Democratic Republic of Sao Tome and Principe

Ministry of Natural Resources, Energy and Environment
Directorate General of the Environment
(Unity – Discipline – Labour)

FOURTH NATIONAL REPORT ON THE BIODIVERSITY

1st DRAFT

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ANALYTICAL SUMMARY

1- State, tendencies, threats and incidence of change on human wellbeing

The present report on the biodiversity of Sao Tome and Principe was elaborated according to the guidelines provided by the Convention Secretariat for biodiversity and as explained in the attached Methodology document, prepared for this purpose. In the absence of some secondary information regarding this subject, some primary information was collected on site using the Quick Participative Diagnosis Method (QPDM). . Photographs were also taken and a cartographic sketch was elaborated of the most degraded ecosystems and their localizations *in loco*.

In Sao Tome and Principe (STP) four ecosystems were defined and which the Convention on Biodiversity (CB) highlights as relevant: They are namely:

- The Marine and coastal Ecosystem
- The Inland water Ecosystem
- The Forestry Ecosystem
- The Agricultural Ecosystem

The present report did not find any indicators to mirror the actual state and tendencies of the elements that were constituted important in the biological diversity. Therefore it is recommended that a standard and diligent study be carried out to attain this objective.

Meanwhile, during the elaboration of this report, some relevant information was collected from secondary sources and which we here present in synthesis.

The following table shows the tendencies and the actual situation, the threats and the effects on the human wellbeing of each of these ecosystems. The information indicates that the state and the tendency of the elements that constitute the biological diversity of the various ecosystems, as well as the threats to which they are submitted and the effects on the human being, continue almost unaltered, not differing much from the aspects referred to in the three previous reports on the biological diversity elaborated in the country.

In the Forestry ecosystem, which is one of the main ecosystems of STP, we verified that the problem of indiscriminate tree felling persists. The threat is mainly the destruction of species of greater commercial value. This falls negatively upon the population, which, to make things worse, are confronted with the lack of adequate alternatives to improve their economic sustenance and in so doing, reduce the extreme poverty which it is facing.

It was also verified that the lack of certain species of wood for construction and the fabrication of furniture has been enormous, making the planting of these species in adequate ecological areas necessary.

Also, because the fauna depends on the Forestry ecosystems, it has truly suffered from the state of degradation and there has been a simultaneous loss of biodiversity, mainly the birds like the *Néospiza concolor*, *Prinia molleri* (truqui), *Nesctarinia newtoni* (selelê), *Terpsiphone atrochalybeia (tomegagá*) among others.

The extraction of sand from the beaches and the increase of erosion, characterises the state and the present tendency of the coastal and marine ecosystem. The main threat lies in the strong erosion of the seashore, destroying the coastal infrastructures, which might have other implications such as,

loss of jobs. Nevertheless, the threats to the ecosystem are much more vast and serious, including the degradation of the fish species, sea birds, sea turtles, etc. The negative effect upon the wellbeing of the fish population is caused by the decrease of diversity and potentiality of the source of piscatorial protein, which can contribute to the increase of fish prices on the local market, aggravating the quality of life of the population, already with little buying power.
In the agrarian ecosystems, the present situation points to the unrestrained introduction of exotic species as one of the causes of strangulation; the danger lies in the threat of plagues (viruses in tomato crops) which will consequently impoverish the farmers.

The direct and indirect causes of the threats are many and are described to exhaustion in the NBSAP (2004) and also referred to in the NBSAP (2007). The document describes the causes according to the ecosystems. The Forestry ecosystem is seen as one of the most important in terms of environment and biodiversity. The direct cause of its degradation has been the unrestrained felling of trees and controlled fires, and the indirect cause, the lack of inspection of the parcels of agricultural land distributed to the farmers, and the lack of financial means of the farmers to invest in the productive system.

There are certain species of flora and fauna that continue to be threatened or in danger of extinction as referred to in the three previous reports written on the subject. (See the document attached to this report)

The on-site information does in fact confirm a reduction of some animal and plant species of great economic, social and environmental importance (see attached document). This reduction is due to the enormous pressure that some fishermen have exercised on the marine ecosystem, using grenades and inadequate nets to catch fish.

The timber merchants, the coal-merchants and the Sawyers have exercised such an excessive pressure on the Forestry resources that not even the most vulnerable areas already weakened ecologically and environmentally, have escaped this pressure (The Lobata District, The Seashell Beach and the surrounding areas). The hunters have exercised such pressure on the fauna that the population of some species such as the wild pig has been decreasing more and more and also searching for refuge further away.

The cause of this pressure exercised on the resources is pointed out primarily as the lack of employment.

2- Main measures taken to attain the Objectives for 2010

The present report investigated the main measures taken by the government to attain the three objectives set by the Convention, as well as to reach the objectives set for 2010.
The facts demonstrate that on a pragmatic level, in reality, there has been little advance in the pursuit of attaining the objectives for 2010. This is due to the following restraining factors:

- Weak capacity of execution at an individual, institutional and system level.

- Inexistence of operational and appropriate financing mechanisms.

Even so, we currently see a growth in dynamism in respect of the following aspects:

- Information;

- Education;

- Communication with the public;

- And at the level of attracting and mobilizing international financial resources.

The following table shows briefly the goals that were met in Sao Tome and Principe in the pursuit of the attainment of the objectives for 2010 in respect of the biological diversity, as well as the respective indicators that serve as a platform to measure the progress of the strategies established to attain these same objectives. It was observed that in terms of the measures to protect the elements that constitute the biological diversity, the country did meet some goals and attain some objectives.

The objective 2.1, for example, aiming to restore and preserve the population of the species belonging to the selected taxonomical groups and slowing down its degradation, presents as a pertinent qualitative indicator, the ongoing conservation of sea turtles. However, according to the ONG- MARAPA (ONG-Non Governmental organization – MARAPA – Sea, Environment and Artisan fishing), the limited financial support available for the next few years could compromise the accomplishment of the process of sensitization and education and any other measures foreseen and considered indispensable to attain the objectives and meet the goals of the Convention.

Table 2 – Objectives for 2010 accomplished by Sao Tome and Principe

Goals and objectives	Relevant Indicators
Protect the biological diversity	
Objective 1. Promote the conservation of the biological diversity of the ecosystems, the habitats and of humankind	
Objective 1.1 Conserve at least 10% of each ecological region on the planet effectively	o Natural Parks Obõ of Sao Tome and of Principe were created. They occupy about 40% of the country's surface.
Objective 1.2 Protect the areas that reveal particular importance for the biodiversity	o Areas of dense forest, High humid areas, Foggy forests, dry and open Tropical forests and the Mango plantations of Malanza form part of the Natural Parks of the Obô;
Objective 2.1 Restore and preserve the population of the species belonging to selected taxonomical groups, stopping its degradation.	o Campaigns for the conservation of the sea turtles have been carried out; o Changes to the Hunting law are being studied; o The Project for the management and operation of the Obô Natural Parks is being elaborated.

Take note that, for lack of adequate monitoring and systematic evaluation of the campaigns, the above presented indicators are not ciphered.

3- Progress made in the implementation of the CBD Strategical plan

According to the Strategical Plan of the CBD as demonstrated in table 2, there is an indication of satisfactory performance by Sao Tome and Principe. In a general way, in terms of the attaining of CBD objectives, a positive mark is once again given for the intensive efforts that have been made in the strengthening of capacities on three levels: individual, institutional and system. These efforts came down to the following actions:

- Seminars;
- Workshops;
- Participation of relevant personnel in external formation sessions;

- Efforts to improve relations with the secretariats of the Rio Conventions (CR).

We stress the fact that the government and its development partners have made an enormous effort to strengthen institutional capacity and establish a greater articulation between sectors relating to this matter.

Matters relating to Biological Diversity are integrated in the projects, programmes and policies of the Government, including its own programme (XIII). Highlighted among these projects and programmes is the National Strategy for Poverty Reduction (ENRP, 2002), because as poverty increases, there will be a bigger pressure on the natural resources which compose the various ecosystems and sub-ecosystems covered in this report.

No less important is the Strategy for Climatic Change because Sao Tome and Principe, being the detached micro-state that it is, cannot escape the effects of global warming.

Table 3- Progressive steps taken in the implementation of the CBD Strategical plan

Goals and stratigical objectives	Possible Indicators
Objective 1: The Convention plays its role of leader, to deal with the question of biological diversity on an international level.	
The issues of biological diversity are integrated into the objectives, programmes, sectorial and inter-sectorial policies on a regional and global level.	• Central African Forest Commission's Plan of Convergence (COMIFAC), • Sub-Regional Initiatives to fight against the degradation of the lands and desertification in Central Africa
Objective 3: The national strategies and action plans pertaining to the conservation of the Biodiversity and the integration of the issues pertaining to the diversity of the relevant sectors, serve as an efficient frame-work for the implementation of the objectives of the Convention.	
Each part of the Cartagena Protocol, pertaining to the prevention of biotechnological risks, established a framework of regulating and operational measures to be followed in the implementation of the protocol.	• Law regulating Biological security elaborated and approved in Sao Tome and Principe
The issues of biological diversity are integrated into the objectives, programmes, sectorial and inter-sectorial policies on a pertinent national level.	• For example, the issues pertaining to the biological diversities are integrated into the National strategy for the Reduction of Poverty and National strategy for Climatic Adaptation and change.

3.1- Sectors in which the implementation was more or less efficient on a National level

Below are listed some public and private institutional sectors in which the implementation on a national level can be considered more or less efficient.

- Directorate General for the Environment – Ministry of Natural Resources and Environment;
- Directorate of Forestry;
- Directorate of Livestock;
- Directorate of Fisheries;
- Institute of Meteorology;
- ONGs – MARAPA (Non Governmental organization – Sea, Environment and Artisan fishing)
- UNDP (United Nations Development Programme).

4- Main obstacles encountered for the physical implementation of the measures

Below are listed the main obstacles that affect the implementation of the measures:

- Lack of financial resources;
- Lack of technical means;
- On the educational level, technical and scientific incapacity;
- Frailty of Organizations or Community associations;
- Lack of Local or Municipal power to help reinforce state authority;
- Lack of implementation of an adequate Environment Awareness programme among the urban communities, and among the business class (Environmental impact).

4.1- Financial Support in the implementation of the project

The implementation of the projects pertaining to the Biodiversity has been financed essentially by the following organizations:
- The Government (OGE- General Governmental Budget)
- PNUD (United Nations Development Programme)
- European Union

5- Future priorities

As far as future priorities are concerned, the present report suggests that the following measures be taken:

- Strengthen the capacities of the public and private institutions to enable better protection and sustainable utilization of the natural recourses;

- Improve inter-sectorial integration and articulation making it more dynamic and operational;

- Reduce the rate of indiscriminate felling of trees by developing and implementing a Project of reforestation covering as wide an area as possible;

- Continue to implement programmes of environmental education with the aim of attaining the following objectives:

- Promote responsible fishing aimed at protecting the halieutic resources;

- Protect the species of marine turtles especially those in danger of extinction.

In terms of final reflection, the main results and conclusions of this report indicate that there are about twenty projects elaborated under cover of the NBSAP (2004), and according to studies of the various ecosystems, they were practically unimplemented. They are among others:

- Coastal Zone planning and the Sustainable management of its resources

- Sustainable management of the Exclusive Economic Zone (ZEE)

- Conservation of the Biological Diversity and of the Biological Resources of Inland Waters

- Expansion and enrichment of the Botanical Garden and herbarium.

-Project to register and codify traditional customs and their usage pertaining to the Conservation of the Biodiversity

- Project for the Conservation of the Agrarian Ecosystem and Sustainable use of these Resources

- Enhancement of the Agricultural Ecosystems

- Elaboration of specialized legislation for the conservation of the Biodiversity of Sao Tome and Principe and the sustainable use of its resources

- Carrying out of public awareness and educational campaigns on Conservation and Biological Diversity

- The making of films, the printing of postcards, posters, stamps and Atlas with pictures of the wild species of Fauna and Flora threatened or endangered.

The implementation is estimated to cost approximately 2 million north-American dollars and is to be implemented between 2003-2025. But since 2003 until the elaboration date of this report, very little has been done due to lack of financial means.

Considering the importance of the implementation in terms of the conservation and sustainability of the biological resources of the country, it is recommended that adequate mechanisms be put into movement for the collecting and mobilization of resources to make it possible.

Furthermore we tried to make an evaluation of the Strategical Objectives and Action Plan for the Biodiversity that were included in the last three reports, (listed in detail in the attached tables).We record that, with the exception of the elaboration, approval and publication of some of the legal mechanisms, the evaluation shows that there has not been much progress in terms of the implementation of the proceedings, which could compromise the attainment of objectives and goals on the stipulated date.

GENERAL INDEX

Introduction	
Chapter I: Present state of tendencies and threats to the biodiversity in Sao Tome and Principe	**12**
1. Diversity of the natural conditions	12
a) Geographic Situation	13
b) Climate	13
c) Topography	14
d) Hydrography	14
e) Geology and soil	14
1.1 Influence of natural conditions on the biodiversity	14
1.2 Plant species, habitat and genetic diversity	15
1.2.1 Plant diversity of each different ecosystem	15
1.2.2 Endangered Plant species	16
1.2.3 socio-economic importance of the flora	16
1.3 Fauna, habitat and genetic diversity	17
1.3.1 Endangered fauna species	20
1.3.2 socio-economic and cultural importance	21
1.3.3 Genetic Diversity	21
1.4 Threats to the biodiversity	21
1.4.1 Causes of the threats according to various ecosystems	22
1.4.2 Synthesis of the state, tendencies and threats to the Biodiversity	24
1.5 State, tendencies, threats and incidence of change on the human wellbeing	25
Chapter **II: Evaluation of the Implementation of the National Strategy and Action Plan on Biodiversity (NBSAP)**	36
2.1 Strategic Guidelines established by the NBSAP for the conservation of the Biodiversity	36
2.2 Strategic Analysis of the implementation of the NBSAP	38
2.2.1 Analysis of factors Constraining the Implementation of the NBSAP	41
2.3 Specific Information about the enforcement of the decisions	44
Chapter III: Integration or marginalisation of the issues of biodiversity into the plans, programmes, sectorial and intersectorial policies	**45**
Chapter IV- Conclusion: Progress made or not made in the pursuit of attaining the 2010 objectives and in the implementation of the strategical plan of the CBD	**47**

4.1 Progress made in the pursuit of the 2010 objectives	47
4.2 Progress made in the implementation f the Strategic Plan	48
4.3 Conclusions and recommendations	49
4.3.1 Level of fulfilment of the obligations of the CBD	49
4.3.2 Necessity of intensifying capacities to implement the CBD	54
4.3.3 Recommendations to improve the implementation of the CBD	56
APPENDIX I: Information about the parties presenting the report and the process used in the preparation of the National Report	**61**
APPENDIX II: Other fonts of information	**64**
1. Bibliographical References	63
APPENDIX III – Progress made in the attainment of objectives of the global strategy for the conservation of plants (EMCP) and the work programme on protected areas (PA)	**93**

TABLE INDEX

Table 1- Wealth of species and endemism among the Groups of Organisms of	
Sao Tome and Principe	18
Table 2- Types of threats that affect biodiversity in STP	21
Table 3- Causes of threats to the various Ecosystems	22
Table 4- Ecosystems and their respective sub-ecosystems	26
Table 5- Marine and littoral Ecosystem	28
Table 6- Marine Ecosystems	28
Table 7- Inland Water Ecosystems	29
Table 8- Forestry Ecosystems and remaining dense and humid forests of low altitude	30
Table 9 - The sub-ecosystems, Forestry, tropical, dry and open and forests	31
Table 10 – Shade Forests	32
Table 11- Shrubby, arboraceous, herbaceous grasslands and mangroves	33
Table 12- Forest of high altitude	34
Table 13- Agrarian Ecosystem	35
Table 14- Comparison between the threats and the actions projected by the NBSAP	38
Table 15 – Strategies to mobilize financial resources	43
Table 16- Decisions of the eighth COP and the corresponding National response	44
Table 17- Objective for 2010 accomplished by Sao Tome and Principe	47
Table 18- Advances in the implementation of the Strategical Plan of the CBD	48
Table 19- CBD Obligations fulfilled by Sao Tome and Principe	49
Table 20- Analysis of the necessity of strengthening capacities	54
Table 21- Proposal for the composition of the CNB	57
Appendix Table 1-7 - flora	66 – 75
Appendix Tables 8-15-Fauna	76 – 83
Appendix Table 16 Evaluation of the fulfilment of objectives of the Biodiversity Plan according to Strategical Points	84 – 89
Appendix Tables 17-21 On-site task	89 – 92

IMAGE INDEX

Image 1- Geographical Location of the Islands of Sao Tome and Principe	13
Image 2- Erosion, with landslides Angra Toldo Cavalete Caué	23
Image 3- Map of the Forestry and Agrarian Ecosystems	27
Image 4- Malanza South of the Island	30
Image 5 Wild animal hunters in the South	31
Image 6- Cutting down of bushes on the Praia das Conchas (The Seashell beach)	32
Image 7- Coal oven on the north side of the Praia das Conchas (the Seashell Beach)	33
Image 8- Agro-silvicultural-pastoral System in the South (Mount Mário)	36
Image 1, 2, 3 Biodiversity (attachment)	92 – 93

INTRODUCTION

The archipelago of Sao Tome and Principe has a very rich biological diversity of endemic flora and fauna. This is a great natural heritage that must be "conserved" (ENRP, 2002). The same source adds yet, that the correct exploitation of this heritage, offers immense opportunities for the growth and diversification of the financial income for this archipelago.

Therefore, the defining of policies for development, which strive to make the most of these opportunities, should be duly enforced institutionally. With reference to the biodiversity, there are various tools of "policies and planning" which have been conceived and formulated during these two decades. These tools consist of the National Strategy and Action Plan for the Biodiversity, The National Sustainable Development Plan (PNADD) and the intervening laws on the issues of biodiversity conservation, namely: the Law regulating the Fauna, Flora and Protected areas, the Forestry Law, the Fisheries Law, the Laws regulating the Natural Parks of Obô in Sao Tome and in Principe, The Decree regulating the extraction of raw material and the Decree regulating Environmental Impact.

These instruments identify the potentiality of the high level of endemism of our flora and fauna but they also identify various choking factors that affect the biodiversity in Sao Tome and Principe.

Resumed, the identified constraining factors lie in the human pressure on the natural resources with irreparable consequence to the biodiversity. There is a great reduction of biological diversity in the country with serious implications for many species and their respective habitats (NBSAP, 2004). The source states that among the main threats to the biological diversity, the following are highlighted:

- Unrestrained felling of trees and bushes,
- Unrestrained hunting,
- Coastal erosion,
- Unrestrained introduction of exotic species.
- Climatic Changes

In terms of the main orientating factors in the elaboration of this report on biodiversity, we need to remember that it is part of the process of the elaboration of National Reports, which on the one hand, constitutes an instrument through which, each member country of the United Nations Convention on biodiversity (CBD) tries to fulfil what was stipulated in Clause 26 of the United Nations Convention on Biodiversity (CBD) and on the other hand, the participation of that country In the conference of Parts (COP). The latter, mentions the measures that we have been adopting in the application of the provisions of the Convention. We have also tried to evaluate the efficiency of these measures in relation to the fulfilment of the objectives stipulated for this effect.

This report aims to provide information to be used in evaluation and decision making processes relevant to the Convention; therefore we seek to satisfy the demands of the national and international communities in this matter. Very specifically, this report should:

a) Allow the people involved to evaluate and facilitate the National implementation of the three objectives of the convention:
    i. Presenting an understandable appraisal of the state and tendencies of the biodiversity at a National level and identifying the main threats that hang over the biological diversity;

ii. Evaluating the implementation of strategies and National action plans in relation to the biological diversity;
iii. Examining the progress to be made so as to attain the objectives set for 2010, and examining the aims and objectives of the Strategical Plan;
iv. Identifying the future requirements and priorities necessary for the implementation;
v. Communicating with the various integrating parties and involving them in the implementation;

b) Facilitate Conferences between the parties involved:

i. To facilitate the decisive processes of the Convention;
ii. To identify the void and to define future priorities for the work programme of the Convention so as to guarantee the full implementation of the three objectives of the Convention;
iii. To facilitate the exchange of information between the parties, relating to their experience in the application of the Convention;

c) Contribute to the preparation of the third edition of the report entitled *Global Biodiversity Outlook* (Global Perspectives on biological diversity).

In terms of methodology, to fulfil these parameters, a directive was established to elaborate this document. This directive was established by the workgroup responsible for the Evaluation and Application of the Convention and adopted by the 8th Conference of the Parties (COP 8) via the decision VIII/14. For its conception the Group took into account the experience acquired and the lessons learnt during the execution of the previous reports and relevant information on the evaluation of the Convention application, namely the second and third report. These aspects are examined thoroughly in the attachment document.

CHAPTER I: PRESENT STATE, TENDENCIES AND THREATS TO THE BIODIVERSITY IN SAO TOME AND PRINCIPE

The approach to the issue of biological diversity is very complicated considering the various biological, economical, social, cultural, environmental, institutional and other factors, which are integrated and complement each other.

For this same reason, below we describe in detail the diversity of the natural conditions in STP and the influence that these conditions have in terms of conservation and utilization of the Biodiversity. This description is made using the information available on the species of fauna and flora in this country, registered in the sequence of various technical and scientific studies carried out for this purpose. In addition, in this chapter we try to explain in depth the tendencies and the threats to which the Biodiversity has been subjected to throughout this decade.

1. Diversity of the natural conditions

To better understand this issue, we need to elaborate on certain situations as described below.

a) Geographical Position

The Sao Tome Archipelago is located in the equatorial area and in the Gulf of Guinea and is made up of two main islands, Sao Tome and Principe and a few other little islands. The island of Sao Tome is located exactly facing the coast of Gabon, south of Nigeria and 260 Km from the African Continent. The Island of Principe, is located more to the north, 135 Km from S.Tome, and crossed by the equatorial line

Image 1- Geographical Location of the Islands of Sao Tome and Principe

b) Climate

The climate of the archipelago is equatorial, influenced by insular particularities. The Archipelago can be divided into three climatic zones as shown (Monod, 1906):

- The north and northeast of the Islands where the dry season is predominant and lasts from 4 to 5 months. During the rainy season, it is unusual for it to rain for various days without ceasing. The rainfall is less than 1 000 mm (700 mm) per year and the average temperature is 25ºC;

- The South and the Southwest where it rains heavily (6.000 to 7.000 mm) and there is no dry season;

- The mountainous areas where the temperatures are relatively lower and the rainfall is average. In these areas the temperature can fall below 15ºC.

The rainfall varies according to a gradient directed from Northeast to Southwest according to the mountain distribution. The humidity is always high, always higher than 80% and in the high altitudes; it is a permanent 100 %.

c) Topography

The islands of Sao Tome and Principe have very similar topographical characteristics. The centre and the south of the islands are characterized by peaks separated by deep ravines. The slopes are steep and the summits are narrow.

The north of both islands is less mountainous and it was probably for this reason that the first farmers moved there.

d) Hydrography

The rivers are numerous but not very long because of the size of the islands. The hydrological network has radial characteristics. All the rivers and streams source in the highest mountainous regions and most of them have torrential characteristics, but with a flow sensitive to the abundant rainfall of the centre.

e) Geology and soil

The geological formation of the islands of Sao Tome and Principe is very uniform. It is characterised by magmatic rocks of volcanic origin which formed the archipelago. The predominant rocks are basalt, traquite, phenol and andesite. The streams of water penetrate deeply into the rocks causing frequent landslides.

The main types of soil are ferralitic and paraferralitic and are in general much enriched.
They are formed by the alteration in the residue of volcanoes and magmatic rocks.
In general, its pH is close to neutral, it contains a good amount of potassium and phosphate, and it has good power of exchange and good water retention.
The soil fertility is average to good, which is important for the implementation of pastures and development of agriculture and forestry.

1.1 Influence of natural conditions on the biodiversity

As already mentioned the islands of Sao Tome and Principe are situated in the Gulf of Guinea, in the position of the islands denominated “oceanic” and separated from the African continent by an ocean approximately 1800 m deep. This situation confirms the fact that these islands didn’t have any connection with the continent in the past, provoking a progressive difference in its fauna and flora and awarding them a high level of endemism, unusual to the rest of the world.

The orohydrographic Centre situated in the central-southwest of the two islands constitutes in itself, in ecological terms, another island within the archipelago, originating specific faunistic and floristic species in this region. Besides this, the variety of micro-climates moulded by the irregularity of the salient angles, determine, in this small detached territory, a biological biodiversity which in comparison to the continent, is not very rich in the number of species, but definitely in diversity of micro-habitats accompanied by very relevant biological specifications.

1.2 Plant species, habitat and genetic diversity

The tables in attachment 1, show in detail the various species of flora of Sao Tome and Principe. The flora of Sao Tome and Principe is also remarkable for its high degree of endemism. The island of S. Tome has one endemic taxonomy group and 87 endemic species. The island of Principe has in its turn, one endemic taxonomy group and 32 endemic species (National BD Report, 2002).
Of the 1230 species included in the taxonomy group of flora distinguished in S.Tome and Principe, about 15% are endemic (NBSAP, 2004). Below we give detailed information about the flora of Sao Tome and Principe, according to the various ecosystems.
For more information about other ecosystems, floristic species, classification, detailed localization, vernacular name, degree of endemism, we suggest you consult the NBSAP (2004) and the National BD Report (2007), more specialized works by various authors, who through various decades have dedicated their studies (Monod, 1956, Execell, 1944) and others.

According to Excell (1944) quoted by NBSAP (2004), in the low altitude natural forest ecosystem (0 - 800 m) we can find various species of Trees such as the *Rinoreia chevalieri, Chytranthus mannii, Celtis philipensis* and others. We can also find endemic shrubs and grass such as *Rhabdophyllum arnoldianum var bocageeanum, Leea tinctoria* and others. We can find essences such as *Protomegabaria macrophylla, Mussanga cecropiodes*, etc.

In the Altitude Forest areas we can find various floristic species such as the *Panicum hochstetteri, Cyperus articulatus, Tristemma mauritianum,* rare *orquídeas* such as *Bulbophyllum cocleatum, etc.*
In the areas above 1800 m of altitude, the endemic flora is constituted by *Psychotria a guerkeana, Psychotria anubicola, Erica thomensis*, etc.

In a dry and open tropical forest, we can find trees such as *Spondias microcarpa*, *Ficus mucuso*, we can fnd shrubs frequently threatened by fire such as the *Ophiobotrys zenkeri, Oncoba spinosa* etc.

In the Shade Forest, the *Theobrama cacao and the Caffea sp*. Shrubs plus the main shady trees such as the *Erythrina sp, Milicia excelsa, Cedrela odorata, Artocarpus altilis* predominate.

In the Secondary Forest we can find exotic and cultivated species such as *Bambusa vulgaris, Cecropia peltata, Ficus spp*, Picnanthus angolensis and others.

In the Shrubby, arboraceous, herbaceous grasslands which occupy the coastal area from the Airport to Neves, we can find herbaceous species such as *Heteropogon contortus, Panicum maximum* and others. Predominating also, are trees and Shrubs such as the *Adansonia digitata, Brassus aethiopum, Ximenia americana* and others.
In the Mangroves we can find species like *Rhizophora mangle* and *Avicenniace germians.*

1.2.1 Plant diversity of each ecosystem

In the coastal ecosystem we find *Cocus nucifera, Terminaleae catappa, Tamarindus indica*, and other species.

In the marine ecosystem we find superior plants like *Zostera, Psidonia,Thalassia* and others, and also *inferior plants* like seaweed *Cyanophyceaes (algas azuis) Dunaliella salin* species and the *pheophyceaes* species such as *Fucus platycarpus* which sometimes appears during low tide.

In the inland water ecosystem, on the riverbanks we find the vegetation community of *Staudtia pterocarpa* formed by this specie and others like *Santiiria trimeira, Phyllanthus discoideus, Vocanga africana, Olea capensis*.

In the foggy forests, on the peak and at high altitudes we find *Podocarpus manni* and *Lobelia barnsii.* The trees are abundant, and predominant is the *Tabernaemontana stenosiphon, Homalium henriquensii, Allophyllus africanus* and other endemic species such as the *Peddiea thomensis, Balthasaria mannii,* etc.

The agrarian ecosystem is made up of various species or crops, which in economical terms are grouped into industrial and alimentary (see table 3).

The industrial plantations with greater economic relevance are namely: *Theobroma cacau* (Cocoa tree), the *Cocus nucífera* (coconut palm), the *Elaeis guineensis* (Oil Palms), The *Coffea spp.* (Coffee tree), *Vanilla* spp. (Vanilla tree), the *Cananga odorata* (Ilang-ilang) and the *Pipper nigrum* (Pepper plant).

The alimentary culture is relatively abundant; it is made up of horticultural produce, fruit growing, tubers and cereals. The *Licopersicum esculentum* (tomato plant), *Lactuca sativa* (Lettuce), *Vigna sesquipedalis* (bean plant), *Brassica sp*. (Cole), *Allium cepa* (onion), *Allium sativum* (garlic), *Brassica rapa* (Turnip), *Brassica sativus* (Horseradish), *Brassica oleracea* (Cabbage), *Capsicum frutescens* (Pepper Plant), *Hibiscus acetocella* (cranberry hibiscus), *Abelmoschus esculenta* (okra), and *Solnum melongena* (aubergine) are the main horticultural species.

The main fruit trees are the *Carica papaia* (papaya), *Ananas comosus* (pieapple), *Mangifera indica* (mango), *Persea Americana* (avocado), *Psidium guajava* (guava), *Artocarpus heterophyllus* (jackfruit), *Dacryoide edulis* (Safu), *Spondias cytherea* (ambarella).

According to the Report on Biodiversity (2007), these fruit producing species are for the most part, species that were introduced into the islands and have adapted perfectly. They are now the most frequent spontaneous species, especially in the lowlands. Also according to this source, under cover of the Agriculture and cattle breeding - China / Taiwan project, other species or varieties of fruit plants such as the guava tree, star fruit tree and lemon tree were introduced and are probably more productive than those listed above

The Tubers consist of the *Xantosoma sagitifolium* (Matabala), *Ipomea batata* (sweet potato), *Solanum tuberosum* (Potato), *Manihot esculentum* (tapioca). It seems that the availability of Matabala has been diminishing mainly due to a plague of whelks (*Archachatina marginata*) and eventual reduction of humidity. The availability of the tapioca has been increasing.

The Cereals consist of *Zea mays* (Corn) e *Oryza sativa* (rice).
If you would like to find out more about the areas or locations where these cereals can be found, we suggest you consult the Report on Biodiversity (2007) and CPADRP (2007).

1.2.2. Endangered Plant species

The threat to species comes from the degradation of the different ecosystems which are their habitats. It's a phenomenon that appears as a consequence to the pressure exercised on nature by the human being on its path to economic development. Being so, the Plant species that are endangered are those that inhabit the ecosystems under the most social pressure and are therefore irrationally exploited.

At the moment an unsustainable form of exploration is verified in the Shade forests, in the dry and open Tropical Forests in the north/northeast of Sao Tome, in the Shrubby, arboraceous, and herbaceous grasslands and in the secondary forests. In these ecosystems, the following most exploited species could be in danger*:* Mulberry Tree *(Melícia excelsa), o quebra-machado (Homalium henriquensii), the Malagueta tuatuá (red pepper), the black and white viros*, and the marapião.

1.2.3 socio-economic importance of the flora

The socio-economical importance of the floristic species is listed in detail by the NBSAP (2004). In short, the document states that the importance of the species lies in the utilization of more than 30 species for human and animal consumption. (Banana *Musa sp*, Fruteira *Artocarpus altilis*, Matabala *Xhantosoma sp*….). Table 4, attached indicates the scientific and common names of these plants.

There are more than 50 main medicinal species *(Folha ponto, achyranthes áspera;* against *haemorrhage, fiá salaconta* against scabies*).* Table 5 states the scientific and common names of these plants.

There are more than 50 main industrial species such as the Mulberry tree *Amoreira (Clorophora excelsea),* Acacia (*Albizzia molucana).* Table 3 states the scientific and common names of these plants.

There are also more than 24 main decorative species *(for example the* Heteradelfia *Heteradelphia paulowihelmia* , the rose bush *Rosa sp*, porcelane rose - *Nicolaia elatior).* Table 7 states the scientific and common names of these plants.

In cultural terms, many species of plants are utilized for the manufacturing of musical instruments utilized by various cultural groups.

In the eco-tourism viewpoint, there are some points of interest, among others: Sao Tome Peak with an altitude of 2024m, Cão Grande (Big Dog) Peak and Cão Pequeno (small dog), S.Nicolau Waterfalls, Bombaim and Blublu and the exuberant and dense vegetation of the primary altitude forests, the secondary forests with its flora and its bird population.

The importance of the flora in the artistic activity is relevant. Bambu (Bambusa vulgaris) is one of the species used to fabricate furniture, to make roofs and other uses. The cedrela (*Cedrella odorata), Ceiba pentandra Oca* are used to make sculptures and canoes.

1.3 Fauna, habitat and genetic diversity

In generic terms, the national heritage of vertebrate land animals is well known and characterized as land, marine and environment transitional species (NBSAP, 2007).

Table 1 shows the wealth of the STP fauna in terms of the number of species and degree of endemism. It was observed that the birds had a high number of species (49) in Sao Tome and 35 in Principe with a 57% to 54% of endemism, respectively in both islands.

However, although there are only 9 species of amphibians in the whole country, it is in this class that is registered the highest rate of endemism (100%).

This information was also given in the National Report on Biodiversity (2007), and corresponds to the present situation. The on-site data collected is not sufficient to confirm the facts or ascertain whether there have been any changes in the present state, therefore we suggest that an inventory be drawn up.

Table 1- Wealth of species and endemism among the Groups of Organisms of Sao Tome and Principe

Types	**Islands**	Number of species	**Endemism %**
Mammals	Sao Tome	10	30
	Principe	5	20
Bats	Sao Tome	9	55
	Principe	4	50
Birds	Sao Tome	49	57
	Principe	35	54
Reptiles	Total Country	16	44
Amphibians	Sao Tome	6	100
	Principe	3	100
Butterflies	Sao Tome	47	38
	Principe	42	21
Molluscs	Sao Tome	39	77
	Principe	32	78
Superior Plants	Total Country	895	15

Source: NBSAP (2004)

In the Secondary Forests we can find some mammals *Cercophitecus mona (*monkey**),** Sus domesticus* (Wild Pigs) and some species of bats *Myonicteris branchycephala, Hippodsiderus commersoni* and others; The mice *Rattus rattus and Rattus norvegicus* and other insects and birds that are not yet well known; we therefore recommend a study of them. The on-site information in table 18 points to a significant reduction in the wild pig population caused by the strain exercised on tem by the hunters. The monkey population is stable, but in the Praia das Conchas and surrounding areas, the population of this species has changed habitat, moving further away because of the indiscriminate felling of Trees and Shrubs by the coal-merchants.

In the rivers (medium stratus) there are small fish such as the *Eleotris vittata* (charroco) as well as crustaceous *Atya and Macrobrachium and Sicydium bustamantei* (sweet water shrimp).

The community of water birds consists of species such as *Alcedo cristata thomensis* **(**Kingfisher). On the banks of the rivers there are the species *Phalacrocorax africanus, Gallinula chloropus* (Water hen**)** and *Butorides striatus.* The on-site information furnished by hunters indicates that the latter species continue to be observed on a frequent basis.

The avifauna is also rich in the Shrubby, arboraceous, and herbaceous grassland areas. The Coturnix delegorguei, *Crecopsis egrégia are* present in abundance.

In the Altitude Forest, the ornithology is abundant especially in endemic species. The parrot is highlighted among these**.**

The fauna of the coastal ecosystem consists of sea birds which populate the small islands and uninhabited coastal areas, the main species are the *Phaeton lepturus, Sula leucogaster, Anous minutos, Oceanodroma castro*. For more information, consult the Clarke and Christy report (1998).
There are five species of marine turtles on the islands, all of them threatened. There are *Lepidochelys olivacea, Chelonias mydas, Eretmochelys umbricata* and others (Refer to table 14 attached). The information obtained from the fishermen confirms that the reduction persists and worsens with each passing year.

There are endemic insects such as *Lepidoptera, Graphium Leónidas thomasius* and threatened endemic butterflies. The on-site information is not sufficient to evaluate the situation, therefore we here again suggest that an inventory be drawn up.

The marine ecosystem fauna consists mainly of fish (see table 13 attached), crustaeans, mollusks, reptiles, cetaceans and coral. There are also echinoderm, coelenterates, annelida and sponge fish.

Istioforidae (Atlantic sailfish), *Xipiidade* (Wahoo), are some of the large open sea vertebrated tunids of great commercial value. The small pelagic vertebrates consist of *Clupeidae* (sardines), Scombridae (Mackerel, Saw fish, Little Tunny). The demersal ground fish consist of Serranidade (Black Grouper, Dungat Grouper…), Scianidae (Meagre) and others.

The molluscs also play an important part in the economic plan. Highlighted are the gastropod *Buccinum* (sea snail). Remember that there are also other species of gastropods on land and giant African snails in Sao Tome and Principe, namely the *Archachatina marginata* (in areas below 800 metres-Secondary and Shade Forests, and *Archachatina bicarinata* (in the primary forests, threatened specie). In relation to crustaceans, there are shrimp (Penaeus sp), *Metapenaeus sp which* are swimming Decapoda. The crawling Decapoda are, among others, the *Panulirus sp* (lobsters), *Nephrops sp*.
The cetaceans are quite common in the far South side of the Island, among others are highlighted the *Mystecetes* and their species *Balaenoptera musculus and B. nodosa*, etc. One of the most common examples of the *Odontocetes* is the *Delphis* (Dolphin).

There are a greater number of live Coral Reefs in the area between the Praia das Conchas (The Shell Beach) and the Lagoa Azul (Blue Lagoon). *Siderastrea siderea, Montastrea cavernosa and Porites* can be easily found. Here also, an inventory needs to be drawn up, both in Sao Tome and in Principe.

In Sao Tome and Principe there are various pecuary species of different breeds, being of high economic value and satisfying the consumption needs of the country. They are namely the cattle, pigs, goats, sheep, local and exotic chickens (egg layers and cockerels), ducks, turkeys, rabbits and bees. Please consult the NBSAP (Pecuary Ecosystems, 2002) to find out more about the origin of the breeds, the preservation, the ecological, cultural and social importance, the problems which the pecuary systems have to face and the production and consumption.

The exploration is frequently associated with the Agrarian ecosystems, through the Agro forestry systems in particular.

Currently, some farmers and the government have encouraged the test breeding of large chickens hatched from eggs of this species acquired from Portugal. These chickens, indigenous to the rural areas of that country of the European continent, can produce in our country relatively more eggs and meat with less alimentary and sanitary requirements in comparison to the local egg-laying or exotic species.

However, it is hoped that this policy of promoting the establishment of alien species does not contribute to genetic erosion, to bigger threats or risk of the disappearance of forro or local chickens, whose numbers have been growing in recent years (1997-2007) in the order of 7% (Department of Livestock, 2008).

The same source states that the current problems of agrarian ecosystems reside primarily in the loss of grazing areas due to the development of agriculture and urbanism. According to the NBSAP (2004) in the savannah area of Praia das Conchas and Agostinho Neto, there are 385 hectares that could house about 250 head of breeding goats. This area of Praia das Conchas has been solicited for the construction of hotels and housing; zona Franca (National Biodiversity Report, 2007) etc..

Today we are witnessing a tendency to expand the cattle breeding (the species grew in the order of 21% from 1997 to 2007) in the archipelago. In the coqueirais do sul areas (Ribeira Peixe and Portalegre) there are over 1000 hectares of land that can be used for the breeding of livestock, but the potential burden should not exceed 900 head of cattle so as not to create environmental problems (grazing, erosion, and so on.).

1.3.1 Endangered fauna species

There are endangered fauna species such as the *Lepidochelys olivacea* (The Olive Ridley) according to the second National Biodiversity Report (2007), among the 5 species of turtles, this species is the most reduced. In Sao Tome it is called "lazy turtle" by the fishermen because they are easily caught when they come out onto the beach to lay their eggs. For this reason, the protection of the Tatô constitutes a priority in the conservation of the natural resources of the archipelago. The study elaborated by Carvalho (2008) for the NGOs MARAPA, refers particularly that the people capture the turtle for lack of other kind of meat. Eggs and nests are also preyed on for traditional and cultural reasons. Added to this is the lack of knowledge and awareness of the importance of the marine ecosystem and lack of laws regulating the protection and prohibition of capture and sale of sea turtle products.

For more information about threatened species please refer to Table 9 and Table 18 attached. The *Chelonia mydas Eretmochelys imbricata, Globanus sp. Dermochelys coriacea* and many other wildlife species are considered threatened.

The horses, mares and donkeys have just about disappeared. The ducks and turkeys have also been reduced over the last two decades.

The freshwater fish are still being threatened by chemical pollution to which the rivers, streams and brooks have been subjected. The pollution is caused mainly by the washing out of sprayers and the use of copper sulphate to catch fish.

1.3.2 Socio-economic and cultural importance

About a dozen species of livestock and many wild animal species are used to satisfy human consumption (Source of animal protein) and are a source of family income.

The symbol of the country is represented by the hawk (Milvus migrans) that represents the island of Sao Tome and the grey parrot (Psittacus erithacus) that represents the island of Principe.
For more information consult NBSAP (2002) and NBSAP (2004).

1.3.3 Genetic Diversity

In regard to the genetic diversity, it is highlighted that there is a great genetic diversity of fauna in STP. But there are no detailed studies on this subject. For example, there are several breeds of domestic animals that were introduced into the country over the centuries, resulting from natural crossbreeding between species on the island and which can now be considered endemic for having adapted to the climatic conditions of the archipelago. But the high rate of consanguinity is revealed to be a major strangulating factor for the procreation, conservation and sustainable use, both for the generation of capital and also for food safety.
However, no genetic study has been done on these species or on inbreeding in particular. The Project in progress for the Support of Livestock Development, funded by the government and the African Development Bank, intends to pursue the initiative of implementing artificial insemination for the breeding and multiplication of local species of pigs and cattle.
However, it is necessary to investigate the possibilities of the conservation and use of genetic variation in relation to the floral species already cultivated; the abandoned native species and new possible species that can be introduced into food production and industrial use.

1.4. Threats to the biodiversity

Table 2 shows in detail the types of threats that the Biodiversity in Sao Tome and Principe faces. Coastal erosion and destruction of littoral infrastructure, use of grenades to catch fish, unregulated felling of Trees, unregulated hunting and other problems are considered serious and need the attention of the authorities and the general population to reduce its harmful effects.

Table 2- Types of threats that affect the Biodiversity in Sao Tome and Principe

Types of threats
Coastal Erosion and destruction of the littoral infra-structures
Destruction of beaches with great tourist potential
Destruction of sea turtles' breeding habitats
Destruction of important coral reefs, including some endemic species from the Gulf of Guinea
Use of inadequate fishing nets
The washing of oil tankers in high seas and the washing up on the shores of waste
Discharge of oil residue into the estuary of the Água Grande river
Pollution of subterranean water with toxic products
Deregulated hunting
Illegal trading of parrots and sea turtles
Indiscriminate introduction of exotic species
Introduction of plagues and virus
Loss of soil fertility
Uncontrolled burning of vegetable coverings

Increase of erosion inland
Horticultural development on steep slopes
The dumping of agricultural chemicals into the rives and streams
The washing of impregnated mosquito nets
Fishing with grenades
The use of agricultural chemicals to catch fish
The management of solid waste
Use of inadequate meshes on fishing nets
Source: NBSAP(2004) Modified

1.4.1 Causes of the threats according to various ecosystems

The following tables demonstrate the factors or root causes of the threats to the biological diversity per type of ecosystem. They highlight the fact that the current situation is not very different to that cited by the NBSAP (2004).

As stated by the NBSAP (2004) the main threats to the Biodiversity in the country radiate their effects on the various ecosystems and habitats and they are all of anthropogenic origin. They can be grouped into four categories: chemical pollution by toxic products and waste; destruction of habitats; over-exploitation of natural resources; introduction of flora and fauna species.

Table 3- Causes of threats to the Forestry ecosystem

Forestry Ecosystem	Direct Causes	Indirect Causes
Degradation of the Natural Park areas	Invasion of natural Park areas for subsistence farming Felling of threatened species	Failure to implement the law that regulates the (Obó) Natural Park Lack of a handling and administration plan for the Park (being elaborated) Not enough inspection of the Park areas Lack of integration of the communities, residing in the surrounding areas, in the running of the park Lack of awareness and environmental education
Degradation of the forests	Indiscriminate Felling of Trees Controlled Burning	Lack of inspection of agricultural areas distributed among the population Lack of financial means of the farmers Lack of a re-forestation policy Non observance of the forestry law Lack of awareness and environmental education
Degradation of threatened or endangered animals species	Uncontrolled Hunting Increase in the illegal capture and commercialization of parrots and sea Turtles	The law regulating hunting has not been published or enforced There is no law to regulate the species threatened or endangered The law regarding sea turtles has not

		yet been approved or enforced Lack of changes at national level related by CITES Lack of awareness and environmental education

Among various causes, is highlighted the erosion with landslides as shown in the following image. Here we refer to an enormous landslide in Agra Toldo – Cauê at the end of 2008, brought on by prolonged torrential rain.

Image 2- Erosion, with landslides Angra Toldo Cavalete Caué

Table-3.1-Causes of threats to the coastal and marine ecosystems

Threats	**Direct Causes**	**Indirect Causes**
Coastal and Marine Ecosystem		
Increased Coastal Erosion	Intensive extraction of sand from the beaches for the civil construction industry	Lack of alternative materials for the construction industry Increase of the poverty level of the population Lack of awareness and environmental education
Reduction of the National halieutic resources	Use of inadequate meshes on fishing nets; Lack of punishment when caught with illegal catches of fauna; Fishing with grenades;	Lack of inspection of the fishing activities undertaken in the territorial waters in the sphere of the accords signed with the international co-operation partners. Inexistence of control boats Lack of awareness and environmental

	The washing of oil tankers in high seas and the washing up on the shores of waste; Discharge of oil residue into the estuary of the Água Grande river by the electricity and water companies;	education

Source: NBSAP (2004)

The on-site data confirms that until now these threats continue and that the contribution of the authorities and of the population is required to mitigate them

Table 3.2- Inland Water and Agrarian Ecosystems

Inland Water Ecosystems		
Pollution of Rivers and Streams	The washing of utensils containing chemicals used in agriculture, into the rivers and streams. The washing of mosquito nets impregnated with chemical products into the rivers and streams. Improper use of chemicals (Bluestone) to catch crustaceans	Insufficient knowledge as to the correct handling of chemical products in agriculture. The combat of Malaria Lack of awareness and environmental education
Agrarian Ecosystem		
Degradation of agro-ecological areas	Strain placed on the Forestry resources in the productive forest areas Indiscriminate introduction of imported exotic species Horticultural development on steep slopes	Reduction of shade for the cocoa trees Inefficient control in the import of vegetal material from the exterior Strain place on the land as a result of demographic growth Lack of awareness and environmental education

Source: NBSAP (2004)

The NBSAP (2007) further states that there is a disorderly occupation of coastal areas and a non-sustainable use of the resources available there, thereby accelerating the erosion process in these areas as well as the degradation of the biological component of its ecosystems.
The project to build the airport and the project to create tourist centres in the north of S. Tome (Praia das Conchas and Lagoa Azul) introduce the necessity of evaluating the impact that these projects will have on the environment seeing that the coral reefs of Lagoa Azul are the only ones in the Eastern Atlantic

The NBSAP (2007) also states that these building projects in coastal areas may turn out to be massive blocks of cement which can endanger tourism, not only because of the destruction of the

beaches, but also because it will destroy the beauty and comfort of the wood buildings in existence there now.
It also refers that the oil drilling in the future will be preceded by studies of environmental impact.

We also know that a consultant firm will soon undertake a study on the impact that the establishment of a Free Zone in the country may have on the marine and coastal ecosystem. We congratulate them on this study.

1.4.2- Synthesis of the state, tendencies and threats to the Biodiversity

The intention of this synthesis is to provide the Working Group evaluating the implementation of the CBD with quick, accurate and consistent information on the state, tendencies and threats that befall biodiversity on a general basis in the archipelago of Sao Tome and Principe.
Of all ecosystems and sub-ecosystems described, The Altitude Forest is about the only one still in its relatively natural state, due to the inaccessibility of its relief. Remember that the Law No. 6 and 7 of 2006 stipulates that most of these forests are included in the protected area called the Obô Natural Park of Sao Tome and Principe. This is a protected area covering a total of 29 500 hectares and represents 40% of the country's surface.
As an ex situ conservation measure, a Botanical Garden was created in the centre of Bom Sucesso (at the entrance of the Obô Natural Park of Sao Tome, i.e. in the buffer zone, which has been the home of mainly endemic African mountain plants. However, the on-site information (table 17 attached) confirms that there is a tendency of farmers to invade the buffer zones and cut down trees without authorization.

1.5 State, tendencies, threats and incidence of change on the human wellbeing

Elaborating on the various existing ecosystems and sub-ecosystems is perhaps the best way to provide clarification on the state, tendencies and threats to the Biodiversity in Sao Tome and Principe. This approach can also identify the incidence of change in the human well-being.

The islands of Sao Tome and Principe have a status of "oceanic islands". This fact, plus an orohydrographical centre in the central region, the Southwest, the ecological effect of an island within an archipelago, and the existence of several micro-climates, are among others, elements which helped feign the existence of a Biodiversity with one of the highest rates of endemism in the world and a great diversity of ecosystems and micro-habitats.

According to the (NBSAP, 2004) there are four ecosystems and 17 sub-ecosystems on the archipelago as shown below in Table 1.

It should be noted that the classification takes into account the environmental habitat and also the social and economic nature: genetic animal resources, medicinal plants, etc...

Table 4- Ecosystems and their respective sub-ecosystems

Ecosystems	Sub-ecosystems
Coastal and Marine	Coastal
	Marine
Inland water	Moving water groups
	Brackish water Groups
	Benthic area groups
Forestry	Dense and humid Forest of low altitude
	Dry and open Tropical Forests
	Secondary Forest
	Shade Forest
	Shrubby, arboraceous, herbaceous grasslands
	Mangroves
	Altitude Forest
Agrarian	Group of industrial species
	Group of alimentary species
	Group of medicinal species
	Group of aromatics species
	Group of decorative species
	Animal genetic resources

Source: EMPAB (2004)

In general these ecosystems and their sub-ecosystems, including their particular species of flora and fauna, have satisfactorily played their ecological, cultural, ethical and economic part.
Still, there continues to be unsustainable explorations of the biological and non-biological resources in some sub-ecosystems. They have been prone to degradation phenomena so endangering the dynamics of the population and the continued existence of species confined to them.

Image 3 is a map of the different Forestry and agrarian ecosystems in the country. Further on we will be elaborating on their current state and tendencies. The situation illustrated by Rodrigues (1974) and modified by others in 1998, has changed profoundly.

The area including the dry and open forests and savannas in the northern part of the island of Sao Tome, known as the Praia das Conchas, is the most vulnerable and affected by the pressure exercised upon it by the charcoal makers and wood choppers.

The area of primary forest remains relatively unchangeable (1.The Obô Area), with proof of the ever approaching illegal exploitation. In the Secondary Forest or Capoeiras areas (zone 3) the unrestrained illegal felling of Trees and unrestrained illegal poaching have contributed to their degradation (see Table 14).

Image 3- Map of the Forestry and Agrarian Ecosystems

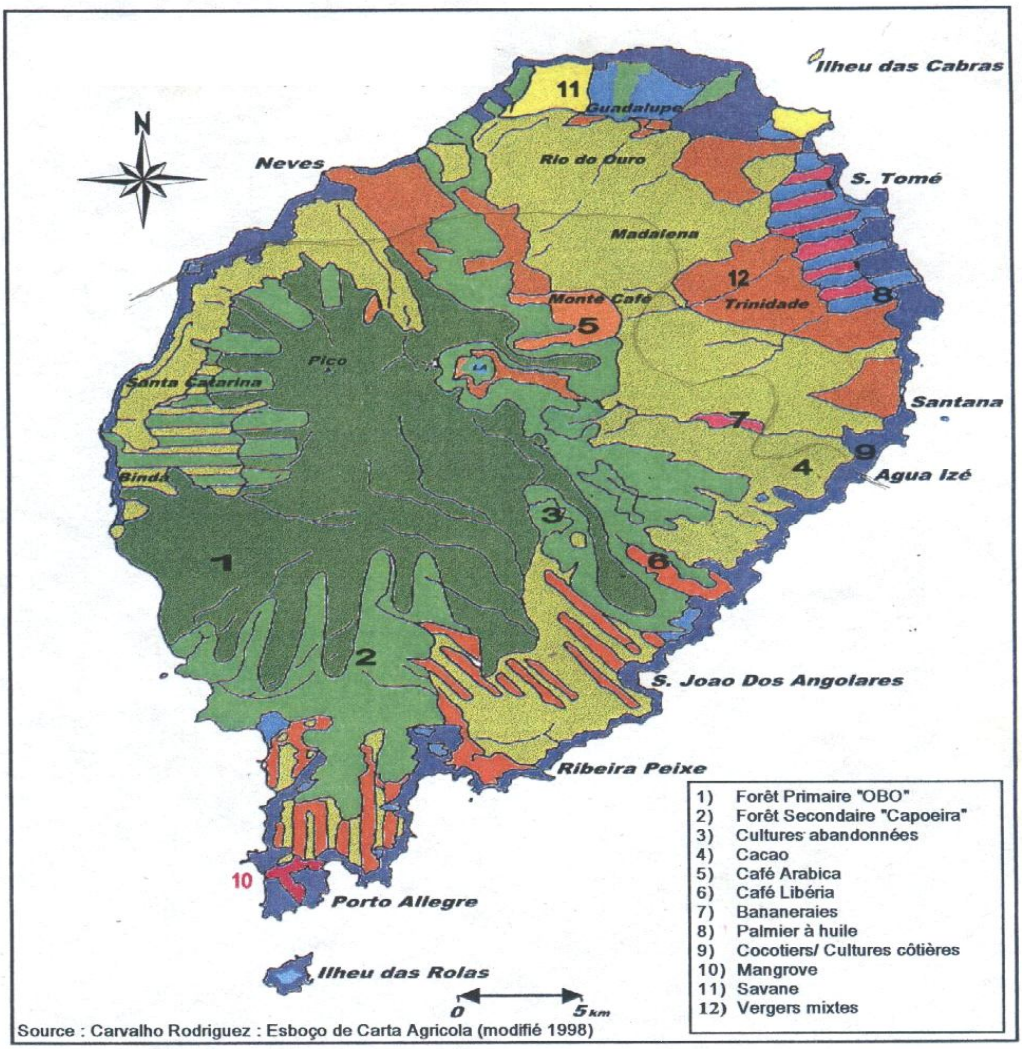

Table 5 shows the state, tendencies, threats, and the incidence of change on the human wellbeing /quality of life of the coastal and marine ecosystem.

The frequent extraction of sand, illegal catching of endangered sea turtle species and the destruction of their reproduction nests among others, are the reason for the current state, tendencies and threats to the biological diversity of this eco and sub-ecosystem in the archipelago.

In relation to this ecosystem and its subsystem, the changes in the human wellbeing are among others, the loss of physical and living space.

Table 5- Marine and littoral Ecosystem

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
Coastal	• Extraction of sand from the beach and the increase of erosion, • Illegal capture of sea turtles, risk of extinction	• Strong Coastal erosion, destruction of coastal infrastructures; • Destruction of the beaches with tourist potential; • Destruction of the sea turtles' reproduction nests;	• Reduction in work posts; • Reduction of economic development potential; • Loss of means of access: bridges, roads and crossings • Loss of inhabitable and physical terrain

Source: EMPAB (2004)

As shown in Table 6, the current state and tendencies of the marine ecosystem is caused by, among other reasons, the use of grenades to catch fish. And the threats relate to the degradation of the population of fish and sea birds. The field data presented in attached Table 17 shows that this inappropriate way of catching fish continues to be used and is inclined to increase.
Among other examples, the Table also shows that the reduction of diversity, loss of protein source of halieutic origin, increase in the price of fish on the local market and tendencies of the ecosystem may provoke a negative impact on the quality of human life in Sao Tome.
In regard to the causes of threats to this ecosystem, the EMPAB (2004) points out that the direct cause is the extraction of sand from the beaches for construction. The indirect causes are the lack of alternative materials for the construction industry and increasing level of poverty.

We must act urgently to eliminate these causes which provoke adverse effects on the Biodiversity. Note that in 2008 the sea water invaded Ribeira Afonso destroying the protective infrastructure on the airport road, terrorizing the lives of residents and limiting the movement of humans and goods.

Table 6- Marine Ecosystem

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
1.2 Marine	• Use of inadequate fishing nets; • Fishing with grenades; • The washing of oil tankers in high seas • Discharge of oil and fuel residues into the estuary of the Água Grande river • Reduction of the national halieutic resources.	• Degradation of the marine fish and bird population • Risk of extinction of some species	• Degradation of living conditions caused by the increase in the price of fish • Impoverishment of fishermen and fish mongers • Loss of diversity and potentiality in relation to the source of protein of halieutic origin.

Source: EMPAB (2004)

According to the same source, the causes of the threat to the marine ecosystem are, namely: the reduction of the halieutic resources due to the lack of adequate vigilance of the fishing activities carried out in territorial waters under the fisheries agreement signed with the international co-operation partners. The recent installation of radar in STP in the context of co-operation with the U.S. government can help in the protection of halieutic resources. However, we have been informed that some transgressions have been detected in the high seas by the Port Authorities (Ministry of Defence), but they do not possess any effective means of combating them.

Table 7 shows the inland water ecosystem and sub-ecosystem; its state, tendencies, threats and incidence of change on the human well-being. Among other states and tendencies, it is observed that the washing of agro - chemicals or plant protection products into rivers and streams, provokes the loss of aquatic biological resources, and consequently, the loss of choice of protein source available for human consumption**.**

Table 7- Inland Water Ecosystems

Ecosystems and sub-ecosystems	**State and tendencies**	**Threats**	**Incidence of change on human wellbeing**
Inland Water **Ecosystems**			
	• The dumping of agricultural chemicals into the rivers and streams; • The washing of impregnated mosquito nets into the rivers and streams; • The use of agricultural chemicals to catch crustaceans and fish; • Pollution of rivers and streams; • Drastic reduction of the crustaceans and fish population; • Weak environmental education and awareness programmes	• Loss of aquatic, biological resources; • The Pollution of the sub-surface water with devastating consequences for public health and the biodiversity;	• Reduction of alternative choice of sources of protean; • Insufficient means of subsistence • Loss of ethical and recreational resources

Source: EMPAB (2004)

The causes of the threat lie in the lack of knowledge as to the proper handling of chemicals for agriculture and malaria control. The significant reduction of malaria infections in recent years due to the effective program of control and eradication of this disease can help reduce the necessity of using impregnated mosquito nets, and consequently the washing out of them into rivers. No less important, the washing out of chemical sprayers into rivers, streams and creeks must also be eliminated thus reducing the adverse implications for the fauna of these habitats.

Image 4- Yõ Malanza South of the Island of Sao Tome;
Example of the inland water ecosystem

Table 8 shows the forest ecosystems and their respective sub-ecosystem; the state, tendencies, threats and incidences of change on the human wellbeing. It is observed that the state and tendencies lie mainly in the illegal, unrestrained felling of trees and animal poaching. The threats lie in the destruction of species of great commercial value, leading to the impoverishment of the farmer who is already facing lack of alternatives for economic survival.

Table 8 – Remaining dense and humid forests of low altitude

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
Forestry Ecosystem			
Dense and humid Forests of low altitude (remaining)	• Illegal and uncontrolled felling of trees; • Illegal and uncontrolled hunting; • Unregulated picking of medicinal plants; • Degradation of the ecosystem and of the population of some species of flora and fauna	• Destruction of species with commercial value; • Increased soil erosion on slopes; • Destruction of the fauna and flora	• Lack of alternate subsistence – impoverishment; • A shortage of certain species of wood for the construction and for the fabrication of furniture • Shortage of hunting equipment; • Difficulty in taking advantage of ethical, cultural and recreational services offered by the forests; • The floods and inundations of the habitation areas situated close by

Source: EMPAB (2004)

The unrestrained felling of trees and shrubs and coal production within the ecosystem, are the inherent states and tendencies found in the dry and open tropical forest sub-ecosystems as shown in Table 9. The threats lie in the destruction of the ecosystem and its plant and animal components,

which consequently affect the quality of life of the population. Added to this is the scarcity of resources for the production of firewood and coal, which are the traditional sources of energy that the inhabitants of the archipelago have for cooking their food.

Image 5–Wild animal hunters in the South

Table 9: Sub-ecosystems: Forestry: tropical, dry, open and secondary forests

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
3.2 Tropical, dry and open Forests	• Uncontrolled felling of trees and shrubs; • Production of coal within the ecosystem, • Clearance of ground by burning; • Degradation of the ecosystem • Degradation of the subdued species.	• Destruction of the ecosystem and its animal and plant components • Extinction of vulnerable species • Installation of a process of desertification	• Lack of wood resources for the production of firewood and charcoal; • Scarceness of hunting equipment • Necessity of alternative means of subsistence
Secondary forests	• Illegal and Uncontrolled felling of trees • Illegal and uncontrolled hunting; • Deregulated hunting • Clearing up of land for agriculture • Degradation of the ecosystem; • Degradation of fauna population species. • Degradation of soil	• Loss of endemic species • Change and loss of habitats of many fauna and flora species • Increase of erosion in the highlands	• Shortage of hunting equipment; • Lack of wood resources • Flooding of habitation and surrounding areas; • The increase in poverty

Source: EMPAB (2004)

Table 10 shows elements of the state and tendencies of the Shade Forest. It again highlights the issue of indiscriminate felling of trees, the change and loss of habitat of subdued birds species and the degradation of agricultural soils. Among the various threats relating to this sub-ecosystem, is the loss of surface and soil fertility of the best soil in the country. This affects the quality of life of the population because it reduces the revenue resulting from the export of industrial crops such as

cocoa and coffee. It also causes a reduction in the availability of wood for the construction industry and building of furniture, etc...

Table 10 -Shade Forest

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
3.4 Shade Forest	• Illegal and unrestrained felling of shade trees • Clearance of lands for the cultivation of vanilla, pepper, food crops and urbanization; • Degradation of ecosystem; • Change and loss of subdued bird habitats; • Degradation of agricultural soil; • Reduction of good quality wood species;	• Loss of shade forest surface; • Loss of fertility of the best soil in the country; • Extinction of subdued bird species; • Scarceness of the Mulberry (Melicia excelsa) and others;	• Reduction in revenue from the sale of cocoa, coffee and wood products; • Reduction of the greatest export product and the loss of foreign income; • Scarceness of good quality wood for construction and to make furniture; • Economic crises and the increase in poverty;

Table 11 shows elements of the state and tendencies of the shrubby, arboraceous, herbaceous grasslands and Mangroves.

Besides the felling of trees and shrubs, the coal production and controlled fires are also notorious. The table indicates that the various threats are causing the destruction of the ecosystem and its fauna and flora components and the installation of a desertification process.

Image 6- Cutting down of bushes on the Praia das Conchas (The Seashell beach)

These threats are cause for concern as they affect the quality of life of the population in the loss of land for maize production and cattle grazing. The felling of trees and shrubs by the charcoal burners in the area of Praia das Conchas has increase greatly.

Image 7- Coal oven on the north side of the Praia das Conchas (the Seashell Beach)

Table **11- Shrubby, arboraceous, herbaceous grasslands**

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
3.5 Shrubby, arboraceous, herbaceous grasslands	• Unrestrained felling of trees and shrubs; • Production of coal within the ecosystem; • Controlled fires; • Extractions of inert raw material; • Degradation of the population of subdued species (biótopos); • Degradation of the physiographic resources;	• Destruction of the ecosystems and their flora and fauna components; • The destruction of the ecotourism potential of the area; • Installation of the desertification process;	• Reduction of alternatives for economic development; • Loss of land for the production of corn and other cereals and for cattle grazing;

Source: EMPAB (2004)

In relation to the mangroves, the state and tendencies of this sub-ecosystem reside mainly in the excessive felling of trees for firewood and other purposes. Among various threats, the simultaneous reduction of fauna and flora species stands out. This affects the quality of life of the coastal communities, fishermen in particular. This targeted group is confronted with reduced fishing resources for human consumption and for the generation of income.

Table 11.1- The mangroves

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
3.6 Mangroves	• Excess felling of trees for firewood and other purposes; • Lowering of water level of the lakes; • Reduction of the mangrove population; • Ecological changes in the mangrove biotope;	• Extinction of mangroves; • Mortality of fauna and flora species existing in the mangroves;	• Lack of fishing resources in the mangroves; • Difficulty of promoting ecotourism in the mangroves

Table 12 shows that the state and tendencies of the Altitude Forest lie mainly in the excessive hunting of endemic birds and the diminishing of parrots. Among various threats, the table shows the extinction of certain species of endemic birds, which can affect the Biodiversity in general and quality of life of the population. The population could have access to this kind of meat and protean with its rich nutritional value by legal, rational and responsible hunting, in areas authorised by the state for this purpose.

Table 12- Altitude Forest

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence of change on human wellbeing
3.7 Altitude Forest	• excessive hunting of endemic birds such as wild pigeons (Columba thomensis) and (Treron sanctithomae) green pigeon; • Excessive hunting of wild boar (Sus domesticus; • Illegal capture of the grey parrot; • Drastic reduction of certain types of endemic birds; • Drastic reduction of the population of wild boars; • Degradation of the grey parrot population;	• The extinction of certain species of endemic birds; • Scarceness or even Extinction of wild boars; • Scarceness or even Extinction of parrots; • Scarceness or even Extinction of monkeys;	• Shortage of hunting equipment; • Shortage of ecotourism products;

Source: EMPAB (2004)

In short, the threats to the forest ecosystems and their different subsystems are several:

- Degradation of natural park areas;
- Degradation of forests;
- Deterioration of the situation of animal species threatened or endangered (NBSAP, 2004)

The overall causes are linked to excessive pressure that the human population exercises on the forest resources. In detail, the causes of the deterioration of the National Parks are:

- absence of enforcement of the law that was implemented for this purpose;

- Absence of a Management Plan of the Park;

- Inefficient Monitoring of the Park;
- Absence of involvement of the surrounding communities in the management of the park.

The causes of forest degradation are:

- Lack of supervision or monitoring of lots distributed to the public;
- Lack of financial resources facing farmers;
- Lack of a reforestation policy;
- Failure to obey the forest law.

The causes of the decline of threatened or endangered animal species, are as follows:

- Lack of publication and implementation of the hunting law;
- Lack of a law that specifically regulates threatened species or endangered species;
- Lack of approval and implementation of a law regulation sea turtles;
-Lack of national level enforcement of the CITES.

Regarding the agrarian sub-ecosystem, the present state and tendencies reflect the unregulated introduction of exotic species and the increase of erosion as a great concern. Among various threats, Table 13 highlights the persistent appearance of plagues such as virus of the tomato plant and the loss of soil fertility.

According to the Directorate of Livestock (2008) during the last few years, the reduction of grazing areas and increase of infectious and parasitic diseases which affect domestic animals has been observed. (Newcastle-risk of introduction of avian influenza).

All these threats and risks have or may have implications on the quality of life of farmers and domestic animal breeders. The population in general is also affected by the low production of agriculture, meat, eggs, the low-income and the insecurity of the nutritional and alimentary food supply.

Table 13- Agrarian Ecosystem

Ecosystems and sub-ecosystems	State and tendencies	Threats	Incidence
Agrarian Ecosystem	• Unrestrained introduction of exotic species; • Horticultural development on steep slopes; • Absence of renewal of genetic resources; • Degradation of agrarian land; • Increase of soil erosion;	• Appearance of plagues (virus of the tomato plant); • Loss of soil fertility; • Destruction of vegetation and pastures; • Genetic erosion;	• Impoverishment of farmers; • Fall in the production of vegetables; • Shortage of animal protean; • Inexistence of a class of breeders;

	• The rise of inbreeding within species;		

Furthermore, in terms of the Agrarian-Livestock ecosystem, the horses, donkeys and mares that were once used for transportation, no longer exist in Sao Tome and Principe. The breeding of goats, ducks, turkeys, rabbits and the exploration of beehives for the production of honey has fallen significantly in the last 10 years (Department of Livestock, 2008).

Image 8–Agro-forestry-pastoral System in the South (Mount Mário)

CHAPTER **II: EVALUATION OF THE IMPLEMENTATION OF THE NATIONAL STRATEGY AND ACTION PLAN ON BIODIVERSITY (NBSAP)**

Sao Tome and Principe ratified the UN Convention on Biodiversity by Presidential Decree No. 5 / 98 and was published in the Government Gazette No. 17 of 31/12/98. The Ratification of this Convention has enabled the country to benefit from an Enabling Activity Grant of the Environment Global Facility - GEF, which led to the elaboration of the National Strategy and Action Plan for Biodiversity in 2002 (NBSAP). This provided the country with an important tool for area planning and management and it provided the Government with more specific and appropriate orientation for the application of adequate measures in the conservation and sustainable use of Biodiversity in the archipelago.

2.1 Strategic Guidelines established by the NBSAP for the conservation of the Biodiversity

With the objective of establishing a perspective that goes beyond the concerns of everyday life and in this way define long-term objectives, in order to take into account the need for the building of capacities and the increase of efforts, Sao Tome and Principe announced and expressed an overall view for the conservation of biological diversity as illustrated in frame 1.

Frame 1 – Global Overview for conservation of biological diversity

By 2025, S.T.P. must have strengthened the institutional and human capacities, promote diversified economic development, particularly oil resources which should play an essential and positive role in the conservation of Biodiversity, thus contributing to the fight against poverty.

Source: NBSAP (2004)

To support this view, strategies and actions were established in order to meet the three fundamental strategic objectives of the Convention on Biological Diversity, namely:
- Conservation of biological diversity on all levels (genes, species and ecosystems);
- Sustainable use of biological resources;
- The fair and equitable sharing of benefits generated by the use of resources.

The ranking of these objectives led to the creation of sub-objectives are shown below:

For the conservation of biological diversity, the sub-objectives are:
- In situ conservation Enhancement;
- Ex situ conservation Enhancement.

For the sustainable use of biological resources, the sub-objective is:
- the Enhancement of Biodiversity.

For the fair and equitable sharing of benefits resulting from the use of biological resources, the sub-objectives are the following:
- Strengthening of the institutional and legal framework;
- The creation of mechanisms for the access to, and the fair and equitable sharing, of biological resources at national and international level.

In this context, five strategic priorities have been defined. This is the set of resources that have been identified in the hierarchy of objectives, which will allow the resolution of the problems identified through situation diagnosis and discussed during the National Validation Workshop. These strategic areas are namely:

- The conservation of the marine and coastal ecosystem;
- The conservation of the inland waters ecosystem;
- The conservation of the forest ecosystem;
- The conservation of the agrarian ecosystem;
- Strengthening the institutional and legal framework, which will function, in this case, as a transversal element.

The same source refers to the timeframe within which the strategic activities must be implemented, adding that, although the limit is the year 2025, the implementation of these measures and the announced projects must be in effect within five years. Also, this plan must be carefully considered and planned, implemented at a reasonable pace and on practical terms, using the available resources, respecting conditions and available financial resources because of the complexity of biodiversity and its evolution.
The attached table touches on the analysis of the implementation of some of the measures.

2.2 Strategic Analysis of the implementation of the NBSAP

Table 14 seeks to compare the threats, the actions proposed by the NBSAP and the priority activities already carried out in relation to the various ecosystems, based on the in-situ reinforcement strategy and the ex-situ conservation enhancement and strengthening of institutional capacity. The Institutional capacity involves the mobilization of national and international associations for the implementation of established strategic activities.

For example, to curb the destruction of forest species of commercial value, one of the main strategic activities established by the NBSAP (2004) was the presenting of awareness campaigns to educate the people living in the vicinity of production areas. We found that this activity was carried out successfully, through dialogue sessions carried out by the NGO Monte Pico in the Buffer Zone of the Obô National Parks.

The NGO MARAPA has also been educating the fishermen and coastal communities on the protection of sea turtles.

However, according to the person responsible for MARAPA, the financial limitations for the years 2008 and beyond could jeopardize the implementation of tasks, which rely heavily on the strengthening of knowledge and training, awareness campaigns on the conservation and exploitation of halieutic resources as foreseen by the Responsible Fisheries Project objectives (PPR), funded by the United Nations Development Program (UNDP).

Table 14- Comparison between the threats and the actions projected by the NBSAP

Threats to the ecosystems	**Activities planned by the NBSAP**	**Urgent actons taken**
Destruction of forest species of commercial value	**Promotion of awareness programmes among the population living in the vicinity of protected areas.**	**Awareness campaigns carried out by the NGO Mount Pico in the Buffer Zone of the Obô National Parks;**
Increased soil erosion in sloping areas;	**Monitoring the protection and conservation actions in protected areas;** **Perseverance of coherent policies and adequate funding**	**Joint actions by the NGO Monte Pico, ECOFAC IV and DGA;**
Destruction of fauna and flora and extinction of vulnerable species	Creating an Arboretum	A small arboretum was Created within the existing Botanical Garden of Bom Successo;
Scarceness of the mulberry (Melicia excelsa) and others	Reforestation of degraded areas	Being done by the NGO, ADAPA with the support of the Spanish Cooperation, Zaton-ADIL and the League. Creation of small silviculture fields totaling 71.3 hectares;
Change and loss of habitats for many species of fauna and flora	Enlargement and enrichment of the Botanical Garden and Herbarium;	Collection of species and management of the Botanical Garden of Bom Successo, under the control of NGO Mont Pico, with support from Ecofac IV;

		Institutionalization of the Natural Parks obo in Sao Tome and Principe in progress
Risk of extinction of the sea turtle	Protection of turtles	Joint Protection programme - NGO MARAPA and DGA

Source: NBSAP Modified (2004)

It should be noted that this important event requires the signing of various international conventions relating to biodiversity and the environment, and the adoption of various legal documents as mentioned in the NBSAP (2007).

The reasons for the failure lie in the lack of appropriate mechanisms to implement these devices in the field in relation to the conservation and sustainable use of resources. The indiscriminate felling continues without an immediate solution, the capture and consumption of sea turtles and the pressure on other natural resources have also not diminished.

Still, some aspects are encouraging because according to NBSAP (2002), the sheep population was much reduced during the decade 1990 to 2000 and it was considered necessary that the authorities concentrate their efforts to increase their herds. Currently, the number of heads of this species has increased 2% (1996-2006); in comparison, the number of goats, ducks and turkeys have been falling (Directorate of Livestock, 2008).

The analysis of the document indicates that there was also an increase of local chickens in the order of 6% over the same time period, thanks to the prevention measures and the implementation of the Livestock Development Project funded by ADB and the GRDSTP. The question of a possible bird flu, which affected some neighbouring countries such as Nigeria, could endanger the specie and the breed. Also the country possesses an important habitat of migratory birds on the Tinhosas islands (protected area). Some of these migratory birds are residents.

The issue of fair and equitable sharing of benefits generated by the use of resources has been an enigma in Sao Tome and Principe. This requires a profound awareness of those who exploit these resources at different levels, especially those who have more access to them. The following should be top priority; The application of technology, innovation and information in an appropriate way, the responsible exploitation of the resources, respect for the principle of rationality without the marginalization of the poorer groups with few resources such as women, children and the aged..

As observed, most of the actions that were planned by EMPAB to reduce threats to forest ecosystems listed in table 14.1 have not been implemented, mainly due to lack of financial resources. The only actions carried out, were the elaboration of a Guide of Birds of S. Tome and Principe and the inclusion of the area of tropical dry and open forests into the Obô Natural Park of Sao Tome. Significant steps should be initiated in terms of mobilizing resources for this purpose.

Even so, in terms of Biodiversity enhancement, it must be highlighted that a study was recently prepared and presented to the public on the medicinal plants of Sao Tome and Principe. This activity was carried out by professionals in the traditional use of these plants to prevent and treat various diseases affecting humans.

Table 14.1- Comparing the threats, actions projected by the NBSAP and measures taken with reference to the Forestry ecosystems.

Ecosystems	Threats to the Ecosystems	Actions projected by the NBSAP	Measures taken
Forestry	• Destruction of the potential Forestry eco-tourism areas • Extinction of the mangroves;	• Popularization of appropriate techniques for the advantageous use of plants for medicinal purposes; • Cultivation and sustainable use of medicinal plants; • Monitoring of activities related to the hunting of endemic species; • Protection of breeding and nesting areas of endemic species; • Proper management of species of trees with commercial value; • Establishment and operation of ecotourism; • Study and enhancement of ornamental species; • Study of species used in handicraft manufacture and the multiplication thereof; • Development of an IEC programme on the protection of fauna and flora;	• Preparation of a Sao Tome and Principe Bird Guide • Inclusion of the areas of the *tropical dry and open forests* into the Obô Natural Park of Sao Tome

2.2.1 Analysis of factors constraining the Implementation of the NBSAP

In Chapters VII and VIII, entitled "logical framework of intervention and financing strategies (QLIEF), the NBSAP describes in a coherent and objective manner, the procedures and preliminary activities that could have contributed much to overcome the various constraining factors which biological diversity is facing in Sao Tome and Principe.

In the *Logical Intervention Framework* mentioned above, are defined the mechanisms and strategies that aim to provide the Directorate General of the Environment (DGA) with the necessary technical and financial resources for the implementation of the NBSAP, indicating the objectives and functions of each, as mentioned below:

A. National Coordination Office (GNC)

Entity nominated to work with the DGA with the following objectives and responsibilities:

1 - Coordination of initiatives and projects concerning the conservation of biological diversity. In this context the structure will have the following responsibilities:

- Act as focal point of the network made up of all the national agencies, public and private, involved in the conservation or enhancement of biological diversity;

- Support private initiatives aimed at the restoration of degraded ecosystems and the protection of biological diversity;

-Promote collaboration with organizations and institutions involved in the Biological diversity field;

- Sensitise the general public through publications and exhibitions of collections, specimens, documentary films and other available means;
- Collect and manage information on biological diversity, with the aim of promoting the sustainable use of natural resources;

- Act as a resource centre for training institutions, scholarships and improvement, and in this way guide the stakeholders and other interested individuals;

- Create and manage a national mechanism for coordination, and for the exchange of information of scientific, technical, socio-economic and cultural nature, in relation to Biological diversity;

- Promote the growth of investment in the conservation of biological diversity and sustainable use of its resources;
- Create and maintain a database for the conservation and management of natural resources and biotechnology;

2 - Creation and management of a sustainable mechanism of financing the conservation activities of the biological diversity and sustainable use of biological resources.

In this context the structure will have the following responsibilities:

- Encourage the private sector to adopt a strategy of using symbols of conservation to promote their various products and services, and then contribute a certain percentage of this income to the conservation activities;

- Act as a resource centre in the identification and assistance of the formation of associations working for the environment, both nationally and internationally;

- Provide promotional services (marketing) for the recovery of biological diversity, both on a national and international level;

- Act as resource centre for the funding of biological diversity conservation activities and to assist in the mobilization of funds;

- Act as resource centre to assemble information files in respect of the funding of sustainable exploitation of biological resources;

- Act as resource centre to assist national agencies, public and private, in organizing seminars and workshops on issues related to biological diversity;

- Promote the creation and manage a special trust fund to be used in the improvement of the conservation of biological diversity and sustainable use of resources**.**

B. Funding strategy of the National Coordination Office

The functioning of the National Coordination Office (CNG-GA) must be based upon a sensible management model that will help it assume on medium terms, a certain semi-financial autonomy, to be embodied over a long period of term.

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Besides the funding from traditional sources (aid agencies, bilateral and multilateral co-operations, donations and bequests, etc...), the CNG-GA must also work towards a funding strategy based on royalties.

For example, the projects, structures and initiatives that benefit from the services of the CNG-GA should pay a tax according to the amount that the organization helped to demobilize.

To optimize the obtaining of these service taxes, the CNG-GA will call for innovative mechanisms, such as:

Prompting the national and international private sector (breweries, oil companies, airlines, travel agencies, shipping companies, the national lottery, international magazines, pharmaceutical companies, etc...), to use lakes containing local fauna and flora species when advertising their products.

- Promoting the use of lakes with local animal and plant species on postage stamps;

- Encourage sponsorships and expansion of projects or other initiatives to other cities and research centres in the North, zoos and botanical gardens, etc...

- The creation of a website as well as the production of leaflets promoting the CNG-GA will be an effective way of reaching a wider audience, both nationally and internationally

In the **"funding strategy"** chapter we expand on the **"Objectives of the Strategy",** the **"Process Steps"** and the **"Roundtable"** as mentioned below**.**

The information we have indicates that this Office never functioned.
Other relevant information pertinent to the NBSAP is illustrated in Tables 16 to-16.4 of Attachment 2, in which we strived to make an evaluation of the accomplishment of the objectives of the Biodiversity Plan, in accordance with the strategic priorities set out therein.

A. Objectives of the Strategy

this is a plan according to which Sao Tome and Principe plans to involve a group of intervenient organizations as presented in Table 15. The objective is to establish a sustainable funding mechanism for the activities proposed by the NBSAP. The term "subscription" includes all forms of contribution in kind or in cash.

Table 15 – Strategies to mobilize financial resources

At National Level	At International Level
Sao Tome Government	Traditional aid agencies
Bilateral and multilateral Co-operation	Zoos and botanical gardens
National private sector	Foreign research centres
Government and privately run companies and national lottery services	Airline carriers operating in STP
Merchants and independant Professionals	Popular magazines that address environmental issues
Mutualists, national charity associations	International NGOs

Source: NBSAP (2004)

However, the issue of resource mobilization, the Round Table in particular, requires appropriate implementation mechanisms, and must be initiated in stages as described below.

B. Stages of the Process

The process involves the following stages:

1 - Prepare a concise document on the presentation of the NBSAP of Sao Tome and Principe;
2 - Identify the potential subscribers in each of the referred categories;
3 – Do some research on potential subscribers;
4 – Involve the Ministry of Cooperation and Foreign Affairs as much as possible;
5 - Hold Round Table discussions with the subscribers;
6 - Identify the petroleum resources to obtain the financial contribution from this sector.

C. Round Table

The preparation of the roundtable talks aided an international consulting firm, should include the following tasks:

1 - Production of leaflets;
2 – Creation of a promotional Web site;
4 - Finalization of the list of potential subscribers;
5 - Preparation and submission of a survey questionnaire to potential subscribers;
6 - Identification of panel members;

7 – Invitation to the Round Table meeting.

However, the compliance with the initial interventions and with the strategy for the obtaining of funds described therein, in itself requires a huge institutional and systemic financial capacity, which obviously the country lacks. Therefore, if the basic conditions are not created, that means that the interventions in the field (projects) established by the NBSAP, can only be implemented by inherence and synergy. And there have been efforts to make this synergy take place, safeguarding the interests of each party involved.

Remember that the STP held a Round Table discussion in Brussels aided by its external development partners. The sectors and political strategies, directly or indirectly linked to Biodiversity such as the agrarian ecosystem, the education, poverty reduction and other issues, were discussed, and commitments were received from the international community, especially from the traditional partners, the WB, ADB and UNDP, to support the development. But the information available indicates that the desired results were not obtained. The lack of capacity absorption, or institutional inability, aggravated by political instability, may have been the cause of this failure.

2.3 Specific Information about the enforcement of the decisions of the 8th COP of the CBD

The information is provided in an effort to prompt member countries of the CBD to stay aware of their obligations. Note that all these obligations appeal to certain Clauses of the Convention.
Table 15 presents the decisions of the eighth COP and the capacity of response that the institutions can provide. It was observed that, with regard to protected areas, the following programmes are underway: The ECOFAC IV, the Regional Program on the Conservation and Enhancement of Forest Ecosystems in Central Africa, funded by the European Union (EU), with the aim of institutionalizing the Natural Parks Obô of Sao Tome and Principe.
To the Coordinator of the project, the specific objectives of the ECOFAC are, among others, the promotion of the use of natural resources in a sustainable way, the control of pressure on resources and the management of environmental problems in protected areas and their surroundings. In terms of results, the project aims for the coordination of protected areas. This result can not be achieved according to the project without taking action on environmental education and involving the participation of several partners, the NGOs in particular.

Table 16- Decisions of the eighth COP and the corresponding National response

Decisions of the eighth COP	Corresponding National Information
VIIII/5 (Clause 8 j) Paragraph 2. Information on the progress made in relation to the participation of the indigenous and local population.	• In Sao Tome and Principe there is no indigenous population because all people are considered equal before the law (Political Constitution)
VIII/21 (Marine and coastal Biological Diversity – deep sea) Paragraph 3.).	• There have been complaints of the dumping of fuel waste, household waste and other substances by ships in high seas. This has happened mainly off the island of Principe.
VIII/22 (Marine and coastal Biological diversity - integrated management of the marine and coastal areas) Paragraph 5. Information on the implementation of the program on marine and coastal areas	• As an alternative to the extraction of sand from the beaches, the sand in now being extracted from the sea. • There is an ongoing project to raise awareness for the protection of sea turtles; • Centres were installed by the ONG MARAPA (Sea, Environment and Artisan fishing) where the sea turtle eggs can be hatched

	• Sensitization and awareness activities have been conducted by the ONG MARAPA to educate the fishermen.
VIII/24 (Protected Areas) Paragraph 4. Requests the Parties, other governments and multilateral funding agencies, to provide necessary financial support to developing countries, especially the underdeveloped ones and the small isolated countries still in development.	• The ECOFAC IV programme is being executed with the objective of institutionalizing the Obô Natural Park of S.Tome and Principe.
VIII/28 (Impact Assessment) Paragraph 5. Implementation of voluntary guidelines of the impact Assessment on the environment and biological diversity.	• The regulation on the assessment of environmental impact is in effect. The Impact assessment study is essential as a prerequisite for the approval of projects and undertakings by the competent authorities

Chapter III: Integration or marginalization of the issues of biodiversity into the plans, programmes, sectorial and intersectorial policies

We have sought to adequately integrate the issues of Biodiversity into the plans, programmes and sectorial and intersectorial policies of Sao Tome and Principe. Below we show the various National and International plans and programmes and some studies in which can be verified an integration of these issues:

- National Strategy for Poverty Reduction (ENRP, 2002);
- Millennium Development Goals (MDGs);
- National Plan for the Environment and Sustainable Development (PNAAD);
- National Action Plan for Adaptation to Climatic Change (NAPA);
- National Plan for the Implementation of the Stockholm Convention on Persistent and Organic Pollutants (POPs);
- Plan to Combat Deforestation and Soil Degradation;
- Forestry Commission of Central Africa - Convergence Plan;
- Other conventions: CITES, Convention on Migratory Species, Ramsar and Global Heritage Convention;
- Proposal of National Plan for Forestry Development;
- Master Plan for the Marshes of Sao Tome and Principe;
- Charter (Updated) of Agricultural Policies and Rural Development (2007);
- The 13th Constitutional Government of the DRSTP programme (2008);
- Project to promote Livestock Development (PADP PADP I and II / BAD);
- ECOFAC Project;
- Marine turtle protection programme (2003-2006 U.S., 2006 -2007 RAPAC, 2007-2008 – own funds)
- Responsible Fishing Project (UNDP);
- National plan for the combat of bird flu (Department of Livestock, WHO, UNICEF, Ministry of Health).

For detailed information on the areas, objectives, strategies, specific actions and priorities of these plans and programmes, we suggest that you consult the documents concerning them.

However, in general, we observed that all plans, programmes and projects reveal a great concern with the issue of sustainable development, namely the need for conservation, appropriate and sustainable use of biological resources and their ecosystems, and the combating of poverty in particular. Not marginalized was the important role played by biodiversity in terms of generating

income, increasing the country's economic growth, equitable distribution of its benefits, ensuring food security and nutrition in order to improve the quality of life of the population.

For example, the recently approved government program, (Program of the XIII Constitutional Government, 2008) considers food security and energy as priority. The strategy for ensuring food security is planned through the recycling and proper valuation of agricultural ecosystems, hence the success expected by its implementation.

In the case of Forestry, the same programme advances, "that under the present conditions of the forestry sector in Sao Tome, the objective set, is the implementation of measures that will allow the monitoring of the protective measures for water resources, soil, and climatic conditions of the islands of Sao Tome and Principe, exercised by forest ecosystems, which the Government considers the natural basis for the practice of activities.

The protective measures in this area, reside in, among others, the fight against illegal felling of trees by resorting to an intersectorial strategy, involving not only the forestry sector, but also the Army, the National Police, Local Authorities and farming associations. Reforestation, providing the sector with instruments, evaluation, and articulation with the Directorate General of the Environment are some of the actions to be taken in the field of environment and forestry. The Directorate of Forestry is facing a shortage of qualified personnel to bridge this gap. The training of technical staff is planned for the near future.

Therefore, the communication between sectors is fundamental in order to attain the objectives of sustainable development in Sao Tome and Principe. It appears that there is political willingness and sensitivity on the part of the government for this.

This willingness has also been demonstrated by the development partners, although, in our view, there are still difficulties to be overcome at tactical or methodological level. It will be necessary to adopt mechanisms that allow the integration to work effectively, with a view to curb the unnecessary conflicts, optimize resources because they are limited, make appropriate use of skills, strengthening and raising the levels of leadership. Everyone should seek a common consensus for an appropriate and sustainable solution to problems.

On the other hand, adequate integration of the issue of Biodiversity can only be possible with the improvement of the Directorate General of Environment (DGA). Although it is still lacking in well trained, well paid technical personnel to implement its functions, it is now obviously more structured.

This Directorate is head of several directorates, namely: Nature Conservation and Directorate of Statistics and Environmental Education with new personnel.

This restructuring indicates that there has been an extra contribution from the state budget to render the DGA more operational. However, the DGA is still very far from accomplishing its mission in reducing the level of marginalization that prevails in the country. It needs to educate the rural communities, their organizations and citizens and help them understand the process of conservation and the sustainable use of resources, so that they can participate actively in reducing the pressure on these same resources.

Chapter IV- Conclusion: Progress made or not made in the pursuit of attaining the 2010 objectives and in the implementation of the srategical plan of the CBD

4.1 Progress made in the pursuit of the 2010 objectives

In terms of the implementation of specific on site activities in pursuit of the objective, 2010, the RDSTP has not progressed much. Insufficient capacity at individual, institutional and systemic level, aggravated by lack of adequate operational funding, are indicated as the main hindering factors, which did not allow the country to progress more in the pursuit of this objective. These are factors which are specific or common in less developed countries (LDCs), especially in small insular states with limited financial resources and with great institutional weaknesses.

However, it must be highlighted that there is a growing momentum especially in the area of the information, education and communication. The public is being taught the importance of biological resources for human survival, and the need for change in attitude on this matter, for the recovery and sustainable development of these resources.
A book was recently published on the use of endemic plants of STP for the prevention and treatment (phytotherapy) of various diseases affecting humans. This thorough task was possible due to close cooperation between several national citizens that accumulated decades of experience in traditional medicine and a Portuguese researcher with knowledge in this field.

On the other hand, a significant improvement has been observed in the national capacity in terms of mobilizing funds in consistence with the international mechanisms established for this purpose.
In accordance with the provisional framework of goals, objectives and indicators for assessing progress towards the 2010 target for biodiversity, Table 17 shows the objectives that have been achieved by the country and its respective indicators.
The indicators designed in terms of biological diversity do not show figures which will allow the measurement of performance in the implementation of actions for the attainment of goals, due to the lack of implementation of activity monitoring, evaluation and lack of statistical data...
However, the effort that the authorities have made to attain the stipulated objectives must be stressed.
Table 17 shows that it is imperative to restore and preserve the populations of species of selected taxonomic groups, blocking its degradation.
Actions aimed at the conservation of sea turtles have been carried out and is one of the relevant indicators of the aforementioned objective. Other indicators concerning this objective relate to the work being done to revise the hunting Law, again demonstrating the effort and commitment of the authorities to change the situation in a positive way.

Table 17- Objectives for 2010 accomplished by Sao Tome and Principe

Goals and objectives	Pertinent Indicators
Protect the components of biological diversity	
Goal 1. Promote the conservation of biological diversity of ecosystems, habitats and humans	
Objective 1.1 At least 10% of each of the planet's ecological regions must be effectively conserved.	o The Obô Natural Parks of Sao Tome and Principe were created. They occupy about 40% of the total surface of the country.
Objective 1.2 The areas that show a particular importance for biodiversity must be protected.	The Dense and wet altitude Forests, fog forests, tropical dry and open forests and the Malanza Mangroves, form part of the Obô Natural Parks

Objective 2.1 Restore and preserve the populations of species of selected taxonomic groups thus slowing down its degradation	o Actions for the conservation of sea turtles have been implemented; o Revision of the draft Law on hunting is in progress; o Preparation of the Management and administration Plan for the Obô Natural Parks.

4.2 Progress made in the implementation of the Strategic Plan

With regard to the compliance with the CBD Strategic Plan, in institutional terms, the result can be considered satisfactory. However, much remains to be done. We can assign a positive note to the intensive work that has been developed in the building of basic capacities, on three levels: individual, institutional and systemic. Without these basic capacities, the obligations stipulated by the CBD cannot be met on a global level The tasks to be carried out are mainly the holding of seminars, workshops, attendance of external training sessions, steps to improve relations with the secretariats of the Rio Convention etc..

Table 18 shows in detail some progress made in implementing the CBD Strategic Plan.
It was observed that there was an attempt to articulate and appropriately integrate institutional actions concerning Biodiversity in STP, into projects, plans and development programmes, many of which already mentioned in this report.
The same planning tools often have different objectives but with similarities in terms of strategies aimed at reducing poverty and achieving the objectives of the millennium.
For these objectives to be met, an appropriate relationship must be established with the three objectives of the Convention, namely: Biodiversity conservation, sustainable use of resources and the fair and equitable sharing of this utilization (NBSAP, 2004).

The involvement of the sub-region of Central Africa in implementing the Convention is another possible element to prove that we have been trying to achieve the objectives and goals that stipulate that the parties shall cooperate at regional and sub-regional level for its implementation.

Table 18- Advances in the implementation of the Strategical Plan of the CBD

Strategical Goals and objectives	Possible Indicators
Objective 1: The Convention plays its role of leader, to deal with the questions of biological diversity on an international level.	
1.5 The issues of biological diversity are integrated into the objectives, programmes, sectorial and inter-sectorial policies on a regional and global level.	• Central African Forest Commission's Plan of Convergence (COMIFAC), • Sub-Regional Initiatives to fight against the degradation of the lands and desertification in Central Africa
1.6 The parties cooperate on a regional and sub regional level to implement the stipulations of the Convention.	The countries of the sub-region of Central Africa are also members of COMIFAC and have collaborated in the implementation of the Convention.
Objective 3: The national strategies and action plans pertaining to the conservation of the Biodiversity and the integration of the issues pertaining to the diversity of the relevant sectors, serve as an efficient frame-work for the implementation of the objectives of the Convention.	
3.2 Each part of the Cartagena Protocol, pertaining to the prevention of biotechnological risks, established a table of regulating and operational measures to be followed in the implementation of the protocol.	• Law regulating Biological security elaborated and approved in Sao Tome and Principe

3.3 The issues of biological diversity are integrated into the objectives, programmes, sectorial and inter-sectorial policies on a pertinent national level.	• For example, the issues pertaining to the biological diversity are integrated in the National strategies for the Reduction of Poverty and in the National strategies for Climatic Adaptation and change.

4.3. Conclusions and recommendations

4.3.1 Level of fulfilment of the obligations of the CBD

Analyzing the level of compliance with the obligations of the CBD by the GRDSTP can lead to an evaluation of the implementation of the conventions. Tables 16, 16.1, 16.2 and 16.3 present a strategic review of the compliance with these obligations while considering its most important Clauses. There are some ongoing activities and others are being implemented.

As shown in Table 19, although there was a delay in the timing and lack of skilled human resources, the general measures for the conservation and sustainable use of resources set out in Clause 6, have been complied with. As already stated, strategies, plans and national programmes for the conservation and sustainable use of biological diversity have been developed... A concrete example is the development of the National Strategy and Action Plan on Biological Diversity - NBSAP, 2004. However, due to lack of an appropriate structure for the implementation of the Convention among other constraints, the measures relating to the identification and monitoring were not taken. Studies on national Biodiversity and the creation of a corresponding database have not materialized.

Table 19: CBD Obligations fulfilled by Sao Tome and Principe

Obligations of the Convention	**Strategies, policies and programmes in relation to the obligations (Names, period of implementation, financing, specific objectives, results)**	**Present state (Implemented and ongoing etc.)**	**Constraints that block or hinder the fulfilment of the obligations**
1. General Measures for conservation and sustainable use. *(Clause 6)...* a) Develop strategies, plans and national programmes for the conservation and sustainable use of biological diversity, or adapt the existing strategies, plans or programmes for this purpose; b) Integrate, as far as possible and as appropriate, the conservation and sustainable use of biological diversity into plans, programmes and sectorial or inter-sectorial policies.	- National Strategy and Action Plan on Biological Diversity – NBSAP, 2004; - First National Report on Biodiversity, 2004; - Second and third National on the Biodiversity. GEF Financing (Global Environmental Fund).	Implemented Implemented Ongoing	Delay in the meeting of deadlines due to the difficulty of implementing the stipulations of the Convention; Lack of expert human resources. Lack of a national policy on Biodiversity.
2. Identification and Monitoring *(Clause 7).* a) Identify the components of biological diversity important for conservation and sustainable use; b) Monitor the identified components of biological	Studies on National Biodiversity; Creation of Databases on Biodiversity.		Inexistance of infrastructure for the implementation of the stipulations of the Convention

diversity; c) Identify processes and types of activities that have adverse impacts on the conservation and sustainable use of biological diversity; d) Keep and organize data in relation to the identification and monitoring processes.			

Source: RNICB (2007).

In respect of the *in situ* conservation, in strategic terms, the Obô Natural Park in Sao Tome and Principe was created, overcoming in this way, some operational difficulties which were facing the project. In terms of strategy of ex situ conservation, the Botanical Garden was created: a heritage, which lacks an appropriate strategy for its financing.

Table 19.1- Obligations of the CBD fulfilled by S.Tome and Principe

Obligations of the Convention	**Strategies, policies and programmes in relation to the obligations (Names, period of implementation, financing, specific objectives, results)**	**Present state (Implemented and ongoing etc.)**	**Constraints that block or hinder the fulfilment of the obligations**
3. In Situ conservation *(Clause 8)*. a) Establish a protected areas system for the conservation of biological diversity; b) Develop guidelines for the selection, establishment and management of protected areas; c) Regulate or manage biological resources important for the conservation of biological diversity; d) promote the protection of ecosystems and natural habitats and the maintenance of viable populations of species in their natural environment; e) promote development of areas adjacent to protected areas; f) Rehabilitate and restore degraded ecosystems and promote recovery of threatened species	Creating Obô Natural Park of Sao Tome and Principe Decree-Law No. ... EU funding	Implemented	Despite having been created with some difficulties, there are now areas of protected land, a strategy for its management is still lacking. In relation to marine areas there are still no protected areas.

Source: RNICB (2007)

Table 19.2 - CBD Obligations fulfilled by Sao Tome and Principe

Obligations of the Convention	Strategies, policies and programmes in relation to the obligations (Names, period of implementation, financing, specific objectives, results)	Present state	Constraints that block or hinder the fulfilment of the obligations
4. *Ex situ* Conservation *(Clause 9).* a) Adopt measures for the ex situ conservation of biological diversity components; b) Establish and maintain facilities for ex situ conservation and research on plants, animals and micro organisms. c) Adopt measures for the recovery and rehabilitation of threatened species and their reintroduction into their natural habitats; d) Regulate and manage the collection of biological resources from natural habitats for ex situ conservation; e) Cooperate in providing financial and any other necessary aid for ex situ conservation	Creation of protected areas of Biodiversity such as botanical gardens, fish farms, etc... Establishment of the Botanical Garden in " Bom Sucesso" EU Funding	Implemented	Lack of a funding strategy for the Botanical Garden and inadequate support to the technical experts

Source: RNICB (2007)

With regard to the education and sensitization of the public, the stipulated measures are underway. Among several strategies established for this purpose, we point out the definition of a National Programme for Environmental Education (PNE) and the implementation of a National IEC Strategy on Biodiversity. The lack of human resources and allocation of technical and financial resources have affected the level of compliance with this obligation.

Table 19.3 - CBD Obligations fulfilled by Sao Tome and Principe

Obligations of the Convention	Strategies, policies and programmes in relation to the obligations (Names, period of implementation, financing, specific objectives, results)	Present state (Implemented and ongoing etc.)	Constraints that block or hinder the fulfilment of the obligations
8. Education and public awareness programme. *(Clause 13).* a) Promote and encourage	Integration of the National Biodiversity Strategy into the formal and non-formal education. Definition of a National	Underway	Lack of human, technical and financial resources.

understanding of the importance of conservation of biological diversity and the measures required, as well as its propagation through the media, and the inclusion of these topics in educational programmes. b) Co-operate with other States and international organizations in developing educational and public awareness regarding the conservation and sustainable use of biological diversity.	Defining of a National Program for Environmental Education. Implementation of a National IEC Strategy on Biodiversity		

Source: RNICB (2007)

The table also indicates that within the scope of impact assessment, and the minimization of adverse impacts, some things are in progress. The strategy of publication and the updating of legislation regulating the environmental impact of development projects are definitely in progress and try to overcome the obstacles in the implementation of the legislation..

Table 19.4 - CBD Obligations fulfilled by Sao Tome and Principe

Obligations of the Convention	**Strategies, policies and programmes in relation to the obligations (Names, period of implementation, financing, specific objectives, results)**	**Present state**	**Constraints that block or hinder the fulfilment of the obligations**
9. Impact Assessment and Minimizing of Adverse Impacts *(Clause 14).* a) Establish procedures for environmental impact assessment of projects that may have adverse effects on biological diversity; b) Establish agreements to ensure that environmental consequences of programmes and policies, which may have significant adverse impacts on biological diversity, are taken into account.	Publication and update of legislation on the environmental impact of development projects.	Ongoing	Difficulty in enforcing the legislation; Lack of sensible implementation of the legislation;

Source: RNICB (2007)

In relation to the Access and transfer of technology, nothing was done to prepare, publish and disseminate the legislation with the aim of encouraging the private sector to participate actively in the issues of Biodiversity.

Table 19.5 - **Obligations of the CBD** fulfilled by Sao Tome and Principe

Obligations of the Convention	**Strategies, policies and programmes in relation to the obligations (Names, period of implementation, financing, specific objectives, results)**	**Present state (implemented, ongoing, etc**	**Constraints that block or hinder the fulfilment of the obligations**
11. Access to and transfer of technology *(Clause 16).* 3 – Take appropriate legislative, administrative or political measures to pressure the private sector into facilitating the access to, the joint development and transfer of technology as referred in paragraph 1 of this clause. This is for the benefit of both governmental institutions and the private sector. In this regard the obligations set out in paragraphs 1, 2 and 3 of this Clause, must be abided by;	Elaborate, publish and divulge the legislation to encourage the private sector to participate actively in the issues of Biodiversity.	Not implemented	Non compliance of the obligations of the Convention.
12. Exchange of information *(Clause 17).* 1 - Facilitate the exchange of all publicly available information from all Sources of all that is relevant to the conservation and sustainable use of biological diversity;	Defining of a National plan of Co-operation on Biodiversity	Ongoing	Dificulty in fulfilment of the obligations of the Convention For lack of human and financial resources.

Source: Source: RNICB (2007).

On the other hand, it is worthy of note that there is an ongoing exchange of information through the implementation of a National IEC Strategy on Biodiversity, making it necessary to overcome the difficulties concerning the allocation of human and financial resources.

Table 19.6 - CBD Obligations fulfilled by Sao Tome and Principe

Obligations of the Convention	**Strategies, policies and programmes in relation to the obligations (Names, period of implementation, financing, specific objectives, results)**	Present state	**Constraints that block or hinder the fulfilment of the obligations**
13. Technical and scientific Co-operation *(Clause 18).* 1 – Promote international scientific and technical co-operation in the conservation and sustainable use of biological diversity through the applicable national and international institutions; 2 - Promote scientific and technical co-operation with other Contracting Parties,	Defining of a National plan of Co-operation on Biodiversity	Not carried out	Non compliance of the obligations of the Convention.

(developing countries in particular) to implement the conditions of this Convention, namely the development and implementation of national policies; 3 - Encourage and develop methods of co-operation for the development and use of technologies, including indigenous and traditional technologies, in accordance with the objectives of this Convention; 4 - Promote the establishment of joint research programmes and joint ventures for the development of technologies relevant to the objectives of this Convention.			

4.3.2 Necessity of intensifying capacities to implement the CBD

Strategic analysis of the obligations of the Convention throughout the country enabled us to determine the needs for capacity building in respect of the various clauses as shown in Table 20, according to the SWOT analysis illustrated by Bonfim (2007).

In terms of general measures for conservation, the analysis shows that the strongpoint lies in good natural conditions, and the weakness lies in the lack of human and financial resources, threats and heavy pressure on natural resources.

Even so, the issue of the need for capacity strengthening opens windows of opportunity, namely the adherence of the country to the International Conventions on the Protection of Biodiversity.

Table 20- Analysis of the necessity of strengthening capacities

Activities	**Strengths**	**Weaknesses**	**Opportunities**	**Threats**
General Measures for the conservation and sustainable utilization. *(Clause 6)*	Existence of good natural conditions.	Lack of human and financial resources.	The Country's adherence to International Conventions on the protection of Biodiversity	Great pressure on natural resources.
Identification and inspection *(Clause 7).*	Existence of good natural conditions.	Lack of human resources.	The Country's adherence to International Conventions on the protection of Biodiversity	Lack of a true strategy for environmental protection.
Conservation *in situ (Clause 8).*	Existence of high rates of endemism.	Lack of human and financial resources	Sub-regional and international inclusion in protection and conservation programmes	Great pressure on natural resources. Disappearance of some species.
Conservation *ex situ (Clause 9).*	Existence of high rates of endemism.	Lack of human and financial resources	Sub-regional and international inclusion	Lack of follow-up actions;

			in protection and conservation programmes	Little space available for conservation activities.
Education and sensitization of the public. *(Clause 13).*	Environmental Education Programme to be implemented in the near future.	Inexistence of a true sensitization strategy.	Existence of a national sensitization programme on the environment.	Progressive increase of poverty rate.
Impact Assessment and the minimization of the adverse impacts *(Clause 14).*	Existence of specific legislation.	Insufficient enforcement for lack of a decree regulating the application	Convergence with other environmental initiatives	Major National development projects Do not apply the law on environmental impact.

Among other activities that the analysis indicates, is the impact assessment and mitigation of adverse impacts. It indicates that the strongpoint lies in the existence of specific legislation and the weaknesses lie in the lack of implementing due to the inexistence of a ruling decree to enforce its implementation, and the threats. Major national development projects do not apply the law on environmental impact. Even so, this evaluation has created opportunities, namely, the synergy that has been created with other environmental initiatives.

Table 20.1- Analysis of the necessity of strengthening capacities

Activities	**Strengths**	**Weaknesses**	**Opportunities**	**Threats**
Access and transfer of technology *(Clause 16).*	The Country is a member of many international organizations	International Co-operation with countries of advanced technology	International Co-operation with countries of advanced technology	The many studies and investigations on Biodiversity don't imply national awareness.
Exchange of Information *(Clause 17).*	Regular presentation of Reports on the state of the national Biodiversity	Difficulty in producing reports on a regular basis	Availability of financial aid as a result of the country's adherence to International Conventions on Biodiversity	Inability of the country to fulfil this obligation.
Technical and Scientific Co-operation *(Clause 18).*	The Country receives sufficient international aid	Absence of a truly defined priority policy	Availability of financial aid as a result of the country's adherence to International Conventions on Biodiversity	Inability in extracting maximum benefit from the available resources Because of ineptitude or deviation of priorities.

Source: V. Bonfim (2007).

Based on the weaknesses verified by the analysis shown in the above table, we can summarize the needs for capacity building for the effective implementation of the CBD as follows:

The development of training sessions to build the capacities of all technical personnel and the training of institutions involved in the implementation of the Convention on Biodiversity, is indispensable;

- Initiate an intensive campaign to create awareness, inform and educate all those who in their business activities use biological resources;
- Strengthening the intervention capacity of the institutions related to biodiversity management, in the areas of planning, management, monitoring, follow up and evaluation of field activities;

- Strengthening of the institutional capacities, in the elaboration of decrees regulating the implementation, regulations regarding ruling legislation and also the conception of other provisions which are deemed necessary;
- To instil amidst the policy-makers, through sensitization and awareness programmes, the importance of Biodiversity for human subsistence in order to change attitudes concerning their Involvement in the implementation of the CBD

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4.3.3 Recommendations to improve the implementation of the CBD

For Sao Tome and Principe to efficiently fulfil their obligations and benefit from the opportunities open to them through their adhesion to the CBD, it is necessary to define a clear and functional framework of coordination, organize the identified structures in order to render them effective.

The viability and transparency of procedures can only be guaranteed if there is an organization of structures and the adoption of the imposed measures. This is required so that the country can benefit from the various decisions of the COP, namely in terms of the financing of projects for conservation and sustainable use, the transfer of technology and capacity strengthening.

This effort to organize the structures can be effective by carrying out the following actions:

A. Institutional Strengthening

A.1 Reviving and institutionalizing the National framework on Biodiversity as a multi-sectorial structure entrusted with the implementation of the CBD.

This structure would have the following functions:

- Act as a sort of Secretariat of National Biodiversity, to act as liaison between the (International) Secretariat of the Convention and the national authorities;

- Play the role of a technical office headed by the National Focal Point for Biodiversity;

- Regularly update the "list" of decisions of the COP on thematic issues and multi-sectorial issues, in order to facilitate the monitoring of implementation at national level;

- Organize workshops to inform on the progress of projects being implemented;

- Enhance awareness and education;

- Explore and mobilize resources for the implementation of urgent actions of the NBSAP.

A-Create and institutionalize the National Council for Sustainable Development (CNDS)

The CNDS should provide a framework for the coordination and conciliation of the actions to be taken in the implementation of the Rio Conventions (CBD, UNFCCC, UNCCD) and other relevant measures for the balanced management of the environment.

In this regard, it will require a clear and specific mandate on exactly what has to be done and this mandate must be officially recognized by governmental bodies. It will be necessary to create a framework that will be efficient in its actions.

The National Commission on Biodiversity would therefore be one of the units constituted under the National Council for Sustainable Development. Other units constituted would include the National commission on Climatic Change, the National commission on Combating Desertification, and any other important international treaties and protocols. This commission would have the following composition:

Table 21- Proposal for the composition of the CNB

Nº	**Ministries**	**Institutions /Research /Training**
1	Natural Resources and Environment	Directorate of Biodiversity Conservation
2	Forests	Directorate of Forestry
3	Agriculture	CIAT
4	Livestock	Directorate of Livestock
5	Fishing	Directorate of Halieutic Resources
6	Foreign affairs and co-operation	Directorate of Co-operation
7	Defence	Coast Guard
8	Tourism	Directorate of Tourism
9	Education	Superior Polytechnic Institute - ISP

B-Proposed structure of the CNB

Given the multiplicity of issues addressed by the CBD, the CNB should employ on a permanent basis, one or two technicians experienced in every area relating to each of the ecosystems considered important to the issues of Biodiversity.

B1- Individual and systemic Capacity strengthening

In order to implement the CBD in the best possible way, there should be a creation or enhancement of capabilities in the following respects:

B2-Inhancement of human capabilities

This involves the training and enhancement of competence in relation to Biodiversity issues, but also to manage in the best possible way, the available scientific information. This can be done on two different levels:

- The improvement of scientific research in the different areas of Biodiversity. Research programmes should be encouraged in order to bridge the existing gap in relation to the knowledge of the different spheres and of the recovery of land Biodiversity, coastal, marine and continental Biodiversity, the implementation of certain modern technologies, traditional know-how associated to Biodiversity and its resources;

- The intensification of training of personnel and specialists in the area of research and management

of Biodiversity through the development, updating and implementation of specific training programmes, and specific training programmes for technicians and specialists in management, dissemination, sensitization of Biodiversity related matter.

The improvement of scientific information exchange via networks and the implementation of a National Geographic Information System (SIG) on Biodiversity.

- Strengthening of measures relating to IEC;

Here we refer to information, education and communication. The objective is to establish programmes to improve the participatory approach of the population. In this sense, the following measures must be taken:

Ensure the enhancement and dissemination of information on Biodiversity through the CHM and specific magazines, particularly the communication of relevant information to the general public and the applicable results of the research;

Develop awareness and education programmes aimed at well selected target populations on the values of Biodiversity and the rational use of natural resources;

- Develop guide books to help with education and awareness (educational guides on the national endangered species, rare or endangered and eco-tourism national guide:

- Strengthen and support the role played by NGOs among the general public, on the present and future importance of actions of conservation and rational utilization of Biodiversity.

B.3- Updating of framework / Legislative instruments

In order to have a national legislation that is in line with the country's international commitments, this objective can be made possible if the country implements the following actions:

- Strengthen existing legislation by creating new provisions that allow the country to comply with its commitments in relation to the CBD.
- Ensure harmonization of the texts implementing the provisions, between the provisions of other conventions such as CITES, the Bonn Convention, the Convention of Algeria, etc...
- Identify the most endangered species in the country in order to protect them against the illegal trade in compliance with CITES (the national red list)
- Provide investment and regulation manuals which will encourage the private sector to invest in development activities of the Biodiversity;
- Develop a framework law regulating the access to national genetic resources and the equitable sharing of benefits resulting from its exploitation, in order to benefit the national economy;
- Adopt legislation on bio safety, to regulate the trans-boundary movement, the use, the control and the trade of genetically modified organisms (GMOs) in the country.

B.4 Mobilization of resources

Capacity building and, in general, the implementation of the proposed activities will only be possible if there is availability of resources. To make this possible, it is necessary to have some internal organization in order to have easier access to means and financial resources made available by the decisions of the COP and, in general, to strengthen cooperation and partnership with other countries possessing technologies, but also with international organizations

In this sense, it is necessary to undertake the following tasks:

- Training of national intervenient (technical staff of institutions involved in environmental issues, private organizations, directors of services, etc...) On the formulation of projects, particularly those of the GEF;

- Mobilization of experts for the completion of funding applications;
- Identification of financers and raising their awareness in respect of these projects;
- Teaching how to manage projects on Biodiversity.

In terms of final considerations, according to the various ecosystems studied, the main findings and conclusions of this report indicate that there are several projects that have been developed under cover of the NBSAP (2004) but were hardly implemented. These include:

- Space Planning of the Coastal Zone and sustainable management of its resources

- Sustainable management of the Exclusive Economic Zone (EEZ)

- Conservation of Biological Diversity and Inland Waters Biological Resources

- Ecologically Viable Forest Management

- Management of the areas around the Obô Natural Parks and other protected areas

- Reforestation

-National Inventory of Wild Animals

- Enlargement and enrichment of the Botanical Garden and Herbarium

- Project to register and create codes for the different usages and traditions relating to the conservation of Biodiversity

- Plan for the Conservation of the Agrarian Ecosystem and sustainable use of its resources

- Enhancement of the agricultural ecosystems

- Creation of a Centre for Research and Livestock Development (not created)

- Preparation of a detailed legislation for the conservation of Biodiversity in Sao Tome and Principe and the sustainable use of its resources

- Implementation of a National Legal Framework on Biosafety and promotion of Research on Biotechnology.

- Implementation of Programmes of Information, Education and Communication on the Conservation and Biological Diversity

- Output of films, Post cards and posters, Stamps and Atlas with different species of Fauna and Flora: Wild threatened or endangered.

It should be noted that these projects were formulated with the intent of seeing the materialisation of the Action Plan and Strategy, inserted in the Biodiversity Conservation programme, in the future 2003-2025, at a cost of about 2 million U.S. Dollars. However, the information received from the respective institutions, indicates lack of funds as the main reason for the non implementation of the project since 2003.

In view of its importance in terms of the conservation and sustainability of biological resources of the country, it is recommended that adequate mechanisms be established to collect and mobilize resources so that the deadline can be met. Steps must be taken rapidly to prepare the Round Table with the help of national and international consultants.

The economic and financial crisis in developed countries can reduce their GDP, and in consequence, have to reduce their contribution to promotion of Biodiversity to less developed countries like Sao Tome and Principe. The bilateral and multilateral traditional partners in this area might not have sufficient means to finance the development of planned actions. Not discarding the contribution that these countries might provide, it is suggested that appropriate mechanisms be created to mobilize local financial and other resources such as revenue from the sale of petroleum, revenue from the private sector and from other socio-economic agents operating in the country.

Another point to be highlighted is that, in our attempt to make an evaluation of the strategic objectives and Action Plan for Biodiversity which were conceived in the three last reports, NBSAP (2002), NBSAP (2004) and NBSAP (2007) (consult the attached tables) we realised that, with the exception of the preparation, approval and publication of some legal devices, there has been very little progress in terms of the implementation of actions. This could undermine the achievement of objectives and targets within the timeframe given (2003 -2025). Various studies, considered important by the NBSAP (2002), to enhance the knowledge on Biodiversity and its sustainable use and the development of strategies and plans for future operations, were not done, once more, because of lack of funds. Among others, some of these studies are: The study of the ornamental species and its enhancement and the study of inland water fauna.

This report also found no indicators that can give an indication of the state and tendencies of the components considered important in biological diversity. It is therefore recommended that a regular study and research be done to achieve this objective.

APPENDIX I: Information about the parties presenting the report and the process used in the preparation of the National Report

A- Information about the Parties presenting the reports

Table 1- Parties responsible for presenting the report

Contracting Party	
NATIONAL CORRESPONDENT	
Complete name of the Organization	
Function/Title of Contact Person	
Postal Address	
Telephone Number	
FAX Number	
Email Address	
CONTACT PERSON RESPONSIBLE FOR THE NATIONAL REPORT	
Complete name of the Organization	
Function/Title of Contact Person	
Postal Address	
Telephone Number	
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B- Processes utilized in the preparation of the report

For the elaboration of this report we tried to follow rigorously and in detail, the directive designed for this purpose and available at www.cbd.int / reports / Guideline. Shtml. This document was prepared by the Secretariat of the Convention (SC) on Biological Diversity and is entitled "Achieving the 2010 Biodiversity Target". Therein is suggested that the report be prepared in four chapters and several appendices, as stated below:

- Chapter 1-Introduction on the State and Tendencies of the Biodiversity and the factors threatening it.
- Chapter 2 – Report on the progression of strategies and national action plans on Biodiversity
- Chapter 3 - Integration of sectorial and intersectorial considerations on biological Biodiversity
- Chapter 4 - Conclusion. Progress made following the objectives for 2010 and the implementation of the National Strategic Plan.
- Appendices (I, II, III, and IV) refer among others, the sources of information and the information collection method.

It should be noted that for the preparation of the above Directive, the SC considered the experience acquired in the process of the preparing of the second and third national reports.

On the other hand, the primary and secondary information related to Biodiversity was collected in Sao Tome and Principe.

The primary or field information was collected through the Rapid Participatory Diagnosis Method (RPD), utilizing two of its tools, namely, Brainstorming and Walking. The first consists of an informal group interview of between 5 and 20 selected people. The second consists of walking along a path or taking a shortcut through a rural community and together with a group of people (farmers, charcoal makers, wood choppers ...), discuss the different issues and problems related to the agro-ecosystems where they live or work.

Table 2 shows the targeted area of the study, district and localities. Due to the availability of time and financial resources, the study was carried out in three areas of the country and only in three districts. The north which is the most affected and the South which is less affected. This would allow us to make a comparison of the conservation of natural resources and their use.

Table 2- The area targeted for study is shown in the table below:

Target Area	District	Localization
North	Lobata	Praia das Conchas (Shell Beach) Beach 15 Micoló Beach
Centre	Mezo-Chi District	Natural Park
South	Caué	Porto Alegre Angra Toldo Ponta Baleia/ Malanza

As part of the elaboration of a Biodiversity guide, some questions were asked. Among the various questions that the interviewees were asked, the following are highlighted: What areas do you usually hunt in? What species do you hunt? Which species has become scarcer in recent years and why? What area is the most affected by the indiscriminate felling of trees? Has there been coastal, maritime or forestry monitoring?

What fish do you catch? Which of these species have been diminishing? Why? How could the problem be solved?

Photographs were also taken of the areas most affected in terms of biological diversity and a sketch map drawn up of these areas.

Secondary data was collected from various institutions in the country that are directly or indirectly linked with the Biodiversity (see bibliographic references).

Finally, an analytical resume was written, mainly on the four chapters elaborated in this report. It refers briefly to the main results and conclusions drawn from this work and could serve as an important source of information and communication between the different parties involved in Biodiversity...
The work of the consultants also included the organizing and holding of two workshops, one in Sao Tome, another in the autonomous region of Principe, in order to inform the public (divulgation) of the progress made towards achieving the objectives of the Convention.

The limitations of the directives suggest the presentation of various encrypted indicators; however, due to lack of monitoring and evaluation of the implementations of strategies and actions, we were unable to established progress indicators in relation to the Convention, in relation to its state and tendency on different levels.

APPENDIX II: Other fonts of information

We refer to various sources from which we extracted secondary information to draw up this report.

1- Bibliographical References

Bonfim, V (2007)- Relatório de implementação das acções da Convention (CDC). Sao Tome. Março 2007

Carvalho, J (2008) – Protecção de tartarugas marinhas. Seminário sobre o Turismo e a Education ambiental comunitário. Sao Tome, Julho 2008

Direcção da Pecuária (2008)- Situação da Pecuária em Sao Tome Principe. Estabelecimento de Referencia para PADP II. BAD/GRDSTP. Junho de 2008

NBSAP (2002)- Primeira Estratégia da Biodiversity: Strategies. . Ministério de Recursos Naturais e de Ambiente. RDSTP.

NBSAP (2004)- Estratégia National e Plano National de Biodiversity. Ministério de Recursos Naturais e de Ambiente. 152 pp. RDSTP.

NBSAP (2007)- 3º Relatório da Estratégia National e Plano National de Biodiversity. Ministério de Recursos Naturais e de Ambiente. RDSTP.
/guidelines.shtm

Programa do XX Governo Constitucional (2008)- Agricultura, Pescas e Desenvolvimento Rural. RDSTP. Sao Tome, Julho 2008

SCDB (sd) – Directives pour la preparation du Quatrieme rapppor National. Disponivél em www. Cbd.it/reportys

2- Acronyms and abbreviations

The Sources of secondary information present various acronyms mentioned below:

CITES – UN Convention on International Commerce of Wild Flora and Fauna near Extinction

CBD - Convention on Biological Diversity

COP- Conference of the Parties

NBSAP - National Strategy and Action Plan on Biodiversity of S.Tome and Principe

IEC – Information, Education, and Communication

NPRS – National Poverty Reduction Strategy

FAO – United Nations Organization for Food and Agriculture

MDGs - millennium development Goals

STP- Sao Tome and Principe

DRSTP – Democratic Republic of Sao Tome and Principe

RNICB - National Report on the Implementation of the Convention on Biodiversity

1-Plant Species

Table1 – Inventory of plants endemic to Sao Tome and Principe (excluding orchidaceae) Classified in alphabetical order per family name

OR: Ex= Exell (1973), ES=Espírito Santo, Fi= Figueiredo, IF= Inst. Floret, Li= Liberato (1973), SI= Silva, Wh=White, D: geographic distribuition. E= endemic to the island of the gulf of Guinea, S= Sao Tome, P= Principe, A= Anobom, B= Bioco

Family	*Latin Name*	Name	OR	D	Observations
Acanthaceae	*Brachystephanus*		Ex	ES	White Flowers
Acanthaceae	*Heteradelphia*			ES	Shrub, violet flowers
Acanthaceae	*Justicia thomensis*		Ex	ES	
Anisophylleaceae	*Anisophyllea cabole*	Pau caboré,	Es,	ES	Shrub, 3 m.
Apocynaceae	*Tabernaemontana sp. aff.*		Ex	EP	
Apocynaceae	*Tabernaemontana*	Cata d'obô	Ex	ES	Tall tre 15 m; White latex
Araliaceae	*Polycias quintasii*	Guêguê fasso,	Ex	ESP	Tree
Asclepiadaceae	*Marsdenia exellii*		Ex	ES	
Balsaminaceae	*Impatiens buccinalis*	Camarões	Ex	ES	
Balsaminaceae	*Impatiens manteroana*		Ex	EP	
Balsaminaceae	*Impatiens thomensis*		Ex	ES	
Begoniaceae	*Begonia baccata*	Fia boba	Ex	ES	High Plant 1,5 m; stem
Begoniaceae	*Begonia crateris*	Fia boba d'obo	Ex	ES	
Begoniaceae	*Begonia fusialata var.*			EP	
Begoniaceae	*Begonia loranthoides*			ESP	
Begoniaceae	*Begonia molleri*		Ex	ES	
Boraginaceae	*Ehretia scrobiculata*		Ex	EP	
Celastraceae	*Maytenus monodii Exell*		Ex	ES	
Commelinaceae	*Palisota pedicellata*		Ex	ESPA	Tall, white flower stem,2m;
Cyatheaceae	*Cyathea welwitschii*				Tree Fern
Cyperaceae	*Carex leptocladus*		Ex	ES	Heraceous species
Cyperaceae	*Cyperus sylvicola*		Ex	ES	Heraceous species
Cyperaceae	*Hypolytrum grande*		Ex	EP	Heraceous species
Cyperaceae	*Mapania ferruginea*		EX,	ESP	grass,50cm high
Dichapetalaceae	*Dichapetalum*	Melambo	Ex	ES	
Ericaceae	*Erica thomensis*	Urze	Ex	ES	underbush; 1m high
Euphorbiaceae	*Croton stellulifer*	Cubango,	EX,	ESP	Tree+/-30m;few branches
Euphorbiaceae	*Discoclaoxylon*	Quina nº 2	Ex,	ESP	Tree
Euphorbiaceae	*Drypetes glabra*	Mamon d'obô	Ex,	ES	Tree
Euphorbiaceae	*Drypetes henriquensii*	No-no, Mamon	Ex,	ES	Tree
Euphorbiaceae	*Erythrococca columnares*		Ex	EP	Tree
Euphorbiaceae	*Erythrococca molleri*	Coedano nº 2	Ex,	ES	Tall shrub 20m; fruit
Euphorbiaceae	*Grossera elongata*		Ex	EP	

Table 1.2 – Inventory of plants endemic to Sao Tome and Principe (excluding orchidaceae) Classified in alphabetical order per family name

OR: Ex= Exell (1973), ES=Espírito Santo, Fi= Figueiredo, IF= Inst. Floret, Li= Liberato (1973), SI= Silva, Wh=White, D: geographic distribuition. E= endemic to the island of the gulf of Guinea, S= Sao Tome, P= Principe, A= Anobom, B= Bioco

Family	*Latin Name*	Local name	OR	D	Observations
Euphorbiaceae	*Maesobotrya glabrata*		Ex	EP	Shrub or small tree, reddish
Euphorbiaceae	*Phyllathus physocarpus*		Ex	EP	Tree
Euphorbiaceae	*Thecacoris mannniana*	Pau fígado	Ex	ES	Small Tree
Euphorbiaceae	*Thecacoris membranacea*		Ex	ES	Tree, S1-24
Flacourtiaceae	*Casearia mannii*			ESP	
Flacourtiaceae	*Homalium henriquesii*	Quebra machado	Ex,	ES	Tree 10m high;greenish fl.
Hernandiaceae	*Hernandia beninensis*	Bungá, pau	Ex,	ESB	Tree
Leeaceae	*Leea tinctoria*	Celé-alé, Celé-	Ex,	ES	Shrub 2-3 m, orange fruit
Lobeliaceae	*Lobelia barnsii*		Ex	ES	Tall grass 2m; clusters of
Melastomataceae	*Calvoa confertifolia*			ES	
Melastomataceae	*Calvoa crassinoda*			ES	
Melastomataceae	*Calvoa grandifolia*		Ex	ESP	Tal grass 1 m; Rosaceae fl.
Melastomataceae	*Calvoa integrifolia*			ES	
Melastomataceae	*Calvoa sinuata*			EP	
Melastomataceae	*Tristemma litorale Benth.*			ES	
Melastomataceae	*Tristemma mauritianum*			ES	Liane, composite leaves,
Melastomataceae	*Tristemma mauritianum*			ES	
Meliaceae	*Trichilia grandifolia*	Cola de macaco	Ex	ES	
Moraceae	*Ficus chlamydocarpa*	Figo obato	Ex,	ES	Strangling fig, fruit 4cm diam.
Miristicaceae	*Staudtia pterocarpa*	Pau vermelho	ES,	ES	Tree 10-15m tall whole leaves
Ochnaceae	*Campylospermum vogelii*	Pau dumo	Ex	ESP	Shrub, yellow flowers
Ochnaceae	*Ouratea nutans*		Ex	EP	
Ochnaceae	*Rhabdophylllum*		Ex	ES	Tree
Oleaceae	*Jasminum thomense*		Ex	ES	Liana
Pandanaceae	*Pandanus thomensis*	Pau esteira	Ex	ES	Tree, long segmented leaves
Piperaceae	*Peperomia thomeana*		Ex	ES	grass
Podocarpaceae	*Podocarpus mannii*	Pinheiro de S.	Ex	ES	Tree 30 m; green male
Rhamnaceae	*Lasiodiscus rozeirae*		Ex	ES	
Rhizophoraceae	*Cassipourea glomerata*		Ex	ES	Tree
Rubiaceae	*Aidia quintasii*	Muindo	Ex	ES	Tree
Rubiaceae	*Aidia wattii*	Inhé muela	Ex	ES	
Rubiaceae	*Aulacocalyx pallens subsp*	Teia-teia pequena	Ex	ES	Tree, white flowers
Rubiaceae	*Belonophora coffeoides*		Ex	ES	
Rubiaceae	*Bertiera pedicellata*		Ex	ESP	Shrub 30 m; terminal, white
Rubiaceae	*Craterispermum*	Macambrará	Ex,	ESPA	Tree 6m, greenish-white
Rubiaceae	*Ecpoma stemiflorum*		Ex	ES	Underbush, white flowers.
Rubiaceae	*Lasianthus africanus*		Ex	ESP	Tree, coriaceous leaves,
Rubiaceae	*Mussaenda tenuiflora var.*		Ex	EP	Yellow flower Liana
Rubiaceae	*Mussaenda tenuiflora*		Ex	ES	White flower Liana
Rubiaceae	*Pauridiantha composii*		Ex	ES	Tree
Rubiaceae	*Pauridiantha insularis*		Ex	ES	Tree

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Table 1.3 – Inventory of plants endemic to Sao Tome and Principe (excluding orchidaceae) Classified in alphabetical order per family name

OR: Ex= Exell (1973), ES=Espírito Santo, Fi= Figueiredo, IF= Inst. Floret, Li= Liberato (1973),
SI= Silva, Wh=White, D: geographic distribuition. E= endemic to the island of the gulf of Guinea, S= Sao Tome, P= Principe, A= Anobom, B= Bioco

Family	Latin Name	Local name	OR	D	Observations
Rubiaceae	*Pavetta montícola*		Si,	ESA	Shrub 3m, white flowers
Rubiaceae	*Psychotria guerkeana*		Ex	ES	Small Tree
Rubiaceae	*Psychotria molleri*	Pau duno	Ex	ES	Shrub
Rubiaceae	*Psychotria nubicola*		Ex	ES	Shrub
Rubiaceae	*Psychotria principensis*	Café silvestre	Ex	EP	Small Tree
Rubiaceae	*Psychotria thomensis*		Ex	ES	Shrub
Rubiaceae	*Sabicea exellii*		EX	ES	Liana 5m; white flowers on
Rubiaceae	*Sabicea ingrata*		Ex	ES	Liana
Rubiaceae	*Sabicea ingrata var.*		Ex	ESA	Liana
Rubiaceae	*Sabicea thomensis sp.*			ES	Liana
Rubiaceae	*Tarenna nitiduloides*		Ex,	ES	Shrub
Sapindaceae	*Chytranthus mannii*	Pessegueiro	Ex	ESP	Shrub 6m. flower and fruit
Sapotaceae	*Chrysophylllum*		Ex	EP	Tree
Sapotaceae	*Chrysophylllum*		Ex	EP	Tree
Sapotaceae	*Vincentella densiflora*		Ex	ES	Tree
Scrophulariaceae	*Thunbergianthus quintasii*	Musa fria	Ex,	ES	Liana, Rosaceae flowers
Theaceae	*Balthasaria mannii*		Ex	ES	
Thymelaeceae	*Dicranolepis thomensis*		Ex	ES	Shrub or smallTree; flower
Thymelaeceae	*Peddiea thomensis*	Tchapo d'obô	Ex	ES	Shrub 5m. brownish-red
Ulmaceae	*Celtis pratlii*	Quaco branco	Ex	ESPA	Tree
Urticaceae	*Elastostema thomense*		Ex,	ES	Short grass, white flowers
Violaceae	*Pilea manniana*		Ex	ES	underbrush, small white
Violaceae	*Rinorea chevalieri*		Ex,	ES	Shrub 1,5 m. Frequente.
Violaceae	*Rinorea insularis*		Ex	EP	
Violaceae	*Rinorea thomensis*	Tesse	Ex,	ES	
Vitaceae	*Cissus curvipoda*		Ex	ES	
Zingiberaceae	*Renealmia grandifolia*		Ex	ES	Rhizomatic grass

Source: ECOFAC Inventory data adaptaded.

Table 2: Inventory of endemic pteridophytes on Sao Tome and Principe; Classified in alphabetical order per family name

Family Name	*Cientific Name*	S	P	D
Aspidiaceae	*Trioplophyllum principis*	0	1	E
Aspidiaceae	*Trioplophyllum fraternum var.*	0	1	E
Aspleniaceae		1	1	E
Aspleniaceae	*Asplenium exhaustum*	1	0	E
Aspleniaceae	*Asplenium megalura var. molleri*	1	0	E
Cyatheaceae	*Cyathea camerooniana var. currori*	0	1	E
Cyatheaceae	*Cyathea welwitschii*	1	0	E
Grammitaceae	*Grammitis molleri*	1	0	E
Grammitaceae	*Grammitis thomensis*	1	0	E
Selaginellaceae	*Selaginella mannii*	1	1	E
Selaginellaceae	*Selaginella monodii*	0	1	E
Thelypteridaceae		1	0	E
Thelypteridaceae		1	0	E

Source: Figueiredo Estrela 2002 – Pteridophyta of Sao Tome and Principe.

Table 3: Inventory of major industrial species on Sao Tome and Principe: Classification of families in alphabetical order

Family	***Cientific Name***	**Local name**	**Distribuition**
Anacardiaceae	*Pseudopondias microcarpa*	Zenzém	Secondary Forest
Anisophylleaceae	*Anisophyllea cabole*	Pau cabore, cabolé	Dense Forest
Arecaceae	*Elaeis guineensis*	Palmeira	Secondary Forest
Boraginaceae	*Cordia platythyrsa*	Tabaque	Secondary Forest
Caesalpinacee	*Albizia lebbeck*	Acacia	Secondary Forest
Caesalpinacee	*Albizzia molucana*	Acácia	Secondary Forest
Clusiaceae	*Symphonia globulifera*	Óleo barão, pau	Altitude Forest
Euphorbiaceae	*Bridelia stenocarpa*	Muindo	Secondary Forest
Euphorbiaceae	*Cleistanthus sp.*	Viro	Secondary Forest
Euphorbiaceae	*Hevea brasiliensis*	Borracha	Secondary Forest
Euphorbiaceae	*Margaritaria discoidea*	Pau-ferro	Secondary Forest
Euphorbiaceae	*Phyllanthus discoideus*	Pau-ferro	Secondary Forest
Euphorbiaceae	*Sapium ellipticum*	Pau-maria	Altitude Forest
Euphorbiaceae	*Scytopeatalum kamerunianum*	Vilo branco, Viro-	Altitude Forest
Euphorbiaceae	*Tetrorchidium didymostemon*	Pau mole, Branco, Pó	Secondary Forest
Euphorbiaceae	*Uapaca guineensis*	Nespla d'obô, mangue	Altitude Forest
Fabaceae	*Erythrina sp.*	Eritrina	Shade Forest
Flacourtiaceae	*Homalium henriquensii*	Quebra machado	Altitude Forest
Hypericaceae	*Harungana madagascariensis*	Pau sangue	Secondary Forest
Lauraceae	*Cynnamomum burmanni*	Canela brava	Secondary Forest
Meliaceae	*Carapa procera*	Gôgô	Shade Forest
Meliaceae	*Cedrela odorata*	Cedrela	Shade Forest
Meliaceae	*Trichilia grandifolia*	Cacau do mato, Cola-	Altitude Forest
Mimosaceae	*Pentaclethra macrophylla*	Muandim, Sicupira,	Agrarian-related
Mimosaceae	*Pentaclethra macrophylla*	Muandi	Shade Forest
Moraceae	*Artocarpus altilis*	Fruteira	Agrarian-related
Moraceae	*Artocarpus heterophyllus*	Jaqueira	Agrarian-related
Moraceae	*Artocarpus heterophyllus*	Jaqueira	Agrarian-related
Moraceae	*Clorophora excelsa*	Amoreira	Shade Forest
Moraceae	*Ficus mucuso*	Figo ploco, Figo porco	Secondary Forest
Moraceae	*Milicia excelsa*	Amoreira, molela	Agrarian-related
Myristicaceae	*Pycnanthus angolensis*	Pau caixão	Secondary Forest
Myristicaceae	*Staudtia pterocarpa*	Pau vermelho	Altitude Forest
Myrsinaceae	*Pycnanthus angolensis*	Pau Caixão	Secondary Forest
Myrtaceae	*Psydium guyava*	Goiabeira	Floresta secundaria
Myrtaceae	*Syzygium guineense*	Matchanzochi	Altitude Forest
Podocarpaceae	*Podocarpus mannii*	Pinheiro da terra,	Altitude Forest
Rubiaceae	*Canthium glabiflorum*	Nono	Altitude Forest
Rubiaceae	*Hymenodicton biafranum*	Pau claudina	Altitude Forest
Rubiaceae	*Pauridianha floribunda*	Nicolau	Altitude Forest
Rutaceae	*Fagara macrophylla*	Marapião	Shade Forest
Sapotaceae	*Gambeya africana*	Zamumo	Altitude Forest
Sapotaceae	*Gambeya albida*	Untueiro	Secondary Forest
Sapotaceae	*Mammea africana*	Magloso, Oba, Pau	Secondary Forest
Sapotaceae	*Manikara multinervis*	Azeitona	Secondary Forest
Sterculiaceae	*Theobroma cacao*	Cacaueiro	Shade Forest
Ulmaceae	*Celtis mildbreadii*	Pó capiton	Secondary Forest
Ulmaceae	*Celtis prantlii*	Quaco branco	Secondary Forest
Ulmaceae	*Tremna orientalis*	Pau cabra	Altitude Forest

Source: ECOFAC Inventory data adaptaded.

Table 4: Inventory of main alimentary species of Santomean flora: Classification by {Portuguese} alphabetical order of vernacular names.

Vernacular Name	Scientific Name
Avocado	*Persea amaricana*
Pineapple	*Ananas comosus*
Banana	*Musa sp.*
Ambarella	*Spondias cytherea*
Cashew	*Anacardium ocidentale*
Cinnamon	*Cinnamomum zeilanicum*
Carambola	*Averrhoa carambola*
Onion	*Allium cepa*
Coconut	*Cocos nucifera*
Cabbage	*Brassica oleracea*
Bean	*Vicia sp.*
Breadfuit	*Artocarpus altilis*
Guava	*Psidium guyava*
Grumichama	*Eugenia brasiliensis*
Yam	*Dioscorea sp.*
Jackfruit	*Artocartus heterophylla*
Lemon	*Citrus aurantium*
American nightshade	*Solanum americanum*
Manihot	*Manihot esculentun*
Mango	*Mangifera indica*
Eggplant	*Solanum macrocarpum*
Matabala	*Xanthosoma sp.*
Corn	*Zea maïs*
Strawberry	*Rubus rosifolius*
Oil palm	*Elaeis guineensis*
Papaya	*Carica papaia*
Pitanga	*Eugenia uniflora*
Peach	*Chytranthus mannii*
Pulped pepper	*Capsicum frutescans*
Safu	*Dacryodes edulis*
Tomato	*Licopersicum esculentun*

Source: ECOFAC Inventory data adaptaded.

Table 5: Main Medicinal species of Santomean flora: Classification in {Portuguese} alphabetical order of vernacular names.

Local Name	*Scientific Name*	Utilization	**Part Used**
Abobora		Dores de ouvido	
Alho	*Allium cepa*	Diarreia	
Alho d' obô	*Psychotria peduncularis*	Infecções	**Leaf**
Ananás	*Ananas comosus*	Abortos	
Arruda	*Ruta chapelensis*	Contra lombrigas	**Leaf infusion**
Bananeira	*Musa paradisiaca*	Diarreia	
Bengue	*Alchornea cordifolia*	Diarreia	**Leaf**
Cacueiro	*Theobroma cacao*	Paludismo	
Cajueiro	*Anacadium occidentale*	Diarreia	**Bark and roots**
Cana Macaco	*Costus giganteus*	Infecções renais	**Stem**
Capim- d'água	*Commelina difusa*	Problemas nos olhos	**Stem, leaf**
Caroceiro	*Terminalia catappa*	Diarreia	**bark**
Cata-grande	*Rauvolfia dichotoma*	Paludismo	**bark**
Cedrela	*Cedrela odorata*	Paludismo	**bark**
Chimon-coiá	*Lagenaria siceraria*	Reumatismo	**Fruit**
Coedano	*Cestrum laevigatum*	Contra a sarna	**Leaf**
Coleira	*Cola acuminata*	Problema de olhos e	**bark**
Eritrineira	*Erytrina sp.*	Contra hemorragia	**bark**
Fiá-alfabaca	*Pepromia pellucida*	Doenças venéreas	**Stem, Leaf and flower**
Fiá-budo	*Elephantopus mollis*	Diarreia	**Bark and roots**
Fiá-pleto	*Datura metel*	Reumatismo	**Leaf and flower**
Fiá-salaconta	*Canna indica*	Sarna	
Fiá-sanzom	*Momordica charantia*	Afrodisíaco, Aborto	**Leaf**
Figo-obata	*Ficus chlamydocarpa*	Diarreia	**bark**
Fissanjá	*Adenia cissampeloides*	Massagem	**Leaf**
Folha ponto	*Achyranthes aspera*	Contra hemorragia	**Leaf**
Folha-da-mina	*Bryophyllum pinnatum*	Pancadas (golpes)	**Leaf**
Goiabeira	*Psidium guajava*	Diarreia	**Bark and roots, tender**
Ipé	*Olea capensis*	Afrodisíaco	**Bark and roots**
Libô muncambú	*Vernonia amygdalina*	Paludismo	**Tender leaf**
Limão	*Citrus aurantium*	Paludismo	**Green fruit**
Macambrará	*Craterispermum*	Afrodisíaco	**Bark and roots**
Maioba	*Cassia ocidentalis*	Paludismo	**Bark and roots**
Mamoeiro	*Carica papaya*	Afrodisíaco	**Fruit**
Mamonó	*Ricinus communis*	Dores de ouvido	**Leaf**
Mangueira	*Mangifera indica*	Diarreia	**Bark and roots**
Maquequé	*Solanum macrocarpum*	Reumatismo	
Marapião	*Fagara macrophylla*	Dores de dente	**Bark**

Table 5.1: Main medicinal species of Santomean flora: Classification by {Portuguese} alphabetical order of vernacular names.

Nome vulgar	***Nome cientifico***	**Utilization**	**Parte utilizada**
Matabala	*Xanthosoma*	Dores de olho	Leaf
Matchanzoche	*Syzygium guineense*	Afrodísiaco	Bark and roots
Matruço	*Chenopodium*	Diarreia,Massagem,	Leaf, stem
Micocó	*Ocimum gratissimum*	Febres, Afrodisiaco	Leaf
Muandí	*Pentaclethra*	Reumatismo	Bark
Mucumblí	*Lannea welwitschii*	Rins, Pancada	Bark and roots, tender leaf
Muindo	*Bridelia micrantha*	Massagem	
Mussandá	*Ficus kamerunensis*	Dores de olho (conjuntivite	Bark and roots, tender leaf
Mutopa	*Maesa lanceolata*	Via urinária	Leaf and bark
Nicolau	*Pauridiantha floribunda*	Anemia	Leaf and bark
Olhadató	*Centella asiatica*	Dores de ouvido	
Palmeira-de-andim	*Elaeis guineensis*	Contra Sarna	Oil from seeds
Pau cabra	*Tremna orientalis*		Leaf
Pau-caixão	*Pycnanthus angolensis*	Dores de dente, Contra	Bark
Pau-óleo	*Santiria trimera*	Purgante	Bark
Pau-purga	*Croton dracnopsis*	Purgante	Bark
Pau-quina	*Cinchona sp.*	Paludismo, Pancada, Aborto	Bark
Pau-salá		Afrodísiaco	Leaf
Pau-sangue	*Harungana*	Reconstituinte	Bark
Pau-três	*Allophyllus africanus*	Afrodisíaco, Paludismo	Bark and roots
Pau-três	*Allophyllus grandifolius*	Dores da barriga	Bark and roots
Pimpenela	*Sechium edule*	Diarreia	Fruit
Pinincano	*Leonitis nepetifolia*	Dores de barriga	Leaf and flower
Selo-sum-zom-maia	*Erygium foetidum*	Dores de barriga	Leaf, tender stem
Tichile-blanco	*Drymaria cordata*	Diarreia	Leaf, tender stem
Ucuêtê	*Costus giganteus*	Reumatismo	Stem
Zagrimá		Afrodisíaco	

Source: ECOFAC Inventory data adaptaded.

Table 6 – Inventory of the main orchidophile species endemic to Sao Tome and Principe: classification in alphabetical order of the species
D: Distribuition **E**: Endemic **S**: Sao Tome **P**: Principe

Family	Species	D
Orchidaceae	Aerangis flexuosa	ES
Orchidaceae	Angraecopsis dolabriformis	ES
Orchidaceae	Angraecum astroarche	ES
Orchidaceae	Angraecum doratophyllum	ESP
Orchidaceae	Brachycorythis basifoliatta	ESP
Orchidaceae	Bulbophyllum lizae	ES
Orchidaceae	Bulbophyllum luciphilum	ES
Orchidaceae	Bulbophyllum mediocre	ESP
Orchidaceae	Calanthe sylvatica var geerinckiana	ES
Orchidaceae	Chamaeangis thomensis	ES
Orchidaceae	Chamaeangis vagans	EP
Orchidaceae	Cribbia pendula	ES
Orchidaceae	Cribbia thomensis	ES
Orchidaceae	Diaphanthe acuta	ES
Orchidaceae	Dioaphanthe brevifolia	ES
Orchidaceae	Diaphanthe papagayi	EP
Orchidaceae	Liparis rosseelii	ES
Orchidaceae	Orestias stelidostachia	ESP
Orchidaceae	Polystachya albescens s. principensis	EP
Orchidaceae	Polystachya biteuai	ES
Orchidaceae	Polystachya distichia	ES
Orchidaceae	Polystachya expensa	ES
Orchidaceae	Polystachya parviflora	ES
Orchidaceae	Polystachya ridleyi	ESA
Orchidaceae	Polystachya setifera	EP
Orchidaceae	Polystachya thomensis	ES
Orchidaceae	Trydactyle sp. A	ES
Orchidaceae	Trydactyle sp. B	EP
Orchidaceae	Trydactyle sp. C	ES

Source: Lejoly J. 1995- Suivi des programes d'etudu de la Biodiversite vegetale dans la zona ecologique de Sao Tome adaptados. (adapted follow-up studies of the vegetal Biodiversity in the ecological zone of Sao Tome)

Table 7 - Inventory of the main Ornamental species existant on S. Tome and Principe: classification in alphabetical ordem of family names

Family	Cientific Name	**Vernacular Name**
Acanthaceae	*Heteradelphia paulowihelmia*	Heteradelfia
Araceae	*Anthurium andreanum*	Antúrio
Balsaminaceae	*Impatiens buccinalis*	Camarões
Begoniaceae	*Begonia baccata*	Begónia, Folha-boba
Begoniaceae	*Begónia subalpestris*	Begónia-gigante
Cyatheaceae	*Cyathea mannii*	Feto gigante
Cyatheaceae	*Cyathea welwistchii*	Feto gigante
Dracaenaceae	*Dracaena arborea*	Pau-sabão
Dracaenaceae	*Dracaena laurentii*	Língua-de-sogra
Dracaenaceae	*Dracaena trisfasciata*	Língua-de-sogra
Ericaceae	*Phillipia thomensis*	Erica
Malvaceae	*Hibiscus rosa-sinensis*	Hibisco
Maranthaceae	*Iresini herbstii*	Coração-magoado
Melastomataceae	*Calvoa grandifolia*	Calvoa
Melastomataceae	*Tristemma mauritianum*	Tristema
Musaceae	*Heliconia rostrata*	Bico-de-papagaio
Nyctaginaceae	*Mirabilis jalapa*	Losa-bilança
Orchidaceae	*Cyrtorchis henriquensiana*	Fia-língua-de-vaca
Orquidaceae	*Calanthe sylvatica*	Calante
Orquidaceae	*Phaius mannii*	
Orquidaceae	*Maniella gustavii*	
Orquidaceae	*Nervilia bicarinata*	
Orquidaceae	*Solenangis clavata*	
Orquidaceae	*Bulbophyllum*	
Pandanaceae	*Pandanus thomensis*	Pau-esteira
Rosaceae	*Rosa sp.*	Roseira
Scrophulariaceae	*Thunbergianthus quintasii*	Musa-fria
Zingiberaceae	*Renealmia grandiflora*	Renealmia
Zingiberaceae	*Nicolaia elatior*	Rosa-porcelana
Zingiberaceae	*Hedychium coronarium*	

Source: NBSAP(2004)

2- Fauna of Sao Tome and Principe

Table 8 – Inventory of the main avian species endemic to the Santomean Archipelago

Common Name	Scientific Name
SAO TOME	
Kitoli	*Otus hartlaubi*
Enjoló	*Neospiza concolor*
Olho-grosso	*Speirops lugubris*
Camussela	*Ploceus grandis*
Selele-mangotchi	*Dreptes thomensis*
Papafigo	*Oriolus crassirostris*
Sêlele	*Nesctarinia newtonii*
Tchin-tchin-xolo	*Thomasophantes sanctithomae*
Truquí	*Prinia molleri*
Tome-gága	*Terpsiphone atrochalybeia*
Cessa	*Treron sanctithomae*
Pombo-do-mato	*Columba thomensis*
PRINCIPE	
Tordo	*Turdus olivaceofuscus*
Estorninho	*Lamprotornis ornatus*
Merlo	*Ploceus princeps*
Chibi	*Nectarinia hartaubii*
Tchiliquito	*Speirops leucophaeus*
Tchili-tchili	*Zosterops ficedulinus*
Chibi-fixa	*Horizorhinus dohrni*
Rabo-de-peixe	*Dicrurus modestus*
Rola	*Columba malherbii*
Chota café	*Serinus rufrobrunneus*

Table 9 - Inventory of threatened animal species in S.Tome and Principe

Scientific Name	Class	Kind	Family	Common Name	Degree of
Paradxa thomensis	Gastropoda	Neogastropoda	Buccinidae	Mollusk	V
Chelonia mydas	Reptilia	Testudines	Cheloniidae	Ambo turtle	E
Eretmochelys	Reptilia	Testudines	Cheloniidae	Sarda turtle	E
Lepydochelys	Reptilia	Testudines	Cheloniidae	Oliver Ridley turtle	E
Columba	Birds	Columbiformes	Columbiidae	Maroon pigeon	V
Dermochelys	Reptilia	Testudines	Dermochelyidae	Ambulancia turtle	E
Globanus sp.	Insecta		Diplopoda	Millipede	K
Neospiza concolor	Birds		Fringilidae	Grosbeak	E
Poliospiza	Birds		Fringilidae	Seedeater	E
Coeliades bocagii	Insecta	Lepidoptera	Hesperiidae	S.Tome butterfly	V
Lanius newtoni	Birds	Passeriformes	Laniidae	Fiscal	E
Trithemis nigra	Insecta	Odonata	Libellulidae	Principe dragonfly	I
Epamera bellina	Insecta		Lycaenidae		EX
Leptotes terrenus	Insecta		Lycaenidae		I
Chilades	Insecta		Lycaenidae		I
Tadarides	Mammals	Chiroptera	Molossidae	bat	I
Amaurocichla	Birds		Muscicapidae		V
Nectarinia	Birds		Nectariniidae	S.Tome mangotchi	R
Neritina manoeli	Gastropoda	Archaeogastropoda	Neretidae	Principe sweet-water	E
Charaxes	Insecta		Nymphalidae		EX
Pseudacrea gamae	Insecta		Nymphalidae		I
Oriolus	Birds		Oriolidae	Sao Tome oriole	R
Graphium leonidas	Insecta		Papilionidae		E
Graphium leonidas	Insecta		Papilionidae		E
Pterodroma	Birds	Procellariformes	Procellaridae		E
Psittacus erithacus	Birds	Psittaciformes	Psittacidae	Parrot	V
Myonycteris			Pteropodidae	Guémbu	V
Teinostoma	Gastropoda	Archaeogastropoda	Skeneidae	Principe sea mollusk	V
Teinostoma	Gastropoda	Archaeogastropoda	Skeneidae	Principe sea mollusk	V
Crocidura	Mammals	insectívora	Soricidae	Shrew	K
Crocidura poensis	Mammals	insectívora	Soricidae	Shrew	K
Otus hartlaubi	Birds	Strigiformes	Strigidae	Kitoli	R
Sula leucogaster	Birds	Pelecaniformes	Sulidae	Brown booby	E
Bostrychia bocagei	Birds	Ciconiformes	Threskiornithidae	S.Tome dwarf olive ibis	E
Bostrychia	Birds	Ciconiformes	Threskiornithidae	Principe olive ibis	E
Speirops	Birds		Zosteropidae	Principe Tchiliquito	R
Zosterops	Birds		Zosteropidae	Principe Tchili-tchili	E
Zosterops	Birds		Zosteropidae	S.Tome Tchili-tchili	R

(Ex=extinct; E= endangered; V=vulnerable; R=Rare; I=Indeterminate K=insufficiently known; CT=Commercialy threatened)

Source: Red List of endangered Animals of STP

Table 10 – Inventory of Inland Water Fauna of S.Tome and Principe

Classification according to state of resident, indigenous or endemic species

Family	Portuguese Name	STP Name	Cientific Name
	Codornizão-aficano	-	*Crecopsis egregia*
**Columbidae	Pombo marreta	Pombo, Pombo-do-mato	
*Laridae	Gaivina-preta	-	*Chilidonias niger*
“	Andorinha	-	*Hirundo rustica*
“	-	-	*Amaurocichla bocagei*
“Threskiornithidae	Íbis-de-Sao Tome	Galinhola	*Bostrychia bocagei*
Accipitridae	Milhafre-preto, rabo-de-	Falcão	*Milus migrans*
Alcedinidae	Guarda-rios, Pica-peixinho-	Conóbia, Pica-peixe	*Alcedo cristata thomensis*
Alcedinidae	Guarda-rios, Pica-peixinho-	Conóbia, Pica-peixe	*Alcedo leucogaster nais*
Alcedinidae	Pica-peixe-de-peito-azul	Chau-chau, Chó-chó	*Halcyon malimbica dryas*
Alcedinidae	Pica-peixe-malhado	-	*Ceryle rudis*
Anatidae	Pato-de-carúncula, Pato-de-	-	*Sarkidiornis melanotos*
Apodidae	Ferreiro-espinhoso, rabo-	Andorinha	*Zoonavena thomensis*
Apodidae	Guincho-da-Europa	-	*Apus apus*
Apodidae	Guincho-pequeno	Andorinha	*Apus affinis hannermani*
Ardeidae	Garcenho-pequeno-africano	-	*Ixobrychus minutus*
Ardeidae	Garça-caranguejeira, Papa-		*Ardeola ralloides*
Ardeidae	Garça; Garça-boieira,	Garça	*Bubulcus ibis*
Ardeidae	Garça-de-cabeça-negra	Chuchu, Tchongo,	*Butorides striatus*
Ardeidae	Garça-preta, Garça-ardósia	-	*Egretta ardesiaca*
Ardeidae	Egreta-pequena, Garça-	-	*Egretta garzetta*
Ardeidae	Garça-marinha	Garça	*Egretta gularis*
Ardeidae	Garça-purpúrea, Garça-	-	*Ardea purpurea*
Ardeidae	Garça-real, Garça-cinzenta	-	*Ardea cinerea*
Charadriidae	Borrelho-de-coleira	-	*Charadrius hiaticula*
Charadriidae	Tarambola-cinzenta	-	*Pluvialis squatarola*
Ciconiidae	Flamengo, Falso-flamingo	-	*Mycteria ibis*
Columbidae	Pombo-de-nuca-bronzeada	Rola, Lola	*Columba malherbii*
Columbidae	Pomba-preta	Munquê, Muquê,	*Aplopelia larvata simplex,*
Cuculidae	Cuco-jacobino	-	
Glareolidae	Perdiz-do-mar, Pratincola-	-	*Glareola nordmanni*
Hirudinae	-	-	*Riparia cincta*
Nectariniidae	Beija-flor-do-Principe	Chibi, Chibi-barbeiro,	*Nectarinia hartlaubii*
Phalacrocoracidae	Corvo marinho-africano	Pato-marinho, Corvo	*Phalacrocorax africanus*
Phoenicopteridae	Flamingo-menor	-	*Phoeniconaias minor*
Psittacidae	Periquito-de-bico-vermelho	Periquito	*Agapornis pullarius*
Rallidae	Frango-d’água	-	*Rallus caerulescens*
Rallidae	Sultana-preta, galinha-	-	*Porphyrula alleni*
Rallidae	Galinha-d’água-africana,	Galinha d’água	*Gallinula chloropus*
Rallidae	Galinha-d’água-pequena,	-	*Gallinula angulata*
Scolopacidae	Fuselo, Parda	-	*Limosa lapponica*
Scolopacidae	Meio-maçarico, Coco-	-	*Numenius phaeopus*
Scolopacidae	Pássaro-bique-bique	-	*Tringa ochropus*
Scolopacidae	Maçarico-silvestre	-	*Tringa glareola*
Scolopacidae	Maçarico-das-rochas	-	*Actitis hypoleucos*
Scolopacidae	Pilrito-de-rabadilha-branca	-	*Calidris ferruginea*
Strigidae	Mocho-de-Sao-Tome	Kitoli	*Otus hartlaubi*
Sylviidae	-	Truqui, Trqué, Bate-asas	*Prinia molleri*
Threskiornithidae	Íbis-do-Principe	Diógo, Corvão	*Bostrychia olivacea*
Timaliidae	Rouxinol-do-Principe	Tchibi-fixa	*Horizorhinus dohrni*
Turdidae	-	Tordo	*Turdus olivaceofuscus*

Table 11- Inventory of protected bird spcies in the Santomean arhipelago

Kind	Family	Scientific Name	Vernacular Name
Ciconiformes	Threskiornithidae	*Bostrychia*	Galinhola ou Ibis do
Ciconiformes	Threskiornithidae	*Bostrychia*	Galinhola de S. Tome
Columbiformes	Columbidae	*Columba*	Pombo do Mato (S.
Procellariformis	Procellaridae	*Pterodroma*	Océanito de castro
Pelecaniformes	Sulidae	*Sula leucogaster*	Pato marinho
Psittaciformes	Psittacidae	*Psittacus*	Papaagio cinzento do
Strigiformes	Strigidae	*Otus hartlaubi*	Kitoli de S. Tome
Passeriformes	Laniidae	*Lanius newtoni*	Fiscal de s. Tome
Passeriformes	Muscicapidae	*Amaurocichla*	Nasica de bocage
Passeriformes	Turdidae Turdidae	*Turdus*	Tordo
Passeriformes	Nectariniidae	*Nectarina*	Selelé-mangotchi
Passeriformes	Zosteropidae	*Speirops*	Tchliquito
Passeriformes	Zosteropidae	*Zosteros*	Tchili-tchili do
Passeriformes	Zosteropidae	*Zosteros*	Tchili-tchili de S.
Passeriformes	Fringillidae	*Neospzia*	Pardal de S. Tome
Passeriformes	Fringillidae	*Polisospzia*	Chotacafé
Passeriformes	Oriolidae	*Oriolus*	Papafigo de S. Tome

Table 12- Families of batrachians or amphibians in S. Tome and Principe

Family	Kind	Species	Name	ST	P	R
Caeciliaidae	*Schistometopum*	*Schistometopum ephele*	cecili	1	0	0
		Schistometopum thomense	cecili	1	0	1
Hyperoliidae	*Leptopelis*	*Leptopelis palmatus*	raine	0	1	0
	Nesionixalus	*Nesionixalus molleri*	raine	1	0	0
	Nesionixalus	*Nesionixalus thomensis*	raine	1	0	0
Ranidae	*Ptychadena*	*Ptychadena newtoni*	frog	1	0	0
	Rhynobatrachus	*Rhynobatrachus dispar*	frog	1	1	1

Source: NBSAP – Forests data 2002 adapted

Table 13: Inventory of marine ichthyofauna of S. Tome and Principe

	List of Large pelagic vertebrates	
N.º	Designation	Obs
1	*Istioforidae* (Atlantic Sailfish)	
2	*Xipiidae* (Wahoo)	
3	Scombridae (Yellowfin Tuna, Atlantic Blue runner and Olho Grosso)	
4	Great tunids	Migratory Species
	List of small pelagic vertebrates	
1	*Clupeidae* (sardines)	
2	*Scombridae* (small tunids, Little Tunny, mackerel scad,saw-fish	
3	*Carangidae* (Blue runner,olho grosso,sêlêlê,crevalle Jack,Horse-mackerel, osso mole)	
4	*Mugilidae* (grey mullet)	
5	*Gobiidae* (small fish)	
6	*Exocetidae* (flying fish)	
7	*Moreidae* (Balão Halfbeak)	
	List of Demersal fish	
1	*Serranidade*(Black Grouper,Dungat Grouper,Cod and greater Soap fish)	
2	*Holocentridae* (Squirre Fish)	
3	*Scianidae* (Meagre)	
4	*Litjanidae* (Large-eye dentex, Golden African Snapper and blue spotted	
5	*Sparidae* (Atlantic Rubyfish, glasseye, Red Pandora)	
6	*Moreidae* (Moray)	

Source: Data adapted from NBSAP – Coastal and Marine 2002

Table 13.1- Inventory of the most captured commercial fish species in Sao Tome and Principe

Family	**Scientific Name**	**Vernacular Name**
	Tylsurus acus rafale	Agulha quio/Zanve
	Sardinella	
ACANTHURIDAE	*Prionuris*	Asno cota
ALBULIDAE	*Albula vulpes*	Colepinha malabo
BALISTIDAE	*Balistes punctatus*	Asno
BELONIDAE	*Ablennes hians*	Agulha espada
BOTHIDAE	*Bothus quibei*	Linguado
BRANCHIOSTEGIODAE	*Branchiostegus*	Peixe-cabra
CARANGIDAE	*Elagatis bpinnulata*	Alada
CARANGIDAE	*Trachinotus ovatus*	Bebeca
CARANGIDAE	*Caranx crysos*	Bonito
CARANGIDAE	*Decapterus*	Carapau
CARANGIDAE	*Selar*	Carapau
CARANGIDAE		Cavala
CARANGIDAE	*Caranx hippos*	Corcovado
CARANGIDAE	*Urapsis secunda (*	Osso mole
CARANGIDAE	*Blepharis crinitus*	Pata Pata
CARANGIDAE	*Selene dorsalis*	Pata Pata
CARANGIDAE	*Caranx hippos*	Peixe olho grosso
CLUPEIDAE	*Sardinela aurita*	Longo
CLUPEIDAE	*Sardinella*	
CORYPHAENIDAE	*Coriphaena e*	Colombeta
CYNOGLOSSIDAE	*Cynoglossus*	Linguado

Family	Scientific Name	Vernacular Name
DACTYLOPTERIDAE	*Dactylopterus*	Concon
DREPANIDAE	*Drepane Africana*	Cozinheiro
ECHENEIDAE	*Remora brachyptera*	Peixe pilota
ELOPIDAE	*Elops senegalensis*	Colepinhâ balabo
EMMELICHTHYIDAE	*Erythrocles monodi*	
EXOCETIDAE	*Cypselurus*	
FISTULARIDAE	*Fistularia petimpa*	Agulha buzina
GERRIDAE	*Eucinostomus*	Parente
GRAMMISTIDAE	*Rypticus saponaceus*	Peixe sabão
HEMIRAMPHIDAE	*Hemiramphus balão*	Maxipombo
HOLOCENTRIDAE	*Holocentrus*	Caqui
HOLOCENTRIDAE	*Sargocentron*	Caqui (mãe)
HOLOCENTRIDAE	*Myripristis jacobeus*	Mãe de caqui
ISTIOPHORIDAE		Peixe Andala
KUHLIIDAE	*Parakuhlia*	Bujigo
HAEMULIDAE	*Pomadasys peroteti*	
KYPHOSIDAE	*Kyphosus incisor*	
LABRIDAE	*Bodianus speciosus*	Bulhão
LABRIDAE	*Xirichthys novacula*	
LOBOTIDAE	*Lobotes*	

Family	Scientific Name	Vernacular Name
LUTJANIDAE	*Apsilus fuscus*	Peixe novo
LUTJANIDAE	*Lutjanus fulgens*	
MONACANTHIDAE	*Cantherines sp.*	Asno buçeta
MONACANTHIDAE	*Aluterus sp.*	Asno de fundo
MUGILIDAE	*Mugil curema*	
MULLIDAE	*Pseudupaeneus*	
MURAENIDAE	*Lycodontis afer*	Moreia
OPHICHTHIDAE	*Pseudomyrophyis ou*	Moreia
POLYNEMIDAE	*Galeoides*	Barbudo
POMACANTHIDAE	*Abudefduf marginatus*	
POMACANTHIDAE	*Holocanthus africanus*	
PRIACANTHIDAE	*Heteropriacanthus*	Peixe sol
SCARIDAE	*Sparisoma rubripinne*	Bulhão Congo
SCIAENIDAE	*Pseudotolithus*	
SCOMBRIDAE	*Thunnus obesus*	Atum flogo
SCOMBRIDAE	*Katsuwonus pelamis*	Atum judeo
SCOMBRIDAE	*Thunnus albacares*	Atum oledê
SCOMBRIDAE	*Auxis thazard*	Fulu Fulu
SCOMBRIDAE	*Euthynnus alletteratus*	Fulu Fulu
SCOMBRIDAE	*Acanthocybium*	Peixe fumo
SCOMBRIDAE	*Scomberomorus tritor*	Peixe-serra
SCORPAENIDAE	*Pontinus kuhlii*	Canga
SCORPAENIDAE	*Scorpaena laevis*	Come mole
SERRANIDAE	*Epinephelus aeneus*	Bacalhau

Family	Scientific Name	Vernacular Name
SERRANIDAE	*Epinephelus Sp.*	Badejo
SERRANIDAE	*Epinephelus goreensis*	Badejo branco
SERRANIDAE	*Cephalopholis*	Bôbô quema
SERRANIDAE	*Anthias anthias*	Capitão
SERRANIDAE		Cherne
SERRANIDAE	*Cephalopholis nigri (*	Cota uê /Cota oyo
SERRANIDAE	*Epinephelus*	Garoupa
SERRANIDAE	*Paranthias furcifer*	Mulato/ Bala Bala
SPARIDAE	*Lethrinus atlanticus*	Bica
SPARIDAE	*Bops boops*	Bonga
SPARIDAE		Cachucho (vermelho)
SPARIDAE	*Pagellus belottii*	Malagueta

SPARIDAE	*Dentex congoensis*	Mamaminha
SPARIDAE	*Pagrus caeruleostictus*	Pargo
SPARIDAE	*Dentex congoensis*	
SPARIDAE	*Dentex macrophtlmus*	
SPHYRAENIDAE	*Sphyraena barracuda*	Barracuda
SPHYRAENIDAE	*Sphyraena sphyarena*	Pescada
TETRAODONTIDAE	*Lagocephalus*	Coelho
URANOSCOPIDAE	*Uranoscopus polli*	Lenha (rainha)

Source: Data adapted from NBSAP – Coastal and Marine 2002

Table 13.2- Inventory of the main Crustaceans of S. Tome and Principe

Class	**Order**	**Family**	**Scienteific Name**	**Vernacular Name**
Gasterópodes		Buccinidae	*Buccinum sp.*	Búzio-do-mar
Pelecípodes		Veneridae	*Vénus spp.*	Ameijoa
Pelecípodes	Ostreides		*Ostrea spp.*	Ostra
Pelecípodes	Ostreides		*Crassostrea*	Ostra
Pelecípodes	Mytilides		*Lithodomus*	Canivete
Cefalópodes	?	Octopodes ?	*Octupus sp.*	Polvo
Cefalópodes	?	Decapodes?	*Sepia sp.*	Choco
Cefalópodes	?	Decapodes?	*Ommastrephes sp.*	Lula
Cefalópodes	?	Decapodes?	*Ommastrephes sp.*	Calamares
Gasterópodes	Archaeogastropoda	Neretidae	*Neretina afra*	Caramuso
Gasterópodes	Archaeogastropoda	Neretidae	*Neretina manoeli*	Molusco de Água
Gasterópodes	Archaeogastropoda	Skenediae	*Teinostoma fernandense*	Molusco marinho (P)
Gasterópodes	Archaeogastropoda	Skenediae	*Teinostoma funiculatum*	
Gasterópodes	Neogasteropoda	Buccinidade	*Paradoxa thomensis*	Molusco marinho
Gasterópodes	Neogasteropoda	Buccinidade	*Paradoxa confirmata*	Molusco marinho
?		?	*Tropidorissola*	
Gasterópodes	Neogasteropoda	Marginellidae	*Marginella melvilli*	Molusco marinho
Gasterópodes	Neogasteropoda	Marginellidae	*Marginella liparozona*	Molusco marinho

Class	**Order**	**Family**	**Scienteific Name**	**Vernacular Name**
Gasterópodes	Neogasteropoda	Marginellidae	*Marginella charlmersi*	Molusco marinho
Gasterópodes	Neogasteropoda	Marginellidae	*Marginella gemma*	Molusco marinho (P)
Gasterópodes	Neogasteropoda	Marginellidae	*Volvarina insulana*	Molusco marinho
	Neogasteropoda	Marginellidae	*Granulina parilis*	Molusco marinho
Gasterópodes	Neogasteropoda	Marginellidae	*Cysticus qutta*	Molusco marinho
Gasterópodes	Neogasteropoda	Marginellidae	*Cysticus josephyinae*	Molusco marinho (P)
Gasterópodes	Neogasteropoda	Marginellidae	*Gibberula modica*	Molusco marinho
Gasterópodes	Neogasteropoda	Marginellidae	*Gibberula cucullata*	Molusco marinho
Gasterópodes	Neogasteropoda	Marginellidae	*Gibberula puntilun*	Molusco marinho
Gasterópodes	Neogasteropoda	Muricidae	*Muricopsis mariangelae*	Molusco marinho
Gasterópodes	Neogasteropoda	Muricidae	*Muricopsis mariangelae*	Molusco marinho
Gasterópodes	Neogasteropoda	Muricidae	*Muricopsis matilae*	Molusco marinho
Gasterópodes	Neogasteropoda	Muricidae	*Muricopsis principensis*	Molusco marinho (P)
Gasterópodes	Neogasteropoda	Turridae	*Scaevatula pellisserpentis*	Molusco marinho
Gasterópodes	Neogasteropoda	Turridae	*Scaevatula amancioi*	Molusco marinho (P)
Gasterópodes	Neogasteropoda	Turridae	*Cassispira sacerdotalis*	Molusco marinho
Gasterópodes	Neogasteropoda	Turridae	*Agathothoma finalis*	Molusco marinho
Gasterópodes	Stylommatophora	Thrrophorellidae	*Thyrophorella thomensis*	Molusco terrestre
Gasterópodes	Stylommatophora	Coeliaxidae	*Pyrgina umbilicata*	Molusco terrestre
Gasterópodes	Stylommatophora	Coeliaxidae	*Thomea newtoni*	Molusco terrestre
Gasterópodes	Stylommatophora	Achatinidae	*Archachatina bicarinata*	Molusco terrestre
?	?	?	Bulinus forskalli	?
?	?	?	Schistosoma intercalatum	?

Table- **14- Inventory of main turtle species of S. Tome and Principe**

Class	Order	Family	Scienteific Name	Vernacular Name
Reptilia	Testudines	Cheloniidae	*Chelonias mydas*	Ambó ou mão branca
Reptilia	Testudines	Cheloniidae	*Carreta carreta*	Cabeça Grande ou Tartaruga Vermelha
Reptilia	Testudines	Cheloniidae	*Lepidochelys olivacea*	Tartaruga bastarda, Tatô
Reptilia	Testudines	Cheloniidae	*Dermochelys coriacea*	Tartaruga Ambulância

Source: Data adapted from NBSAP – Coastal and Marine 2002

Table- **15- Inventory of main Cetacea species of S. Tome and Principe**

List of Cetácea in S.Tome and Principe

Order	Family	Scienteific Name	Vernacular Name
Cetáceos	Mysticetes	*Balaenoptera musculus*	Blue whale
Cetáceos	Mysticetes	*Balaenoptera borealis*	Blue whale
Cetáceos	Mysticetes	*Balaenoptera acurostrata*	Blue whale
Cetáceos	Mysticetes		Blue whale
Cetáceos	Mysticetes	*Balaenoptera plvsalus*	Blue whale
Cetáceos	Mysticetes	*Balaenoptera nodosa*	Hunchback whale
Cetáceos	Odontocetes	*Delphinus delphis*	Dolphin

Source: Data adapted from NBSAP – Coastal and Marine 2002

Table 16- Evaluation of the fulfilment of objectives of the Biodiversity Plan according to Strategical Points

Strategical Points (1st) Report)	2nd Report	3rd Report
The conservation of the marine and coastal ecosystem		
Coastal Zone planning	Nothing to be reported	Nothing to be reported
Awareness Education of the population living in the coastal areas	Continues to be mentioned, which could mean that no significant progress has been made	Lack of continuity of the campaigns The capture of these animals is verified, but to a lesser extent
Monitoring of action campaigns for the protection and conservation of coastal areas	Continues to be mentioned, which could mean that no significant progress has been made	
Studies on Halieutic resources	Continues to be mentioned, which means that no studies have been made	
Creation of a National Marine Park	Continues to be mentioned, which means that the Marine Park was not created	
Sustainable management of the Exclusive Economic zone	Continues to be mentioned, which means that significant steps were not taken in relation to the management process	
Protection of sea turtles	This action is also mentioned which could indicate that significant progress was not made	
Reinforcement of institutional, intersectorial actions	Continues to be mentioned, which means that not enough progress was made	

Source: NBSAP (2002), NBSAP (2004) e NBSAP (2007)

Table 16.1 - Evaluation of the fulfilment of objectives of the Biodiversity Plan according to Strategical Points

The Conservation of the inland water ecosystem (1st Report)	**2nd Report**	**3rd Report**
Preparation of studies on the fauna of inland waters	Continues to be mentioned, which means that these studies were not carried out	Nothing to be reported
Preparation of the management plan of the swamps	Continues to be mentioned, which means that this report was not drawn up	Nothing to be reported
Creation of protected areas in the Wet Ecosystems	Continues to be mentioned, which means that the protected areas had not yet been created	The implementation of the next Management Plan for the Obô Natural Park, may enhance the function of the Garden and of the Herbarium in ecotourism activities
Strengthening of intersectorial activities	Continues to be mentioned, which means that there was not enough progress	Notes the need to global strengthening

Source: NBSAP (2002), NBSAP (2004) e NBSAP (2007)

Table 16.2 - Evaluation of the fulfilment of objectives of the Biodiversity Plan according to Strategical Points

Forestry Conservation **1st Report**	**2nd Report**	**3rd Report**
Sensitization of the population living in the vicinity of protected areas	Continues to be mentioned, which means that not enough progress was made	Nothing to be reported
Creation of an arboretum	Continues to be mentioned, which means that this arboretum was not created	Nothing to be reported
Perpetuation of coherent policies and funding for protected areas	Continues to be mentioned, which means that there was no significant progress made	Creation of dynamic mechanisms to generate sustainable financing in order to implement the programmes of conservation of the natural resources and Biodiversity.
Reforestation of protected areas	Continues to be mentioned, which means that no significant progress has been made	Testing of the introduction of imported fast growing species of trees for the use of fuel and other normal uses
Scientific studies on the taxonomy and ecology of exploited species	Continues to be mentioned, which means that the studies were not carried out	Nothing to be reported
Popularization of appropriate techniques for the use of plants for medicinal purposes	Continues to be mentioned	Nothing to be reported
Cultivation and sustainable use of medicinal plants	Continues to be mentioned	Nothing to be reported
Monitoring activities related to hunting of endemic species	Continues to be mentioned because the surveillance was not carried out	Nothing to be reported
Protection of breeding and nesting areas of endemic species	Continues to be mentioned because there has not been significant progress	Nothing to be reported
Proper management of tree species of commercial value	Continues to be mentioned because no advance was registered in relation to this matter	The necessity is referred to
Structuring and operation of ecotourism	Continues to be mentioned because no progress was registered	Nothing
Study of ornamental species and their recovery	Continues to be mentioned, which means that the study was not done	Describes the species and their importance

Study of species used in the manufacture of handicrafts and their multiplication	Continues to be mentioned, which means that the study was not done	Nothing to be reported

Source: NBSAP (2002), NBSAP (2004) e NBSAP (2007)

Table 16.3 - Evaluation of the fulfilment of objectives of the Biodiversity Plan according to Strategical Points

Agrarian Ecosystems (1st Report)	**2nd Report**	**3rd Report**
Inventory of endangered varieties	Mentioned because the inventory was not drawn up	Nothing to be reported
Establishment of a national collection of spontaneous fruit species for their preservation and sustainable use	Mentioned because these actions were not carried out	Nothing to be reported
Information, education and communication aimed at technical staff and farmers on the Biodiversity and sustainable management of resources	Continues to be mentioned, which means that no significant progress has been made	Nothing to be reported
Stimulation of the organic production of cocoa and other agricultural products for export	Mentioned because this stimulation had not yet been carried out	The encouragement of organic farming in the production of cocoa is a strong point of this sector.
Promotion of a research centre intended to undertake further research on biological control methods against pests and diseases	Mentioned because this centre had not yet been created	Nothing to be reported
Promotion of food and fruit crops to ensure food security	Mentioned because no significant progress had been registered in this matter	Mentioned
Creation of a livestock development Research Centre	Mentioned because this centre had not yet been created	Nothing to be reported
Fostering the creation of common animal species and the increase of the sheep population	Mentioned because no significant progress has been made	Nothing to be reported
The multiplication and better control over animals for slaughter for human consumption	Mentioned because no significant progress has been made	Nothing to be reported
Establishment of processing plants	Mentioned because these units had not yet been created	Nothing to be reported

Source: NBSAP (2002), NBSAP (2004) e NBSAP (2007)

Table 16.4 - Evaluation of the fulfilment of objectives of the Biodiversity Plan according to Strategical Points

Main Strategy for the Strengthening of Institutional and Legal Framework (1st Report)	**2nd Report**	**3rd Report**
Strengthening of intersectorial actions of the various state institutions in the field of Biodiversity	Mentioned because the set objectives had not yet been attained	Strengthening of the institutional and human capacities of ministries and directorates aimed at the conservation and sustainable use of natural resources
Training of qualified personnel	Mentioned because almost nothing was done (zoos, botanic, ecologists…)	Lack of qualified manpower
Drafting and approval of the Natural Park management Plan	Mentioned because the plan had not yet been elaborated and approved	Preparation of the Management Plan for the Obô Natural parks of Sao Tome and Principe.
Development of a program for the technical development in Agro-forestry, botany and Pharmacopoeia	Mentioned because this improvement programme had not yet been elaborated	Nothing to be reported
Adoption and implementation of the National Plan for Forestry Development	Mentioned because the plan had not yet been approved and implemented	Nothing to be reported
Approval, publication and implementation of the Natural Park Law	Mentioned because the law ruling the Park had not yet been approved and published	Law 06/2006, establishing the Obo Natural Park of Sao Tome (law approved but not implemented).
Approval, publication and implementation of the law regulating the capture and sale of sea turtles and their products	Mentioned because the plan had not yet been approved and implemented	Decree-Law on the Conservation of Sea Turtles (law approved but not implemented).
Approval, publication and implementation of the law regulating hunting	Mentioned because the plan had not yet been approved and implemented	Hunting law (law approved but not implemented).
Elaboration of laws that incorporate fair equitable sharing	Mentioned because these laws had not yet been approved	Stresses the importance of sharing

Table 16.5 - Evaluation of the fulfilment of objectives of the Biodiversity Plan according to Strategical Points

Main Strategy for the Strengthening of Institutional and Legal Framework (1st Report)	**2nd Report**	**3rd Report**
Promotion of protection infrastructures; Promotion of community management of the biological resources	Continues to be mentioned because these infrastructures had not yet been created	The Involvement of local communities, the enhancement of popular knowledge and traditional practices in the utilization of water, soil, fauna, flora;
Preparation, approval and implementation of the Livestock Code	Continues to be mentioned because this code had not yet been prepared, approved or implemented	Nothing to be reported
Promotion of associations between the private sector, the NGOs and the local population in the Biodiversity field	Continues to be mentioned because the level of associations had not yet reached the desired level	Nothing to be reported
Preparation, approval and implementation of legislation on the export of species according to the CITES	Continues to be mentioned because the legislation had not yet been prepared, approved or implemented	Can promote the technical and financial assistance of this international organization

3- Onsite interviews – primary information.

Table 17- Group of Fishermen

Questions	**Answers**
Species you fish	Fulu-fulu
Fish that have diminished within the marine coastal ecosystem	Wahoo Soupinha Sardines Goldfish Pandora sea ape, Sand shark ray Atlantic Creolfish have disappeared (Buccinum undatum) Sea whelk
Causes of the reduction of fish	Grenades and sulphate Fine-mesh nets "nani, brisa"
Consequences	Destruction of marine wildlife and its habitat (rocks, coral, phytoplankton…) Great conflict among fishermen Greater dispute between various fishing groups for fishing areas.

	Expenditure of fuel with no return. Less fish caught by those using traditional methods and consequently loss of income and quality of life. Fishermen warn that if this situation continues in STP, fish will have to be imported.
Solution	Responsible Fishing Greater inspection, legislation and its effective application Allocation of fishing materials and equipment

Table 18- Group of Hunters

Questions /problems	**Answers**
Hunting Zones	Porto Alegre, Alto Douro, Sto António Mussacavu, Monte Belo
Species you hunt	Dove, Sessia, Wild Boar, Pigeon, Monkey, Lagaia
Specie you hunt more frequently	Monkeys and bats
Specie that is becoming more scarce	Wild Boar Reduction of the Wild Pigeon, especially in the Pico area
Causes of the decrease in population	The hunters that use dogs scare the animals and make them move to other areas further away. There are many hunters and that causes the animals to run away to other areas farther away The hunters use nooses to capture the animals, and they will even hunt suckling pigs and their mothers

Table 19- Nature Park Group

Questions /problems	**Answers**
State of the endemic Plants	Not even the buffer zone of the Natural Park was spared The risk is eminent due to the approach of the felling of trees in the high areas, very close to the Natural Park Region The felling of trees on Mount Claudino, Maia …. Species are retreating due to the excessive

	use of bark for traditional medicine
State of the fauna	The obó snail (Archachatina bicarinata is in extinction) and its capture continues and is aggravated in comparison to the bush whelk (A. Marginata)
Causes of the reduction / threats	Quick and easy income Unemployment

Table 20- Coal bunker Group

Questions /problems	**Answers**
Area where you make coal	On my property Forestry and coastal areas of the North strip
Why you practice this activity	Lack of employment A way to make some Money, I have a family to support. Make quick Money I have been making coal for over 20 years This Christmas, the youngsters burnt coal on the Praia das Conchas, to make more Money and to satisfy the consumer demands during this period
How many practice this activity	There aren't many, they have left, there used to be more than one 100 but now there are only about 20
Bags of coal per day	2- 3 bags
Planning to leave this activity	Yes, to farm Yes, if the State gives me a good paying job
Reason why tamarina and other trees are being cut down closer to the coast	Due to the distance of other good species for the making of quality coal

Table 21- Group of wood-cutters and chain-saws

Questions	**Answers**
Area where you practise this activity	Lotes distributed by the Government Gleba land owners "roça de forro"
Area where you feel is easier to buy and cut down trees	It has been easier on the lands of the forros because the Department of Forestry has been controlling the activity
Do you use forestry services	Yes
Is it becoming easier to cut down trees	No because the Minister of Agriculture also intervenes in the issuing of licences

Do you intend to abandon this activity	No. Because I have a family and this is where I get my income from

Image 1- pruned Shrub on the Praia das Conchas

Image 2– Killing of a wild boar

Image 3 – Felling of trees on the Praia das Conchas

APPENDIX III – Progress made in the attainment of objectives of the global strategy for the conservation of plants (EMCP) and the work programme on protected areas (PA)

1-Progress made to attain the GSPC (EMPCP)

There must be an appropriate strategy to achieve global objectives for the conservation of plants. No available information was found on the subject, which may indicate that very little has been done in the country in this field.

2- Progress made to attain the objectives of the PA (Protected Areas).

Sao Tome and Principe is a small isolated state and is an under-developed country. It needs financial support from the government and from the international community, both on a bilateral and multilateral level, to strengthen its institutional capacity and not only for the preparation of reports. Action has to be taken to protect endangered areas.

Two natural parks were created and institutionalized.

A plan for the Management and running of the Obô Natural Parks of Sao Tome and Principe was created. Project financed by the European Union in collaboration with the Government.

An association was formed with the RAPAC (Network of protected areas in Central Africa) which has been conducting workshops, information sessions and training in the Central Africa region, and has been collecting and compiling existent data from Central Africa including Sao Tome and Principe.