoring systems using the satellite images are required to develop the counter measures to prevent the spreads of the fires during the dry seasons.

(3) The workshop for preparing the National Action Plan for Adaptation (NAPA) is under preparation to be held in July 2010 participated by the Government sectors, the University and collages, NGOs, CSO and other entities in relation to the climate changes. One of the focused points in NAPA is the production of solar energy to provide the electricity in the country as well as to sell it to the neighboring countries in the southern African region.

(4) In order to implement the policy and programs for climate changes in the future, capacity development for the government staff will be needed as a first priority. Also there should be a firm interface between the science and policy as well as integration of scientific findings and recommendation into the policy formulation.

6. Notes/Issues: None

Meeting / Field Memo

No. of Memo: 5	
1. Topic/Purpose	Meeting with the UNDP/GEF/SGP
2. Participants	1) Ms. Elsie Tolani Mvumi (National Coordinator, GEF/SGP) 2) Mr. LEnard (Program Specialist, UNDP/Energy & Environmental) 3) Yasu, (Consultant, JICA survey team)
3. Place	Office of GEF/SGP in UNDP
4. Date & Time	15 June 2010, 10:30 – 11:30

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Mr. Lenard and Ms. Elsiepresented the policy and the activities of Small Grants Program funded by the Global Environmental Facility. The main highlights of the discussion are as follows.

(1) In the environment and energy sector, UNDP focuses the climate change, biodiversity conservation and capacity building of the government staff and local community. Its objectives are summarized in one phrase such as PEP, "Partnership Enhancing in Protected Area". It strengthens the network, coordination and cooperation among all stakeholders in relation of the said field.

(2) UNDP supports the project to develop the community based tourism targeting the protected areas. It has been carried out in the northeastern part of the country such as Makhadikadhi and Chobe national parks. The project supports the community to plan the tourism in and around the protected areas for the foreign tourists. Through this project the community members are employed and earn some cash income to improve their livelihoods.

(3) "Biokavango" project is being implemented under the support of UNDP since 2006. Three components such as biodiversity conservation, water resource management, CBNRM are carried in the target communities under the support of the local NGOs. The challenges are 1) governance by the community to implement CBNRM, 2) fishery management, 3) sharing the benefit among the community members (one of the issues of the community governance). For 1) and 3), training, awareness raising and workshop should be conducted to enhance their capacity while fishing code should be developed and executed to control the commercial fishing in the wetlands.

(4) National inventory on fauna and flora should be conducted to identify the endangered species and the need to protect them. To date there are only piece meal (fragmented) information has been collected from several protected areas in the country, which have nor been arranged in a unified format to be used for formulating the future national policy and programs in the field of biodiversity conservation.

(5) The GEF/SGP office supports the local community who planned and submitted the implementation plan for CBNRM. Currently around twenty projects are going on mostly in the eastern part of the country. There are also annual reports to monitor their progress and find out the issues and problems (The hard and soft copies of the report were provided to the JICA survey team). The activities in their plan are mainly focused on the livelihood improvement such as seedlings and vegetable production, planting trees, small scale businesses such as holding community kiosk. Together with these, they have a community rules and regulations to conserve the natural forest and woodlands close to their community. They hold a regular meeting to monitor the compliance of their rules and find out the problems to solve them if there are.

6. Notes/Issues: None

(Meeting)/ Field Memo

No. of Memo: 6	
1. Topic/Purpose	Meeting with the Kalahari Conservation Society (KCS)
2. Participants	1) Mr. Felix Monggae (Chief Executive Officer) 2) Mr. Gotsileone Mosimanegape (Environmental Program Officer) 3) Yasu (Consultant, JICA survey team)
3. Place	Office of Mr. Felix in KCS
4. Date & Time	15 June 2010, 14:30 – 15:30

5. Points of Discussion/Observation

After the briefing by Yasu on the objectives of the survey, Mr.Felix presented policy and current activities of KCS, which was followed by the free discussion between both parties.

(1) Since 1970's Kalahari Conservation Society has been working for the natural environment conservation in Botswana. The source of the activities is mainly the financial support offered by the donor agencies and international organization such as WWF, IUCN, EU, etc. Although the organizations in the western countries have been the main partner in KCS's activities, it is also ready to collaborate with the Japanese NGOs and donor agencies.

(2) KCS is conducting the water demand management project in nation wide to capacitate the local community in managing their local water resources in order to be more sustainable. The projects focus to hold the trainings and workshops targeting all kinds of stakeholders in relation to the water resource management.

(3) KCS conducted the monitoring and evaluation of the Community Based Natural Resources Management (CBNRM) which has been conducted since 1994 until 2006. The monitoring report revealed that maladministration, misuse of the fund and abuse by the group leaders were prevailing in the model communities. It surely hampered the continuous participation and the collective actions by the community members. The report analyzed one of the main reasons was the lack of the proper orientation for the community leaders and members and the frequent follow-up by the authorized entities e.g. local government.

(4) KCS is also engaging the publication of some books and photo collection to disseminate the value of natural environment in Botswana supported by the international NGOs. A photo collection of Okavango Delta and booklet of precious wild birds in Botswana were already published and sold.

(5) KCS always welcomes the financial supports offered by the donors and international organizations in the field of environmental conservation. It has an alliance with the national expert in natural environment, environmental conservation, community development, environmental education, consultancy for policy formulation, etc. It also can work as a contractor to work for the project implemented by the government and donor agencies.

6. Notes/Issues: None

案件候補概要表（プロジェクトプロファイル）

国名：チュニジア

タイトル	DGF に対する保護区域管理に関わる協力支援
背景	DGF は保護区管理を行う責務を担うが、その組織管理能力と共に、保護区管理並びに生物多様性保全分野における専門的な能力は十分とはいいがたい。 JICA はこれまでにも、円借款事業や開発調査などを通じて DFG に対する支援を行ってきたが、保護区管理に関する支援は行った経験はない。今後、DFG が適正に保護区管理を進めるためには、DFG の主要ドナーの一つである JICA の役割は極めて大きいと予想される。本提案は、DFG に対して JICA 専門家を派遣し、DFG の保護区管理に関わる技術レベルを向上させると共に、将来の JICA 案件形成、他ドナーとの連携促進を通じて、効果的な保護区管理に貢献することを目指すものである。
プロジェクト目標	DGF の保護区管理に関わるシステムや能力が改善され、DGF が国内の重要な保護区を適正に管理できるようになること。
プロジェクト対象地域	DGF
実施機関	DGF
主要活動	• DGF による保護区管理システムの実施支援 • 技術的なアドバイスの供与 • 将来 JICA 支援案件の形成と調整 • 他ドナーと連携した当該分野の効果的な支援枠組み形成支援
実施期間	2 年間
実施スキーム	専門家派遣
投入（想定される専門家）	JICA 専門家
期待される成果	当該分野に関して JICA の支援が包括的に行われるようになり、国内の貴重な動植物の生息域が適正に保全・管理されるようになる。
環境社会面で配慮すべき事項	特に無し
補足	なし

案件候補概要表（プロジェクトプロファイル）

国名：チュニジア

タイトル	重要な保護区の管理強化支援
背景	保護区管理は、チュニジアにおける生物多様性保全において基本戦略であり、近年、政府は指定保護区を拡大し、生態系保全を図ろうとしている。しかしながら、拡大に政府機関の能力が追いついていけず、十分な保護区管理が行われずにいるのが現状となっている。実際に、JICA による総合的森林管理プロジェクト（Phase 1）において、22 の新規保護区域が提案されたものの、そのうち 11 保護区が現在管理されていない状態にある。 本提案プロジェクトは、現在管理が行われていない重要な国立公園に対して、DFG が適正管理進めることを支援するものである。
プロジェクト目標	本提案プロジェクトの主目的は以下のとおり。 • 管理不足の重要な国立公園（1~２箇所）において、適正管理に必要な管理計画が整備される。 • 計画策定及び計画の一部実施（パイロットプロジェクト活動）を通じて、DFG 及び関係機関の管理計画策定並びに実施能力が向上する。 • 残っている国立公園に対する管理計画作成のためのロードマップが作成され、DFG による管理計画整備のための準備が整う。
プロジェクト対象地域	現在、次の 5 箇所の国立公園が対象候補地としてあげられている。 1- Mghila National Park (16,249 ha - Kasserine and Sidi Bauzid) 2- Jbel Zaghdoud National Park (1,792 ha - Kairouan) 3- Jabel Orbata National Park (%,746 ha - Gafsa) 4- Dgoumes National Park (8,000 ha - Tozeur) 5- Senghar - Jabbes National Park (287,000 ha - Tataouine)
実施機関	DGF
主要活動	•最新生成画像の解析による現況森林・植生分布状況及び土地利用状況の把握 •保護区管理状況の把握と問題点の抽出 •地域住民の資源管理状況及び社会経済状況の把握 •地域住民との保護区管理に関する協議 •バッファーゾーンを含んだ国立公園管理計画の策定支援 •管理計画で提案されている活動の実施支援 •DFG 職員に対する計画策定及び実施に関する研修 •地域住民の生計向上に関わる研修実施及び支援
実施期間	5 年間
実施スキーム	技術協力プロジェクト
投入（想定される専門家）	•長期専門家：統括、保護区管理、調整員 •短期専門家：衛星画像解析、生計向上
期待される成果	本提案プロジェクトの実施を通じて、以下の効果が期待される。 •生物多様性保全 •森林保全 •森林局職員の能力向上 •地域住民の生計向上
環境社会面で配慮すべき事項	生計向上事業において、地域住民への利益の分配等に偏りが出ないよう、配慮する。
補足	なし

案件候補概要表（プロジェクトプロファイル）

国名：チュニジア

タイトル	乾燥・半乾燥地域での既存植生の維持・回復と新規植林の推進
背景	チェニジアの中南部に広がる乾燥・半乾燥地域では、過去 20~30 年間に、農村部での人口増加や開墾、燃材確保のための森林伐採／植生減少が急速に進み、森林面積が減少し、砂漠化が進行している。森林減少と砂漠化進行の状況は正確に把握されていないため、効果的な対策が実施されていない。同地域での森林減少は、燃材不足や土壌劣化、居住環境の悪化をもたらし、地域住民の貧困問題と強く関連している。同地域での植生減退状況と砂漠化の進行とその原因を正確に把握した上で、住民の生計向上ニーズの対応を含めた植林・植生回復計画の策定と実施が必要とされている。
プロジェクト目標	現在植生荒廃が進行している乾燥・半乾燥地域において適用可能な住民参加での植林及び植生回復モデルを確立し、DFG を中心としたチュニジア政府が実施できるようになること。
プロジェクト対象地域	中南部の乾燥地域
実施機関	DGF,及び地方農業局
主要活動	●衛星情報と聞き取り調査を通じた乾燥・半乾燥地域における過去 30 年間における植生被覆・分布状況の変化の確認 ●植生荒廃が進行している地区の同定と地域住民に対する荒廃原因並びに資源利用などに関する聞き取り調査の実施 ●代表的な植生荒廃進行地区の選定 ●同地区の住民と共同での植生保全及び回復に関わる活動計画の策定 ●地域住民の組織化（活動グループの形成）と必要な規則等の制定 ●必要な苗木の調達支援 ●地域に適した生計向上オプションの同定と生計向上活動を行うための研修実施並びに活動実施支援 ●植林活動実施支援 ●事業実施に必要な各種技術マニュアル・ガイドラインの整備 ●乾燥・半乾燥地域の植生荒廃地区における植生回復計画の策定
実施期間	5 年間
実施スキーム	技術協力プロジェクト
投入	●長期専門家：統括、育苗/植林、参加型資源管理、調整員 ●短期専門家：衛星画像解析、生計向上
期待される成果	本提案プロジェクトを通じて、以下の成果が期待される。 ●地域の砂漠化防止 ●地域の既存生態系の維持と生物多様性の保全 ●地域住民の生計向上 ●DFG による周辺半乾燥地・乾燥地での類似活動の実施
環境社会面で配慮すべき事項	生計向上事業において、地域住民への利益の分配等に偏りが出ないよう、配慮する。
補足	なし

案件候補概要表（プロジェクトプロファイル）

国名：エチオピア

タイトル	**住民参加型森林事業の展開** **Option-1: Oromia 州 Sigma-Satama 地域のコーヒー森林地帯** **Option-2: Oromia 州の乾燥・半乾燥地域** **Option-3: 1 と 2 の組み合わせ**
背景	Balete-Gera における参加型森林管理プロジェクトは、社会的側面と環境側面においてかなりの成功を収めている。本提案事業は、その成果を、他地区へ展開することを目的とする。 Option-1:Oromia 州 Sigma-Satama 地域のコーヒー森林地帯 Oromia 州の熱帯林地帯における参加型森林管理の分野では、既に多くのドナー支援が入っている。しかし、いまだかなりの面積の森林が支援の対象から外れ管理が不十分な状態にある。Balete-Geta の活動モデルを、地理的条件と森林植生が酷似したコーヒー森林地帯で展開することを提案するものである。 Option-2: Oromia 州の乾燥・半乾燥地域 また Borena 地域のように Oromia 州の半乾燥地域では、これまで殆どドナー支援の実績が無い。一方で同地域は、砂漠化の危機に直面しており、早急な対策の実施が必要とされる。同地域には、稀少な固有種も存在し、保全意義は極めて高い。また地域住民の貧困度も高く、生計向上と環境保全の両立が必要とされている。
プロジェクト目標	Option-1: Balete-Gera のプロジェクトと同様に、地域住民による森林管理が持続的に行われること。 Option-2: 生物多様性を維持し砂漠化の進行を防ぐために、森林減少を防止することを第一義の目的とする。森林を維持するために、参加型森林管理の手法を取り入れ、地域住民の能力向上と持続可能な生計向上の両立を図る。
プロジェクト対象地域	Option-1:　Oromia 州の Sigma-Satama 地域 Option-2:　Oromia 地域の半乾燥地域（特定の地域は指定せず）
実施機関	Oromia 州森林野生動物公社/Oromia 農業農村開発局
主要活動	• JICA Belete-Gera プロジェクトの経験と教訓のレビュー • 対象地域における対象村落の選定と社会経済調査の実施 • 住民との協議を通じた森林管理組合の形成 • 森林管理に関わる研修(Farmers’ Field School; FFS)の実施 • 森林管理地区の参加型境界画定 • 住民との参加型森林管理契約の締結支援 • 住民による森林管理の支援 • 持続可能な生計向上に対する支援（認証を受けたコーヒー生産活動を含む）
実施期間	3~4 年間（準備期間における業務量による。先行プロジェクトの経験では、パイロット村落を選定するためには、包括的なアプローチが必要である。）
実施スキーム	技術協力プロジェクト
投入（想定される専門家）	• 長期専門家：統括、森林管理、コーヒー栽培技術、植林、調整員 • 短期専門家：ベースライン調査、生計向上
期待される成果	• 森林破壊の防止 • 生物多様性の維持 • 砂漠化の防止 • 住民に対する持続可能な生計手段に関る支援
環境社会面で配慮すべき事項	生計向上事業において、地域住民の利益の分配等に偏りが出ないよう、配慮する。
補足	今回調査の時間的制約から、対象地域はまだ特定されていない。OSFWE や OARDB、EIAR の森林研究部との協議を通じて決定される。

案件候補概要表（プロジェクトプロファイル）

国名：エチオピア

タイトル	Dati 保護区の新規設定と保全管理強化支援
背景	431km^{2}の面積をもつ Dati 野生動物保護区域は、アフリカ水牛やカバ、ウォーターバック（大型の羊蹄類）など、大型哺乳類の大規模な生息地であり、重要な生態系を構成している。またこの地域は広大な湿地帯を有しており、国際的・国内的に、保全が必要な鳥類の稀少種が多数生息し、Sudan-Guinea 鳥類バイオーム（注：biome, 生物群系）を形成している。そのため同地区は、保全の優先度が高く、適切な管理による重要鳥類保護区域（Important Bird Area)に指定する必要がある。
プロジェクト目標	プロジェクト目標は、Dati の保護区域を設定し統合的な管理計画を策定、さらに保護区域の管理に対する支援である。
プロジェクト対象地域	Dati 野生動物保護区域、Oromia 州
実施機関	OSFWE を主実施機関とするが、EWCA も実施体制に含まれる。
主要活動	• Dati 地区に対する最新衛星画像解析による植生分布及び土地利用状況の把握 • Dati 地域における各種現地調査（動植物調査、地域住民の社会経済調査、水資源、インフラ調査）の実施 • エコツーリズム導入可能性の検討 • 環境影響評価 • 住民との協働を基本方針とした保護区管理計画の策定 • 境界線の確定 • 保護地区並びにラムサール湿地としての登録申請準備 • 地域住民及び地方行政職員、政策決定者に対する啓蒙普及 • 地域住民の生計向上支援 • 地域住民及び政府職員に対する研修の実施
実施期間	5 年
実施スキーム	技術協力プロジェクト
投入（想定される専門家）	• 長期専門家：統括、保護区管理、調整員 • 短期専門家：ベースライン調査、環境評価、エコツーリズム、生計向上
期待される成果	• Dati 区域の保護と持続的な管理、生物多様性の保全 • 地域住民の生計向上に対する好ましい影響
環境社会面で配慮すべき事項	生計向上事業において、地域住民への利益の分配等に偏りが出ないよう、配慮する。
補足	なし

添付資料　案件候補概要表（プロジェクトプロファイル）

国名：エチオピア

タイトル	**関連機関、特に EWCA 職員の能力向上支援**
背景	EWCA は、保護区域の設定と管理を主要な責務とする近年文化観光省に設立された新しい組織である。EWCA に割り当てられている予算は小額であるものの、その役割の大きさから予算額は年々増加し人材も増えている。職員は積極的な姿勢で業務に取り組んでいるが、全体として能力向上が必要とされている。これまで本局での雇用計画数95人のうち56人が雇用され、地方の事務所では同様に1,303人のうち 227 人が雇用されている。職員に対する研修と共に、管理活動のためのインフラ整備や観光業に関わる開発計画策定の支援も必要である。
プロジェクト目標	EWCA の保護区管理能力の向上と共に、資金システムの整備とエコツーリズムの導入促進を図ること。
プロジェクト対象地域	EWCA 職員
実施機関	EWCA 研修担当部局
主要活動	• 関係機関職員の研修担当を含んだ作業グループの形成 • 関係機関職員、特に EWCA 職員の研修ニーズの分析 • 研修プログラムの作成とコンサルテーションの実施 • 保護区管理に関わる各種技術の研修の実践 • 民間投資を招致するための知識（エコツーリズム）や技術（マーケッティング）に関する研修の実施 • 研修のモニタリングと評価
実施期間	3~5 年
実施スキーム	技術協力プロジェクト
投入（想定される専門家）	• 長期専門家：保護区管理、研修プログラム • 短期専門家：各種専門家は研修ニーズ調査の結果を基に決定する。
期待される成果	EWCA が持続的に組織の任務を果たすための能力が向上し、その結果として全国レベルでの保護区管理及び生物多様性の管理体制が改善することが期待される。
環境社会面で配慮すべき事項	特に無し。
補足	なし

案件候補概要表（プロジェクトプロファイル）

国名：エチオピア

プロジェクトタイトル	**生物多様性に関わる広報・啓蒙普及活動実施支援**
背景	IBC は、エチオピアにおける生物多様性の責任機関（フォーカル・ポイント）であるが、その任務を果たすには、組織としての能力は十分ではない。IBC の主要な業務の一つは、生物多様性保全に関わる啓蒙普及活動の実施であるが、能力不足のために十分な活動を行うことができない。
プロジェクト目標	IBC に対して、生物多様性保全に関る啓蒙普及活動に関わる支援を行い、IBC の職員の能力の向上と共に、必要なモジュールなどを整備すること。
プロジェクト対象地域	IBC
実施機関	IBC
主要活動	• IBC 担当者とのワーキンググループの設立支援 • 啓蒙普及活動対象者の設定とテーマ、並びに情報伝達方法に関する検討 • 啓蒙普及キャンペーン活動の準備支援 • 普及教材、マテリアルの作成支援 • キャンペーン実施のパートナーやスポンサーとの交渉とサポート取得支援 • キャンペーンの実施支援
実施期間	2 年
実施スキーム	協力隊員派遣
投入（想定される専門家）	青年海外協力隊員（環境教育）
期待される成果	IBC に、生物多様性保全に関わる啓蒙普及活動を実施するためのツールと能力が整備される。結果として、地域住民や一般市民の生物多様性に関わる認識が深まる。
環境社会面で配慮すべき事項	特に無し。
補足	なし

案件候補概要表（プロジェクトプロファイル）

国名：ウガンダ

タイトル	**湿地帯のインベントリーを通じた湿地帯分布状況及び現況の把握と重要湿地帯に対する湿地管理計画の策定と実施に関わる支援**
背景	ウガンダでは湿地帯が国土の 13%を占め、その水域や樹林地に動植物が豊富に生息している。近年、農村部での急激な人口増加と経済の発展に伴い、水田稲作が中央と東部地域を中心に拡大し、湿地帯とその周辺の環境が改変されている。また都市近郊では住宅建設のために湿地帯が埋め立てられ、その縮小や消滅が各地で生じている。その結果、魚類や昆虫類とそれを餌とする鳥類、さらに在来植物の生息域が縮小・消滅し、湿地帯の生物多様性は危機に瀕している。 湿地と周辺の環境利用については、政府法令と技術指針が存在するが、ラムサール条約指定湿地（国内 12 箇所）以外は保全のための土地区分と管理計画が存在せず、これらの法令・指針は湿地保全のために十分に機能していないのが現状である。このような状況のもと、湿地分布の正確な把握とそれに基づく分類、管理計画の策定と遂行、関係者の能力向上が急務である。
プロジェクト目標	衛星画像を用いた湿地帯のインベントリーと総合的な管理計画策定を通じて、湿地管理局と各県湿地管理課による情報管理と計画策定・実施能力の向上を図る。
プロジェクト対象地域	1） 衛星画像によるインベントリー/現況把握：全国、 2） 湿地管理計画策定：ラムサール湿地等の優先湿地（１箇所）
実施機関	水資源環境省湿地管理局及び各県の湿地管理課
主要活動	<u>1）衛星画像によるインベントリー/現況把握</u> － 最新の衛星画像解析に基づく湿地帯分布の正確な把握 － 重要湿地の生物多様性に関するデータの更新 － 生物多様性の必要性に基づく湿地の分類：保全の優先湿地の選定 <u>2）湿地帯の管理計画策定（パイロット・プロジェクトを含む）</u> － 計画対象の優先湿地と管理に関わるステークホルダーの同定 － 湿地管理の住民組織を対象村落に設置 － 各県の湿地管理課を対象として必要な研修の実施 － 村落単位の湿地管理計画の策定支援 － 村落湿地管理計画で提案された活動の試験的実施とモニタリングの支援 － 生計向上プログラムの試行 － 対象の数県が合同で構成する湿地管理委員会によるモニタリング体制の確立 － 委員会による湿地管理計画の実施とモニタリングの支援 － 活動の試験的実施から得られた教訓を反映させた湿地管理計画の完成 － 湿地管理計画の策定と実施に関わるガイドラインの作成又は改訂
実施期間	3~5 年間
実施スキーム	技術協力プロジェクト
投入（想定される専門家）	長期専門家：総括、湿地保全計画、参加型資源管理 短期専門家：GIS、衛星画像解析
期待される成果	－ 湿地帯の有効な管理に資する信頼性の高い情報が整備され、実用的な計画が策定される。 － 上記業務に関する湿地帯管理局の実務執行能力が向上する。
環境社会面で配慮すべき事項	生計向上事業において、地域住民への利益の分配等に偏りが出ないよう、配慮する。
補足	湿地帯の管理は、保全とワイズ・ユースの両立を図ることが目的である。そのため、農業省など関連の省庁と情報を共有し連携しながらプロジェクトを進めることが重要である。

案件候補概要表（プロジェクトプロファイル）

国名：ボツワナ

タイトル	全国を対象にした植生分布及び資源状況調査と CBNRM コンセプトを基本方針とした植生・自然資源管理計画の作成
背景	ボツワナは、国土の大部分が乾燥・半乾燥地域に属し、その植生は樹木が疎らな Open Woodland や草本が優先する。バイオマス量はわずかであるが、乾燥気候に適応した稀少な動植物が豊富に存在し、ユニークな生態系を構成している。特にサバンナ地域での大型哺乳類の種・個体数は世界でも有数であり、主要産業である観光産業を支えている。 近年の気候変動や人間活動により、これらの生態系は火災や伐採等の深刻な脅威に晒されている。しかし現状は正確に把握されておらず、政府による効果的な政策や計画が策定できない状況である。一方で、住民を担い手とした「住民主導型資源管理(Community Based Natural Resource Management; CBNRM)」政策が存在するが、実施に必要な仕組みが存在せずその効果は限られている。このような状況のもと、植生資源分布の正確な把握と CBNRM を取り入れた持続的な資源管理の仕組みを構築・普及することが急務となっている。
プロジェクト目標	本提案プロジェクトの主目的は以下のとおり。 ①森林局の CBNRM コンセプトを用いた自然資源管理事業の計画策定及び実施能力が向上する。 ②森林局が全国の植生分布状況を把握し、計画的且つ戦略的に自然資源の保全・管理に関わる活動を実施できるようになる。
プロジェクト対象地域	フェーズ１（全国の植生分布状況把握と植生管理指針の策定）：全国 フェーズ２（優先地区での管理活動の実施）：CBNRM 優先ゾーン
実施機関	環境野生動物観光省森林局
主要活動	フェーズ１：全国を対象とした現況把握とゾーニング、管理指針、MP 案の策定 • 最新の衛星画像解析とサンプル現地調査による全国の植生分布把握 • 住民による森林・土地・植生資源利用の現況調査 • 植生分布の特徴に基づくゾーニングと各ゾーンの植生資源管理方針の策定 • CBNRM の実施優先地区の同定 • 全国を対象とした植生・自然資源管理マスタープランの作成 フェーズ２：優先地区を対象としたパイロット・プロジェクトの実施と MP 策定 • CBNRM 優先ゾーンに対する実施計画の策定 • 実施計画をベースとした優先地域でのパイロット・プロジェクトの実施 • パイロット・プロジェクトの成果に基づく全国マスタープランの改訂と実施要領の作成 • その他、必要な技術マニュアル・ガイドラインの作成
実施期間	5 年間
実施スキーム	技術協力プロジェクト
投入	長期専門家：総括/植生資源分析(GIS,衛星画像解析)/参加型資源管理 短期専門家：村落開発（生計向上活動）
期待される成果	森林局が作成されたマスタープランと実施要領並びにガイドラインを用いて、全国にて CBNRM コンセプトによる自然資源管理事業を展開することが期待される。
環境社会面で配慮すべき事項	生計向上事業において、地域住民への利益の分配等に偏りが出ないよう、配慮する。
補足	実施機関は森林局であるが、保護区域内のデータについては、野生動物・国立公園局が保有している。また、CBNRM の政策形成は環境局の担当のため、これらの部局との協力が必要である。

案件候補概要表（プロジェクトプロファイル）

国名：ボツワナ

プロジェクトタイトル	**北部国境に位置する Chobe 国立公園と周辺地域を対象としたゾウの生息域管理と住民の生活確保を目的とした国立公園管理計画及び生態系コリドー整備計画の策定と実施に関わる能力向上**
背景	Chobe 国立公園が位置する国内東北部では、Baikiaea(Rhodesian Teak)の樹林が広がる。またゾウやエランド（大型羊蹄類）等の哺乳類も豊富で、貴重な生態系を構成している。1990 年代半ばに開始されたゾウの保護政策によりその頭数は過去 10 年間で倍増し、樹林帯の樹木を損傷し植生を破壊するようになった。また周辺では、地域住民が農耕と牧畜を営んでおり、保護区域外に出ることもある大型動物による農作物や家畜の被害が発生している。そのため、野生動物の保護と森林の保全、動植物の多様性の保全、住民生活との軋轢の解消による住民の生計保障を達成することを目的とした計画の立案と実施が急務になっている。
プロジェクト目標	本提案プロジェクトの目的は以下のとおり。 ①Chobe 国立公園の野生動物が地域住民と共生することを目的とした国立公園管理計画が策定され、関係者間で共有される。 ②管理計画の活動の実施を通じて、関係者間の管理計画実施能力が向上する。
プロジェクト対象地域	Chobe 国立公園と周辺の森林保全区、近隣の村落地域を含む Chobe 地域
実施機関	環境野生動物観光省森林局、環境局
主要活動	•Chobe 国立公園を中心とした動植物（ゾウ）のインベントリーと生態調査、ゾウによる樹林地と農地への被害の把握と啓蒙普及キャンペーン活動の準備支援 •最新衛星画像を用いた植生分布状況及び地域住民による土地利用状況の把握 •国立公園とその周辺を含んだ地域に対するゾーニング •生態系コリドー設置案を含んだ国立公園とその周辺地区に対する管理計画案の策定 •地域住民代表を含んだ関係者（ステークホルダー）との国立公園管理に関わる協議の開催 •コリドー設置や地域住民との協働での国立公園管理、エコツーリズムの試行などパイロットプロジェクトの実施 •パイロットプロジェクトの評価と管理計画の改訂 •管理計画実施のための実施要領の作成 •改訂管理計画及び実施要領を関係者間で共有
実施期間	5 年間
実施スキーム	技術協力プロジェクト
投入（想定される専門家）	長期専門家：総括、自然資源管理計画策定、 短期専門家：野生動物調査、森林植生調査、データ・ベース構築と普及
期待される成果	• 野生動物と人間の共存を目指す総合的な Chobe 地域管理計画が策定される。 • 国立公園に生息する動植物、特に大型動物が適正に管理される。 • 地域住民の生計・生活が確保される。
環境社会面で配慮すべき事項	生計向上事業において、地域住民への利益の分配等に偏りが出ないよう、配慮する。
補足	国境を接するジンバブエとの間では、同地域を保全するために、共通の保護政策を形成することを目指した Minute of Understanding (MoU)があるが、未だ条約(Treaty)という形では締結されていない。