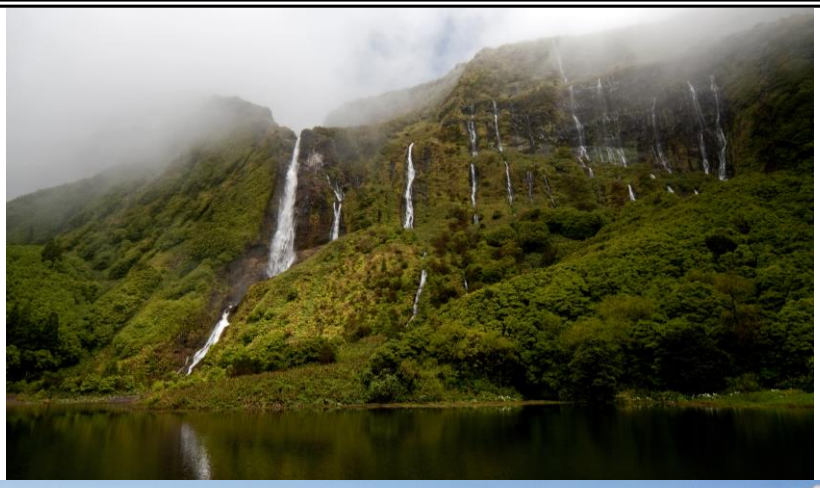
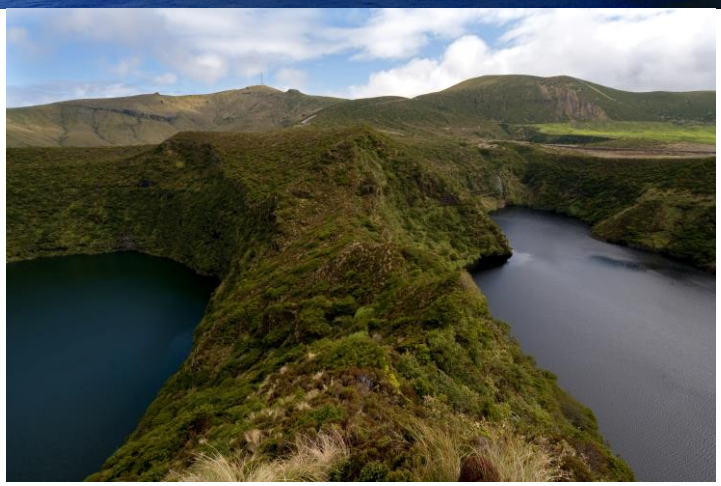
Report for the Periodic Review of

Flores Island UNESCO Biosphere Reserve

2019





United Nations Educational, Scientific and Cultural Organization

Man and the Biosphere Programme

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PART I: SUMMARY

a) Name of the biosphere reserve:

Flores Island Biosphere Reserve.

b) Country:

Portugal (PT).

c) Year of designation:

2009.

d) Year(s) of periodic review(s):

2019.

e) Previous recommendation(s) made by the International Co-ordinating Council (MAB- ICC), if applicable:

No recommendations were made in 2009 by the International Coordinating Council (MAB-ICC).

f) What follow-up actions are completed and if not completed/initiated, please provide justifications.

In general, the intervention actions/proposals included in the original application dossier have been generically achieved, either through direct action by the Regional Government of the Azores or by several local and regional stakeholders, as listed below:

a) Studies and monitoring

1 - Studies

- The provision in 2010 of the online Geographic Information Portal by the Regional Directorate for the Environment http://sig-sraa.azores.gov.pt/), which allows all citizens and entities, public or private, to research, visualise and explore geographic information about the Azores archipelago, in particular in the areas of land use planning, water resources and environmental occurrences, in addition to offering a Web Map Service (WMS);
- The elaboration in 2008 of a Regional Land Management Plan for the Azores (PROTA), which led to the publication of Regional Legislative Decree No. 26/2010/A of 12 August;
- In 2008, the Strategic Plan for Waste Management in the Azores (PEGRA), approved by Regional Legislative Decree No. 10/2008/A of 12 May;
- In 2012, the Regional Hydrographic Management Plan for the Azores 2009-2015 (1st cycle) (PGRHA 2009-2015);

- In 2015, the Regional Hydrographic Management Plan for the Azores 2016-2021 (2nd cycle) (PGRH-Açores 2016-2021), approved by Regional Legislative Decree No. 1-A/2017/A of 6 February 2017;
- In 2013, the Sectoral Land-Use Plan for Mining Activities in the Autonomous Region of the Azores (PAE), which resulted in the publication of Regional Legislative Decree No. 19/2015/A of 14 August;
- In 2016, the Strategic Plan for the Prevention and Management of Waste in the Azores (PEPGRA), approved by Regional Legislative Decree No. 6/2016/A of 29 March;
- And also in 2016, the Flood Risk Management Plan of the Autonomous Region of the Azores (PGRIA), which led to the publication of Regional Legislative Decree No. 20/2016/A of 10 October;
- In 2017, the Tourism Land-Use Plan for the Autonomous Region of the Azores (POTRAA), approved by Regional Legislative Decree no. 38/2008/A of 11 August;

2- Surveillance and monitoring:

- The portal for the registration of environmental events 'Na Minha Ilha - Serviço para o Registo de Ocorrências Ambientais' was launched in 2010. It is a platform for reporting environmental incidents by any citizen or entity, public or private;
- Reinforcement of the surveillance and oversight of the classified areas of Flores Island with the hiring in December 2014 of an additional Nature Inspector and reinforcement of infrastructure with the purchase of a new dedicated electrical vehicle for Flores Nature Park;
- Strengthening of technical staff at Flores Island Nature Park with the hiring of a senior technician and two interns from the Estagiar L programme in 2016 to bolster conservation and monitoring activities in the park. An additional intern from the same programme was hired in 2018, with each internship lasting for a period of two years;
- Continued support for the Department of Oceanography and Fisheries at the University of the Azores (DOP/UAç) and the Regional Directorate for Maritime Affairs (DRAM) in the study and monitoring of seabirds, particularly the island's tern colonies, and the monitoring of micro plastics as part of the AzorLit project IMAR has been developing since 2016;
- In 2018, the SOS Ambiente hotline was launched to complement the online platform for the registration of environmental incidents 'Na Minha Ilha - Serviço para o Registo de Ocorrências Ambientais', offering a convenient way of reporting incidents via telephone;

b) Management and conservation of nature and promotion of sustainable development

1- Management of species and habitats

- In 2012, the legal framework for access and use of natural resources in the Autonomous Region of the Azores for scientific purposes was published (Regional Legislative Decree no. 9/2012/ A of 20 March), together with the relevant regulation (Regional Regulatory Decree no. 20/2012/A of 5 November);
- In 2012, the legal framework for the conservation of nature and biodiversity in the Autonomous Region of the Azores was published (Regional Legislative Decree no. 15/2012/A, of 2 April);
- Worthy of note is the implementation of PRECEFIAS, the Regional Plan for Eradication and Control of Invasive Plant Species in Sensitive Areas, promoted by the Regional Government of the Azores in protected areas or areas submitted for classification, including the core areas of the Flores Island Biosphere Reserve that also form part of the protected areas in the Flores Island Nature Park;
- A number of studies have been carried out on the flora and fauna of Flores Island, including the 'Long-Term Ecological Study of the Azores Natural Forests' (SLAM), coordinated by the Azorean Biodiversity Group as part of the NETBIOME ISLANDBIODIV Project; a study on the 'Reproductive isolation and hybridisation of endemic species of *Tolpis*', promoted by the Centre for Research on Biodiversity and Genetic Resources (CIBIO)/University of the Azores (UAç), in partnership with the University of Kansas (USA); and 'Eel Trek', a research project on eel migration in the Azores, funded by the Ocean Conservation Fund;
- LIFE-IP AZORES NATURA - Active protection and integrated management of the Natura 2000 Network in Azores (LIFE17 IPE/PT/000010), funded by the programme LIFE, aims to implement a vast array of activities to ensure the active protection and integrated management of areas within the Natura 2000 Network. These actions involve conservation and the control/eradication of invasive species and represent a direct investment of about 19 million euros between 2018 and 2023;
- Project LIFE BEETLES – Bringing Environmental and Ecological Threats Lower to Endangered Species (LIFE18 NAT/PT/000864), financed by the programme LIFE. The main goal of this project is the conservation of various endemic invertebrate species, including *Thaphius floresensis* (a beetle endemic to Flores Island), through the conservation of its habitats within the Nature Park and core area of the Biosphere Reserve;

2- Intervention on economic activities:

- Attribution of usage rights for the trademark and logo 'Biosfera Açores' (Azores Biosphere), as regulated in Ordinance No. 27/2011 of 28 April (Regulation of the 'Biosfera Açores' brand);
- 'System of Incentives for Traditional Landscapes of Viniculture in Plots and Terraces, and of Orchards of Traditional Species in Protected Landscape Areas and Coastal Fajãs forming part of Island Nature Parks and Biosphere Reserves', approved by Regional Regulatory Decree No. 24/2014/A, of 15 December;

c) Support for visitors and environmental information

1- Infrastructure to support visitors:

- The Boqueirão Environmental Interpretation Centre (CIAB) was inaugurated on 10 November 2009. Its design is inspired by the tanks that were once used for storing whale oil before it was separated in the Fábrica da Baleia in Boqueirão;
- Classification/creation of 4 walking trails on Flores Island, which form part of a Regional Network of Walking Trails, and the creation of a Grand Trail that comprises a number of previously created trails with a 47 km-long extension;
- Building of infrastructure in classified areas, such as the construction of lookouts, fences and parking areas;
- Placing of signage in the Biosphere Reserve, including at points of arrival on the island;

2- Information and environmental awareness

- Implementation of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA) on Flores Island by the Educational Services unit of Flores Nature Park. The Nature Park's Educational Services include the Eco-library and the Environmental Interpretation Centre;
- Publication of a guide to Flores Nature Park 'Guia do Parque Natural das Flores', 1st edition - April 2012, 500 copies, 190 pp. (Legal deposit 343615/12);
- Convening of a diverse array of regional, national and international conferences and meetings on Flores Island associated with tourism and nature-based activities, including:
    - the 1st Canyoning International Meeting in the Azores (CIMA) in 2014 and the 3rd Meeting of RIC - Rendez-vous International Canyon, promoted by the International Association of Amateur Canyoning (IAAC), in 2016;
    - the 1st Flores and Corvo Tourism Conference (2018) organised in partnership with the Regional Secretariat for Energy, Environment and Tourism;

- the 1st Edition of Extreme West Atlantic Trail (2018), which hosted the final of the Taça de Portugal de Trail race, attracting nearly 200 athletes from across the country;

- Organisation of the course for Park Guides at Flores Nature Park (2018) promoted by the Azores Regional Government;
- Convening of a Meeting of the National Biosphere Reserves Network on Flores Island from 13 to 15 September 2017, promoted by the National Committee of the 'Man & Biosphere' Programme;
- The launch of the DVD documentary 'Flores Island, Biosphere Reserve' was an important contribution towards the promotion of Flores Island and its biosphere reserve. This multimedia tool (sold in the shops at the environmental centres) was released by the Regional Secretariat for the Environment and the Sea in 2012;

g) Update on the implementation of measures to achieve the objectives of the biosphere reserve.

We consider that the objectives proposed at the time of the creation of the Biosphere Reserve to have been fully achieved and even surpassed in terms of their scope, diversity and intensity. Based on the experience of these first 10 years and in the context of the present periodic review process, the Flores Island Biosphere Reserve is promoting the elaboration of the action plan with a participatory model that includes the main local stakeholders and a public discussion phase. In this way the action plan will incorporate the principles and proposals set out in the new MAB Strategy and the Lima Action Plan.

The Action Plan of the Flores Island Biosphere Reserve is legally defined under Article 52 of Regional Legislative Decree No. 15/2012/A, of 2 April, and its elaboration is currently underway following the publication of Regional Government Council Resolution no. 65/2017, of 22 June.

h) Briefly describe the process by which the current periodic review has been conducted:

This report was prepared as part of an initial interactive process with the members of the Management Board of the Flores Island Biosphere Reserve, who compiled information and analysed the main events and changes that have occurred in the last 10 years. This was followed by a second phase of consultations with relevant local entities and public discussions that resulted in contributions to both the evaluation and the future programming of the Biosphere Reserve.

i) Area and spatial configuration:

There has been no change in the area and zoning of the Biosphere Reserve since its integration into the UNESCO World Biosphere Reserve Network.

	Nomination Form (2009)	Proposed changes
Area of terrestrial Core Area(s)	1,615 ha	None
Area of terrestrial Buffer Zone(s)	3,169 ha	None
Area of terrestrial Transition Area(s)	9,332 ha	None
Area of marine Core Area(s)	0 ha	None
Area of marine Buffer Zone(s)	3,974 ha	None
Size of marine Transition Area(s)	40,529 ha	None

j) Human population of the biosphere reserve:

	Nomination Form (2009)	At present
Core Area(s) (permanent and seasonally)	Non-inhabited	Non-inhabited
Buffer Zone(s) (permanent and seasonally)	15	25
Transition Area(s) (permanent and seasonally)	4,044	3,637*

*Information from 'Demografias 2017' published by the Azores Regional Statistics Service.

k) Budget (main sources of funds, special capital funds) and international, regional or national relevant projects/initiatives carried out or planned.

	Budget in the Nomination Form (2010-2014)	Current budget[1]
a) Studies and monitoring	**130,000€**	**210,491 €**
1- Studies	30,000 €	35,457 €
2- Surveillance and monitoring	100,000 €	175,034 €
b) Management and conservation of nature and promotion of sustainable development	**1,170,000 €**	**1,429,176 €**
1- Management of species and habitats	70,000 €	1,429,176 €
2- Intervention on economic activities	1,100,000 €	
c) Support for visitors and environmental information	**66,000 €**	**2,354,600 €**
1- Infrastructure to support visitors	52,000 €	2,300,000 €
2- Information and environmental awareness raising	14,000 €	54,600 €
Programme management	**136,000 €**	**41,176 €**

l) International, regional, multilateral or bilateral framework of cooperation. Describe, where applicable, the contribution of the biosphere reserve to achieve objectives and developing mechanisms that contribute to the implementation of international or regional bilateral or multilateral agreements, conventions, etc.

[1] Regional Secretariat for Energy, Environment and Tourism (SREAT) Investment Plan for 2018.

From its early beginnings, the Flores Island Biosphere Reserve has made local, national and international cooperation a priority, acting as an active partner in thematic and regional networks and participating in the 13th meeting of the REDBIOS Network, which was held on the island of São Jorge in 2014. In August 2015 this reserve also participated in an international seminar organised by the candidature committee for the biosphere reserve, with the involvement of representatives of various reserves from the national MAB committees and the Portuguese National Commission for UNESCO, with the aim of promoting networking, fostering exchange of experience and knowledge and exploring possibilities for joint work in the future. More recently, in September 2017 the Reserve hosted a Meeting of the National Biosphere Reserves Network, which is convened every six months by the National Committee of the 'Man & Biosphere' Programme.

Through participation in different Thematic Networks and bilateral partnerships, the Flores Island Biosphere Reserve has promoted cooperation and knowledge transfer among Biosphere Reserves, with special emphasis on joint actions in the field of nature and landscape conservation. In addition to ongoing collaboration with the Azores Biosphere Reserves Network (Biosphere Reserves of Corvo Island, Graciosa Island, Flores Island and São Jorge Fajãs), the Flores Island Biosphere Reserve actively participates in the following networks and/or organisations:

- National Committee of the *Man and the Biosphere* Programme (MaB National Committee);
- National UNESCO Biosphere Reserves Network;
- European Biosphere Reserves Network (EuroMAB);
- Biosphere Reserves Network of Portugal, Spain, Latin America and the Caribbean (IberoMaB);
- Biosphere Reserves Network of Macaronesia and West Africa (REDBIOS);
- Territorial Custody Network in Biosphere Reserves of Macaronesia;
- World Network of Island and Coastal Biosphere Reserves – WNICBR;

PART II: PERIODIC REVIEW REPORT

1. BIOSPHERE RESERVE:

1.1 Year designated:

2009.

1.2 Year of first periodic review and of any following periodic review(s) (when appropriate):

2019.

1.3 Follow-up actions taken in response to each recommendation from the previous periodic review(s) (if applicable), and if not completed/initiated, please provide justifications.

Not applicable.

1.4 Other observations or comments on the above.

Not applicable.

1.5 Describe in detail the process by which the current periodic review has been conducted:

The periodic review process was developed in an interactive process involving all local stakeholders forming part of the management bodies, advisory bodies and others that are associated in some way with this Biosphere Reserve.

The review process was coordinated and conducted by the Biosphere Reserve Management Board and began with the compilation and analysis of activities and major changes in the last 10 years. The analysis of the 10 year history of each Reserve has arisen in the context of the current UNESCO MAB Programme and is a result of the approval of the Strategy of the MAB Programme and the Lima Action Plan, taking the opportunity to enhance both the training of technical staff involved in the management of the Reserve and developing public actions that promote the objectives of the MAB Programme and the Biosphere Reserve. The process also allowed for the revision and/or updating of the Biosphere Reserve Vision and Mission for the immediate future.

During the second phase, consultations were held with relevant local entities with a view to developing a document supporting presentation and public consultation. This resulted in contributions to both the validation of the periodic assessment report and to the future programming of the Biosphere Reserve.

The proximate time frames of the review processes for the three Biosphere Reserves in the Azores (Graciosa and Corvo in 2017 and Flores in 2019) and the recent designation of the Fajãs de São Jorge Biosphere Reserve were leveraged to strengthen the networking links between the Flores Island Biosphere Reserve and its neighbouring reserves in the Azores, with each reserve's managing teams accompanying and actively participating in the entire review process.

Given that the Flores Island Biosphere Reserve manager is a member of the Portuguese MAB Committee, the review process also benefited from contributions arising from the reflections of this Committee.

Generally, the actions/proposals of the intervention formulated in the original application dossier have been achieved, in the context of both direct actions by the Regional Government of the Azores (GRA) and of interventions by various local and regional stakeholders. All actions carried out were reviewed and contributed to a stock of information that allowed for an analysis of activities and partnerships, demonstrating that the goals initially formulated were fully achieved and even exceeded in terms of the number and diversity of actions and partners involved during the first 10 years of the Biosphere Reserve.

1.5.1 Which stakeholders were involved?

The following entities provided for in Article 54 (1) of Regional Legislative Decree No. 15/2012/A of 2 April (Legal Framework for Nature Conservation and Protection of Biodiversity) were involved and make up the Management Board of the Flores Island Biosphere Reserve, namely:

- Director of Flores Nature Park;
- Representative of the Flores and Corvo Island services of the Vice Presidency of the Government, Employment and Business Competitiveness;
- Local representative of the GRA on Agriculture;
- Local representative of the GRA on Forests;
- Representative of the Municipal Council of Santa Cruz das Flores;
- Representative of the Municipal Council of Lajes das Flores;
- Representative of Business Associations;
- Representative of the Agricultural Associations;
- Representative of Fishermen's Associations;
- Representative of Environmental Non-Governmental Organisations (ENGO);
- Representative of the National Republican Guard - Nature and the Environmental Protection Service (SEPNA);

Other entities coopted by the Management Board include:

- Local representative of the GRA on transport and public works;
- Representative of the Flores Elementary and Secondary School;
- Representative of the Maritime Authority of Flores Island;

Individual citizens, businesses and other local and national organisations also had the opportunity to follow and participate in the process.

1.5.2 What methodology was used to involve stakeholders in the process (e.g., workshops, meetings, consultation with experts).

The interactive process was developed during the meetings of the Flores Island Biosphere Reserve Management Board, where the main stakeholders/local entities are formally represented.

1.5.3 How many meetings, workshops, etc. occurred throughout the process of conducting this review?

The Flores Island Biosphere Reserve Management Board has convened regularly twice a year since its incorporation in 2012. In 2019, the Management Board met three times within the framework of the ongoing periodic evaluation.

1.5.4 Were they well attended, with full and balanced representation?

(Describe participation and stakeholders).

The participation of different stakeholders, essentially through the Management Board, is considered to be generally positive, however it can and should be more active and committed.

Although the diminutive size of the island may be one of the factors that explains the inertia and lack of preparation that can inhibit broader participation on the part of some advisers, this attitude was particularly noticed in the process of drafting the periodic evaluation report in the face of intrinsic difficulties in understanding some of the themes and concepts discussed. However, this was of limited relevance owing to the inherent informality that is customary to the inhabitants of Flores Island.

2. SIGNIFICANT CHANGES IN THE BIOSPHERE RESERVE DURING THE PAST TEN YEARS:

2.1 Brief summary overview: Narrative account of important changes in the local economy, landscapes or habitat use, and other related issues. Note important changes in the institutional arrangements for governance of the biosphere reserve area, and changes (if any) in the coordinating arrangements (including the biosphere reserve organization/coordinator/manager) that provide direction for the biosphere reserve. Identify the role of biosphere reserve organization/coordinator/manager in initiating or responding to these changes.

Economy

Over the past decade, there have been no significant changes in the socio-economic development model of Flores Island Biosphere Reserve with agriculture based largely on dairy and meat production remaining prevalent in the primary sector. In the past two decades, cattle production has intensified in importance vis-a-vis traditional agriculture, resulting in the conversion of agricultural fields into pastures and a reduction in the diversity of farming. Production, whether in terms of live meat or dairy, is extensive and geared towards both subsistence and export. Agriculture is extensive, poorly diversified and largely aimed at local consumption.

On an island where the tertiary sector predominates, the fisheries industry, like the agricultural sector, is also an important part of the economy, particularly in terms of the jobs it generates. In the tourism sector, following the growth of the range of tourist accommodation establishments between 2013 and 2017, accompanied by a growth in demand, the last two years have been marked by a continued increase in the offer and moderate increases in overnight stays, along with a continuous rise in occupancy rates.

Demography

The resident population on Flores Island has seen a decrease of 4.49% over the past 9 years. One of the main reasons for this decline is an ageing population. Another significant factor is the exodus of young people from the island to study abroad, many of whom do not return to the island because they are unable to secure employment there in their fields of academic study. The population of Flores Island in 2017 is projected to be around 3,662 inhabitants.

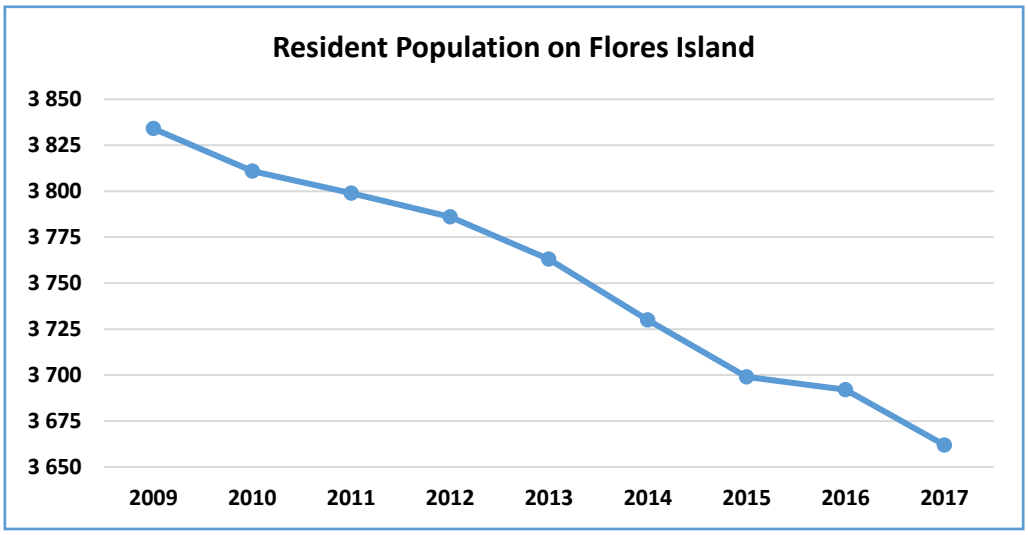


Figure 1 – Evolution of the resident population on Flores Island, Data: SREA - Serviço Regional de Estatística dos Açores.

Landscape

The importance of conservation and the maintenance of natural values is fundamental when it comes to the sustainability of the territory, with a view towards ecological balance and biophysical resilience. A recognition of landscape as a scenic, visual and ecological totality is vital given its importance in determining quality of life and local and regional identity, being one of the bases for the integrated, balanced management of this territory. The creation of the Biosphere Reserve coincided with the creation and promotion of various land management instruments that have strengthened the conservation of natural resources and values and the promotion of a sustainable land use management regime.

This included the publication of a Land-Use Plan for the Coastal Area of Flores Island in 2008. The end of 2018 saw the launch of an Information and Support System for Landscape Management in the Azores, which raises awareness of the European Landscape Convention (ELC) and sets out goals for landscape quality and landscape management guidelines that can be applied in the Azores, thereby allowing the ELC to be applied to the Azorean landscape.

Little has changed in terms of traditional land use, with pasture and extensive livestock production continuing to prevail.

It is important to note that an Ecological Reserve is a biophysical structure that contains areas of ecological sensitivity and value or that are exposed and susceptible to natural risks. Restrictions on public use

limit the occupation, use and alteration of land to activities that are compatible with the reserve's objectives. Close to 45% of the total area of Flores Island is classified as an Ecological Reserve.

Figure 2 - Example of pasture land in the Ponta Delgada parish, Flores Island (Photograph by Frederico Fournier).

Biodiversity

In terms of the conservation of biodiversity, a number of activities have been developed by various local stakeholders that have resulted in important achievements. These include the planting of various specimens of *Myosotis azorica (*forget-me-nots*) and Veronica dabneyi* (speedwell) in collaboration with Faial Botanical Garden, an effort aimed at conserving these endemic species that are found only in the Western Group of the Azores islands. In terms of seabirds, efforts have been made to remove various species of invasive plants from nesting areas for terns, particularly on the Alagoa Islets, thereby increasing the area used for nesting and boosting the population of terns in these colonies. The tern census takes place annually between mid-May and mid-June, and is currently coordinated by the Regional Directorate for Sea Affairs (DRAM), in partnership and with the support of the Environment and National Park Services on the island. This census aims to quantify the populations of the two main species of tern which nest in the Region, the garajau-comum (common tern - *Sterna hirundo*) and the garajau-rosado (roseate tern - *Sterna dougallii*).

Figure 3 - *Myosotis azorica* (forget-me-nots) planted at Ribeira do Fundão (Rocha dos Bordões Natural Monument).

The sealing of two landfill sites in Flores Island has had an indirect positive effect on reducing the proliferation of the Azorean yellow-legged gull (*Larus michahellis atlantis*). Regular eradication and control of invasive flora species, particularly in classified areas, has led to the resurgence and establishment of various species of native flora.

Figure 4 Sealing of Santa Cruz landfill site at Lugar das Barrosas.

Implementation of PRECEFIAS (Regional Plan for the Eradication and Control of Invasive Flora Species in Sensitive Areas) in protected areas or areas submitted for classification within Flores Island Nature Park has been ongoing since 2009 and has become one of the most important nature conservation projects on Flores Island.

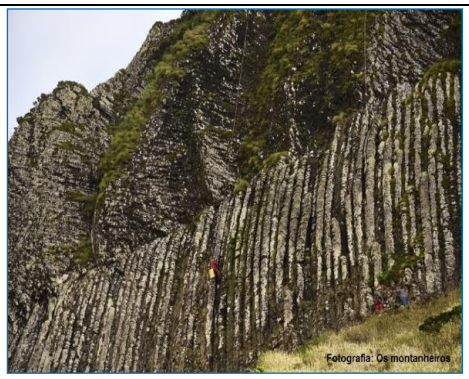
Classified area	Invasive species	Photo
The Habitats/Species Management Areas of the Northeast Coast; IBA PT052 Costa das Flores; Special Protection Area - PTZPE0022 Northeast Coast; Special Conservation Area – PTFLO0003 Northeast Coast; (Flores Island Biosphere Reserve Buffer Zone)	*Rhaphiolepis umbellata* (Yeddo hawthorn); Cana Roca (*Hedychium gardnerianum* - ginger lily);	 Removal of invasive plants on the Alagoa islets
Rocha dos Bordões Natural Monument; Geo-site FLO06 – Rocha dos Bordões; (Flores Island Biosphere Reserve Core Area)	Sweet pittosporum (*Pittosporum undulatum*, locally known as 'incenso'); conteira(*Hedychium gardnerianum* - ginger lily); hortênsia (*Hydrangea macrophylla* - hydrangea);	 Removal of invasive plants from Rocha dos Bordões by the association 'Os Montanheiros'
The Habitats/Species Management Areas of the Northeast Coast IBA PT052 Costa das Flores; ZEC PTFLO0003 –Northeast Coast;	Cana (*Arundo donax* - giant cane), conteira (*Hedychium gardnerianum* - ginger lily)	
Morro Alto and Pico da Sé Nature Reserve (Flores Island Biosphere Reserve Core Area)	Ginger lily (*Hedychium gardnerianum*); and planting of forget-me-nots (*Myosotis azorica,* locally known as 'não-me-esqueças')	

Figure 5 – Actions undertaken by PRECEFIAS.

Governance and coordination

The present governance model now in place has been developed and created over the past decade at the local, regional and national levels. Hence, when a new legal regime for nature conservation and biodiversity was established in the Azores in April 2012, and the Flores island Nature Park was created in March 2011, the governance model for the respective Biosphere Reserve was also created, based on the decentralised model of the island's Nature Parks. This regime appoints the manager of the Biosphere Reserve and the other members of its management board, who serve essentially as the representatives of the island's primary living forces. The new legal regime thus established the Flores Island Biosphere Reserve Management Board in 2012, which performs its functions in accordance with regional legislation and respective operating regulations.

Figure 6 – Meeting of the Flores Island Biosphere Reserve Management Board.

2.2 Updated background information about the biosphere reserve.

2.2.1 Updated coordinates (if applicable). If any changes in the biosphere reserve's standard geographical coordinates, please provide them here (all projected under WGS 84):

There have been no changes to the geography or zoning of the Biosphere Reserve.

Cardinal points:	Latitude	Longitude
Most central point:	39.454145	-31.196828
Northernmost point:	39.583297	-31.241248
Southernmost point:	39.322467	-31.229679
Westernmost point:	39.424897	-31.328998
Easternmost point:	39.45565	-31.060813

2.2.2 If necessary, provide an updated map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve Map(s) shall be provided in both paper and electronic copies. Shape files (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form.

If applicable, also provide a link to access this map on the internet (e.g. Google map, website).

There have been no changes to the zoning of the Flores Island Biosphere Reserve since its designation in 2009.

http://www.arcgis.com/apps/PublicInformation/index.html?appid=a8455f98d41a453fb617c55c4b711ab9

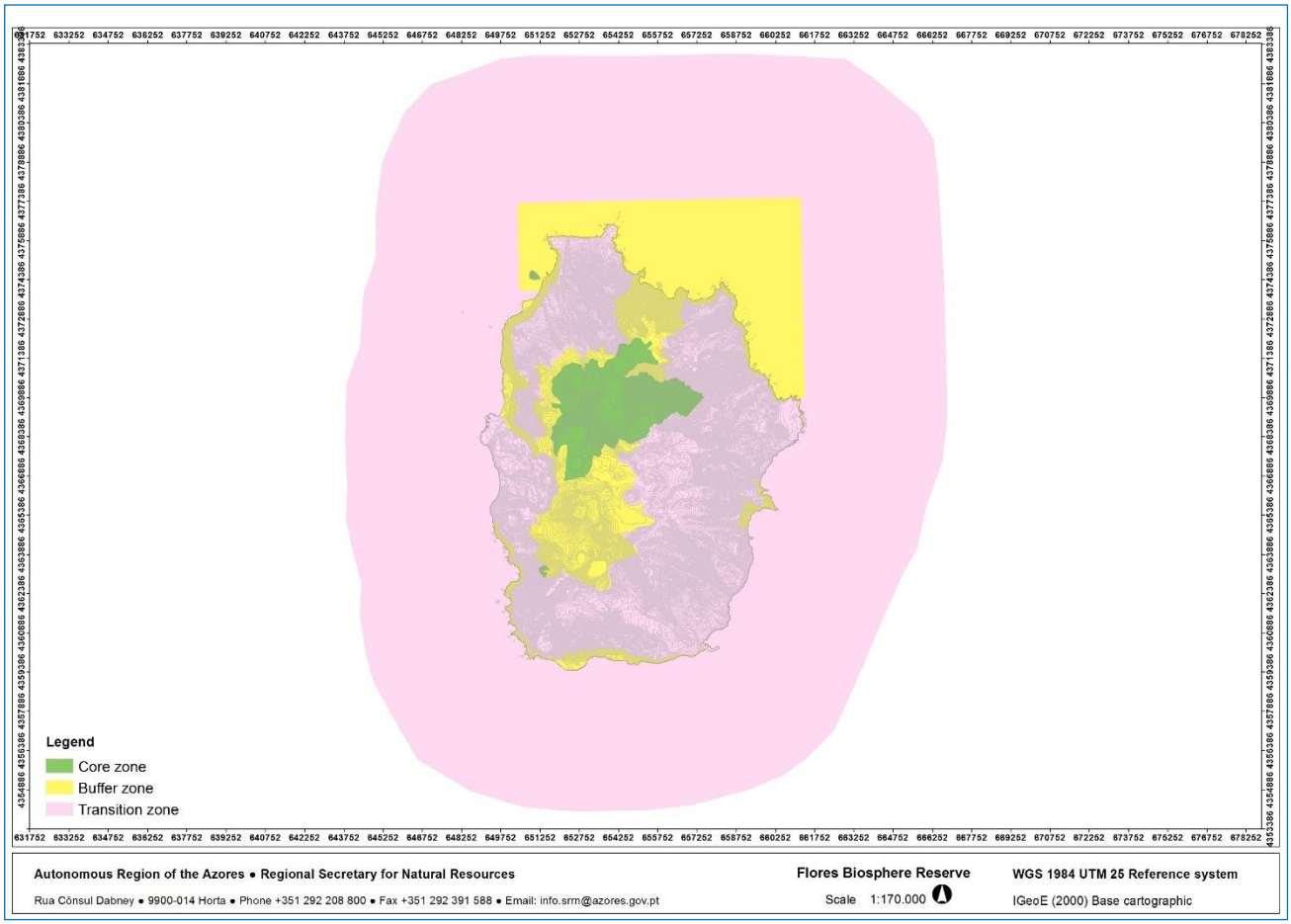


Figure 7 - Zoning of the Flores Island Biosphere Reserve.

2.2.3 Changes in the human population of the biosphere reserve.

Most recent census data:

The population of Flores Island has experienced a decline over the past century. Beginning with roughly 8,200 inhabitants in the early 20th century, the population fell to 6,500 in the 1960s, after which a wave of immigration to the United States led to a major drop in the population from the 1960s to the 1980s. In the last census in 2011, the population was 3,793 inhabitants.

Population trends on Flores Island between 1900 and 2011

Population	8,127	7,220	6,720	6,992	7,447	7,850	6,583	5,379	4,352	4,329	3,995	3,793
Census	**1900**	**1910**	**1920**	**1930**	**1940**	**1950**	**1960**	**1970**	**1981**	**1991**	**2001**	**2011**

Data: 'Principais Resultados Definitivos dos Censos 1991, 2001 e 2011' SREA.

According to the latest census figures, Flores Island saw the largest decline between 2001 and 2011 among the islands of the western group, going from 3,995 inhabitants to 3,793 (a 5.1 % decline). In the same period, the municipality of Santa Cruz das Flores witnessed a nearly 8.18% decline in population, while the

district of Lajes das Flores saw a 0.1% increase, the latter having the lowest population density (hab/Km^2) in the Azores. This demographic trend remains prevalent today, with the resident population in 2017 estimated to be 3,662 inhabitants.

2.2.4 Update on conservation function, including main changes since last report.

(Note briefly here and refer to 4 below).

Since its creation, the Flores Island Biosphere Reserve has maintained the same area and zoning, in total accordance with the regional system of protected areas. With the creation of Flores Nature Park in 2011 (Regional Legislative Decree No. 8/ 2011/A of 23 March), all core areas were classified as protected areas within the Nature Park, thereby implementing the classification adopted by the International Union for the Conservation of Nature (IUCN).

It is worth noting that on 16 June 2008, the Flores Central Plateau, covering an area of 2,573 hectares, was designated a Ramsar Site (WI SITE No. / No. 1806) under the Ramsar Convention. In June 2009, the Northeast Coast (PTFLO0003) and the Central Zone – Morro Alto (PTFLO0002) were re-classified as a Special Area of Conservation (SAC) by the European Union's Natura 2000 Network in accordance with Regional Regulatory Decree No. 5/2009/A of 3 June.

After the Flores Island Biosphere Reserve was designated, the Flores Island Nature Park was established in 2011 (Regional Legislative Decree No. 8/2011/A of 23 March), following the revision in 2007 of the Regional Network of Protected Areas of the Autonomous Region of the Azores (Regional Legislative Decree No. 15/2007/A of 25 June). With the creation of the aforementioned Nature Park, all core areas of the Biosphere Reserve were classified as Nature Reserves and Natural Monuments. Similarly, all buffer zones were classified as Habitats/Species Management Areas, Protected Landscapes and Protected Area with Sustainable Use of Natural Resources.

Flores Island Biosphere Reserve core area	Flores Island Nature Park Protected Area
Central Plateau, Morro Alto and Pico da Sé	- Morro Alto and Pico da Sé Nature Reserve
Rocha dos Bordões	- Rocha dos Bordões Natural Monument
Ilhéu Maria Vaz	- Nature Reserve of Ilhéu Maria Vaz

The legal and management system for the protected areas throughout the Autonomous Region of the Azores has also been restructured, and now falls within the legal framework of the respective Regional Network of Protected Areas, under the terms defined in Articles 51 and 54 of the Regional Legislative Decree no. 15/2012/A of 2 April, administered as part of the Island Nature Park on which they are located, which is responsible for providing the necessary logistical and administrative support necessary for its operation.

In 2015, a year in which UNESCO celebrated its 70th anniversary, the organisation's general assembly approved the new statutes of the International Geoscience and Geoparks Programme (IGGP).

With the creation of this new programme, the first in 40 years, the geoparks that had been part of the European and Global Geopark Networks, including the Azores Geopark, came under its purview.

2.2.5 Update on the development function, including main changes since last report.

(Note briefly here and refer to 5 below).

Flores Island provides exceptional conditions, in terms of natural, cultural and heritage resources, for the promotion of sustainable development. This is particularly true in the area of responsible tourism, combining sightseeing and the enjoyment of a unique landscape with biodiversity, a rich cultural heritage (cuisine, music, traditions) in terms of tourist animation and a wide array of high quality agricultural and fish products to complement this singular experience.

Restructuring and diversification, along with the modernisation and revitalisation of the local economy, have been important achievements for local businesses, municipalities and the regional government, undergirded by the drafting and implementation of various instruments, including those pertaining to land management and land use. These include Municipal Master Plans, the Operational Programme Azores 2014-2020, the Specific Options Programme addressing Distance and Insularity in Madeira and the Azores (POSEIMA), the Regional Land Management Plan for the Azores Territory (PROTA), the Rural Development Programme for the Autonomous Region of the Azores (PRORURAL), the programme PROPESCAS, which seeks to boost competitiveness and sustainability in the regional fisheries sector, the programme PROEMPREGO and the Azores Agenda for Job Creation and Business Competitiveness.

POSEIMA envisages a specific system for providing support for local agricultural production and includes aid for livestock production, vegetable crops and processing, with an emphasis on subsidies for marketing and the private storage of cheese. At a regional level, the strategic objectives of **PROTA** are to develop national policy options for land-use and sectoral policies, thus reflecting the overarching economic development, social and environmental objectives of the Autonomous Region of the Azores (RAA) in spatial terms. **PRORURAL** is developed along 4 axes: increasing competitiveness and sustainability in the farming and forestry sectors; improving the environment and rural landscape; quality of life in rural areas and economic diversification; and taking a leading approach. At this point in time, PRORURAL+ is now in place for the 2014–2020 period. **PROPESCAS** aims to apply biologically and ecologically sustainable exploitation regimes, better organisation of the catch, processing and commercialisation, strengthening productive activity, diversification and addition of value and quality assurance of fishery product.

The guidelines for the development of the fisheries sector in the region presuppose the inclusion in PROPESCAS of the following priority axes:

- Priority Axis 1 - adaptation of the regional fishing fleet;
- Priority Axis 2 - aquaculture, processing and marketing of fishery products;
- Priority Axis 3 - measures of general interest;
- Priority Axis 4 - sustainable development of fishing areas.

PROEMPREGO is structured in 6 intervention areas: youth employability; consolidation of the employability conditions in the private sector; modernisation of the productive fabric and support for

entrepreneurship; employability and entrepreneurship based on R&D; regional competitiveness in the information and knowledge society; and social inclusion through qualification, employment and entrepreneurship, plus the Azores Agenda for Job Creation and Business Competitiveness, which envisages various incentive policies, of which the following are relevant:

- The creation of the new system of incentives for developing handicrafts, with the aim of promoting the improved quality of products made by craft businesses in the Azores, taking into account the structural changes arising from the creation of the status of artisans and craft production units, thus boosting support for the development of this sector of activity;

- The creation of a system of incentives for external promotion and marketing, with the aim of boosting the external competitiveness of regional products and increasing intra-regional trade;

- Commitment to the special Azores brand, identifying the region as a brand synonymous with quality and excellence as a strategy for attracting and retaining markets. Azorean products, whether traditional commodities such as meat, dairy products and tuna or services such as tourism must be distinguished from direct competitors as coming from a Region with an Ecological profile of high environmental value;

- 50% reduction of the air cargo tariff and 77% reduction in the handling fee for fresh produce from the region (vegetables, fruit, eggs, fresh dairy products – yoghurts, fresh cheese, etc.), originating from and destined for the Cohesion Islands (São Jorge, Graciosa, Santa Maria, Flores and Corvo);

- Implementation of a training programme to promote entrepreneurship related to local sectors and products of the Azores, such as fishing and its derivatives, dairy-related agroindustry, tourism, other activities related to the sea and renewable energy sources;

- The creation of the Terra-Açores project to create a stock of public land on each island available for young farmers to establish themselves, promoting the creation of hubs of nascent agricultural enterprises and thus promoting regional agricultural diversification;

- The creation of the Agir Agricultura and Agir Indústria projects, aimed at combating unemployment and creating new jobs.

Developments in agriculture have also been reported, particularly an increase in the production of meat and dairy. Since the Biosphere Reserve's designation, for instance, two new manufacturers of traditional cheese have been established, boosting the diversification of dairy produced on the island.

Figure 8 – Traditional cheese-making at Pico Redondo – Fajãzinha.

With regards to tourism, there has been an increase in the number of visitors to Flores Island, thanks to an improved marketing strategy for natural and cultural heritage, and the development of various nature-related activities including canyoning, walking trails and birdwatching, among others. The emergence of various tourist companies with a vast and diverse offering of nature-related programmes and activities has contributed greatly to this growth in tourism.

The Azores Geopark, which includes the 9 islands and oceanic depths of the Azores archipelago, has been under the purview of UNESCO since 2015, which has strengthened efforts to promote and appreciate the region through this important international organisation. Incorporating Azores Geopark into UNESCO's International Geoscience and Geoparks Programme is expected to help strengthen the profile of the region around the world, bringing in more visitors to discover the superb geological heritage that exists on the Azores archipelago.

Figure 9 - Geopark Azores logo.

2.2.6 Update on logistic support function, including main changes since last report.

(Note briefly here and refer to 6 below).

Various infrastructures and facilities have been installed in recent years, providing support for a diverse array of activities in environmental research, conservation, education, information and others, and thus constitute a significant strengthening of the Biosphere Reserve's capacities. These investments include the Boqueirão Environmental Interpretation Centre, which was inaugurated in November 2009.

Figure 10 - Boqueirão Environmental Interpretation Centre.

Figure 11 - Inside of Boqueirão Environmental Interpretation Centre.

Inaugurated on 10 November 2009, the Boqueirão Environmental Interpretation Centre (CIAB) is housed in the former Boqueirão Whaling Factory, whose tanks were once used for storing whale oil after it was separated from the blubber. This space is dedicated to the promotion and recognition of environmentally significant sites on the island, with an emphasis on marine environments.

Visitors to the centre can learn about resident and migratory birds, life forms that dwell in the inter-tidal zones and water columns, cetaceans and hydrothermal vents. A unique locale for sharing scientific knowledge, it enriches the experience of visitors to the Nature Park.

2.2.7 Update on governance management and coordination, including changes since last report (if any) in hierarchy of administrative divisions, coordination structure.

(Note briefly here and refer to 7 below).

The most significant change in terms of strengthening the management of Biosphere Reserves in the Azores has been the creation in 2012 of an autonomous management structure, that is, a Management Board led by the Director of the Nature Park, with the composition and competencies set out in article 54 of Regional Legislative Decree number 15/2012/A of 2 April.

The board is responsible for overseeing the preparation and execution of the biosphere reserve's management plan; overseeing the management of the biosphere reserve; promoting and authorising the use of the biosphere reserve's logos on products and services, and recommending actions and projects to promote and meet and objectives of the reserve.

In the constant pursuit of synergies and with the aim of promoting active collaboration between local actors and entities, both public and private, a growing number of institutions and individuals have joined the Flores Island Biosphere Reserve Management Board.

Composition of the biosphere reserve management board

a) Director of the Island's Nature Park (the chair);

b) One representative from each department of the regional administration dealing with the economy, agriculture, forests and fisheries, appointed by the respective members of the Regional Government;

c) The mayors of each of the municipal councils located within the reserve, or their representatives;

d) One representative from each of the business associations active on the island within the reserve;

e) One representative from each of the agricultural and fishing associations active on the island within the reserve;

f) One representative from each of the environmental non-governmental organisations based or active on the island within the reserve;

g) One representative from the Nature and Environment Protection Service (SEPNA) of the National Republican Guard's Azores Territorial Command;

Figure 12 – Organization chart of the biosphere reserve management board.

2.3 The authority/authorities in charge of coordinating/managing the biosphere reserve:

(Comment on the following topics as much as is relevant).

The Biosphere Reserves of the Autonomous Region of the Azores fall under the scope of the legal regime for nature conservation and protection of biodiversity, and are administered under the purview of the Nature Park of the island where they are located, which is responsible for providing the logistical and administrative support required for its functioning. Nevertheless, the Biosphere Reserves have an autonomous management structure, that is, a Management Board led by the Director of the Island's Nature Park.

The Director of the Island's Nature Park oversees the coordination and management of the Biosphere Reserve in partnership with other entities that belong to the Management Board, which include representatives of public, private and non-governmental institutions, government departments, municipalities, agricultural associations, fishing associations, police and military authorities and the business community of Flores Island.

2.3.1 Updates to cooperation/management policy/plan, including vision statement, goals and objectives, either current or for the next 5-10 years.

Flores Island Biosphere Reserve is now in an important phase, one in which this periodic evaluation is enabling us to reflect on the path that has been taken and to make equally important efforts to define a strategy for the coming decade.

The population of Flores Island must be reminded of its duty to be aware of the reserve's importance in the common future, in harmony with the dynamic equilibrium of the planet and the importance of local actions that support sustainable and responsible development within the Biosphere.

The main objectives of the Biosphere Reserve include the conservation and sustainable use of genetic biodiversity and of species, habitats, ecosystems and landscapes, making them a central component of Flores Island's sustainable development model. In addition to supporting good environmental quality, they also serve as instruments for generating economic opportunities by creating fair and stable employment relevant for the local economy.

Efforts will be made to exploit the potential of the Biosphere Reserve in attracting and retaining scientific research teams in the environmental, cultural and social fields, by developing environmental education and information programmes, and by promoting sustainable tourism based on robust studies on the carrying capacities and specific aptitudes of each area, monitored by systems of reliable indicators that have been adapted to the local level.

As an active member of the Azores Autonomous Region's Network of Biosphere Reserves and the 'Biosfera Açores' (Biosphere Azores) brand, Flores Island Biosphere Reserve has made regional cooperation with its counterparts a priority (Corvo Island Biosphere Reserve, Graciosa Island Biosphere Reserve and the Fajãs de São Jorge Biosphere Reserve), such that it will act as an integral partner of this network, forging close collaboration among members and orient its activities towards implementing the 'Biosfera Açores' brand in an affirmative manner. The efforts of this regional network should be based on the sharing of experiences and knowledge, which are crucial to the development of joint actions in the future.

As part of this evaluation, the Flores Island Biosphere Reserve Management Board discussed and agreed on a Vision and Mission for 2018-2024.

Vision of the Flores Island Biosphere Reserve

The vision of the Flores Island Biosphere Reserve has been developed around a fragile island territory that strives to become a place of excellence, that conserves its tangible and intangible resources and strengthens its identity-based values. As a community open to the world, to people and to the times, it should ensure local socio-economic development that favours co-existence, as a reservoir of life, a protector of society and of participatory management that improves the quality of life and the well-being of its ultimate beneficiaries: people (both residents and visitors).

Implementation of the overall vision of Flores Island Biosphere Reserve should be based on firm foundations that combine management of scientific research and innovation with the traditional knowledge of the local population while integrating the diverse sensitivities of various sectors.

Mission of the Flores Island Biosphere Reserve

The mission of the Flores Island Biosphere Reserve is to promote, execute and demonstrate a balanced relationship between people and the biosphere reserve at different scales by functioning as a site for

experimenting and learning methods of conservation and sustainable development and fomenting planned and coordinated management with the effective and concerted participation of its various social partners. As such, it must assume an ethical commitment and serve a protective function through research, innovation and practices that are appropriate for the efficient use of resources, the aim being the preservation of environmental, cultural and social values that identify and favour the sustainable development of the Flores community.

The sustainability of its environment, economy, society, culture and identity will only be achieved if this mission is supported by a diverse array of priority initiatives, which are as follows:

Mission (1) – Conservation Function (of landscapes, ecosystems and species)

- Conservation of Natural Resources: to actively promote the conservation of natural elements to allow them to continue into the future. To promote the conservation of biodiversity, including both wild indigenous and domesticated species, by preserving their populations (in particular the rarest species) and genetic diversity and by eradicating alien and invasive species. To promote actions aimed at restoring and preserving spaces with geological and/or geomorphological features of particular interest. To establish tools for monitoring populations and conservation plans, and to encourage research into natural resources.
- Functionality of ecosystems: to promote actions that deter the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of exotic and invasive species. To develop initiatives to promote ecological restoration through the recovery of local species, pollution control, water and carbon cycle maintenance and soil conservation.
- Land management: to develop actions which promote judicious, sustainable use of the land, organising human activity in order to maintain biological and cultural diversity. To strive to maintain the spatial continuity of ecosystems and prevent fragmentation, and to stimulate traditional land use practices that prevent erosion.
- Landscape: to use landscape as a structural element for zoning and social cohesion, taking measures aimed at its protection, management and planning. To maintain the inherent values, both natural and cultural, of landscapes by minimising harmful impacts and preventing the loss of landscapes.

Mission (2) – Development Function (culturally, socially and ecologically sustainable economic and human development)

- Quality economy: to stimulate the production, distribution and use of goods in a way that does not subject future generations to environmental risks or to significant ecological threats. To promote the responsible use of local resources to generate economic activity and stable employment. To create synergies between tradition, local products, business and industrial activity, responsible processing, differentiated marketing, new technologies and territoriality as an inherent singularity of the product, good or service provided. To develop products of guaranteed environmental quality, which allows them to be exploited in specific markets which value quality over cost.

- Responsible tourism: based on the promotion of an offer that prizes quality and respect for the environment, involving stakeholders responsible for the development of these resources, targeting an audience that seeks excellence as an added value for the destination, turning tourism into an engine for economic growth, job creation and local wellbeing, while leading to a more efficient use of resources. Promote nature tourism activities, Canyoning, Birdwatching, an important market niche.

- Energy sustainability: to switch from a road mobility paradigm sustained by external dependence on fossil fuels to a new paradigm supported by clean energy via incentives for electric vehicle use. Flores Island and its Biosphere Reserve must implement an integrated alternative energy system, combining solar, wind and hydroelectric energy, creating a sustainable energy project which will contribute to the sustainable development of the Azores.

Mission (3) – Logistical Function (supporting research, monitoring and education)

- Enhancement of knowledge: The Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, promoting the transmission and dissemination of knowledge to the community, with the support and collaboration of the University of the Azores in conducting projects involving research, training and environmental education, with the aim of implementing sustainable development models on the island.

- Traditional knowledge: to identify and validate cultural elements, customs and traditions as constituents of identity and distinctive elements of the Flores population to counteract the homogenising effect of globalisation, which appears to replace local identities and cultures.

Through the publication of Regional Government Council Resolution No. 65/2017 of 22 June, the Regional Government of the Azores approved the preparation of Action Plans for the Azores Biosphere Reserves, as set out in article 52 of Regional Legislative Decree No. 15/2012/A of 2 April.

2.3.2 Budget and staff support, including approximate average annual amounts (or range from year-to-year); main sources of funds (including financial partnerships established (private/public), innovative financial schemes); special capital funds (if applicable); number of full and/or part-time staff; in-kind contribution of staff; volunteer contributions of time or other support.

The primary sources of funding for the Flores Island Biosphere Reserve stem from the various departments of the Azores Government, the Municipalities of Santa Cruz das Flores and Lajes das Flores and the private sector. Part of the investment may come from EU co-financing under the scope of existing programmes at the regional (FEDER, FEOGA, FEAMP), national (POSEUR) and transnational (PCT-MAC) level, CdTeCotur - 'Ecotourism and Safeguard of the Territory', among others.

The department within the Azores Government that oversees environmental issues is responsible for providing the logistical and administrative support required for the functioning of the Biosphere Reserve under the terms of Article 53 of Regional Legislative Decree No. 15/2012/A of 2 April.

Funding also comes from private investment, part of it co-financed through regional incentive schemes such as PRORURAL+, Competir+, the Programme to Support Restaurants and Hotels in the Purchase of Regional Products, programmes to support handicrafts, incentive schemes to restore and maintain traditional landscapes and the Programme to Support the Local and Coastal Fishing Fleet, among others.

As outlined in the respective Regional Annual Plans that detail the annual cycle of public investment programmes in the Azores, between 2013 and 2018 there was an increase of around 50% for Flores Island in the Azores Government's Investment Plan.

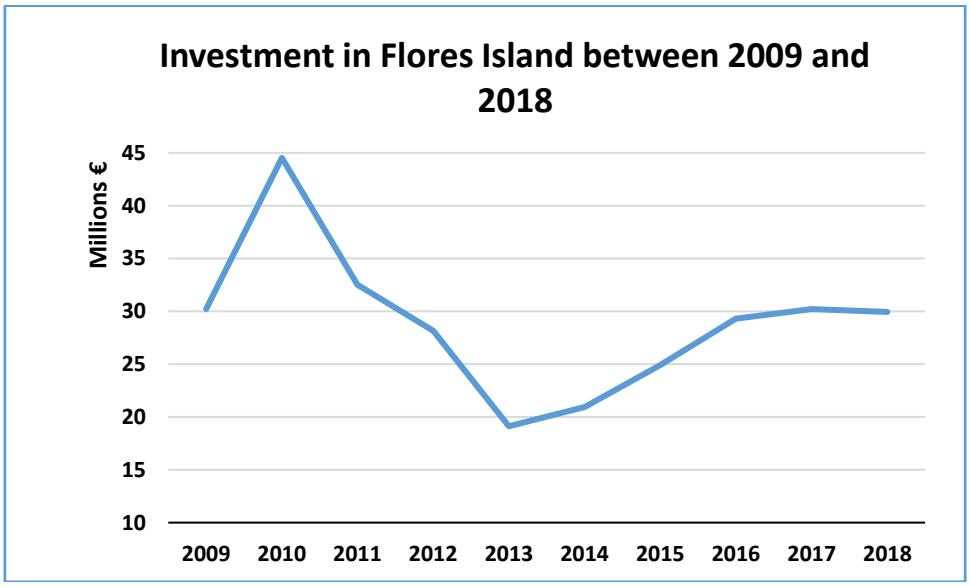


Figure 13 - Chart showing the trend in investment on Flores Island; Data from Annual Investment Plans of the Autonomous Region of the Azores (Official Gazette).

For 2016, the operating budget for Flores Island Biosphere Reserve was 76,633 euros, which covered costs for staffing, installations and purchases of goods and services. Flores Island Environmental Service has 7 technicians/staff who are associated with the activities of the Biosphere Reserve.

Through volunteering and participation in projects and activities, local organisations provide human resources and materials when needed and if available.

2.3.3 Communications strategy for the biosphere reserve including different approaches and tools geared towards the community and/or towards soliciting outside support.

The communication strategy for the Biosphere Reserves of the Azores rests on the creation of the 'Biosfera Açores' brand, a common identity to be used in communication and marketing activities. Created in 2011 by Ordinance No. 27/2011, of 28 April, under which it is regulated, the 'Biosfera Açores' brand is used to highlight the distinctive aspects of the Region: excellent Biodiversity and Geodiversity; undisturbed nature and tranquillity; marine life; and diversity of islands, landscapes and local products. The aim of this 'Brand' is to boost the attractiveness of '*nature tourism*' as a product and the Azores as a destination, thereby helping implement a strategy aimed at enhancing the sustainable development the Azores as a tourist destination.

Figure 14 - Logo for the brand 'Biosfera Açores'.

Together with the National Committee of the Man and the Biosphere Programme (MaB National Committee) and the National UNESCO Commission, the Flores Island Biosphere Reserve was also promoted through the showcasing of local products certified with the *'Biosfera Açores'* brand, at various events including the '*40th anniversary of the Man and Biosphere Programme (MaB)*' celebration, which took place on 3 November 2011 at the UNESCO headquarters in Paris, the '*Mostra da Rede Portuguesa de Reservas da Biosfera' (Exhibit by Portuguese Biosphere Reserves Network)*, which took place at the Assembly of the Republic between 2 and 5 July 2013, and the BTL - International Tourism Fair, which took place in Lisbon from 15 to 19 March 2017.

Currently, the 'Biosfera Açores' brand is used by 21 companies, sole proprietors and service providers in the Flores Island Biosphere Reserve, including: Cooperativa Ocidental CRL, Aldeia da Cuada, Associação de Pescadores e Associação Agrícola Florentina CRL.

Ever conscious of the added value it brings to their products, all of these entities proudly display the logo on their products and communication forms. The image below shows various products by Cooperativa Ocidental CRL with the 'Biosfera Açores' logo

Various artisans on the island who work with wood, a local and natural product – wood – as their raw material, also carry the 'Biosfera Açores' logo. They include the artisan Jorge Cravinho.

Figure 15 - Butter and Cheese produced by Cooperativa Ocidental CRL, featuring the "Biosfera Açores" logo.

Figure 16 - Handcrafted wood carving by Jorge Cravinho, featuring the 'Biosfera Açores' logo (Photograph by Jorge Cravinho).

Recently, the Government of the Azores promoted a study indicating that consumers are ready to pay more for beef raised in areas classified as a Biosphere Reserve. This suggests that meat raised on these islands and marketed with the Biosphere Reserve brand could occupy a specific niche in the market and have greater economic value.

More recently, the Flores Island Biosphere Reserve participated in an exhibition organised by Portugal on the 'National UNESCO Biosphere Reserves Network', which was held on 1 May 2017 at the UNESCO headquarters in Paris. The Biosphere Reserve was also mentioned in the March supplement of the magazine '*I Like This*' (No. 16), under the theme '*Sustainable Development: 17 Territories - 17 Objectives* ', a small text alluding to our Biosphere Reserve.

In April 2019, the Reserve was featured in the inaugural issue of the Portuguese Network of Biosphere Reserves Network newsletter, published and supported by the Portuguese MaB Committee. The newsletter can be accessed online at:

http://www.biosfera-mesetaiberica.com/sites/default/files/documentos/newsletter_rb_1_abril_19.pdf

2.3.4 Strategies for fostering networks of cooperation in the biosphere reserve that serve as connections ('bridging') among diverse groups in different sectors of the community (e.g. groups devoted to agricultural issues, local economic development, tourism, conservation of ecosystems, research and monitoring).

The establishment and functioning of the Management Board, including all sectors and stakeholders of the Biosphere Reserve, ensures permanent cooperation at the Biosphere Reserve level and allows a constant and cross/sectoral dialogue on the management of the Reserve and the stimulation of its activities.

Since the publication of Regional Legislative Decree No. 15/2012/A, of 2 April, in 2012, which established the legal regime for nature conservation and the protection of biodiversity, the proposed Management Board meets ordinarily once every six months, as established in the same legal document.

Sectoral projects involving local actors and other regions and countries have also emerged, including an international project in collaboration with other Biosphere Reserves in the Azores, the La Palma Biosphere Reserve and the Madeira Institute of Forests and Nature Conservation, aimed at introducing this concept to

the Azores Autonomous Region for the first time through actions involving the restoration and valorisation of landscape.

2.3.5 Particular vision and approaches adopted for addressing the socio-cultural context and role of the biosphere reserve (e.g. promotion of local heritage resources, history, cultural and cross-cultural learning opportunities; cooperation with local population; reaching out to recent immigrant groups, indigenous people etc.).

The Flores Island Biosphere Reserve, in addition to its conservation and development work, also seeks to contribute to the appreciation of the island's identity, culture and heritage, through various initiatives. In the past decade, much has been done to preserve the culture, traditions and heritage of Flores Island. The island's two municipalities have developed infrastructures that significantly bolster preservation and conservation, including the construction of two municipal museums and the creation of various museological sites in Lajes das Flores. This municipality in particular has made enormous efforts in restoring and revitalising historically significant buildings, transforming them into tourist sites and places of learning regarding the lives and traditions of earlier eras. These include the restoration of water mills, fountains and other buildings relevant to the district's history and culture.

Santa Cruz das Flores Municipal Museum

The construction of the Santa Cruz das Flores Municipal Museum in 2014 emerged out of a need to create a permanent cultural facility in the district that could serve both local residents and tourists. With a view to serving society and contributing to its wellbeing and development, this new museum contains various exhibition spaces and services, including an auditorium, temporary and permanent exhibition rooms, a library, a studio, an archive and a production area, among others. The purpose of the Santa Cruz Municipal Museum is to create a space in the community of Flores Island that provides qualified services in culture, education and citizenship, that reflects on the history, memory and identity of the island and that enriches children, youth and adults with new forms of expression – aesthetic, corporeal, musical and intellectual – offering new opportunities for social interaction and participation.

Figura 17 - Santa Cruz das Flores Municipal Museum.

Lajes das Flores Municipal Museum

Inaugurated in 2013, this contemporary architectural building provides various services including an internet café, a library, an exhibition space and an auditorium for conferences and film screenings.

Figure 18 - Lajes das Flores Municipal Museum.

Museums of Lajes das Flores

Distributed throughout various civil parishes, these Museums were created and developed to preserve and promote the culture and heritage of the district and the principal activities that have marked its development. Important economic activities, including agriculture, dairy production and whaling are showcased in these museums, as well as carpentry and clothes manufacturing.

Museum of Lomba

Housed on the site of a former dairy factory in Lomba that operated from 1918 to 1983, this building was recently renovated and showcases various machines and instruments used in the development of activities related to the dairy industry. The museum also features several farming implements.

Figure 19 - Interior of the Museum of Lomba.

Casa do Lavrador Museum (Farmer's Residence) – Lajes

Dating from the early 20th century, this museum once served as a farmer's residence and features a typical 'Loja' on the lower floor, the space where agricultural tools, a part of the harvest, carpentry tools and even animals were kept in the winter. The upper floor features furniture typical of the period, as well as a traditional loom used for spinning wool.

Figure 20 - Interior of Museu Casa do Lavrador.

The exterior of the residence features a corn crib[2] for drying corn, a chopper for cutting firewood, a clothes horse for drying clothes, a tank for storing rainwater and a pig pen, elements that complemented a typical farmer's home in the early 20th century.

Fajã Grande Museum

This museum showcases a residence equipped with all the tools that a typical mid-20th century home used to carry. It features an abundance of spaces for relaxation, communal areas and work spaces, as well as tools used for everyday activities.

Lajes Dairy Museum

Like the Museum of Lomba, the Lajes Dairy Museum serves as a living memory of the dairy industry on Flores Island. With a history spanning nearly 80 years, this space shows how dairy production was developed over time and features cheese and butter/making equipment.

Figure 21 - Lajes das Flores Dairy Museum.

[2] Wood structures used for storing corn.

Lajes das Flores Whaling Station

This space, now converted into a museum, is where products derived from whaling were transformed and created. Here, one can see the boilers where oil was separated from the blubber, as well as several tools used for hunting whales and cutting up the meat.

Figure 22 - Interior of the Whaling Museum.

Whale Watching Posts

From the second half of the 19th century, a significant portion of the population of Flores Island, like the rest of the archipelago, became involved in the whale hunting industry. The District of Lajes was no exception. Whale watching posts were structures used for coordinating the hunt. There, 'sentries' would scan the ocean for 'sightings' and, using signals, provide directions for the boats that sailed out to capture the whales. These strategically located structures now offer panoramic views of both the parishes and the immense surrounding ocean.

Figure 23 – A restored whale watching post in Fazenda das Lajes.

Watermills

Watermills were important structures on Flores Island. There, farmers could bring their grains and secure flour in exchange for a payment (consisting usually of a portion of the final product). The flour was then used for making food, including bread, roll cakes and the so-called 'green porridge' (papas verdes). In

the district of Lajes, various watermills can still be found in good condition. Some are still in operation, thanks to restoration and maintenance efforts by the municipality over the past decade.

The parish of Fajãzinha has a watermill whose origins date back nearly a century and half to 1869. Situated in a valley with breathtaking surroundings, the watermill, which still functions today, is one of a few in which the entire corn milling process can be seen from beginning to end. In the parish of Mosteiro, a watermill was recently restored and is currently in operation. Finally, in the parish of Fajã Grande, near the Poço do Bacalhau waterfalls, various watermills (no longer in use) can be seen, underscoring the importance of this water body to the parish.


Figure 24 - Left: a watermill in Fajãzinha; Right: interior of the mill, restored by the Lajes das Flores Municipal Council.

Fountains

In the days before tap water was available, fountains played a very important role in the daily lives of local inhabitants. Today, they serve as historical and architectural landmarks. Scattered throughout various parishes, some trace their origins back to the 19th century. Several have been rebuilt and restored, with each of them bearing their own distinct features.

Figure 25 - Restored 19th century fountain in the parish of Fazenda das Lajes.

Museum of Flores

The Museum of Flores re-opened its doors to the public in August 2016 following a renovation. It reflects the human experiences of an island lying midway between Europe and the Americas that provided a key supporting role for ships in their transatlantic voyages. Well beyond its richness and size, it was Flores' unparalleled geostrategic position that determined its human settlement.

The Museum of Flores is housed in the former Franciscan convent of São Boaventura. The ceiling of its church is made of polychrome cedar and features plant and floral motifs. The museum's collection of crockery, weaving and spinning artefacts, ample display of textiles, farming utensils, butter-making tools, and objects sent from émigrés to the United States testify to the everyday lives of its residents. On the second floor, the history of the island's links to the Atlantic and the various pirate incursions it suffered up to the

19th century is on display. Various evidences of the connection to the sea can be seen: nautical instruments, salvaged objects, the bones and teeth of a sperm whale, a 1928 fishing boat with gear and an interactive model representing the shipwrecks that occurred between the 16th and 20th centuries.

Figure 26 - Permanent exhibition of the Museum of Flores.

Boqueirão Whaling Museum

Inaugurated on 21 July 2015, this museum offers visitors a two-part tour: the ground floor (which was extended for museological purposes) features a history of whaling (the hunting of sperm whales) on Flores Island, while the former factory installations showcase the machines used in the production of oil and flour for export.

This emblematic activity and the rich collection of boats, equipment and audiovisual details from the era have captured the attention of tourists who visit the island. In 2018, the museum received more than 6,000 visitors, demonstrating continued growth year after year.

Figure 27 – Boqueirão Whaling Museum.

2.3.6 Use of traditional and local knowledge in the management of the biosphere reserve.

Whenever possible, the management of the Biosphere Reserve seeks to value and put local traditions and knowledge into practice as a way of promoting the cultural identity of Flores Island. The incorporation of educational activities based on traditional practices is one of the most characteristic interventions of the Biosphere Reserve.

The Regional Directorate for the Environment promotes the following programmes on an annual basis through the Nature Parks: Parque Escola, an educational programme for schools, and Parque Aberto, which

offers a series of activities held in the island's Nature Parks by staff or by its partners. They are designed to involve the whole community and aimed at raising awareness and combining efforts towards promoting a more sustainable and environmentally friendly society.

Of the many activities offered, workshops and interpretive tours based on traditional customs and practices are frequently held. Examples include Parque Aberto activities, 'Craftmaking at the Centre', a Workshop on 'Handcrafting with Hydrangea Stems' and a Workshop on 'Eco-traditions: Craft-making with Corn Husks'. The latter two workshops involve the creation of handicrafts made from corn husks and hydrangea stems, allowing participants to discover natural materials once used for making tools and/or decorative pieces. These workshops were conducted as part of the International Day for Biosphere Reserves.

Figura 28 - Workshop 'Eco-Traditions – Craft-making with Corn Husks.

Figure 29 - Handcrafting with Hydrangea Stems and a Poster Advertising Craftmaking Activities at the Boqueirão Interpretation Centre.

2.3.7 Community cultural development initiatives. Programmes and actions to promote community language, and, both tangible and intangible cultural heritage. Are spiritual and cultural values and customary practices promoted and transmitted?

There are many activities on the island that promote local traditions.

One of its important cultural traditions is music, concerts and dances, which brought people together and provided a way of breaking the burden of isolation. It was the taste for music and fun that led to the creation of philharmonic bands, the first philharmonic that emerged on the island was in 1875, and folk groups, which provided a way of maintaining and preserving the traditions of folk songs and dances. Owing to a declining population, only one philharmonic band remains in existence today, servicing all of the parishes on the island. It also runs a music school, enabling children to learn the art of music.


Figure 30 - Expressions of musicality on Flores Island.

Since its candidature as a Biosphere Reserve, Flores Island has two active folkloric groups in existence – the Grupo Folclórico e Etnográfico da Associação Cultura Lajense and the Grupo Folclórico da Casa do Povo de Ponta Delgada das Flores. These groups perform a repertoire featuring various themes from traditional music and costumes that represent the ancient experiences of the Florentine people.

Another of the more interesting manifestations that remain are the Carnival balls held in various salons by associations on the island and the enactment of traditional 'Carnival dances' during Carnival, adding excitement and colour for local residents.

Figure 31 - Carnival dance troupe 2017.

The island also has a theatre group– 'A Jangada' – which performs a diverse array of plays of various styles. It focuses particularly on children's theatre as a way of captivating and attracting new actors.

Figure 32 - Poster of a children's play performed by the Theatre Group 'A Jangada'

2.3.8 Specify the number of spoken and written languages (including ethnic, minority and endangered languages) in the biosphere reserve. Has there been a change in the number of spoken and written languages? Has there been a revitalization programme for endangered languages?

The official language of the Portuguese Republic is Portuguese, as determined by Paragraph 3 of Article 11 of the Constitution of the Portuguese Republic.

2.3.9 Management effectiveness. Obstacles encountered in the management/coordination of the biosphere reserve or challenges to its effective functioning.

The main constraints of the Flores Island Biosphere Reserve in terms of management are related to the nature and size of the island itself, limited by the lack of critical mass and difficulties in accessing sources of financing or programmes at both national and European level, for which applications from an island like Flores are not always eligible or accessible.

2.4 Comment on the following matters of special interest in regard to this biosphere reserve: (Refer to other sections below where appropriate).

2.4.1 Is the biosphere reserve addressed specifically in any local, regional or/and national development plan? If so, what plan(s)? Briefly describe such plans that have been completed or revised in the past 10 years.

Following the designation of Flores Island as a Biosphere Reserve, in 2009, several legal instruments were published by the Regional Government of the Azores which specifically apply to the Biosphere Reserves of the Azores:

- The **Tourism Land-Use Plan for the Autonomous Region of the Azores (POTRAA)**, presently undergoing revision, approved by Regional Legislative Decree no. 38/2008/A of 11 August, defines the sustainable-development strategy for the tourism sector and the territorial model to be adopted. Its overall

aims are to develop and establish a sustainable-tourism sector that safeguards economic development, to preserve the natural and human environment, to contribute to land -use planning on the island and to help reduce economic the disparity within the region;

- The **Flores Nature Park (PNFLO)**, created by Regional Legislative Decree No. 8/2011/A, of 23 March, which creates the management unit of all of the protected areas of the island included in the Network of Protected Areas of the Azores;

- The **Regional Land-Use Plan for the Azores Territory (PROTA)**, approved by Regional Legislative Decree No. 26/2010/A, of 12 August. At the regional level, the main aims of this plan are to develop national options for land-planning policies and sectoral policies by expressing, in spatial terms, the principle aims of economic, social and environmental development in the region; to draw up a regional strategy for land planning and a benchmark system for the elaboration of spatial, municipal and cross-municipal land-use plans; to direct the harmonisation of the various sectoral policies concerning space, particularly those relating to the environment and natural resources; to contribute to reducing imbalances in intra-regional development, taking into account the specific characteristics of each island; and to defend the value of the landscape and natural and cultural heritage as elements that make up the identity of the region, protecting, managing and planning it in conjunction with the undertaking of human activities.

- The **Regulation of the *'Biosfera Açores'* brand, the Manual of Procedures and its Declaration Model**, approved by Ordinance No. 27/2011, of 28 April. This regulation establishes the conditions for the use of the *'Biosfera Açores'* logo and brand, with the purpose of promoting and disseminating local resources, products, goods and services, both locally and abroad, including agri-food, handicrafts, and tourism promotion with a view to the sustainable development of the local populations of the Azores islands which are classified as Biosphere Reserves by UNESCO;

- The **Strategic Plan for Cohesion of the Azores**, with cohesion having been designated by the Government of the Azores as a strategic factor of governance and an element that brings people together and improves the conditions offered in the different physical spaces of the Region, promoting the settlement of people and families, including their enhancement (social cohesion), and also providing conditions for the development of entrepreneurial activities that generate wealth and employment (economic cohesion).

Participating islands in the Cohesion Plan are: São Jorge, Graciosa, Santa Maria, Flores and Corvo. In the specific case of the island of Corvo, the Strategic Plan for the Cohesion of the Azores proposes a set of factors to be considered in a cohesion strategy.

- The **Legal Regime for Nature Conservation and the Protection of Biodiversity**, approved by Regional Legislative Decree No. 15/2012/A, of 2 April. This contributes to ensuring biodiversity by conserving or restoring natural habitats and wild flora and fauna, leaving them in a favourable state of conservation, and by protecting, managing and controlling wild species, and regulating their use. It also aims to regulate cultivation or breeding of species in captivity and the introduction into nature of non-native species of flora

and fauna in the region, as well as the creation of adequate measures of control and eradication of those invasive species or those known to represent an ecological risk.

2.4.2 Outcomes of management/cooperation plans of government agencies and other organizations in the biosphere reserve.

The plans described above are legal instruments for territorial or sectoral planning and management, which in turn are strategically aligned with the Azores 2020 Operational Plan. The Biosphere Reserve gives local expression to these instruments in the sectors of conservation and socio-economic promotion.

The most recent planning and management instruments are associated with corresponding monitoring programmes, control indicators and others considered pertinent, which will allow the implementation of the actions and the strategy defined in the aforementioned plans to be evaluated.

2.4.3 Continued involvement of local people in the work of the biosphere reserve. Which communities, groups, etc. How are they involved?

Each of the biosphere reserves of the Autonomous Region of the Azores has a management board that includes all of the stakeholders active on the island, so that the biosphere reserve itself is an ongoing space for dialogue, cooperation and coordination.

In addition to the bodies represented on the Management Board, it is worth noting the involvement of the different departments of the Government of the Azores focusing on matters concerning environmental quality, nature conservation, land use, water resources, forests, marine affairs including fisheries, scientific research and tourism.

Through various actions in various fields (conservation, culture, tourism, etc.), the local population participates actively and regularly. Examples of this participation include the multiple and diverse activities and actions that fall within the scope of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), which are organised by the different local stakeholders, both public and private.

	Environmental Education Activities Carried Out on Flores Island 2012-2017						
Year	2012	2013	2014	2015	2016	2017	**Total**
No. Activities	33	27	48	48	57	68	**281**
No. of Participants	1266	897	1193	818	1001	1661	**6836**

Source: Azorina

Between 2012 and 2017 alone, about 280 activities were carried out on the island, involving 6,836 participants, across the various regional programmes and campaigns: Parque Escola; Parque Aberto, Açores Entre-Mares, Campanha SOS Cagarro; Semana dos Resíduos dos Açores, Reserva da Biosfera, Geoparque Açores, Bandeira Azul, commemorative days, among others.

Figure 33 - Environmental education and awareness actions and activities held on Flores Island.

2.4.4 Women's roles. Do women participate in community organizations and decision-making processes? Are their interests and needs given equal consideration within the biosphere reserve? What incentives or programmes are in place to encourage their representation and participation? (e.g. was a 'gender impact assessment' carried out?) Are there any studies that examine a) whether men and women have different access to and control over sources of income and b) which sources of income do women control? If so, provide reference of these studies and/or a paper copy in an annex.

As enshrined in Article 13 of the Constitution of the Portuguese Republic, all citizens are entitled to the same social dignity and are equal before the law. No one is privileged, favoured, discriminated, deprived of any right, or exempt from any duty because of their ancestry, sex, race, language, territory of origin, religion, political or ideological convictions, education, economic situation, social condition or sexual orientation.

2.4.5 Are there any changes in the main protection regime of the core area(s) and of the buffer zone(s)?

After 2009, several legal documents were published that established a supplementary means of safeguarding these territories, namely:

In 2009, two zones previously classified as Sites of Community Interest (SIC) were reclassified as Special Areas of Conservation (SAC) in the **European Union's Natura 2000 Network** through Regional Regulatory Decree No. 5/2009/A of 3 June. They comprise the Central Zone – Morro Alto, Ilha das Flores (PTFLO0002),

situated in the Core Area of the Biosphere Reserve, and the Northeast Coast (PTFLO0003), situated in the Buffer Zone of the Biosphere Reserve.

In 2011, the **Flores Island Nature Park** was created, approved by Regional Legislative Decree No. 8/2011/A, of 23 March, which constitutes the management unit of all the protected areas of the island included in the Network of Protected Areas of the Azores. It aims to establish mechanisms for the conservation, preservation and management of ecosystems, biodiversity and the natural, scenic, scientific and spiritual values and resources of the Azores and to contribute to the creation of a fundamental network of nature conservation that coordinates the various regimes of protection and safeguarding of natural resources and values.

In 2012, Regional Legislative Decree No. 15/2012/A, of 2 April, was published, which establishes the **legal regime for nature conservation and the protection of biodiversity**, contributing to ensuring biodiversity through the conservation or restoration of natural habitats and of wild fauna and flora in a favourable status of conservation, and the protection, management and control of wild species, and the regulation of their exploitation.

In 2013, the **Land-use Plan for the Watersheds of Lakes Branca, Negra, Funda, Comprida, Rasa, Lomba and Patas on Flores Island (POBHL Flores)**, approved by Regional Regulatory Decree No. 6/2013/A of 21 May, was published. The goal of POBHL Flores is to establish rules and regulations regarding the use of water surfaces and the occupation, use, transformation and enjoyment of the land around the area of intervention, including regulations that specify permitted, conditional and prohibited uses and activities. The intervention area for this plan includes the surface waters of all the lakes on Flores Island and their respective zones of protection, only one of which is located outside the Core Area of the Biosphere Reserve (in the Buffer Zone).

2.4.6 What research and monitoring activities have been undertaken in the biosphere reserve by local universities, government agencies, stakeholders and/or linked with national and international programs?

In the last 10 years, the following research and monitoring activities have been developed in the Flores Island Biosphere Reserve, with special attention being paid to nature conservation and the sustainable management of resources and land:

2007-2009 – REMAx project – Experimental Network for Marine Education in the Azores, coordinated by the IMAR Centre at the University of the Azores and financed by the Regional Secretariat for the Environment and the Sea, aimed at developing marine education initiatives and stimulate future cooperation between education providers and society. This project aims to create the Marine Education Network of the Azores.

2009 – Network to Monitor Beachings in the Azores (Rede de Arrojamento de cetáceos dos Açores – R.A.C.A)

2012 – TRACE project - mapping the movements and habitat use of baleen whales and sperm whales in the North Atlantic at varying time and space scales to identify biologically and ecologically important areas for the conservation of these species.

2012 – Programme consisting of the photo-identification and acoustic recording of cetaceans.

2012 – Assessment of the risk to terrestrial birds in the Azores from exposure to haemosporidian parasites, especially avian malaria.

2012 – Research Project on the 'Development and implementation of a monitoring programme for the collection of information and assessment of the conservation status of habitats listed in Annex I and species listed in Annexes II, IV and V of the Habitats Directive related to land areas.

2012 – Study promoting general knowledge of the biology and ecology of *Grampus griseus*, assessing its importance for (potentially) resident populations in the context of a doctoral project and the research programme Risso Project, which has been developed by the Nova Atlantis Foundation since 2000.

2012-2013 – Development of techniques for the passive detection and localisation of cetaceans through acoustic means.

2012-2014 – Research project on the effects of anthropogenic noise on the behaviour of cetaceans.

2012-2015 – MAPCET project - assessment of the conservation status of cetaceans, providing necessary information on the dynamics and ecology of cetacean communities and the effects of human activities on the integrity of these communities.

2012-2015 – AZORPI project - This study provided information on the ecology and taxonomic and conservation status of *Columba palumbus azorica*; it also involved the collection and removal of other dead terrestrial birds and bats to other ongoing research projects.

2013 – Capture and handling of wild animals for ringing, collection of biometric data and blood samples from avifauna specimens as a follow-up to a study initiated in the context of the doctoral project 'Biogeography and Evolution of Azorean Passerines – An Integrative and Comparative Approach'.

2013 – More Endemics – Planting the Future

2013-2018 – Collection of seeds for conservation at the Regional Germplasm Bank in Faial Botanical Garden.

2014 – Study of the population dynamics of *Sterna hirundo* (common tern), *Sterna dougallii* (roseate tern) and *Calonectris diomedea borealis* (Cory's shearwater).

2014 – Study of the origin of plant biodiversity in the Azores and its colonisation by *Cardamine hirsuta*.

2014 – Study and promotion of bryophytes and ferns as bioindicators of climate change, in the context of the project 'MOVECLIM: Montane vegetation as listening posts for climate change'.

2014 – Production of maps depicting cetacean distribution in the Azores and knowledge on the ecology of the species, in the context of a doctoral project financed by the Regional Fund for Science, a follow up to studies initiated by the MONICET research project.

2015 – Study of the distribution and phylogeny of the genus *Cladonia*, in the context of the 'Coevolution of Cladoniaceae and associated fungi' project.

2015 – Capture and handling of wild birds for ringing and collection of blood and stool samples, in the context of the 'Biogeography of coccidian, haemosporidian and avian pox in Macaronesian passerines' project.

2015 – Study of the diet, communication, population dynamics and productivity, and monitoring and counting of seabirds in colonies in the Azores.

2015 – Study of the evolutionary pattern of the species to understand the dispersal mechanisms and subsequent differentiation in the different islands, in the context of the '*Woodwardia radicans* phylogeography project'.

2015 – Study aimed at assessing the risk to terrestrial birds in the Azores from exposure to haemosporidian parasites, especially avian malaria.

2015-2017 – Project 'MISTIC SEAS' coordinated by FRCT and DRAM with the aim of establishing a common methodology for monitoring marine biodiversity in the sub-region of Macaronesia

2016 - Monitoring of coastal and oceanic clean-up campaigns organised by different non-governmental organisations (NGOs)

2016 – 'AZMONIRISK' network for monitoring geomorphological instability in the parish of Fajãzinha – Flores Island

2016 –'DECISIONLARM' network for monitoring kinematics and hydrology of geomorphological instability of slopes near the parish of Lajedo.

2016 – Monitoring the Water Quality of Lakes in the Azores - Flores

2017 – Research on eel migration in the Azores – 'Eel Trek'

2015-2017 –Project 'MISTIC´SEAS II' Implementing and testing the monitoring methodologies and programmes established in MISTIC SEAS I.

2017-2019 – INTERREG LuMinAves (MAC/4.6d/157) has as its three main objectives: a) to assess the conservation status of seabirds in Macaronesia; b) to raise awareness of, protect and rescue wounded seabirds and seabirds who have been disoriented by artificial lighting; and c) to reduce the impact of light pollution on seabird colonies (Macaronesian strategy).

2.4.7 How have collective capacities for the overall governance of the biosphere reserve (e.g. organization of new networks of cooperation, partnerships) been strengthened?

The current management model in the Flores Island Biosphere Reserve includes the participation of all the island's stakeholders on the Management Board, so that the Biosphere Reserve itself constitutes a permanent space for dialogue, cooperation, coordination and capacity building through effective experiences, both internally and with partners from other geographical realities.

2.4.8. Please provide some additional information about the interaction between the three zones.

The interaction between the three zones of the Biosphere Reserve is formally coordinated through the planning and management tools in which the functions inherent to each type of zone are clearly identified. Conservation is the fundamental element of the planning, being compatible with the other activities, emphasising the proper functional coordination between the different categories of protected natural spaces (Natural Park, Natura 2000 Network, Ramsar, Geo-sites) and between these and the remaining types of classification of the territory.

2.4.9 Participation of young people. How were young people involved in the organizations and community decision-making processes? How were their interests and needs considered within the biosphere reserve? What are the incentives or programs in place to encourage their participation?

Young people are involved primarily through the reserve's partnerships with schools for environmental education activities and programmes, as well as through the participation of various associations and groups, including Scout Group 691, who are long standing partners of the Biosphere Reserve.

Within the framework of the implementation of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), promoted by the Flores Island Nature Park, several environmental education programmes and actions are implemented and developed in partnerships with local authorities, schools, associations, clubs and non-governmental environmental organisations, namely:

Eco-Escolas Programme – a European initiative under the purview of the Foundation for Environmental Education, which aims to encourage actions and recognise the work developed by the school for the benefit of the environment. It involves the participation of the entire student community on the island;

Figure 34 – Commemoration of Eco-Escola international day 'World Days of Action 2015' at the Flores Primary and Secondary School (Source: http://ebsflores.pt.vu).

SOS Cagarro Campaign – aims to involve people in the rescue of juvenile Cory's shearwaters (cagarro). These campaigns are preceded by formal clarification sessions and/or informal contacts with potential partners. It involves the whole island and its population;

Parque Escolas Programme – a regional initiative that intends to provide resources and information to the school community through actions on various themes, involving all of the schools on the island;

Parque Aberto Programme – a regional initiative that promotes actions and activities taking place within protected areas and/or environmental centres, encouraging the participation of the entire population. This programme also promotes actions related to the cultural and traditional aspects of the island;

European Week for Waste Reduction 2018 (EWWR) This regional initiative is now in its 9th year, the first edition having been launched in 2010. The primary aim of its activities is to raise awareness on the island about proper waste management practices and to provide information on appropriate venues for waste produced in local homes, businesses and services.

Figure 35 - A visit to a Waste Processing Plant on Flores Island by students from the Flores Primary and Secondary School as part of European Week for Waste Reduction 2018 (Source: www.cmscflores.pt).

Açores Entre-Mares - a regional initiative takes place over 20 days, between European Oceans Day (20 May) and World Oceans Day (8 June) and promotes activities that raise awareness of sustainability and the oceans in the Azores.

Figure 36 - Beach clean-up by students from the Lajes Elementary School - Azores Entre-Mares 2015.

3. ECOSYSTEM SERVICES:

3.1 If possible, provide an update in the ecosystem services provided by each ecosystem of the biosphere reserve and the beneficiaries of these services.

(As per previous report and with reference to the Millennium Ecosystem Assessment Framework and The Economics of Ecosystems and Biodiversity (TEEB) Framework (http://millenniumassessment.org/en/Framework.html and http://www.teebweb.org/publications/teeb-study-reports/foundations/)).

There is no descriptive study of the ecosystem services provided by the natural systems of Flores Island. However, the following environmental services can be identified from the various ecosystems that make up the Flores Island Biosphere Reserve:

- **Natural marine and terrestrial ecosystems**: food, climate regulation, nutrient cycle, research, leisure and tourism;
- **Agrarian ecosystems:** food, cultural heritage, humanised landscape, nutrient and water cycle;
- **Urban and humanised ecosystem**: regulation of air and water quality, leisure and tourism, cultural and religious heritage.

The main recipients of these services are the population of Flores Island, the scientific community and visitors/tourists who visit the island.

3.2 Specify if there are any changes regarding the indicators of ecosystem services that are being used to evaluate the three functions (conservation, development and logistic) of the biosphere reserve. If yes, which ones and give details and update.

Since a specific system of indicators for monitoring or evaluating of ecosystem services have not yet been established, general statistical indicators are generally used for the most relevant sectors (farming, fisheries, tourism), as well as specific activities that can contribute to a preliminary assessment of these services.

3.3 Update description on biodiversity involved in the provision of ecosystems services in the biosphere reserve (e.g. species or groups of species involved).

Table No. 1 - Species of flora involved in the provision of ecosystem services

FLORA			ENVIRONMENT SERVICES
GROUP	ECOSYSTEM	SPECIES	
Spermatophyta	Coastal	*Azorina vidalii*	Research
Spermatophyta	Altitude	*Juniperus brevifolia*	Research
Spermatophyta	Coastal	*Tolpis spp.*	Research
Vascular plants	Altitude	*Vaccinium cylindraceum*	Food
Spermatophyta	Altitude	*Ammi trifoliatum*	Research
Bryophyte	Altitude	*Sphagnum spp.*	Climate regulation
Non-vascular plants	Coastal and marine	*Porphyra sp.*	Food
Spermatophta	Altitude	*Chaerophyllum azoricum*	Research

Table No. 2 - Species of fauna involved in the provision of ecosystem services

FAUNA			ENVIRONMENT SERVICES
GROUP	ECOSYSTEM	SPECIES	
Molluscs	Marine	*Patella spp.*	Food
Cetaceans	Marine	*Tursiops truncates*	Leisure and tourism
Cetaceans	Marine	*Delphinus delphis*	Leisure and tourism
Molluscs	Marine	*Octopus vulgaris*	Food
Crustaceans	Marine	*Megabalanus azoricus*	Food
Crustaceans	Marine	*Palinurus elephas*	Food
Crustaceans	Marine	*Maja capensis*	Food
Crustaceans	Marine	*Scyllarides latus*	Food
Fish	Marine	*Epinephelus marginatus*	Food / Leisure and tourism
Fish	Marine	*Mullus surmuletus*	Food
Fish	Marine	*Phycis phycis*	Food
Waders	Coastal aquatic	*Arenaria interpres*	Leisure and tourism
Waders	Coastal aquatic	*Calidris alba*	Leisure and tourism
Waders	Coastal aquatic	*Charadrius alexandrinus*	Leisure and tourism
Waders	Aquatic	*Numenius phaeopus*	Leisure and tourism
Egrets	Wetland	*Egretta garzetta*	Leisure and tourism
Egrets	Wetland	*Ardea cinerea*	Leisure and tourism
Ducks	Wetland	*Fulica atra*	Leisure and tourism
Ducks	Wetland	*Aythya fuligula*	Leisure and tourism
Shearwaters	Marine	*Calonectris borealis*	Leisure and tourism
Shearwaters	Marine	*Puffinus puffinus*	Research / Leisure and tourism
Shearwaters	Marine	*Puffinus iherminieri baroli*	Research / Leisure and tourism
Shearwaters	Marine	*Bulweria bulwerii*	Research / Leisure and tourism
Terns	Marine	*Sterna hirundo*	Research / Leisure and tourism
Terns	Marine	*Sterna dougallii*	Research / Leisure and tourism

3.4 Specify whether any recent/updated ecosystem services assessment has been done for the biosphere reserve since its nomination/last report. If yes, please specify and indicate if and how this is being used in the management plan.

The development of a joint action amongst all Azorean Biosphere Reserves (Biosphere Reserves of Corvo Island, Graciosa Island, Flores Island and Fajãs de São Jorge) is being planned to provide a preliminary evaluation of the ecosystem services associated with these Reserves.

4. THE CONSERVATION FUNCTION:

[This refers to programmes that seek to protect biodiversity at landscape and site levels and/or ecological functions that provide ecosystem goods and services in the biosphere reserve. While actions to address this function might be focused on core area(s) and buffer zone(s), ecosystem dynamics occur across a range of spatial and temporal scales throughout the biosphere reserve and beyond.]

4.1 Significant changes (if any) in the main habitat types, ecosystems, species or varieties of traditional or economic importance identified for the biosphere reserve, including natural processes or events, main human impacts, and/or relevant management practices (since the last report).

No significant changes have occurred in the existing habitats in the last decade.

The greatest changes noted are related to the protection of the various scenic, geological and environmental assets, with the creation of the Flores Island Nature Park on 23 march 2011 (Regional Legislative Decree No. 8/2011/A), as part of which 9 protected areas were classified in line with the categories established by the International Union for Conservation of Nature (IUCN), which are as follows: 3 Nature Reserves (II IUCN), 1 Natural Monument (III IUCN), 3 Habitats/Species Management Areas (IV IUCN), 1 Protected Landscape (V IUCN) and 1 Protected Area with Sustainable Use of Natural Resources (VI IUCN).

As well as the framework established by the decree creating the Nature Park, the park also includes a RAMSAR site, two Special Areas of Conservation (SAC), two Special Protection Areas (SPA) and one IBA (Important Bird and Biodiversity Area), classified by Bird Life International.

Also worth highlighting is the ongoing restoration of terrestrial habitats through the eradication and control of invasive plant species and the description of various species new to science in the past decade, including *Tarphius floresensis* – a species of beetle discovered in 2017 by researchers from the University of the Azores. *Tarphius floresensis*[3] Borges & Serrano, 2017, is a species that occurs only on Flores Island, in the natural forests of Morro Alto and Pico da Sé, and in Caldeira Funda.

Figure 37 - Beetle endemic to Flores Island *Tarphius floresensis* (source: www.researchgate.net).

[3] Borges, P.A.V., Amorim, I.R., Terzopoulou, S., Rigal, F., Emerson, B. & Serrano, A.R.M. (2017) Cryptic diversity in Azorean beetle genus *Tarphius Erichson*, 1845 (Coleoptera: Zopheridae): an integrative taxonomic approach with description of four new species.

4.2 Describe the main conservation programmes that have been conducted in the biosphere reserve over the past ten years as well as current on-going ones. Note their main goals and the scope of activities, e.g. biotic inventories, species-at-risk, landscape analyses, conservation stewardship actions. Cross reference to other sections below where appropriate.

Since Flores Island was classified as a Biosphere Reserve, a number of projects and studies have been implemented and continued aiming to safeguard and quantify protected species present on Flores Island, whose small populations place them at risk of extinction or on the threshold of survival. These management strategies have included the development of measures and processes to secure their habitats, active conservation of these populations and sustainable management of resources and the land.

These include the ongoing study and quantification of seabird species and arthropods through the Tern Census and the projects LuMinAves and SLAM (Long Term Ecological Study of the Impacts of Climate Change in the natural forest of Azores).

- Tern Census: This census began in 1989 on the initiative of seabird researchers from IMAR (Institute of the Sea). Its main aim is to monitor populations of seabirds in the Azores that have been granted protected status by the European Community, including the common tern (*Sterna hirundo*) and the roseate tern (*Sterna dougallii*), through the collection of population abundance data. Periodic reporting on the data collected is a legal obligation of the Azores Autonomous Region under Directive 79/409/CEE (Birds Directive) and Directive No. 2008/56/CE MSFD (Marine Strategy Framework Directive – MSFD) with regards to the MONIAVES sub-programme of the Monitoring Programme of the Azores Autonomous Region;

Figure 38 - Main colony of terns on Flores Island - Ponta do Burquilhão.

- LuMinAves: Coordinated by SEO/BirdLife (Sociedad Espanola de Ornitologia), this project counts among its partners the Consejo Superior de Investigaciones Científicas - Estación Biológica de Doñana (CSIC-EBD), the Friends of Pardelas (Canary Islands), the Regional Directorate for Maritime Affairs (DRAM - Azores), the Regional Fund for Science and Technology (FRCT, Açores), the Portuguese Society for the Study of Birds

(SPEA -- Azores and Madeira) and Madeira Natural Park. LuMinAves' main objectives are to raise awareness and strengthen the evaluation of the conservation status of seabirds; to improve methods for rescuing and recuperating seabirds who have been disoriented by artificial lighting; and to reduce the impact of light pollution on seabirds.

- Long Term Ecological Study of the Impacts of Climate Change in the natural forest of Azores - (SLAM): This ecological study, which took place over a 6-year period (2012-2018), was coordinated by the Azores Biodiversity Group at the University of the Azores in collaboration with the Flores Island Environment Department, its main aim being the monitoring of native forests in the Azores. Funded by NETBIOME _ISLANBIODIV and by Student Grants from the EU Eurodyssee Project and EU - ERASMUS Training, the project included the use of two traps placed in the core area of the Reserve.

In addition to the monitoring of species and habitats on Flores Island over the past decade, other monitoring projects have been implemented, including assessments of water quality in the interior and the monitoring of landslides. The unique geodynamics and geography of the Azores, coupled with the complex orography of Flores Island, an island with highly rugged terrain including steep cliffs, means that continuous monitoring is required in a number of risk zones, particularly those close to urban centres. Two projects have subsequently been developed on the island to monitor kinematics and hydrology, one in the parish of Fajãzinha and the other in the parish of Lajedo. Both projects involve a partnership between the Regional Directorate of the Environment and the Regional Laboratory on Civil Engineering:

- 'AZMONIRISK' is a project that monitors geomorphological instability in the parish of Fajãzinha, using a variety of topographical, geotechnical and hydrological methods to assess ruptures, soil surfaces and water pressures that impinge upon rupture planes in the locale. Geodetic monitoring has been conducted since mid-2017 with the use of a Total Station.

Figure 39 - Taking a geodetic reading using a Total Station - project "AZMONIRISK".

- 'DECISIONLARM' co-financed by the Azores 2020 operational programme, this project entails the development of a multi-technical monitoring system (inclinometers, tiltmeters, vibrating wire and Casagrande piezometers, and udometric post) to assess the kinematics and hydrology of a number of

geomorphological instability situations in the parish of Lajedo (Flores Island, Azores archipelago) that have exhibited slow kinematic characteristics and deep rupture planes. The aims are to understand the processes involved in the unstable areas (soil deformation and water pressure) and to develop a system to support decision-making based on alert and alarm levels in order to mitigate risks in the locale.

Figure 40 - Taking an inclinometer reading – project "DECISIONLARM".

With respect to hydrological resources, a **Water Quality Monitoring Network for the Lakes of Flores Island** was implemented by the Regional Laboratory for Hydrological Resources under the direction of the Regional Directorate for the Environment. Monitoring of water bodies in each Hydrographic Region is a requirement under Article 8 of the EU's Water Framework Directive and Article 45 of Portugal's Law on Water (Law No. 58/2005 of 29 December), respectively. Under the laws, the Region must respond in a prompt manner in accordance with the implementation timelines set out in the legislation. Monitoring the status of water bodies is a crucial element in the process of planning and managing the water bodies of a territory, enabling one to define, evaluate and classify their status, both qualitatively and quantitatively, and thus support decision-making in the use of hydrological resources. On Flores Island, the monitoring of its water bodies (surface and subterranean) covers a total of 12 sampling sites for surface waters (7 in rivers and 5 in lakes) and 11 in subterranean waters (springs). The former are monitored every three months, while the latter are monitored every six months. This project was financed by PO Azores 2020 under application number ACORES-06-2013-FEDER-000001.

In parallel with this project, the Laboratory for Hydrological Resources manages a programme that monitors the water quality of lakes in the Azores, including on Flores Island (Funda, Comprida, Rasa and Lomba), the goal of which is to assess and monitor trophic levels.

Figure 41 – Collecting water samples from Comprida Lake.

In terms of litter, it is worth highlighting the implementation of the **LIXAZ project**, which continues the work of another scientific project called AZORLIT, which seeks to determine the quantity of marine litter (micro and macro plastics) reaching the coastal zone of the Azores between 2015 and 2016, and to study the impact of this on the food ecology of marine species.

This scientific project monitors the development of marine litter in the Azores up to 2019, in order to determine whether there was an increase or reduction in the amount of litter along the Azorean coastline.

This monthly monitoring is carried out by the Flores Nature Park team, which is also responsible for monitoring efforts carried out under the OSPAR Convention, coordinated by the Department of Oceanography and Fisheries of the University of the Azores.

Figure 42 - Monitoring marine litter on Praia da Calheta – Lajes das Flores.

In relation to marine litter, the aim of OSPAR, as envisaged in the Strategy for the Protection of the North-east Atlantic Marine Environment 2010–2020, is to substantially reduce the amount of marine litter in the OSPAR maritime zone to levels at which its properties and quantities do not have a negative impact on the marine environment.

4.3 In what ways are conservation activities linked to, or integrated with, sustainable development issues (e.g. stewardship for conservation on private lands used for other purposes)?

The protected areas and those of greatest conservation value are all public, with the result that links between conservation activities and sustainable development issues may be framed as part of the Sustainable Development Goals, particularly number 14 (Protect Life Below Water) and 15 (Protect Life on Land).

An experimental project relating to the safeguarding of the land is underway, which aims to test actions to conserve and enhance the natural and humanised landscape, as well as the cultural heritage, as part of the Cross-border Cooperation Programme - Macaronesia.

4.4 How do you assess the effectiveness of actions or strategies applied?

(Describe the methods, indicators used).

Evaluation of the efficacy of the actions and strategy implemented is carried out in various ways, including analysis of the reports and results of individual actions and interventions, monitoring programmes, and checklists of endemic and indigenous fauna and flora in order to track trends in conservation status.

The management plans for protected spaces and for priority species and habitats also serve as tools for the evaluation of actions and strategies.

Co-financed initiatives are also subject to audits and assessments by the co-funding bodies (e.g. European Commission, Regional Government, Municipalities). Meanwhile, with regard to conservation, some actions are framed by international programmes, directives or conventions which have regular assessment mechanisms (e.g. Natura 2000 Network, Birds and Habitats Directives, the Convention on Biological Diversity, Water Framework Directive, etc.).

4.5 What are the main factors that influenced (positively or negatively) the successes of conservation efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective for conservation for sustainable development?

The classification of Flores Island as a UNESCO Biosphere Reserve has in itself been a positive catalyst for the development of greater awareness of conservation and for the enhancement of natural resources, particularly biodiversity, linked to economic activity, namely tourism.

Meanwhile, growing interest in research on habitats and species in the Biosphere Reserve has produced information which is not only relevant to the management of biodiversity, but also to environmental education and awareness raising.

4.6 Other comments/observations from a biosphere reserve perspective.

Not applicable.

5. THE DEVELOPMENT FUNCTION:

[This refers to programmes that address sustainability issues at the individual livelihood and community levels, including economic trends in different sectors that drive the need to innovate and/or adapt, the main adaptive strategies being implemented within the biosphere reserve, and initiatives to develop certain sectors such as tourism to complement and/or compensate for losses in other markets, employment, and community well-being over the past ten years]

5.1 Briefly describe the prevailing trends over the past decade in each main sector of the economic base of the biosphere reserve (e.g. agriculture and forest activities, renewable resources, non-renewable resources, manufacturing and construction, tourism and other service industries).

There is still potential for the development of environmentally sustainable economic activities. We are currently seeing an increase in demand for items produced in ecologically sustainable systems. This creates potential for the enhancement of certified products.

Agriculture and livestock production

The agricultural and livestock sectors remain dynamic and relevant, as is traditional on the island. The boost to agriculture arising from programmes such as Prorural (2007-2013) and Prorural+ (2014-2020), supported by the European Agricultural Fund for Rural Development (EAFRD) or POSEI Azores, co-funded by the European Agricultural Guarantee Fund (EAGF), has ensured the stability of the sector and the development of local agricultural production.

Figure 43 - Traditional agricultural activity on Flores Island.

These sources of support have primarily boosted the production of tradable goods and the creation of added value (competitiveness goal), as well as the production of a set of public goods and other non-recoverable externalities, compensating for natural and structural handicaps and promoting the occupation, conservation and enhancement of the area and landscape (sustainability goal).

All of the farmers to benefit from payments under the Common Agricultural Policy (CAP) have been subject to environmental cross-compliance checks as part of the Birds and Habitats Directives.

It is also relevant to note that, since 26 November 2016, existing national and European legislation requires that farmers and other stakeholders using pesticides undertake a compulsory training course on the application of plant protection products.

Recently, the Regional Government proposed the development of an action plan aiming to promote beef originating from sites classified as Biosphere Reserves, in conjunction with other brands, as meat with a Protected Geographical Indication (PGI) or the Azores Brand.

Fisheries

Fishing in the Flores Island Biosphere Reserve has always been part of local tradition, although without ever reaching the same level of importance as agriculture. However, with the emergence of new methods of transport and access to distant markets, fisheries have seen an increase in activity over recent years. This new reality warranted the regeneration of Porto da Poças, work which was tendered in 2016 and which is currently in the construction phase.

Figure 44 - Regeneration of Porto das Poças, Santa Cruz das Flores.

Fishing in the Azores is characterised by the application of more traditional technologies, complemented by a set of regulations, such as the 3-mile law, the ban on trawl nets and deep-sea gill nets, and the ban on drift nets and purse seines. In addition, there is a programme to implement a network of protected marine

areas covering the range of habitats and ecosystems in the Azores region, from the coast to the open sea. It is small-scale fishing which enhances sustainability, with hook and line equipment predominant in the various fisheries. This policy aiming to promote the sustainable development of the fishing sector can also be seen on Flores Island.

In the fishing sector, between 12 miles and 200 miles from the coast, regulatory jurisdiction lies with the national government. The regulation of fishing activity up to 12 miles from the coast (Territorial Sea) is under the jurisdiction of the regional government. The Regional Directorate for Fisheries is responsible for leading, coordinating and monitoring the implementation of policy in the fishing sector, promoting and supporting all measures necessary for the development of the sector.

Local products

In addition to other traditional local products, now well established in the regional and national economy, it is worth mentioning the cheeses and butter produced by Cooperativa Ocidental CRL, which are commercialised on almost all the islands of the Azores, as well as continental Portugal and the United States of America. The renovation of the Cooperativa Ocidental factory, which has taken place over the last decade, allowed for improved efficiency and quality of the products made by this dairy processing plant. In recent years, this industrial unit has innovated and recently started producing yoghurt, extracting even greater value from the milk through diversification of dairy products, based on the high quality of milk from the Azores and, in particular, the milk produced within the Flores Island Biosphere Reserve.

Figure 45 - Cheese in the maturing chamber (photograph by Cooperativa Ocidental CRL).

Renewable Energies

Energy production on Flores Island has always come partially from renewable sources, ever since the mid-1960s when electricity was introduced to the main urban hubs on the island. With the arrival and establishment of the 'Flores Telemetry Station,' better known as the Flores French Base, the plan for a hydro power plant complemented by thermal power units has been pursued, and over the last decade key

investments have been made in this area. These investments have been particularly important to the increase of energy production from renewable sources.

Characterisation of the Electricity Generation System

The electricity generation system on Flores Island is composed of a thermal power plant, a hydro power plant and a wind farm. The thermal plant has a nominal power of 3.71 MW, divided unequally between 5 thermal power units. The hydro plant has a nominal power of 1.67 MW, split between 3 hydro power units. The wind farm is composed of 2 wind turbines with a total nominal power of 0.6 MW.

The electrical grid is still assisted by a flywheel to mitigate sudden variations in voltage and frequency.

	Ano de Entrada em Exploração	Potência (MWe) Nominal	Reg. Continuo
CT FLORES		**3,71**	**3,45**
Grupo I	2012	0,50	0,45
Grupo II	2012	0,50	0,45
Grupo III	2012	0,81	0,75
Grupo IV	2012	0,95	0,90
Grupo V	2012	0,95	0,90
CH ALÉM-FAZENDA		**1,51**	**1,51**
Grupo I	1983	0,51	0,51
Grupo II	2015	0,50	0,50
Grupo III	2015	0,50	0,50
PE BOCA DA VEREDA		**0,60**	**0,60**
Grupo I	2002	0,3	0,3
Grupo II	2002	0,3	0,3
Total		**5,82**	**5,56**

Figure 46 - Nominal power of the electricity generation systems on Flores Island[4] (Source: EDA).

Current production and outlook for development

With Lajes das Flores thermal power plant coming into operation in 2012 and the complete overhaul of Além Fazenda hydro power plant, in the second half of 2015, it became possible to achieve higher percentage values of renewable energy penetration on the electrical grid, mostly from hydro power, but also from wind power. In months with higher precipitation, during the night-time period, 100% renewable energy production was recorded. During 2017, with the three electricity generation systems in use, it was possible to reach 52.7% electrical energy from renewable sources, of which 48.5% was hydro power and 4.2% wind power.

[4] Correction: Além Fazenda Hydro Power Plant has a **nominal** power of 1.67 MW.

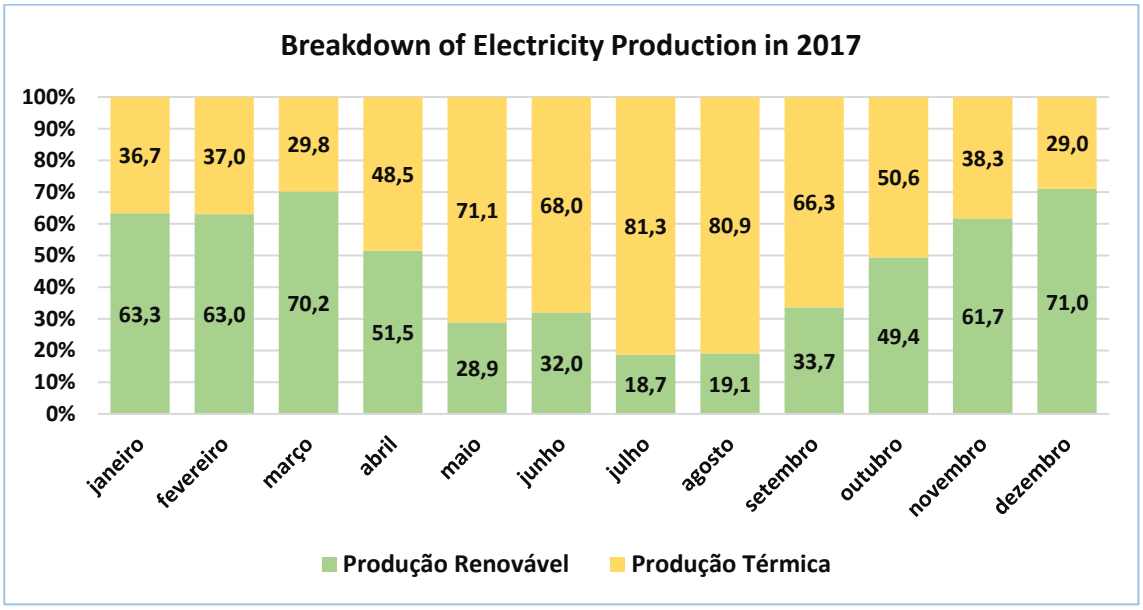


Figure 47 - Graph showing a breakdown of electricity production in 2017 (Source: EDA).

In 2018, a drop was recorded in relation to this resource and, even with the three electricity generation systems operational, it was only possible to achieve 46.3% electrical energy from renewable sources, of which 41.6% was hydro power and 4.7% wind power.

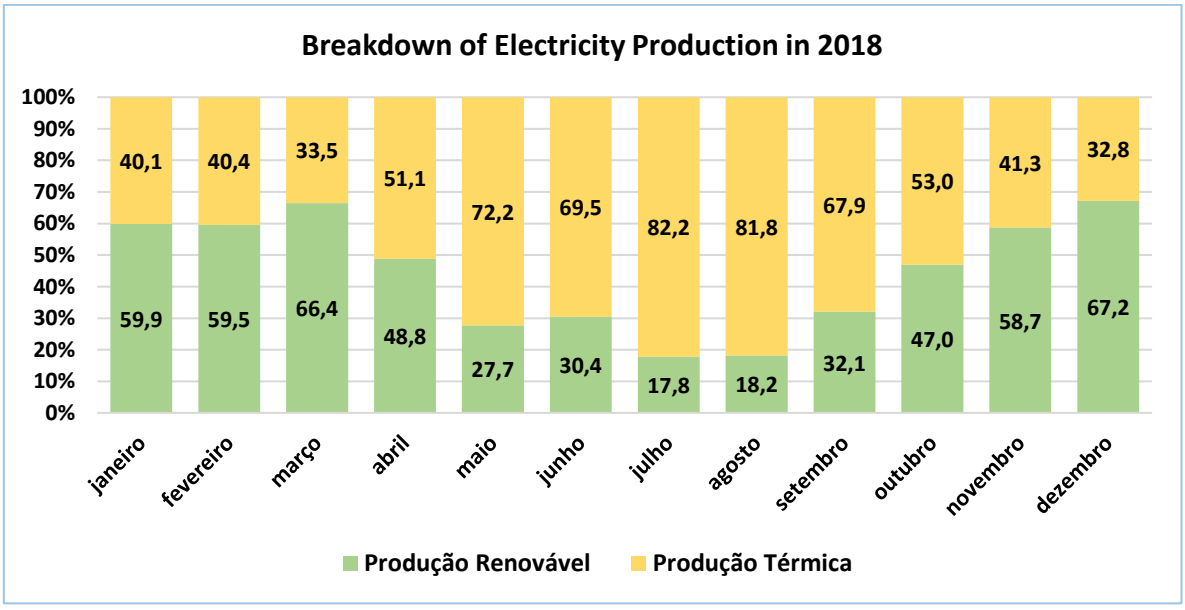


Figure 48 - Graph showing a breakdown of electricity production in 2018 (Source: EDA)

Management of the Hydro Power Plant

The hydro power plant has 3 hydro power units with a total installed power of 1.67 MW, split between two new units of 0.515 MW each, and one unit from 1983 of 0.64 MW.

Its hydraulic path includes a small dam that creates a reservoir with a storage capacity that allows for management over the coming hours, a 2 km-long free-draining channel, a loading chamber with an approximate capacity of 3,000 m^3 that allows for better management of the loads of the hydro power units and a high-pressure penstock with an internal diameter of 1,016 mm and a drop of 100.37 m.

Figure 49 - Além Fazenda dam reservoir (Photograph by Luís Cravinho).

The lack of large river basins, both on Flores Island and the other islands of the archipelago, means that hydroelectric exploitation during less rainy periods is of the run-of-river type. In this way, hydroelectric energy production is directly related to the abundance of the resource and to precipitation levels.

The hydro power units are managed from the command centre at Lajes das Flores thermal power plant, where operators manage the three types of electricity generation units. Except in periods when rainfall is much reduced or even nil, as recorded in certain periods, priority is given to maximum utilisation of hydroelectric energy, and an intelligent choice is made between the thermal power units necessary for the coming hours, thus anticipating the pattern of consumption according to the day of the week and time of year.

However, it is always necessary to safeguard certain well-known consumer behaviours, particularly in the industrial segment. Although not particularly dominant on Flores Island, the industrial sector causes some interesting peaks of consumption, which puts pressure on the equilibrium of the electrical grid, as is the case with the gyratory crusher of one of the largest civil construction companies on the island. In these cases, and with knowledge of the habitual operating hours of these heavy machines, the management of the electrical grid gives priority to thermal production, as the fluctuations caused would not be supported by the hydro power plant, even with the support of the flywheel.

Management of the Wind Farm

The Boca da Vereda Wind Farm comprises 2 ENERCON wind turbines with a unit capacity of 300 kW, making a total of 600 kW.

The management of the Wind Farm is also carried out from the command room at Lajes das Flores thermal power plant. Wind offers enormous potential on Flores Island, but harnessing it for the production of electricity is limited in part by its intermittence, which would cause instability in an isolated electric system.

Figure 50 - Boca de Vereda Wind Farm (Source: EDA).

New hydro power plant - Ribeira Grande, Fajãzinha

With the construction of a new hydro power plant with a nominal power of 1.1 MW shared between 2 similar hydro power units, currently in the final planning stages, it will be possible to break new barriers.

This new harnessing of hydroelectric power, with a run-of-river operation, no dam and no possibility of regulating the electrical grid, will function as a basis for the load diagram. Given that run-of-river hydroelectric production has predictable patterns, with no sudden fluctuations, it can be expected that for most of the year the hydro power units will replace the thermal power units that currently support the Além Fazenda hydro power plant. This new reality will allow this latest technical solution to contribute to the regulation of the frequency and voltage of the electrical grid, except in cases where it is known in advance that consumption will put increased pressure on the system and that only the thermal power units are capable of absorbing such variations and stabilising the grid. The aim will be to achieve annual figures of around 80% electricity production from renewable sources.

Figure 51 - Plan for hydro exploitation in Ribeira Grande, Flores Island (Source: EDA).

5.2 Describe the tourism industry in the biosphere reserve. Has tourism increased or decreased since nomination or the last periodic review? What new projects or initiatives have been undertaken? What types of tourism activities? What effect have these activities had on the economy, ecology and society of the biosphere reserve? Are there any studies that examine whether designation of the area as a biosphere reserve has influenced the number of tourists? Please provide the bibliographic information of any studies and/or a paper copy in an annex.

Throughout the last decade, there has been a significant change in supply and demand from travel agents and tourists in general.

Due to its natural and cultural heritage and landscape, Flores Island offers a diverse range of solid foundations which have allowed the development of tourism in an appropriate, varied manner, without creating dependency on a single strand of tourism. This reality is supported, in particular, by the existence of diverse elements that differentiate it from the other islands of the archipelago, namely, popular rural architecture, the Biosphere Reserve (UNESCO), the natural landscape, the Rocha dos Bordões natural monument, the lake and waterfalls of Poço da Ribeira do Ferreiro, nature activities and migratory birds that have formed the basis of media/promotional messages for Flores Island as a tourist destination.

Figure 52 - Rocha dos Bordões (Source: SIARAM).

This theme merited particular emphasis in the Strategic Marketing Plan for Tourism in the Azores (PEMTA), issued in March 2016, bearing in mind the diversity of resources, the specificities of each island and the high potential for tourism and for the territory itself to achieve complementarity between islands, showing that Flores Island is particularly suited to Nature Tourism.

With regard to the main tourism products on Flores Island, the strategic plan identifies the primary, secondary and complementary attractions, based on their potential and the presence of relevant companies/infrastructure:

TYPE OF TOURISM	SECONDARY ATTRACTION	SECONDARY ATTRACTION	COMPLEMENTARITY WITH OTHER ISLANDS
Soft nature	Hiking	Rural tourism	
Specialist nature	*Birdwatching* Geo-tourism		
Active nature	Canyoning		Mountain biking *Trekking* Kayaking
Soft nautical		Boat trips	Cruises
Active nautical		Yachting Diving Sport fishing Diving	*Windsurfing* Sailing
Cultural and landscape tours		Culture Events/ Entertainment Built heritage Religion	Gastronomy and wine
Health and Well-being			
Sun and sea			Sun and sea

Specialist spot: Biosphere Reserve – Birdwatching – Canyoning – Geo-tourism;

Routes: Birdwatching;

Target Markets: Germany, United Kingdom, Netherlands, Scandinavia, France, Spain, Italy, Portugal, Switzerland, Canada and USA;

Market segments: Singles, young couples, couples without dependent children, retired couples, sports fans and those with a specific interest in birdwatching.

Island	DIFFERENTIATING ELEMENTS BETWEEN ISLANDS	MESSAGE	APPEAL
Flores	Unspoilt nature – Adventure Verdant landscapes, waterfalls, canyoning, coastal grottos/caves Most westerly point of the EU Biosphere Reserve (UNESCO), birdwatching – rare American species	A fairytale	Escape Contemplation Rest

Figure 53 - Summary of tourism products from Flores Island (Source: Strategic Marketing Plan for Tourism in the Azores).

It is vital to emphasise that the island is a Biosphere Reserve, a classification that distinguishes it as an important hotspot for the observation of the seabirds of the Azores and migratory birds from the American continent, with 6 priority geo-sites out of a total of 14 geo-sites in the Azores Geopark (UNESCO), seven lagoons and countless cascades and waterfalls, making it known throughout the region as the '*waterfall capital of the Azores'*.

Figure 54 - Poço da Ribeira do Ferreiro (Source: SIARAM).

It is also worth highlighting the Boqueirão Environmental Interpretation Centre, located next to the port of Boqueirão, from which it takes its name, as a must-visit site on the island. This centre has contributed, since it opened in November 2009, to a constant and sustainable increase in visitor numbers.

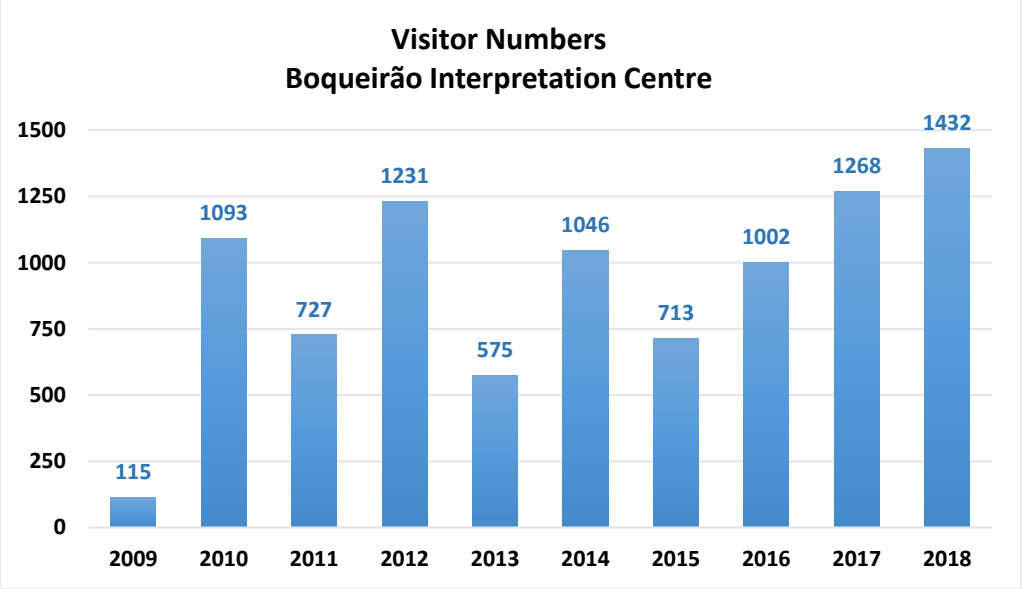


Figure 55 - Evolution of visitor numbers to the Boqueirão Environmental Interpretation Centre (Data: Azorina S.A.).

Figure 56 - Visit of the former President of the Republic, Aníbal Cavaco Silva, to the Boqueirão Environmental Interpretation Centre (2011).

Therefore, considering the time elapsed since the Biosphere Reserve classification, and also bearing in mind the combination of national and international financial and economic crises, the trend has been one of marked growth since 2014, as we can see in the following graph, which shows us the number of guests and overnight stays on Flores Island between 2009 and 2017.

Three hotels are currently registered on the island, with a total capacity of 194 guests. There are also two Rural Tourism establishments, with 72 beds, and 90 Local Accommodation units with a total of 424 beds, according to data from the Regional Tourism Directorate.

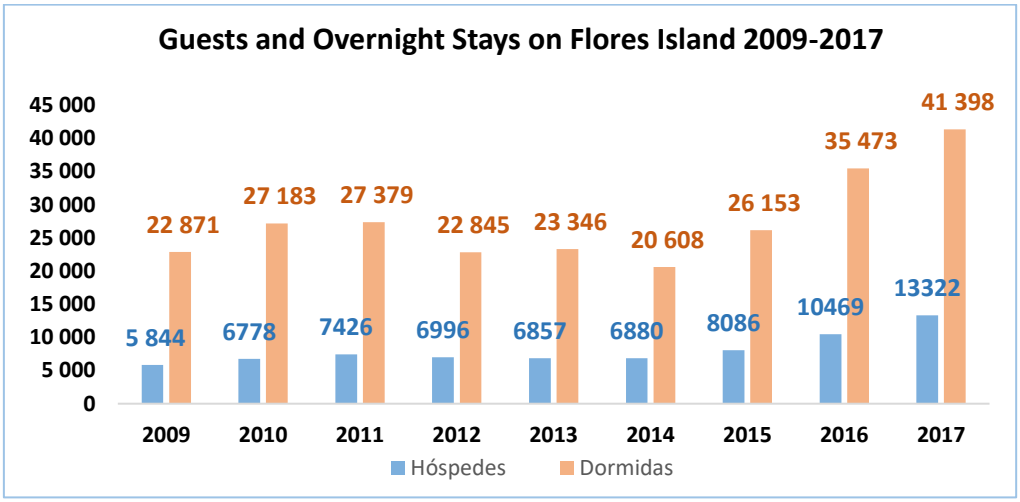


Figure 57 - Evolution of number of guests and overnight stays on Flores Island (Data: SREA -Tourism Statistics).

In 2017, the average stay in hotels on Flores Island was three nights. In the last decade, according to the data available, a peak was recorded in 2017, with 41,398 overnight stays and 13,322 guests. Since 2014, a growth has been seen, both in the number of overnight stays and in the number of guests. Also, according to the data presented for 2017, traditional hotels had a market share of 49.55%, with around 44% of the overnight stays coming from outside Portugal. Visitors from the Netherlands and Germany were the most numerous guests on Flores Island, according to the data shown in the graph below.

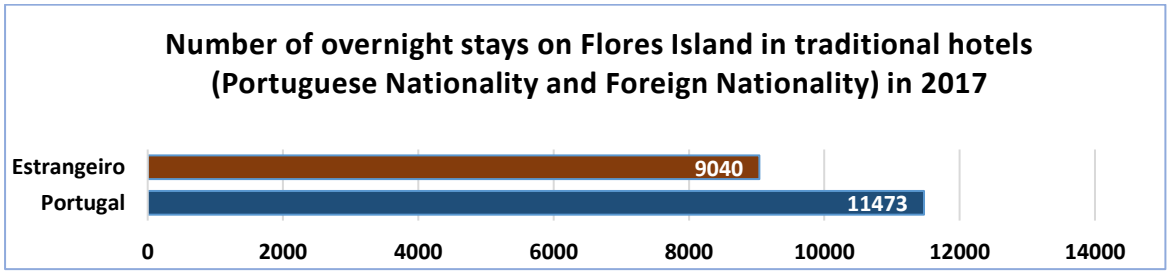


Figure 58 - Number of overnight stays on Flores Island in 2017 in traditional hotels by nationality SREA (Tourism Statistics).

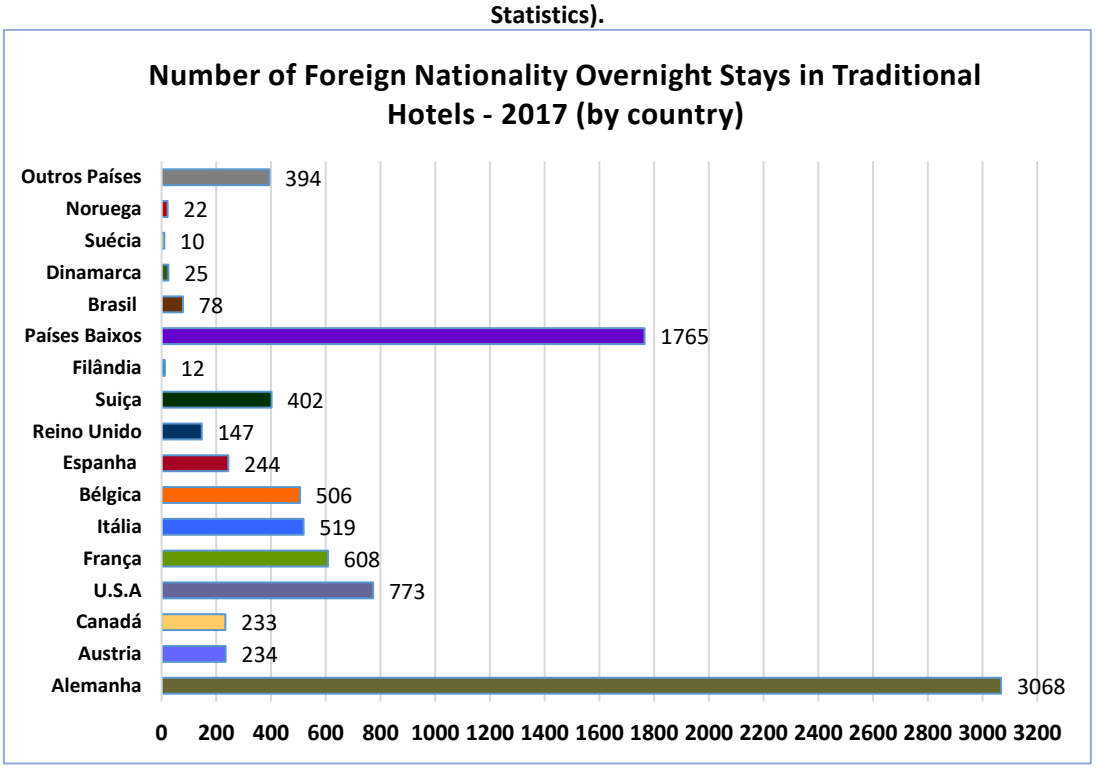


Figure 59 - Number of overnight stays on Flores Island in 2017 in traditional hotels by nationality (Data: SREA - Tourism Statistics).

In terms of catering, there are 19 restaurants and 4 snack bars, with their respective menus highlighting local products from fishing and agriculture, given the availability of access to fresh products, thus enhancing local production. Most of these establishments make use of local products, such as cheese.

The revitalisation of the tourism sector on Flores Island has breathed new life into the island's economy, which has materialised in the increase in bed numbers, which in turn has given rise to more employment opportunities. Accessibility has been improved, with daily air links throughout the year and sea links between May and September. Certain infrastructures and existing services have been modernised in order to provide better support to visitors, such as the new and modern Hotel das Flores, opened in 2009. Over the last decade, a significant increase in the number of local accommodation units has been recorded, accompanied by the revitalisation of the bathing areas.

Figure 60 - 'Hotel das Flores'.

The hamlet of Cuada, abandoned during the 1960s due to emigration, recently became the largest Rural Tourism (RT) establishment on the island, composed of 15 original houses restored and adapted to current comfort requirements, without losing the rural appearance of the stone houses, classified as Cultural Heritage of Historical, Architectural and Scenic Interest.

Figure 61 - 'Aldeia da Cuada' (Rural Tourism Establishment).

Pedestrian paths are presented as a tourism product with particular impact on a destination such as the Azores and in high demand on Flores Island, given its successive excellence awards as a sustainable tourist destination, which have contributed greatly to enhancing provision and incentivising active nature tourism, in which contemplation of the landscape is linked to the enjoyment of tourist activities.

Code	Name		Distance	Hiking time	Degree of difficulty
PR01FLO	Ponta Delgada – Fajã Grande		12.9 km	04h30	Difficult
PR02FLO	Lajedo – Fajã Grande		13,1 km	03h30	Moderate
PR03FLO	Miradouro das Lagoas – Poço do Bacalhau		7,3 km	03h00	Difficult
PRC04FLO	Fajã Lopo Vaz		3,4 km	02h00	Moderate
GR01FLO	Grande Rota Flores	Part 1	21,0 km	08h00	Difficult
		Part 2	26,00 km	10h00	

Figure 62 – Approved walking routes on Flores Island (Source: http://trails.visitazores.com).

Figure 63 - PR01FLO walking route: view onto Maria Vaz islet, core area of the Flores island Biosphere Reserve.

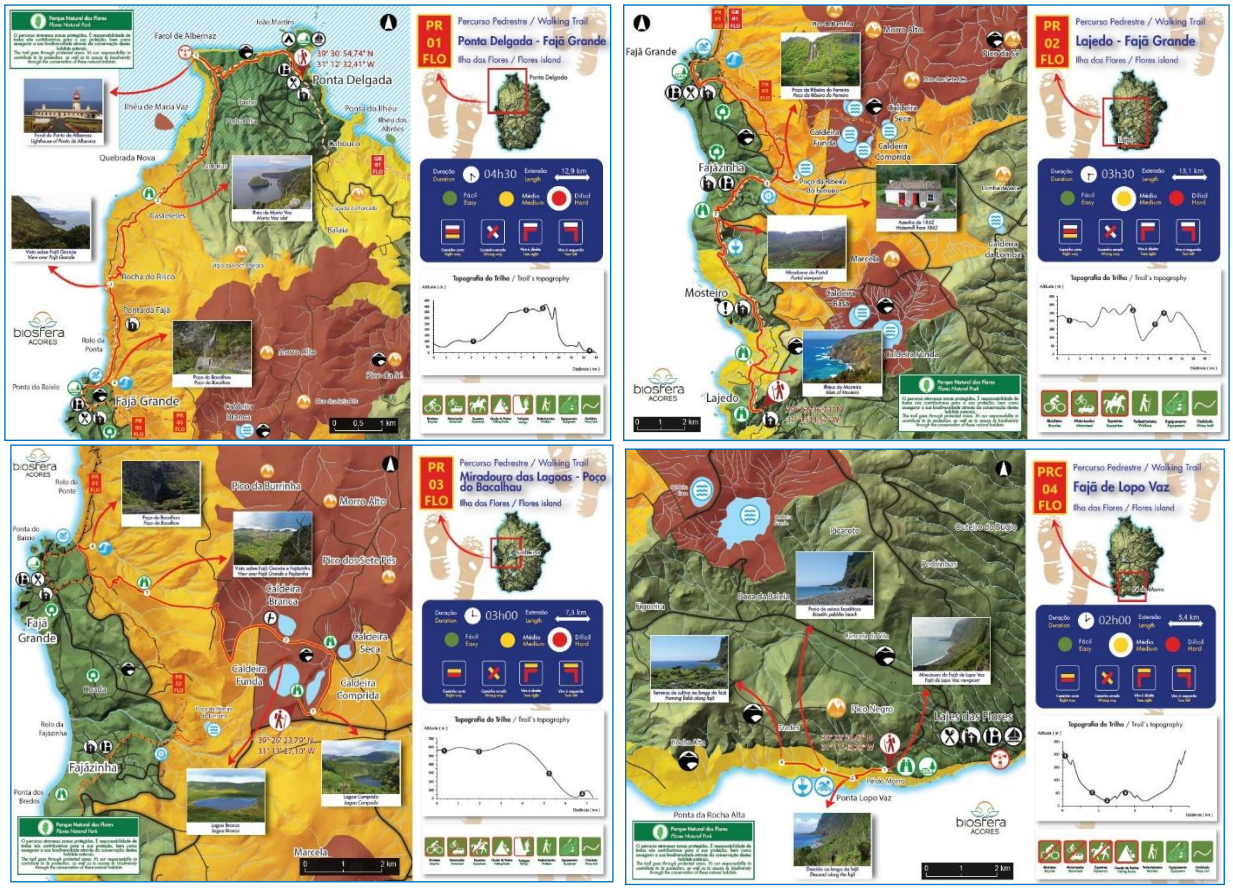


Figure 64 – Leaflets for the four approved walking routes on Flores Island.

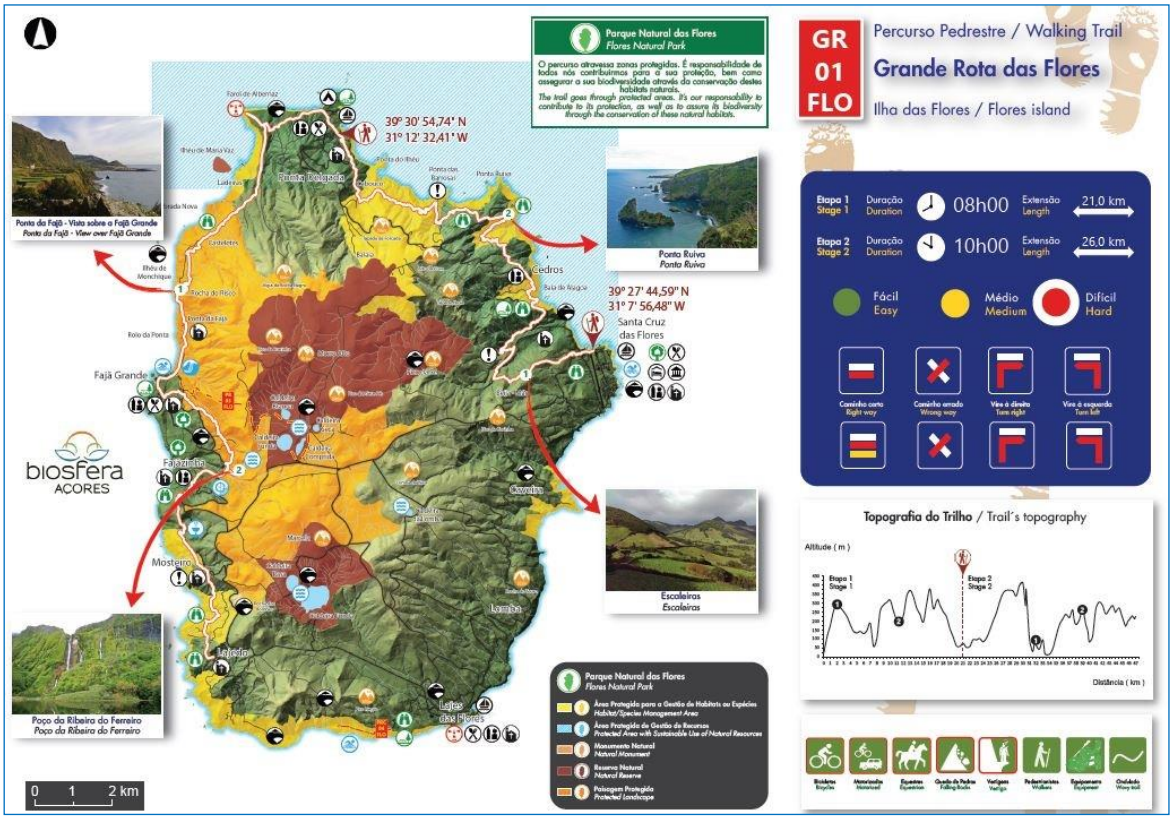


Figure 65 – Leaflet for the Grande Rota das Flores walking route.

Another important tourism product from Flores Island, relating to nature tourism, is canyoning, which is increasingly popular in the Azores and particularly on Flores Island, which boasts unique conditions for the practice of this adventure sport. Two international canyoning meetings have been organised on the island, the 1st and the 3rd CIMA (Canyoning International Meeting Azores), in 2014 and 2016 respectively. This international meeting is aimed at experienced, independent canyoners, with approximately 500 participants over the two events. The 3rd edition of CIMA took place at the same time as RIC (Rendez-vous International Canyon), promoted by the IAAC - International Association of Amateur Canyoning.

Figure 66 – Logo of CIMA/RIC 2016 (Source: http://cima.visitazores.com)

Figure 67 – Rappelling down the Barrosas Inferior Canyon (Source: http://cima.visitazores.com).

In 2018, the first EXTREME WEST ATLANTIC TRAIL took place. In this inaugural event, the Extreme West Atlantic Trail hosted the final of the Portuguese Trail Cup 2018, a competition organised by the Portuguese Trail Running Association (ATRP), with the 2nd edition already planned for September 2019.

Figure 68 - EXTREME WEST ATLANTIC TRAIL (Source: http://azorestrailrun.com).

5.3 When applicable, describe other key sectors and uses such as agriculture, fishing, forestry. Have they increased or decreased since the nomination or the last periodic review? What kind of new projects or initiatives have been undertaken? What effect have they had on the economy and ecology of the biosphere reserve, and on its biodiversity? Are there any studies that examine whether designation as a biosphere reserve has influenced the frequency of its activities? If so, provide the bibliographic information of these studies and/or a paper copy in an annex.

Agriculture and dairy

Over the last decade, bearing in mind the years following the island's designation as a Biosphere Reserve, and the national and international situation of financial and economic crisis, we have seen a stabilising trend, albeit with some fluctuations. These fluctuations were particularly notable in the dairy

sector, milk production, fishing, the slaughter of cattle for public consumption and exportation of cattle from the region. This data can be seen in the following graphs:

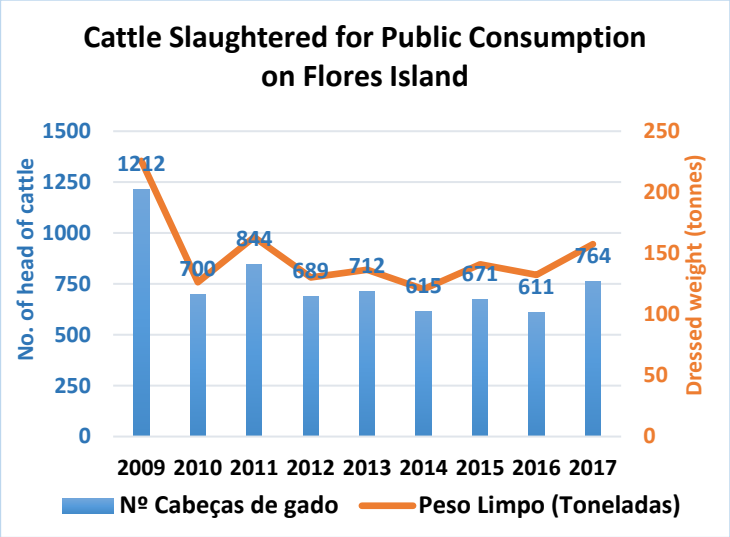


Figure 69 - Evolution of cattle produced on Flores Island (Data: SREA- Azores Regional Statistics Service).

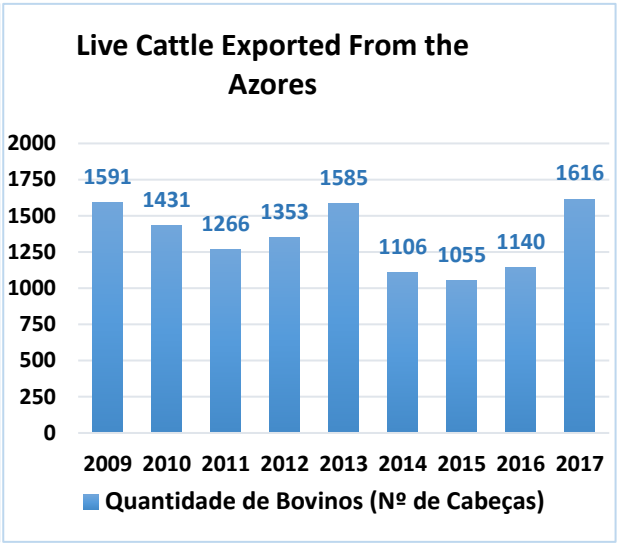
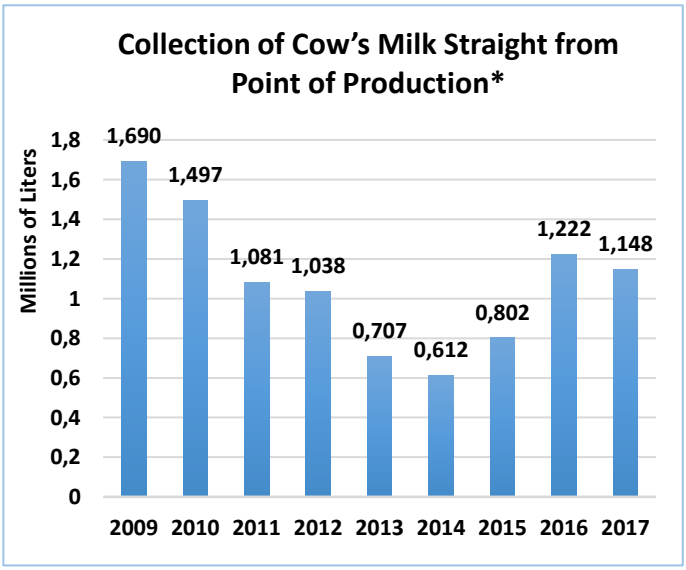
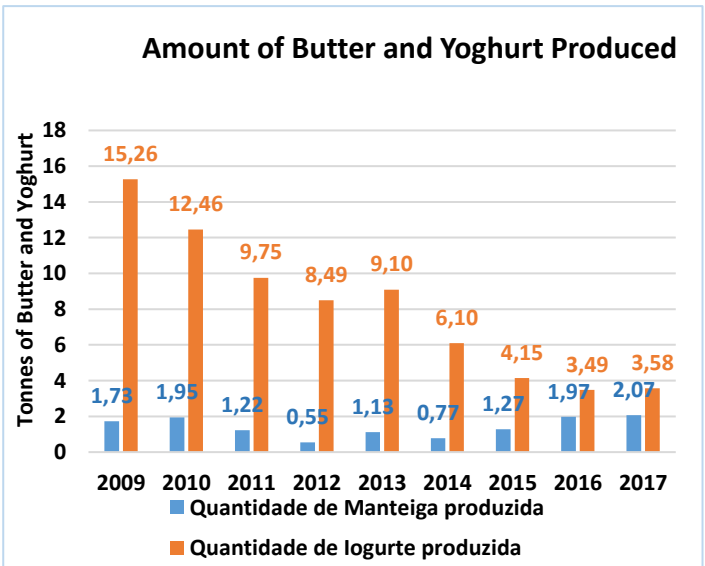


Figure 70 - Evolution of collection of cow's milk and quantities of butter and yoghurt produced (Data: SREA).

Looking at the data presented, it should be highlighted that in 2017, all cattle slaughtered on the island represented 1.13% of the amount for the entire region. For the same year, in relation to cattle exported from the Azores, Flores Island contributed around 16.28% of the total, this being the most frequent solution, partly justified by the greater ease of transporting live cattle, despite the island being equipped with modern facilities for the slaughter of pigs and cattle.

The Regional Government has recently proposed the development of an action plan aiming to promote beef originating from sites classified as Biosphere Reserves, in conjunction with other brands, as meat with a Protected Geographical Indication (PGI) or the Azores Brand.





*Artisan cheese producers were not included in this graph.

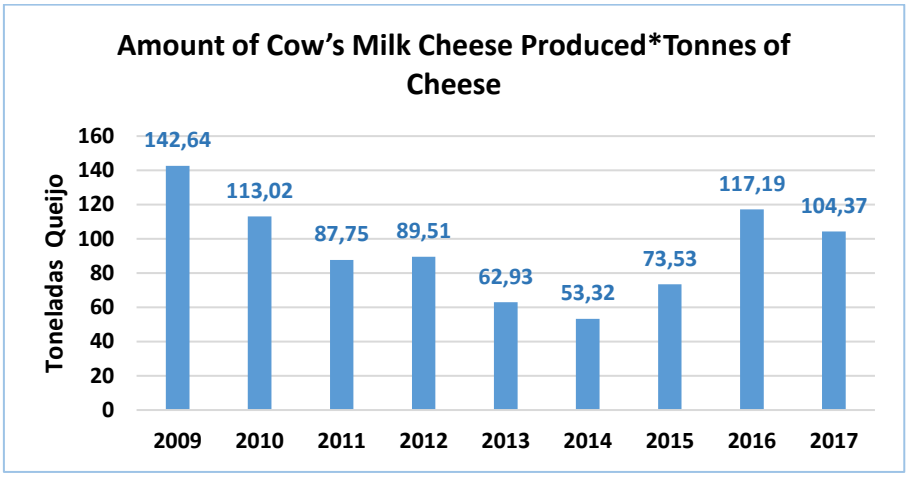


Figure 71 - Evolution of amounts of cheese produced (Data: SREA).

*Artisan cheese producers were not included in this graph (Data: SREA)

In 2010, Cooperativa Ocidental CRL collected around 0.3% of all the milk produced in the region, corresponding to around 5 hundred dairy cows. In terms of cheese production, in the same year, an output of 0.4% of the total production for the region was recorded, according to the Azores Cohesion Plan.

Fisheries

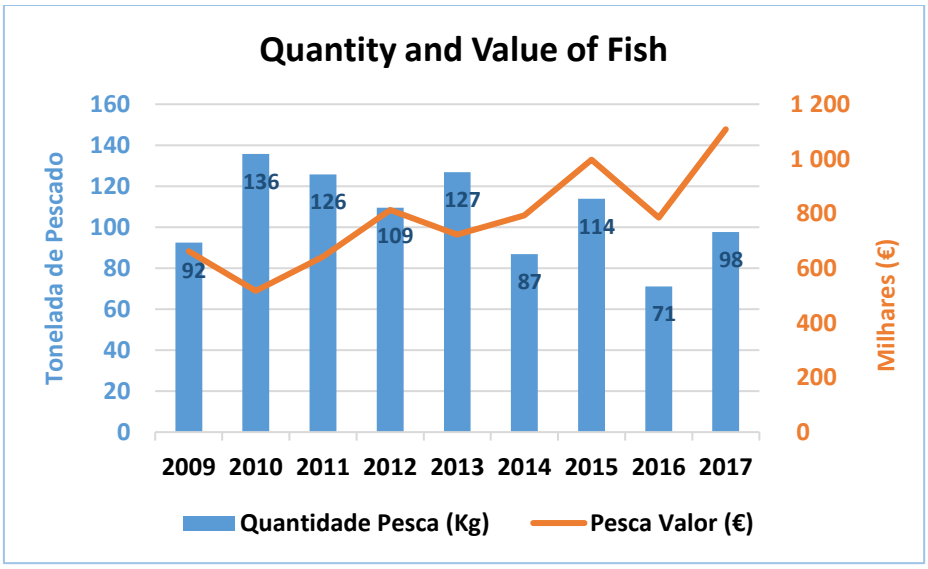


Figure 72 - Evolution of the quantity and value of fish. (Data: SREA).

In 2017, the fishing sector on Flores Island saw around 3.76% of the total amount of fish landed in the region being landed in the island's ports, which represents 0.74% of the total value of fish landed in the Azores, corresponding to a revenue of 1,108,000 Euro for nearly 98 tonnes of fish landed.

5.4 How do economic activities in the biosphere benefit local communities?

As the Flores Island Biosphere Reserve covers the entire territory of the Graciosa Island and an adjacent marine area, every economic activity developed in the reserve, as well as its respective income or benefits, has a direct impact on the entire island's population, whether visitors or residents.

The customary primary activities, specifically agriculture, livestock farming and fishing, are activities that still make use of an extensive range of traditional methods, with differentiated and high-quality production, that have inevitably had a positive impact on achieving the objectives of the Flores Island Biosphere Reserve. These sectors promote the development of such activities, which are regarded as an opportunity, linking traditional modes of production to the enhancement and protection of the landscape, the promotion and consolidation of cultural identity, as well as the conservation and sustainable management of natural resources.

5.5 How do you assess the effectiveness of actions or strategies applied?

(Describe the methods, indicators).

As the Biosphere Reserve covers the entire territory of the Flores Island and an adjacent marine area, thus encompassing the entire population, general indicators are used, such as gross domestic product (GDP), rate of employment, number of jobs created, implementation rates regarding local and regional development programmes, and the results of the various sectoral interventions coordinated by the Government of the Autonomous Region of the Azores, the Santa Cruz das Flores and Lages das Flores municipalities and local private entities.

5.6 Community economic development initiatives. What programmes exist to promote comprehensive strategies for economic innovation, change, and adaptation within the biosphere reserve, and to what extent are they implemented?

As early as 2008, in the programme of the 10th Regional Government of the Azores (2008-2012), '*the implementation of Biosphere Reserves of the Azores*' was established as an essential measure. Subsequently, in the programme of the 11th Regional Government of the Azores (2012-2016), the importance of '*consolidating the qualification of Biosphere Reserves*' was assumed.

Regarding the government programme of the 12th Regional Government of the Azores (2016-2020), a diverse set of measures specifically oriented toward the Biosphere Reserves of the Azores were assumed, namely:

- '*Consolidating and promoting the Biosphere Reserves of the Azores, in their terrestrial and marine components*';
- '*Continuing with the system of incentives for the maintenance of traditional landscapes of vineyards, corrals and terraces, and orchards of traditional species, located ... in Biosphere Reserves*';
- '*Preparing, implementing and articulating the management plans of the Islands' Nature Parks and Biosphere Reserves, in close dialogue with the sectors concerned*';
- '*Encouraging partnerships with national and international Nature Parks and Biosphere Reserves*';
- '*Promoting Biosphere Reserves, as well as promoting and extending the use of the 'Biosfera Açores' brand in products and services originating from the islands classified as such*';- '*Reinforcing the carrying out of campaigns in a medium-term strategy, to promote the Meat of the Azores with the denomination of PGI and also in the association, whenever possible, of origin from an island that holds the Biosphere Reserve distinction*'.

In order to achieve these objectives, the *'projects for the dissemination and awareness-raising for the renewal/expansion of the Environmental Certifications granted at international level, namely Biosphere Reserves'* were established in the Operational Programme for the Azores (PO AÇORES 2020), which is supported by the European Structural Funds for the 2014-2020 programming period, namely the Regional Development Fund (ERDF) and European Social Fund (ESF), under the 'Environment' priority axis.

Within the 'Biosfera Açores' brand, a system of certification of goods, products and services has been created, based on two fundamental criteria: authenticity and good practices. This initiative, which already boasts twenty-one Flores Island Biosphere Reserve certifications, shows recognition of the extra value resulting from the island's association with the Biosphere Reserve. On the other hand, this certification implies qualification and implementation of good practices in traditional sectors with positive results in the management of resources and raw materials.

5.7 Local business or other economic development initiatives. Are there specific 'green' alternatives being undertaken to address sustainability issues? What relationships (if any) are there among these different activities?

Energy

Climate change, the volatility of fossil fuel prices and the security need of the energy supply required an energy efficient approach and the harnessing of natural, endogenous resources. The incentive programme for the production of energy from renewable sources (PROENERGIA), created in 2010 by the Regional Government of the Azores through Regional Legislative Decree No. 5/2010/A, of 23 February, was designed to encourage the production of electricity and heat, mainly for self-consumption, by households, companies, cooperatives, non-profit associations and private social solidarity institutions.

PROENERGIA supports (i) investments in the exploitation of renewable energy resources for the micro-production of electric or heat energy, using endogenous resources (ii) investments in the use of solar thermal resources and heat pumps for hot water production. In the Flores Island Biosphere Reserve, 17 projects were approved corresponding to a support of 26,073.26 € from the start of the project to the present date.

Year	Applications	Incentive
2008	1	€ 1,000.00
2009	1	€ 677.10
2010	1	€ 355,25
2011	10	€ 16,315.06
2012	1	€ 2,314.59
2013	0	- €
2014	0	- €
2015	0	- €
2016	0	- €
2017	3	€ 5,411.26
Total	**17**	**€ 26,073.26**

Figura 73 - List of applications and incentive for PROENERGIA program.

Waste Management

As an island region and with the specific characteristics of island systems, the Azores represent greater technical difficulties and higher costs of waste management. In the specific case of the Azores, these specific characteristics are reflected in many respects, namely insufficient infrastructure for the treatment and final destination of waste, delay in the implementation of selective waste collection and sorting, increase in the quantity of packaging waste and difficulties in the reusing and valuation thereof due to importation by sea of most of the goods consumed.

These specific characteristics have determined the mission of the policy of the Autonomous Region of the Azores in the field of waste, based on the prevention of waste production and the recovery of its value, while simultaneously minimising the negative environmental impact of this recovery, maximising the effective use of natural resources, protecting ecosystems and ensuring public health.

In the Azores, there is a legal and institutional framework for waste management in line with the new challenges and opportunities in this area within the European Union. This legal framework is based on the general regime for the prevention and management of waste of the Autonomous Region of the Azores, approved by Regional Legislative Decree No. 29/2011/A of 16 November, which transposes Directive No. 2008/98/EC in particular.

A waste management policy based on principles of rationality, effectiveness and financial sustainability associated with an effort to achieve social equity and recognition of the specific conditions presented by islands is an asset in areas which are essential for the quality of life of citizens and for the competitiveness of the economic activities the of the Region. In this sense, waste management is one of the fundamental axes on which the sustainable development strategy for the Autonomous Region of the Azores must be based, which has been decisive for the preparation of the Strategic Waste-Management Plan for the Azores (PEGRA), as an instrument for the territorial management of a sectoral environmental policy, with territorial impact, approved by Regional Legislative Decree No. 10/2008/A, of 12 May.

PEGRA was valid for 7 years, for the period 2007-2013 and covered the following types of waste: municipal, industrial, forestry, agricultural and medical.

PEGRA aimed to contribute to the implementation of technological infrastructures that ensure quality of service and environmental protection, encouraging the eco-efficiency of the business sector and promoting the economic and financial sustainability of the waste management system. In another aspect, PEGRA sought to emphasise the guarantee of access to information and the streamlining of public participation, fostering knowledge, education, training and the qualification of human resources. PEGRA also substantiated the appropriate anchor for waste management in compliance with national and EU obligations in this respect, while respecting the socio-economic principles enshrined therein.

In the operation of PEGRA, the Regional Government of the Azores promoted the design of a project for a Waste Processing Centre and Organic Composting Centre (Centro de Processamento de Resíduos e Centro

de Valorização Orgânica das Flores - CPR) in the Flores Island Biosphere Reserve. At the aforementioned centre, the first inaugurated in the Region, in 2012, the fundamental structures for waste management implemented were:

- The Eco-Centre, where waste collected on the island is selectively deposited, such as bulky waste, electrical and electronic equipment waste, tyres and oils, among others;
- The Organic Composting Centre, for the transformation of organic and green waste produced locally through aerobic biodegradation, in order to reduce its respective mass and volume, producing, if possible, a soil corrector - compost - with sufficient quality for application in agriculture;
- The Transfer Station, which allows the compaction and packaging in suitable watertight containers of urban waste and non-hazardous industrial waste collected indiscriminately which cannot be recycled for further forwarding to an appropriate destination.

Figure 74 - Inauguration of the CPR by the then President of the Regional Government of the Azores, Carlos César (2012).

After CPR came into operation, the two existing dumps in the municipalities of Lajes das Flores and Santa Cruz das Flores were sealed. These projects allowed the confinement of waste and re-qualification of these spaces and consequently valorised the waste, reducing the production of and deposition in landfills, increasing selective collection and recycling. Since 2012, both Flores Island municipalities have implemented their selective collection systems, with Lajes das Flores favouring weekly door-to-door collection and Santa Cruz opting for eco-points, also collected weekly. The graph below shows the evolution of per capita production of urban waste on Flores Island. It should be noted that the data for 2012 is based on estimates and that only from 2013 onwards did we have reliable data based on the weighing of waste delivered to Flores CPR. Looking at these values, we can say that the average per capita waste for the period between 2013 and 2017 was around 1.2 kg per resident.

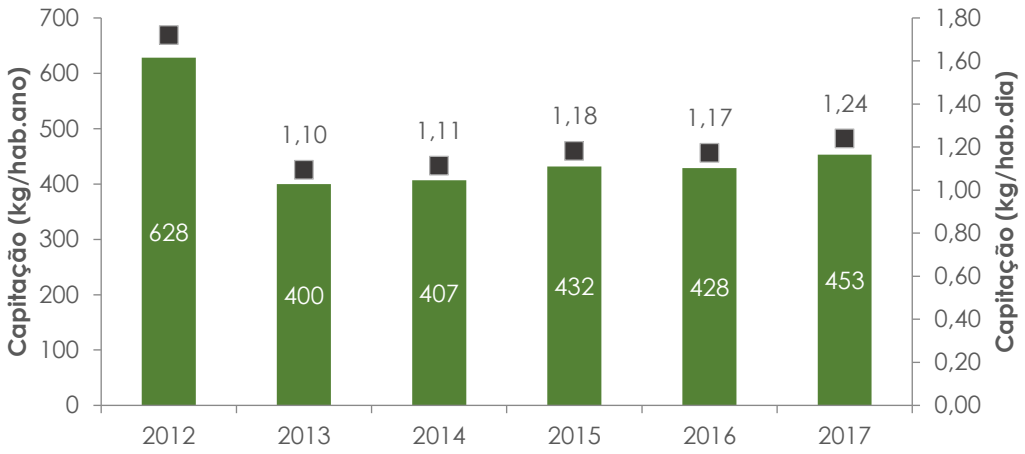


Figure 75 – Evolution of per capita waste production on Flores Island (Source: SRIR 2017).

Figure 76 – Flores Island Waste Processing Centre and Organic Composting Centre.

When Flores CPR came into operation, it was the beginning of a new stage in waste management on Flores Island. Previously, there had been no kind of management and all waste was sent to be deposited in municipal dumps, making it impossible to recover any waste produced on the island. With the opening of Flores CPR and the subsequent sealing of the existing dumps on the island, a process of waste recovery on Flores Island could begin. The centre started operating in the middle of 2012, when a level of recovery of 14% was achieved. The following year, with the centre fully functional, a rate of 86% was achieved. In 2016, with the start of waste-to-energy recovery on Terceira Island, Flores CPR was able to recover all the waste received, with material and organic recovery of 83% and the remaining 17% for incineration on Terceira (waste that could not be recycled). From that moment on, the island was able to achieve its goal of 'zero landfill.'

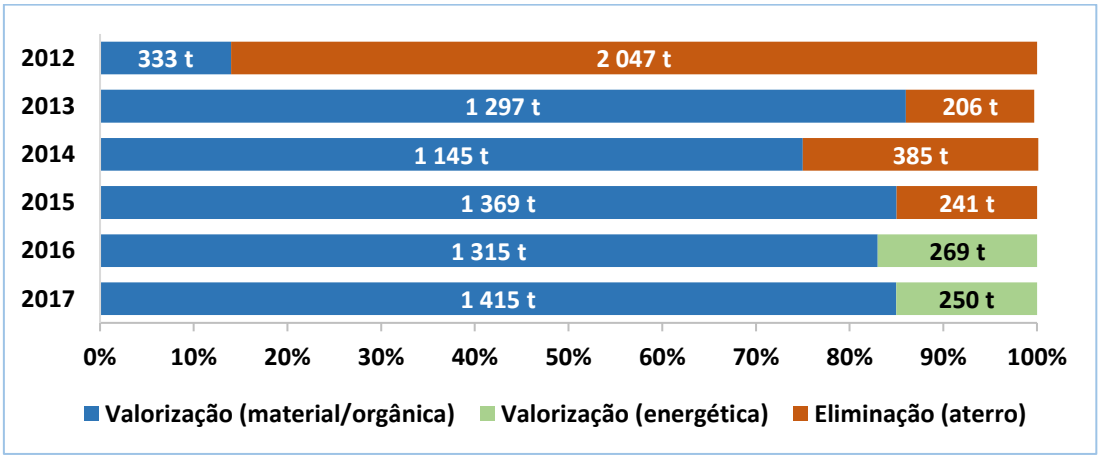


Figure 77 – Evolution of waste processing on Flores Island (Source: SRIR 2017).

'ECO Clean Parish'

The contest 'ECO Freguesia, freguesia limpa' (Eco Clean Parish) has been organised by the Government of the Azores since 2010 and developed by the Regional Directorate for the Environment (DRA), with the collaboration of the Regional Directorate for Maritime Affairs (DRAM). The main purpose of this contest is to recognise and distinguish parish efforts and the collaboration of populations in the cleaning, removal and forwarding to the appropriate final destination of abandoned waste in public spaces, including from watercourses and the coastline, as well as the development and participation in programmes and actions to raise awareness and environmental education. The programme aims to recognise the cleanliness of our parishes and the positive performance of citizens and various organisations in preserving environmental quality, justified by the growing importance of the environment for the wellbeing of the population.

Figure 78 – Awarding of the Diploma and Flag to Mosteiro Parish in 2013.

5.8 Describe the main changes (if there are any) in terms of cultural values (religious, historical, political, social, ethnological) and others, if possible with distinction between material and intangible heritage.

(c.f. UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage 1972 and UNESCO Convention for the Safeguard of the Intangible Cultural Heritage 2003 (http://portal.unesco.org/en/ev.php-URL_ID=13055&URL_DO=DO_TOPIC&URL_SECTION=201.html And http://portal.unesco.org/en/ev.php-URL_ID=17716&URL_DO=DO_TOPIC&URL_SECTION=201.html).

There is a growing interest amongst the local population to preserve traditional festivities, especially from young people and cultural and ethnographic organisations.

In the cultural heritage of Flores Island, the festivals and musical traditions play a prominent role. Religious festivals are thought to have appeared on the island in the 15th century, after the arrival of the discoverers. They have been maintained until the present day, playing an important role, both as religious and secular manifestations, and becoming tourist attractions in themselves.

During During the summer, the whole island holds festivals in honour of their patron saint, with emphasis on the Festival of Our Lady of Miracles in the parish of Lajedo, which is held on 15 August, attracting countless pilgrims who come on foot from the most varied places to the island to fulfil their promises and take part in the procession. The pilgrimage also has a secular side, with food and drink available, not to mention the festival atmosphere.

Figure 79 - Procession of Our Lady of Miracles in the parish of Lajedo (photograph by L. Serpa, 2014)

The invocation of the Holy Ghost during times of natural disaster that have afflicted the archipelago and the fame of the miracles, the difficult life and isolation of the islands, have all contributed to this worship taking root and remaining active. Flores Island is no exception, as this festival is celebrated all over the island, most notably in Império da Praça, in the parish of Santa Cruz das Flores.

Figure 80 - Insignias of the Divine Holy Spirit.

Over time, the Holy Ghost festivities have taken on their own characteristics on each island, although some common elements remain, such as coronations, revellers, showing the insignias of the crown and sceptre, the procession and the celebratory meal with Holy Ghost soups. The ritual sequence of the Holy

Figure 81 - Procession of the Holy Ghost, revellers and a celebratory meal with Holy Ghost soup in the parish of Fajãzinha (Photographs by J. António Corvelo).

Ghost celebrations includes a series of meals, offerings and the distribution of food to the people. In some locations, these gifts include Holy Ghost soups - made with beef and chunks of bread - with a variety of sweet and savoury breads.

The slaughter of the pig, although it is in decline on Flores Island, was also and still is a moment of conviviality between family and friends.

5.9 Community support facilities and services. What programmes in/for the biosphere reserve address issues such as job preparation and skills training, health and social services, and social justice questions. What are the relationships among them and with community economic development?

There is a long tradition of associativism and collectivism on Flores Island. In spite of the small size of the island and its resident population, there are numerous collectivities that promote, in particular, sport, music, religion, among other pursuits.

As stipulated by the Regional Government, the main professional associations have a seat in the Flores Island Biosphere Reserve Management Board. Within this scope, they are formally authorised to give an opinion on the management plan of the biosphere reserve and about its implementation, to monitor the management of the biosphere reserve, to promote and authorise the use of the brand and logos associated with the biosphere reserve in products and services, and to suggest actions and projects to stimulate and promote the objectives of the reserve.

5.10 What indicators are in place to assess the effectiveness of activities aiming to foster sustainable development? What have these indicators shown?

Monitoring of the processes linked to the effectiveness of the activities aiming to foster sustainable development is carried out via censuses, implementation reports, projects, programmes and official statistics.The Government of the Azores aims to change the competences of the Observatory on Land and Sustainability (Observatório do Território e da Sustentabilidade - OTS) to reinforce its capacity to monitor and assess sustainable development practices throughout the entire Azores archipelago, particularly in the Biosphere Reserves of the Azores.

5.11 What are the main factors that influenced (positively or negatively) the success of development efforts in the entire biosphere reserve? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be most effective?

The existing licensing and inspection system regarding activities and investments provides mechanisms for encouraging best practices, greater efficiency and the minimisation of negative environmental impacts. In addition, the Biosphere Reserve develops best practice manuals and capacity-building actions, based on environmental management systems that will be adapted to the reality of micro businesses and local producers, thereby complementing the role of municipal and governmental authorities in the regulation of these activities. It is sought that the actions are objective, pro-active and strategic, in order to allow an effective reduction of negative impacts on the designated Biosphere Reserve.

6. THE LOGISTIC FUNCTION:

[This refers to programs that enhance the capacity of people and organizations in the biosphere reserve to address both conservation and development issues for sustainable development as well as research, monitoring, demonstration projects and education needed to deal with the specific context and conditions of the biosphere reserve.]

6.1 Describe the main institutions conducting research or monitoring in the biosphere reserve, and their programmes. Comment on organizational changes (if any) in these institutions over the past ten years as they relate to their work in the biosphere reserve.

Flores Island Natural Park provides the scope and framework for the habitat and species conservation measures that are required to meet the objectives for conserving existing natural values and social and economic development.

As part of the extension of the Azores Hydrometeorological Network to all of the islands in the archipelago, several weather stations were installed on Flores Island in recent years, namely:

1 automated weather station;

3 automated hydrometric stations;

2 automated limnigraphic stations;

5 automated udometric stations;

Figure 82 - Hydrometric station of Ribeira do Ferreiro and Udometric Station of Pico da Casinha.

In order to ensure the operability of all of the equipment and the reliability of the data provided by the system, the Azores Government, via the Regional Directorate for the Environment, works in collaboration with the University of the Azores and the Centre for Information and Seismovolcanic Surveillance of the Azores (CIVISA) in particular to monitor and evaluate the conditions for data acquisition, transmission, reception and storage, 24 hours a day.

The data generated by the network constitutes baseline information which, following analysis and modelling by CIVISA, is used to issue and broadcast warnings in the case of danger of landslides linked to heavy precipitation, in a process which also involves the civil protection services.

The automation of the stations and teletransmission of data in real time provides, on the one hand, timely information on the hydrological cycle with rigorous data on water availability, ensuring the defence of people and property against extreme hydric phenomena which can result in floods and landslides. On the

other hand, the online availability of the data allows all citizens to access up-to-date information for personal, professional or scientific purposes, contributing to participatory management and increasing citizen engagement.

The combination of the aforementioned factors and the innovative concept resulted in the awarding of the sixth 'Green Project Awards Portugal' prize for the 'Information Technology' category to the Azores Hydrometeorological Network.

Figure 83 - The 'Green Project Awards Portugal' prize is awarded to Regional Director for the Environment, Hernâni H. Jorge.

The implementation of innovative management measures, the openness of the population to community participation in resource management and the infrastructure already installed make Flores Island a unique site for research projects, resource management demonstrations and training for researchers and technicians in these areas.

Research projects conducted in recent years at the Flores Island Biosphere Reserve have been comprehensive and multidisciplinary, as opposed to disjointed activities. A significant amount of the scientific work carried out on Flores Island has been linked to regional research and management projects, which attempt to describe the ecosystem as well as the human aspects of resources use, with the aim of developing coherent management systems. These projects range from studies of geological features and dynamics to the biology and ecology of several of the most significant species in the area, as well as socio-economic and cultural aspects.

Because of its location, geology and geography, Flores Island was chosen, within the last decade, for the installation of various scientific facilities, including the hydroacoustic station HA07, aimed at monitoring nuclear tests, and the future construction of the RAEGE station. This has placed the island in a prominent position in terms of scientific research.

Hydroacoustic station HA07

In 2005, hydroacoustic station HA07 was installed on Flores Island, a technological infrastructure that includes the International Monitoring System aimed at surveillance, in the context of the United Nations, of the fulfilment of the stipulations of the Comprehensive Nuclear-Test-Ban Treaty.

Certified by the International Monitoring System Division of the Provisional Technical Secretariat (PTS), based in Vienna, HA07 is one of 11 hydroacoustic stations in this global monitoring network, and allows for better coverage of the Atlantic Ocean, where the following stations are also in operation: Ascension Island (United Kingdom), Tristan da Cunha (United Kingdom) and the island of Guadalupe in the Caribbean. These stations are able to detect various types of events at distances of up to several thousand kilometres, and are crucial in monitoring nuclear testing as well as in the study of seismic and volcanic activity and atmospheric phenomena.

The Centre of Volcanology and Geological Risk Assessment at the University of the Azores is the research centre responsible for operating the station in compliance with the terms defined by the National Authority for Coordinating the Treaty on the Prohibition of Nuclear Weapons, and the project is coordinated regionally by the Regional Directorate for Science, Technology and Communications.

Atlantic Network of Geodynamic and Space Stations

On 29 April 2010, a memorandum of understanding was signed between the Azores Government (GRA), through the Regional Secretariat for Science, Technology and Infrastructures (SRCTE), and the National Geographic Institute (IGN) of the Ministry of Development of the Spanish Government, with a view to cooperation for the establishment of the ATLANTIC NETWORK OF GEODYNAMIC AND SPACE STATIONS (RAEGE) through the planned installation and operation of 4 geodetic fundamental stations (GFS), aimed at carrying out studies on astronomy, geodetics and geophysics, one of which will be installed on Flores Island in the short-term, with the other three stations being based in Santa Maria (one) and the other two in Spain.

This infrastructure will provide studies on astronomy, geodetics and geodynamics that will be very useful in predicting natural phenomena such as the movement of tectonic plates.

Figure 84 - Construction of the RAEGE Station on Santa Maria Island, opened on 20 May 2015.

6.2 Summarize the main themes of research and monitoring undertaken over the past ten years and the area(s) in which they were undertaken in order to address specific questions related to biosphere reserve management and for the implementation of the management plan (please refer to variables in Annex I).

(For each specific topic provide reference citations. Provide the full citations alphabetically by lead author at the end of Section 6 or in a separate annex).

Since Flores Island was classified as a Biosphere Reserve, a number of projects and studies have been implemented aiming to safeguard the habitats and species present on the island. The main activities are listed below:

- **Coordinated by the Regional Directorate for the Environment (DRA)**

PRECEFIAS (Regional Plan for Eradication and Control of Invasive Plant Species in Sensitive Areas)

In 2009, the PRECEFIAS project was implemented by the DRA. It planned the eradication and control of 16 invasive exotic plant species in inventoried sensitive areas on all of the islands of the Azores archipelago (*Pittosporum undulatum*, *Hedychium gardneriarum*, *Hydrangea macrophylla*, *Arundo donax*, *Gunnera tinctoria*, *Clethra arborea*, *Carpobrothus edulis*, *Lantana camara*, *Ailanthus altissima*, *Polygonum capitatum*, *Drosanthemum floribundum*, *Acacia melenoxylon*, *Ulex europaeus*, *Ipomoea indica*, *Rubus ulmifolius*, *Pteridium aquilinum*).

MoniAves (Programme to Monitor Seabird Populations in the Azores Subdivision) (2016-2020)

This monitoring project aims to assess nesting seabird populations in the Azores Subdivision. This quantification will be conducted via regular censuses of the populations of various species, particularly of the cagarros (Cory's shearwater - *Calonectris borealis*), the garajau-rosado (roseate tern - *Sterna dougallii*) and the garajau-comum (common tern - *Sterna hirundo*). This project will follow up the work carried out in recent decades by experts at the University of the Azores (DOP). Counting will be supplemented by information gathering on the condition of nesting populations, seeking to assess variations in annual recruitment.

Objectives:

1 - To monitor populations of seabirds classed as nesting, via visual censuses and other emerging methodologies (e.g. Cory's shearwater, terns, Barolo shearwater, storm petrel, etc.).

2 - To assess the impact of non-native terrestrial species on the reproductive capacity of seabirds (predators and plant communities).

3- To collect relevant biological parameters for the conservation and study of nesting seabirds.

4 - To collect biological material for other projects and studies (trophic ecology, genetics, pollutants).

- **Coordinated by the Portuguese Society for the Study of Birds (SPEA)**

LIFE Marine IBAs (2004-2008) (http://lifeibasmarinhas.spea.pt/pt/)

The LIFE Marine IBAs project, coordinated by the SPEA, aims to identify the most important areas in Portugal for seabirds in terms of areas for feeding and rest, and other relevant behaviour to their life at sea.

Objectives:

- To understand the distribution and abundance of seabirds in Portugal, including the Azores and Madeira;
- To identify and analyse the variables which influence patterns of distribution and abundance of seabirds at sea;
- To identify general methods for identifying important areas for seabirds and to define the criteria applied to the IBAs programme;
- To determine which marine IBAs meet the criteria for the title, including threats and conservation and management measures for these areas;
- To publish an inventory of national marine IBAs for the future classification of SPAs at sea.

Electricity Lines-Azores

Project to assess the interaction between birds and the electricity transport and distribution networks in the Azores, which aims to ensure that the overhead electricity network is compatible with bird conservation, and to minimise the impact on birds in the Azores archipelago, including alteration of certain lines to reduce their impact.

The project emerged from a partnership between the SPEA and the Azores Electricity Company (EDA), as part of the Plan for Promoting Environmental Performance in the Electricity Sector 2009/11.

Atlas of Nesting Birds in Portugal

Atlas of Wintering and Passing Birds in Portugal: a partnership of 6 organisations (Portuguese Society for the Study of Birds, Ornithology Laboratory at the University of Évora, Regional Secretariat for the Environment and the Sea (Azores), Madeira Nature Park Service, Institute for Nature Conservation and Biodiversity, Portuguese Association of Bird Ringers), coordinated by the SPEA and co-financed by the 2010 EDP Biodiversity Fund.

LIFE EuroSAP (2015-2018) (http://www.birdlife.org/europe-and-central-asia/project/life-eurosap**)**

The LIFE EuroSAP brings together 10 European countries, including Portugal, and aims to create synergies to tackle the new challenges and threats facing some of our iconic birds. It features the involvement of 13 partners, with the SPEA representing the project in Portugal and aims to assess the current situation and define the action plan for painho-de-monteiro (*Hydrobates monteiroi* - Monteiro's storm petrel).

LuMinAves (2017-2019)

INTERREG LuMinAves (MAC/4.6d/157) 'Light pollution and conservation in the archipelagos of Macaronesia: reducing the harmful effects of artificial light on seabird populations', whose main partner is

the Spanish Ornithological Society (SEO/BirdLife). In the Azores, it operates in partnership with the SPEA, the Regional Government of the Azores (Regional Directorate for Sea Affairs- DRAM), and the Regional Fund for Science and Technology (FRCT).

Three main objectives: a) to assess the state of conservation of seabirds in Macaronesia; b) to raise awareness of, protect and rescue wounded/blinded seabirds; c) to reduce the impact of light pollution on seabird colonies (Macaronesian strategy).

Mistic Seas I (2016-2017) (http://www.mistic-seas.com/**)**

The Mistic Seas Project is coordinated by the FRCT and the DRAM. The objective was to review initial assessments, gaps in knowledge, the definition of GES (Good Environmental Status) and environmental goals established by the three Macaronesian archipelagos (Azores, Madeira and the Canary Islands) in the initial reports of the MSFD (Marine Strategy Framework Directive) and to draw up an Action Plan and monitoring programmes to implement the second cycle of the MSFD.

Mistic Seas II (2017-2019)

MISTIC SEAS II 'Applying a subregional coherent and coordinated approach to the monitoring and assessment of marine biodiversity in Macaronesia for the second cycle of the MSFD', financed by the DG ENV, European Commission (No. 11.0661/2017/750679/SUB/ENV.C2), coordinated by the FRCT in partnership with the DRAM. To assess different functional groups (D1), including seabirds. Seabird monitoring includes three SUB-PROGRAMMES: abundance, reproductive success and survival. It focuses on five species: cagarro (Cory's shearwater - *Calonectris borealis*), painho-de-monteiro (Monteiro's storm petrel - *Hydrobates monteiroi*), painho-da-madeira (band-rumped storm petrel - *Hydrobates castro*), alma-negra (Bulwer's petrel - *Bulweria bulwerii*) and the frulho (Audubon's shearwater - *Puffinus lherminieri baroli*).

Objective: to implement and test the methodologies/monitoring programmes established in MISTIC SEAS I in order to achieve GES (Good Environmental Status) in the waters of Macaronesia in the second cycle of the MSFD.

- **Coordinated by the Regional Directorate for Sea Affairs (DRAM)**

Programme to implement the Marine Strategy Framework Directive - Biodiversity of Coastal Environments in the Azores (BALA Programme)

To acquire the necessary information to progress to suitable quantification of the environmental status of the Azorean marine environment during the first implementation cycle of the MSFD by 2018 using the following approaches, particularly in Protected Marine Areas: i) functional groups: vertebrates, mega-invertebrates and algae; ii) characterization of the coastal habitats/biotopes in the Azores.

Objective: to enhance knowledge of classified coastal species and habitats in line with the various international conventions and relevant European legislation.

The Protected Marine Areas research group at the University of the Azores has been conducting work as part of the BALA Programme since 21 June, including georeferencing of caves around the whole of Graciosa Island, dives to describe habitats/biotopes and inventorying of the aforementioned functional groups.

Tern Census

The tern census takes place annually between mid-May and mid-June, and is currently coordinated by the Regional Directorate for Sea Affairs (DRAM), in partnership and with the support of the Environment and National Park Services on the island. This census aims to quantify the populations of the two main species of tern which nest in the Region, the garajau-comum (common tern - *Sterna hirundo*) and the garajau-rosado (roseate tern - *Sterna dougallii*). As well as visiting accessible colonies to count nests and sitting birds, counting of more inaccessible colonies, particularly on the coastal islets which are a haven for seabirds, is also carried out at a distance from land and at sea, using binoculars and a telescope or boat trips around all of the islands, allowing the number of adults to be estimated by sounding a horn to prompt them to take flight. This census began in 1989, and has been conducted annually since 1993 in the main colonies on the initiative of seabird researchers from the DOP/IMAR. In the last decade, efforts have increased to fully monitor colonies around the whole archipelago. Since 2016, the Regional Government has taken on the coordination of the census, as the monitoring and collection of data on seabird populations with regional, European and international protection status such as the common tern and the roseate tern is a legal obligation under the Birds Directive (Natura 2000 Network) of the Marine Strategy Framework Directive, and is also stipulated by the OSPAR Convention.

- **Coordinated by the Department of Oceanography and Fisheries at the University of the Azores (DOP/UAç)**

REMAx – Experimental Network for Marine Education in the Azores (2007-2009)

An initiative from the Department of Oceanography and Fisheries at the University of the Azores, financed by the Regional Secretariat for the Environment and the Sea, which aims to develop marine education initiatives and stimulate future cooperation between education providers and society. Targeting MoniZec – Monitoring marine SPAs in the Azores (DRCT 2012-2015)

MoniZec – Monitoring marine SPAs in the Azores (DRCT 2012-2015)

During the MONIZEC project, the network of coastal PMAs in the Azores was evaluated, drawing up alternative conservation strategies, and relevant information was provided to users to improve management of the marine environment in the Azores.

- **Coordinated by the SEO/BirdLife (Spanish Ornithological Society), SPEA, Regional Tourism Association (ART) of the Azores and Biosphere I NGO Cape Verde)**

MACAROAVES (Rural development and ornithological tourism) - MAC/3/C280

Due to the significant natural value of Macaronesia and the large numbers of tourists who visit the region, the project aims to reconcile tourism with conservation, particularly of birds, promoting the rural

development of the Azores, Madeira, the Canary Islands and Cape Verde using their unique natural spaces and birdlife as tools.

Ornithological tourism emerges as a product with added value in relation to the current ecotourism offer aimed at visitors to these archipelagos. In order to achieve this, a document on the planning and development of the activity will be drawn up, along with the chosen natural areas where demonstrations will be carried out, adapting and installing facilities for ornithological tourism (information boards, bird hides, etc.).

There are also plans to train local guides to promote local ornithological tourism companies, and to improve knowledge of the natural environment and birds in sectors already involved in this type of tourism (nature guides, hotel industry, managers, etc.). Therefore, the aim more generally is to promote ornithological tourism as a complementary resource which respects the environment.

General Objective: to develop activities which reconcile tourism with environmental conservation, especially of the birds of Macaronesia, promoting rural development on its islands by taking advantage of their unique natural spaces and birdlife.

Specific Objective 1. To develop an ornithological tourism strategy for Macaronesia, which will establish, plan and develop a series of measures and actions to promote sustainable tourism, taking into account the specific features of each archipelago.

Specific Objective 2. To identify natural spaces in each archipelago which display potential for ornithological tourism, selecting areas to implement resources and support facilities for this type of tourism.

Specific Objective 3. To promote ornithological tourism as a complementary resource for tourists visiting Macaronesia, while simultaneously transforming it into a resource for respecting the environment.

Specific Objective 4. To train local guides to promote and support the creation of ornithological tourism companies, and to promote environmental training in sectors involved in this type of tourism, such as the hotel industry, nature guides, environmental managers, etc.

In the framework of the aforementioned projects, among others, a number of reports and scientific articles have been published in the last decade. Among these, the most relevant are those relating to work carried out in the Flores Island Nature Reserve:

Neves, V. 2009. Azores Terns Census Report 2009. University of the Azores, Department of Oceanography & Fisheries. Arquivos do DOP, Série Estudos No. 5/2009;

Neves, V. C., Nava, C. P., Cormons, M., Bremer, G. C., Lima, P., Junior, S.M. A., Phillips, R. A., Magalhães, M. C. and Santos, R. S. (2015). Migration routes and non-breeding areas of Common Terns (*Sterna hirundo*) from Azores. EMU;

Neves, V. 2015. Azores Census Tern Report 2015. Arquivos do DOP, Série Estudos, No. 1/2015;

Gómez-Díaz, E., González-Solís, J. & Peinado, M.A. 2009. Population structure in a highly pelagic seabird, the Cory's Shearwater Calonectris diomedea: an examination of genetics, morphology and ecology. Mar. Ecol. Progr. Ser. 382: 197-209.

Paiva, V.H., Geraldes, P., Ramírez, I., Meirinho, A., Garthe, S. & Ramos, J.A. 2010c. Oceanographic characteristics of areas used by Cory's Shearwaters during short and long foraging trips in the North Atlantic. Marine Biol. 157: 1385-1399.

Fontaine, R., Gimenez, O. and Bried, J. 2011. The impact of introduced predators, light-induced mortality of fledglings and poaching on the dynamics of the Cory's Shearwater (Calonectris diomedea) population from the Azores, northeastern subtropical Atlantic. Biological Conservation 144: 1998-2011.

Neves, V.C., Nolf, D. & Clarke, M.R. 2012. Spatio-temporal variation in the diet of Cory's Shearwater Calonectris diomedea in the Azores archipelago, northeast Atlantic. Deep-sea Res. I 70: 1-13.

Helena Calado, Marta Vergílio, *et al* (2014), Desenvolvimento de um Sistema Integrado de Planeamento e Gestão de Áreas Protegidas em Pequenas Ilhas Oceânicas (Arquipélago dos Açores, Portugal): o Projecto SMARTPARKS.

Barcelos L, Rodrigues P, Bried J, Mendonça E, Gabriel R, Borges P (2015) Birds from the Azores: An updated list with some comments on species distribution. Biodiversity Data Journal 3: e6604.

Nava, C.P. & Neves, V. (2016). Código de Boas Práticas para a Observação de Aves. Projeto ROA – Rede de Observação de Aves, Departamento de Oceanografia e Pescas, Universidade dos Açores.

Fraga, Ana (2017), A pesca profissional açoriana nas ilhas da Rede Mundial de Reservas da Biosfera: modus operandi e desafios às políticas públicas para gestão das áreas marinhas protegidas. Jornadas do Mar 'Novos Rumos, Novos Desafios', Livro de Atas, Escola Naval.

Fraga, Ana (2017), Pesca Artesanal Açoriana: Esfera de investigação sociológica e contributos à gestão sustentada. Revista da Associação Portuguesa de Sociologia (in press).

Rodrigues, Gonçalo (2014), Validação do modelo WRF na simulação do vento e precipitação na ilha das Flores, no contexto da produção de energia renovável.

Cruz, Ana Mafalda (2014), Contribuição para o estudo das comunidades zooplanctónicas das lagoas dos Açores.

Goulart, Marisa (2014), Padrões de Raridade das Plantas Vasculares Indígenas dos Açores: Implicações para a Concervação e Gestão.

6.3 Describe how traditional and local knowledge and knowledge from relating to management practices have been collected, synthesized and disseminated. Explain how such knowledge is being applied to new management practices, and how and if it has been integrated into training and educational programmes.

Within the framework of the implementation of the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), promoted by the Flores Island Nature Park, several environmental education programmes and actions were implemented and will continue to be developed in partnerships with local authorities, schools and non-governmental environmental organisations:

Eco-Escolas Programme – a European initiative under the purview of the Foundation for Environmental Education, which aims to encourage actions and recognise the work developed by the school for the benefit of the environment. It involves the participation of the entire student community on the island;

Parque Escolas Programme – a regional initiative that intends to provide resources and information to the school community through actions on various themes, involving all of the schools on the island;

Parque Aberto Programme – a regional initiative that promotes actions and activities taking place within protected areas and/or environmental centres, encouraging the participation of the entire population. This programme also promotes actions related to the cultural and traditional aspects of the island;

SOS Cagarro Campaign – aims to involve people in the rescue of juvenile Cory's shearwaters (cagarro). These campaigns are preceded by formal clarification sessions and/or informal contacts with potential partners. It involves the whole island and its population.

The Regional Plan for the Eradication and Control of Invasive Flora Species in Sensitive Areas (PREFECIAS) has now been underway for a number of years, focusing on awareness raising and education among the population to avoid and reverse the spread of invasive species.

With this goal in mind, and considering the protection and conservation concerns of the relevant authorities, the Regional Directorate for the Environment implemented the 'Regional Plan for Eradication and Control of Invasive Plant Species in Sensitive Areas', establishing effective methodologies and strategies for eradicating and controlling the aforementioned invasive species in accordance with the Proposal for a European Strategy on Invasive Alien Species adopted at the 23rd meeting of the Standing Committee of the Bern Convention, Strasbourg, from 1 to 5 December 2003.

Invasive alien plants are recognised as one of the main threats to the natural environment, with huge economic costs and direct effects on ecosystems including:

- Competition with native species;
- Hybridisation;
- Changes in the physical and chemical characteristics of the soil;
- Modification of natural habitats;
- Spread of pests and diseases.

This *in situ* active conservation project complements the Interreg IIIb 'BASEMAC' Project and forms part of an *ex situ* conservation strategy in Macaronesian seed banks.

The Government of the Azores is developing an electric mobility programme for the Park Rangers Team, which involves the purchase of 14 vehicles for the Azores Nature Parks.

Due to the characteristics of our islands and of some of the areas located in the Nature Parks, it is not possible to replace the whole fleet used for surveillance and environmental monitoring activities with electric vehicles, but in many circumstances they are an excellent mobility solution, while providing a positive solution to current issues such as global warming, air quality and dependence on fossil fuels. For every petrol vehicle replaced with an electric vehicle, we are contributing to an annual reduction of 2.5 tons of CO_2 emissions, and saving on maintenance and fuelling costs.

6.4 Environmental/sustainability education. Which are the main educational institutions ('formal' – schools, colleges, universities, and 'informal' services for the general public) that are active in the biosphere reserve? Describe their programmes, including special school or adult education programmes, as these contribute towards the functions of the biosphere reserve. Comment on organizational changes (if any) in institutions and programmes that were identified in the biosphere reserve ten or so years ago (e.g. closed down, redesigned, new initiatives). Refer to programmes and initiatives of UNESCO Associated Schools networks, UNESCO Chairs and Centers where applicable.

There are various informal educational institutions allowing the development of environmental activities, such as the two municipal councils, the scout group, and other institutions which organise different types of events, such as free courses, fairs and conferences, with the aim of promoting values (mostly environmental) and traditions to a heterogeneous audience.

With regard to formal education, Flores Primary and Secondary School plays a central role in promoting actions, activities and initiatives related to Environmental Education/Sustainable Development due to its official nature, and aims to stimulate a process of environmental awareness raising, promoting values and changes in attitudes and behaviours with regard to the environment, in order to prepare pupils to act as conscious, dynamic and informed citizens when faced with current environmental issues.

In addition to the aforementioned institutions, environmental education and awareness raising activities are also developed by local associations and other groups, such as the Portuguese Society for the Study of Birds - SPEA (ENGO), which organise various activities of an environmental and cultural nature, with the institutions responsible for their management providing the financial and human resources required.

In this respect, it is important to highlight the presence of a joint regional strategy for environmental awareness raising and education in the Autonomous Region of the Azores, supported by the Regional Plan for Environmental Education and Awareness Raising in the Azores (PRESAA), whose operational organisation is the responsibility of the Regional Government of the Azores, via the Regional Network of Eco-libraries of the Azores and Network of Environmental Centres of the Azores. These structures promote interaction between the various government departments, schools, environmental non-governmental organisations, other associations, authorities and all those interested in boosting activities which support knowledge, awareness and subsequent action to improve the environment of the Azores.

This plan aims to raise awareness among young people of environmental and nature conservation issues, highlighting the importance of appreciating the environmental and natural heritage as a factor in the progress and sustainability of the various Azorean islands.

Under the current government, one of the measures stipulated in the legislative programme is the revision of the current PRESAA, replacing it with the Regional Education Plan for the Sustainable Development of the Azores (PREDSA).

6.5 How do you assess the effectiveness of actions or strategies applied?

(Describe the methods, indicators).

The actions applied are assessed via the specific mechanisms of the programmes they form part of, as well as by implementation and monitoring reports, which are mostly included in the activity plans of public institutions which incorporate their own assessment and monitoring mechanisms.

The number of actions and participants, as well as satisfaction surveys, are the most commonly used assessment tools.

6.5.1 Describe the biosphere reserve's main internal and external communication mechanisms/systems

Leaflets, posters, DVDs and other multimedia resources are the most commonly used materials in the Biosphere Reserve's internal and external communication.

Figure 86 - Example of the door hanger for hotel room doors, which references the Flores Island Biosphere Reserve.

Figura 85 - DVD cover for the documentary 'Flores Island, Biosphere Reserve'.

6.5.2 Is there a biosphere reserve website? If so, provide the link.

http://www.azores.gov.pt/Gra/srrn-natureza/conteudos/livres/Reserva+da+Biosfera+das+Flores.htm

6.5.3 Is there an electronic newsletter? How often is it published? (provide the link, if applicable).

No.

6.5.4 Does the biosphere reserve belong to a social network (Facebook, Twitter, etc.)? Provide the contact.

No.

6.5.5 Are there any other internal communication systems? If so, describe them.

No.

6.6 Describe how the biosphere reserve currently contributes to the World Network of Biosphere Reserves and/or could do so in the future.

Throughout its development, the Flores Island Biosphere Reserve has prioritised local, regional, national and international cooperation, and as a result has acted as a partner in different thematic and regional networks, participating in the 8th REDBIOS meeting held on Flores Island in 2009, and the 12th REDBIOS meeting held in the Azores Archipelago in 2014, on the islands of Faial, Pico and São Jorge.

Figure 87 – 8th and 12th REDBIOS meeting.

In 2015, the Flores Island Biosphere Reserve participated in an international seminar (organised as part of the candidature of the Fajãs de São Jorge Biosphere Reserve) attended by various biosphere reserves, National MAB Committees and the Portuguese National Commission for UNESCO, as well as representatives of the secretariat of the UNESCO MAB Programme, with a view to encouraging networking, sharing experiences and knowledge, and exploring possibilities for future collaboration.

Figure 88 - Workshops 'Biosphere Reserves – Spaces for Cooperation and Development' (São Jorge 2015).

Flores Island Biosphere Reserve actively participates in the general activities of the MAB Programme and the Global Network, and its participation in the 4th World Congress of Biosphere Reserves in Lima (Peru) in 2016 is of particular note.

The Congress addressed issues related to the Sustainable Development Goals (SDGs) and the Post-2015 Development Agenda, including education for sustainable development, the economic viability of nature conservation systems, biodiversity and the protection and sustainable use of natural resources.

The International Coordinating Council of the Man and the Biosphere (MAB) Programme also participated in the conference.

The Congress aimed to review and implement the Madrid Action Plan for Biosphere Reserves (2008-2013), the Seville Strategy and the 1995 Statutory Framework for Action. The Congress also assessed lessons learned and the new challenges faced by the World Network of Biosphere Reserves, and will develop and launch a Biosphere Reserve Action Plan for 2016-2025.

Figure 89 – 4th World Congress with the participation of Azores Biosphere Reserves (2016).

Figure 90 – 3rd National MaB Committee Meeting–Paul Boquilobo Biosphere Reserve (Golegã) 2016.

6.6.1 Describe any collaboration with existing biosphere reserves at national, regional, and international levels, also within regional and bilateral agreements.

The Flores Island Biosphere Reserve participates actively in the general activities of the MAB Programme. Since 2015, it has been a member of the National MAB Committee, and also forms part of the Portuguese National Biosphere Reserve Network.

Figure 91 – First meeting of the National MAB Committee (2015-12-03).

The current National Committee for the Man and the Biosphere Programme (National MAB Committee) was formally established in 2015 by joint decree from the Minister of State and Finance and the Ministers of State and Foreign Trade, Economy and the Environment, Land Planning and Energy (Decree No. 9051/2015 of 13 August).

The Portuguese National Biosphere Reserve Network was formalised on 2 September 2016 at Berlenga Lighthouse, in a ceremony led by Prime Minister, António Costa, as part of the commemorations of the 35th anniversary of the Berlengas Nature Reserve.

Figure 92 - Prime Minister António Costa at the signing of the Cooperation Agreement of the UNESCO National Biosphere Reserve Network (2016).

The Flores Island Biosphere Reserve also forms part of the REDBIOS Network, the Macaronesia and West Atlantic Nature Reserve Network and the World Network of Island and Coastal Biosphere Reserves, EuroMAB and IberoMAB.

In the framework of these collaborations, the Flores Island Biosphere Reserve has developed a number of joint actions relating to nature and landscape conservation, primarily through the European Union PCT-MAC Transnational Cooperation Programme.

Flores Island Biosphere Reserve also participated in the 'Outlook of Cooperation between the Portuguese Biosphere Reserve Network and the UNESCO Chair at the University of Coimbra' Technical Meeting, organised by the Life Sciences Department at the University of Coimbra.

Figure 93 -Meeting at the University of Coimbra.

The Flores Island Biosphere Reserve, participated in the workshop: Biosphere Reserves – Spaces for Cooperation and Development', held on São Jorge Island in the Azores at the end of August 2015.

Figure 94 - Workshop organised by the Regional Directorate for the Environment - São Jorge Island.

6.6.2 What are the current and expected benefits of international cooperation for the biosphere reserve?

Among the obvious benefits are the strengthening of friendship and partnerships and the transfer of knowledge, with a particular emphasis on the areas of energy, waste management, conservation, landscape management and renewable energy.

The international promotion of Flores Island as a tourist destination, as well as of its typical products, is another important benefit resulting from this cooperation.

6.6.3 How do you intend to contribute to the World Network of Biosphere Reserves in the future and to the Regional and Thematic Networks?

The Flores Island Biosphere Reserve will continue to be an active member of the Reserves Networks to which it belongs, and will continue to ensure its participation in both ongoing initiatives and new actions, particularly in the areas of tourism and education with a view to promoting sustainable development.

6.7 What are the main factors that influenced (positively or negatively) the success of activities contributing to the logistic support function? Given the experiences and lessons learned in the past ten years, what new strategies or approaches will be favored as being most effective?

In the context of Flores Island, no significant negative or positive factors were recorded, with the exception of the size and location of the island, causing particular issues such as the lack of critical mass and difficulties accessing external funding.

6.8 Other comments/observations from a biosphere reserve perspective.

Not applicable.

7. GOVERNANCE, BIOSPHERE RESERVE MANAGEMENT AND COORDINATION:

[Biosphere reserve coordination/management coordinators/managers have to work within extensive overlays of government bodies, business enterprises, and a 'civil society' mix of non-governmental organizations and community groups. These collectively constitute the structures of governance for the area of the biosphere reserve. Success in carrying out the functions of a biosphere reserve can be crucially dependent upon the collaborative arrangements that evolve with these organizations and actors. Key roles for those responsible for the biosphere reserve coordination/management are to learn about the governance system they must work within and to explore ways to enhance its collective capacities for fulfilling the functions of the biosphere reserve.]

7.1 What are the technical and logistical resources for the coordination of the biosphere reserve?

The coordination of the Biosphere Reserve falls under the responsibility of the Regional Directorate for the Environment (DRA), whose mission is to contribute to defining regional policy in the areas of the environment, land-use planning and water resources, as well as guiding, coordinating and monitoring its implementation.

The Regional Directorate for the Environment is responsible for the thematic areas of Nature Conservation, including the management of protected areas, species and habitats in the Natura 2000 Network, in the field of Environmental Quality, which includes the management and monitoring of noise, air quality and waste. Environmental Promotion and Education, in their various facets, are another important responsibility for this Regional Directorate. In order to fulfil its functions, the DRA makes use of the following services:

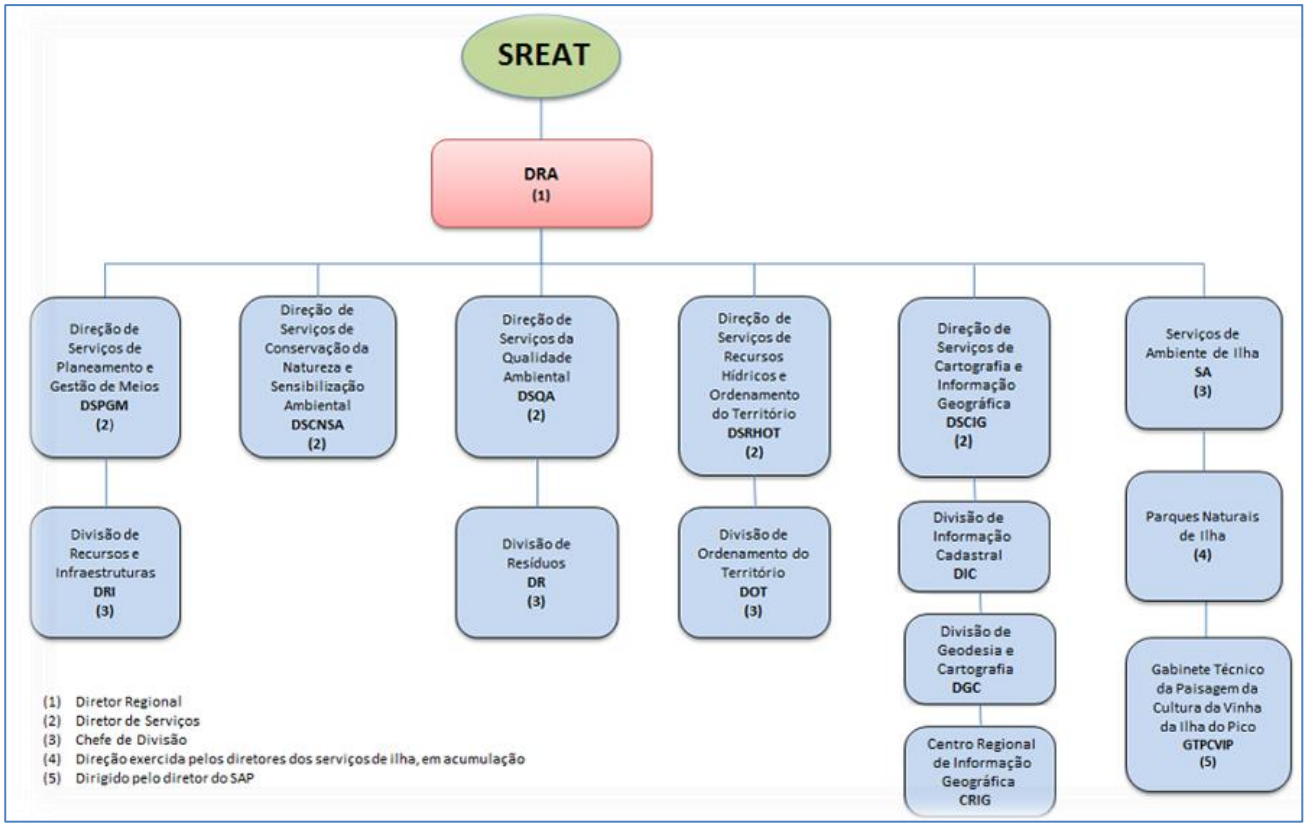


Figure 95 - Organisational chart of the Regional Directorate for the Environment.

The Biosphere Reserves in the Autonomous Region of the Azores fall under the scope of the legal framework for the respective Regional Network of Protected Areas, according to Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April, and are managed as part of the Island Nature Park in which they are located.

The Biosphere Reserve has an autonomous management structure, the Management Board, which is led by the Director of the Flores Nature Park, as stipulated by no. 1 of Article 54 of Regional Legislative Decree No. 15/2012/A of 2 April. The latter is responsible for: advising on the management plan and its implementation; monitoring management; promoting and authorising the use of the brand and its associated logos in products and services, and suggesting actions and projects to boost and promote the objectives of the Biosphere Reserve.

The Management Board usually meets at least once every six months and is always convened by the President, with the Flores Nature Park as the unit for managing the network of protected areas on the island providing the necessary logistical and administrative support for the operation of the Flores Island Biosphere Reserve.

Figure 96 - Meeting of the Management Board of the Flores Island Biosphere Reserve in February 2019.

With regard to the administrative authorities, the Management Board includes representatives from the Government of the Azores and the Lajes das Flores and Santa Cruz das Flores Municipal Councils.

Besides their responsibilities on the Management Board, the Government of the Azores and the Flores island's two municipal councils hold various administrative duties in the area of the Flores Island Biosphere Reserve.

The Government of the Azores works primarily on the management of the Core Areas and Buffer Zones, through the department with responsibility for the environment and the Flores Nature Park.

Apart from the Flores Island Nature Park, the Island's Municipal Councils hold administrative and licensing responsibilities in the transition areas.

7.2 What is the overall framework for governance in the area of the biosphere reserve? Identify the main components and their contributions to the biosphere reserve.

Besides their responsibilities on the Management Board, the Government of the Azores and the island's municipal councils hold various responsibilities in the Flores Island Biosphere Reserve.

The Government of the Azores manages the Core Areas and Buffer Zones, through the department with responsibility for the environment and the Flores Island Nature Park.

Apart from the Flores Island National Park, the municipal councils hold administrative and licensing responsibilities in the transition areas.

7.3 Describe social impact assessments or similar tools and guidelines used to support indigenous and local rights and cultural initiatives (e.g. CBD Akwé:Kon guidelines, Free, Prior, and Informed Consent Programme/policy, access and benefit sharing institutional arrangements, etc.).

Not applicable.

7.4 What (if any) are the main conflicts relating to the biosphere reserve and what solutions have been implemented?

Not applicable.

7.4.1 Describe the main conflicts regarding access to, or the use of, resources in the area and the relevant timeframe. If the biosphere reserve has contributed to preventing or resolving some of these conflicts, explain what has been resolved or prevented, and how this was achieved for each zone?

Not applicable / There are no conflicts.

7.4.2 Describe any conflicts in competence among the different administrative authorities involved in the management of the area comprising the biosphere reserve.

There are no conflicts at this level, nor are any foreseen to emerge, as the management structure of the Biosphere Reserves of the Autonomous Region of the Azores and the respective responsibilities of its members are clearly stipulated in Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April.

The management model for the Flores Island Biosphere Reserve includes participation by public and private bodies with sectoral and administrative responsibilities, forestalling the possibility of conflicts by creating the Biosphere Reserve as a space of permanent dialogue and coordination.

7.4.3 Explain the means used to resolve these conflicts, and their effectiveness. Describe its composition and functioning, resolution on a case-by-case basis. Are there local mediators; if so, are they approved by the biosphere reserve or by another authority?

Not applicable.

7.5 Updated information about the representation and consultation of local communities and their participation in the life of the biosphere reserve:

The Management Board of the Flores Island Biosphere Reserve includes exhaustive representation of all public, private, associative and corporate bodies on Flores Island, which participate not only in the actions and initiatives developed, but in the definition of the strategy and management of the Reserve itself.

7.5.1 Describe how local people (including women and indigenous people) are represented in the planning and management of the biosphere reserve (e.g., assembly of representatives, consultation of associations, women's groups).

Not applicable.

7.5.2 What form does this representation take: companies, associations, environmental associations, trade unions (list the various groups)?

The legal framework for the Azores Biosphere Reserves, established in Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April, guarantees the right to public participation by concerned parties in all phases of their development.

Under the terms of the aforementioned legal framework, the Management Board of the Flores Island Biosphere Reserve comprises the Director of Flores Nature Park in the role of President, the Presidents of the island's municipal councils, representatives of the departments of the Government of the Azores responsible for the areas of economy, agriculture, forestry and fisheries, as well as the following organisations and associations: representative of the Flores and Corvo Business Hub and of the Chamber of Commerce and Industry of Horta , representatives of local associations of farmers and fishermen; representative of the ENGOs and a representative of the Nature and Environment Protection Service (SEPNA) of the local National Republican Guard station.

7.5.3 Indicate whether there are procedures for integrating the representative body of local communities (e.g., financial, election of representatives, traditional authorities).

7.5.4 How long-lived is the consultation mechanism (e.g., permanent assembly, consultation on specific projects)?

As well as participation in the management structures, public participation and consultation procedures are also established for each type of activity or project, in accordance with current legislation in the various sectors (e.g. Environmental Impact Assessment, Land Use Plans, Sectoral Plans).

7.5.5 What is the impact of this consultation on the decision-making process (decisional, consultative or merely to inform the population)?

From a formal perspective, all contributions are analysed and considered in terms of their inclusion in the processes to which they relate. Meanwhile, certain public consultation mechanisms are held in advance and are binding, lending a decisive role to this public consultation and participation.

7.5.6 At which step in the existence of a biosphere reserve is the population involved: creation of the biosphere reserve, drawing up of the management plan, implementation of the plan, day to day management of the biosphere reserve? Give some practical examples.

From its formatting and application process to its management and strategic planning, the Flores Island Biosphere Reserve has included the main socio-economic stakeholders on the island in a participatory process.

7.6 Update on management and coordination structure:

7.6.1 Describe any changes regarding administrative authorities that have competence for each zone of the biosphere reserve (core area(s), buffer zone(s) and transition area(s))? If there are any changes since the nomination form/last periodic review report, please submit the original endorsements for each area.

The creation of the island nature parks by regional legislative decree established that they are the basic management unit of the Network of Protected Areas in the Azores.

In addition, the legal framework for the Azores Biosphere Reserves, established in Articles 51 to 54 of Regional Legislative Decree No. 15/2012/A of 2 April, stipulates that when the biosphere reserve coincides territorially with an island nature park (as is the case of the Flores Island Biosphere Reserve), the management board of the reserve replaces the respective advisory board, assuming not only its own responsibilities, but also the legally stipulated functions of the latter body.

In this respect, the legal mechanisms in force were taken into account, specifically, the established protected areas and the corresponding conservation statutes and regulations governing the compatibility of uses and the occupation of the territory.

The zoning established for the Core Areas and Buffer Zones is entirely compatible with the boundaries of the existing protected areas, as well as with areas covered by special instruments for land use planning and management.

The Core Areas comprise areas with protected status in terms of nature conservation and biodiversity, and are fully compatible with the conservation function assigned to them, coinciding with protected areas in the Flores Nature Park, classified by Regional Legislative Decree No. 8/2011/A of 23 March, implementing the criteria adopted by the International Union for Conservation of Nature (IUCN).

The Buffer Zones comprise areas with protected status in terms of nature conservation and biodiversity, or covered by special instruments for land use planning and management which allow them to complement core areas, coinciding with protected areas in the Flores Nature Park, classified by Regional Legislative Decree No. 8/2011/A of 23 March, implementing the criteria adopted by the International Union for Conservation of Nature (IUCN), or integrated in the Flores Island Coastal Area Land-Use Plan (POOC) approved by Regional Regulatory Decree No. 24/2008/A, of 26 November.

7.6.2 Update information about the manager(s)/coordinator(s) of the biosphere reserve including designation procedures.

As established in Article 54 of Regional Legislative Decree No. 15/2012/A of 2 April (Legal framework for nature conservation and biodiversity in the Autonomous Region of the Azores), each biosphere reserve has a management board led by the director of the corresponding island nature park.

7.6.3 Are there any changes with regard to the coordination structure of the biosphere reserve? (if yes, describe in details its functioning, composition and the relative proportion of each group in this structure, its role and competence.). Is this coordination structure autonomous or is it under the authority of local or central government, or of the manager of the biosphere reserve?).

7.6.4 How has the management/coordination been adapted to the local situation?

The governance model for the Azores Biosphere Reserves is similar to that of the current four biosphere reserves, and derives from the publication of the regional legislative decree establishing the legal framework for nature conservation and biodiversity. - Regional Legislative Decree no. 15/2012/A of 2 April.

7.6.5 Was the effectiveness of the management/coordination evaluated? If yes, was it according to a procedure?

As management of the Biosphere Reserve falls under the organic functions of the Regional Directorate for the Environment, evaluation takes place within the framework established by the public body, namely, through the SIADAPRA - Integrated Performance Evaluation System of the Regional Public Administration of the Azores.

7.7 Update on the management/cooperation plan/policy:

7.7.1 Are there any changes with regard to the management/cooperation plan/policy and the stakeholders involved? If yes, provide detailed information on process for involvement of stakeholders, adoption and revision of the plan.

Since Flores Island was named a Biosphere Reserve in 2009, and the establishment of the respective governance model in 2012, there have been no significant changes in the management/cooperation model nor in the appointed actors.

However, as part of the current periodic review process, an exercise was undertaken to establish the Vision and Mission of the Flores Island Biosphere Reserve for the 2020-2026 period.

On 13 June 2017, the Government Council met at the Graciosa Island Biosphere Reserve and resolved that Action Plans for the Azores Biosphere Reserves should be drawn up as development tools for the sustainable development objectives for these areas established under the UNESCO MAB Programme (Government Council Resolution No. 65/2017 of 22 June).

The aforementioned Action Plans, whose legal character and form are defined in Article 52 of Regional Legislative Decree No. 15/2012/A of 2 April, must be completed within a maximum period of 18 months, with

the corresponding development processes monitored by a working group comprising area managers, services of the autonomous regional administration, local authorities, various social partners and environmental non-governmental organisations.

7.7.2 Describe contents of the management/cooperation plan (provide some examples of measures and guidelines). Is the plan binding? Is it based on consensus?

In accordance with the contents established in the Vision and Mission for the Flores Island Biosphere Reserve, the environmental, economic, social, cultural and identity sustainability pursued will be achieved by promoting a diverse range of priority actions, which are:

Vision of the Flores Island Biosphere Reserve

The vision of the Flores Island Biosphere Reserve has been developed around a fragile island territory that strives to become a place of excellence, that conserves its tangible and intangible resources and strengthens its identity-based values. As a community open to the world, to people and to the times, it should ensure local socio-economic development that favours co-existence, as a reservoir of life, a protector of society and of participatory management that improves the quality of life and the well-being of its ultimate beneficiaries: people (both residents and visitors).

Implementation of the overall vision of Flores Island Biosphere Reserve should be based on firm foundations that combine management of scientific research and innovation with the traditional knowledge of the local population while integrating the diverse sensitivities of various sectors.

Mission of the Flores Island Biosphere Reserve

The mission of the Flores Island Biosphere Reserve is to promote, execute and demonstrate a balanced relationship between people and the biosphere reserve at different scales by functioning as a site for experimenting and learning methods of conservation and sustainable development and fomenting planned and coordinated management with the effective and concerted participation of its various social partners. As such, it must assume an ethical commitment and serve a protective function through research, innovation and practices that are appropriate for the efficient use of resources, the aim being the preservation of environmental, cultural and social values that identify and favour the sustainable development of the Flores community.

The sustainability of its environment, economy, society, culture and identity will only be achieved if this mission is supported by a diverse array of priority initiatives, which are as follows:

Mission (1) – Conservation Function (of landscapes, ecosystems and species)

- **Conservation of Natural Resources:** to actively promote the conservation of natural elements to allow them to continue into the future. To promote the conservation of biodiversity, including both wild indigenous and domesticated species, by preserving their populations (in particular the rarest species) and genetic diversity and by eradicating alien and invasive species. To promote actions aimed at restoring and

preserving spaces with geological and/or geomorphological features of particular interest. To establish tools for monitoring populations and conservation plans, and to encourage research into natural resources.

- **Functionality of ecosystems:** to promote actions that deter the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of exotic and invasive species. To develop initiatives to promote ecological restoration through the recovery of local species, pollution control, water and carbon cycle maintenance and soil conservation.

- **Land management:** to develop actions which promote judicious, sustainable use of the land, organising human activity in order to maintain biological and cultural diversity. To strive to maintain the spatial continuity of ecosystems and prevent fragmentation, and to stimulate traditional land use practices that prevent erosion.

- **Landscape:** to use landscape as a structural element for zoning and social cohesion, taking measures aimed at its protection, management and planning. To maintain the inherent values, both natural and cultural, of landscapes by minimising harmful impacts and preventing the loss of landscapes.

Mission (2) – Development Function (culturally, socially and ecologically sustainable economic and human development)

- **Quality economy:** to stimulate the production, distribution and use of goods in a way that does not subject future generations to environmental risks or to significant ecological threats. To promote the responsible use of local resources to generate economic activity and stable employment. To create synergies between tradition, local products, business and industrial activity, responsible processing, differentiated marketing, new technologies and territoriality as an inherent singularity of the product, good or service provided. To develop products of guaranteed environmental quality, which allows them to be exploited in specific markets which value quality over cost.

- **Responsible tourism:** based on the promotion of an offer that prizes quality and respect for the environment, involving stakeholders responsible for the development of these resources, targeting an audience that seeks excellence as an added value for the destination, turning tourism into an engine for economic growth, job creation and local wellbeing, while leading to a more efficient use of resources. Promote nature tourism activities, *Canyoning, Birdwatching*, an important market niche.

- **Energy sustainability:** to switch from a road mobility paradigm sustained by external dependence on fossil fuels to a new paradigm supported by clean energy via incentives for electric vehicle use. Flores Island and its Biosphere Reserve must implement an integrated alternative energy system, combining solar, wind and hydroelectric energy, creating a sustainable energy project which will contribute to the sustainable development of the Azores.

Mission (3) – Logistical Function (supporting research, monitoring and education)

- **Enhancement of knowledge:** The Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, promoting the transmission and dissemination of knowledge to the community, with the

support and collaboration of the University of the Azores in conducting projects involving research, training and environmental education, with the aim of implementing sustainable development models on the island.

- **Traditional knowledge:** to identify and validate cultural elements, customs and traditions as constituents of identity and distinctive elements of the Flores population to counteract the homogenising effect of globalisation, which appears to replace local identities and cultures.

7.7.3 Describe the role of the authorities in charge of the implementation of the plan. Describe institutional changes since the nomination form/last periodic review report. Please provide evidence of the role of these authorities.

With the creation in 2011 of the Flores Nature Park, through Regional Legislative Decree No. 8/2011 / A, of 23 March, a decisive step was taken towards creating an authority responsible for the management of the Flores Island Biosphere Reserve.

The Action Plan for the Flores Island Biosphere Reserve is being implemented according to the normal parameters of a sectoral programme, based on the consensus and active participation of all parties.

In this sense, it is the responsibility of the management structure of the Flores Island Biosphere Reserve, as defined in Articles 51 to 54, to implement the Action Plan in partnership with other public and private entities.

7.7.4 Indicate how the management plan addresses the objectives of the biosphere reserve.

In accordance with the Government Council resolution, the process of drawing up the Action Plan is monitored by a working group comprising area managers, services of the autonomous regional administration, local authorities, various social partners and environmental non-governmental organisations.

Such broad representation of the main local stakeholders will guarantee the pursuit of the Vision established for the Flores Island Biosphere Reserve and the respective actions that have been identified to achieve it.

7.7.5 What are the progresses with regard to the guidelines of the management/cooperation plan/policy?

The experience gathered during the first ten years of the Flores Island Biosphere Reserve has enabled the identification of the broad principles and objectives of the Biosphere Reserve within a framework of sustainable development at the local level. The approval of the vision and mission for the 2020-2026 period is a good reflection of the identity and coherence around the role that the Biosphere Reserve plays.

7.7.6 Were there any factors and/or changes that impeded or helped with the implementation of the management/coordination plan/policy? (Reluctance of local people, conflicts between different levels of decision-making).

There are no factors or difficulties in implementing or coordinating the Biosphere Reserve. The fact that the Reserve includes the entire physical space of the island and the involvement of living forces in its management and current activities are elements that facilitate the dialogue and help prevent conflicts.

7.7.7 If applicable, how is the biosphere integrated in regional/national strategies? Vice versa, how are the local/municipal plans integrated in the planning of the biosphere reserve?

(Please provide detailed information if there are any changes since the nomination form/last periodic review report).

The Flores Island Biosphere Reserve is part of the strategies for sustainable development and cohesion of the Autonomous Region of the Azores.

The Government of the Azores has developed a wide range of incentives, programmes, policies and strategic documents that aim to develop, support and stimulate the economic, social, cultural and environmental dimensions of the Region, including Flores Island and its specificities, not only in terms of their socio-economic reality, but also in terms of their typical products, handicrafts and its unique landscape.

Among numerous documents, the following can be included:

International Reference Documents

- Territorial Agenda 2020 (TA2020);
- European Strategy for the Outermost Regions (ORs);
- EU Biodiversity Strategy 2020 (EUBS 2020);
- Thematic Strategy on the Sustainable Use of Natural Resources (TSSUNR);
- Thematic Strategy on Urban Environment (TSUE);
- Thematic Strategy for Soil Protection (TSSP);
- European Landscape Convention (ELC);
- Marine Strategy Framework Directive (MSFD);
- European Blue Growth Strategy (BG);
- UN Convention on the Conservation of Migratory Species of Wild Animals - Bonn Convention (CMS);
- Convention on the Conservation of European Wildlife and Natural Habitats - Bern Convention;
- Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention);
- Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Blue Growth, Opportunities for marine and maritime sustainable growth;

- Convention on Biological Diversity, Biological Strategy, Birds Directive;
- Habitats Directive;

Regional Reference Documents

- Programme of the XI and XII Government of the Azores;
- Medium-Term Guidelines 2013-2016;
- Operational Programme Azores 2014-2020;
- POSEIMA (Specific Options Programme addressing Distance and Insularity in Madeira and the Azores);
- PRORURAL (Rural Development Programme for the Autonomous Region of the Azores);
- PROPESCAS (Operational Fisheries Programme for the Autonomous Region of the Azores);
- PRO-EMPREGO (Operational Employment Programme for the Autonomous Region of the Azores);
- The Azorean Agenda for the Creation of Employment and Business Competitiveness;
- Strategic Plan for the Cohesion of the Azores;
- Strategic Plan for the Promotion of Entrepreneurship in the Autonomous Region of the Azores 2013-2016;
- Regional Strategy for Climate Change;
- Tourism Management Programme for the Autonomous Region of the Azores (POTRAA);
- Regional Land Management Plan for the Azores Territory (PROTA);
- Regional Strategy for Climate Change (ERAC);
- Baseline Study for the Regional Sustainable Development Plan of the Autonomous Region of the Azores (PReDSA Studies);
- Autonomous Region of the Azores Forest Strategy (EFRAA);
- Integrated Transport Plan for the Azores (PIT);
- Regional Water Plan (PRA) (under review);
- Regional Hydrographic Management Plan for the Azores 2016-2021 (PGRH-Azores 2016-2021);
- Flood Risk Management Plan of the Autonomous Region of the Azores (PGRIA) (under preparation of 2nd cycle);
- Sectoral Plan for the Natura 2000 Network of the Autonomous Region of the Azores (PSRN2000 RAA);
- Sectoral Land-Use Plan for Extractive Activities in the Autonomous Region of the Azores (PAE);
- Strategic Plan for the Prevention and Management of Waste in the Azores (PEPGRA);

- Regional Climate Change Programme of the Azores (PRAC) (awaiting publication);
- Strategic Marketing Plan for Tourism in the Azores (PEMTA);
- Regional Plan for Environmental Education and Awareness of the Azores (PRESAA);
- Initial Report for the Marine Strategy Framework Directive 2014;
- Action Plan for Restructuring the Fisheries Sector in the Azores;

Island and Municipal Context Reference Documents

- Island Coastal Area Land-Use Plan of Flores Island (POOC Flores);
- Watershed Land Management Plans for Branca, Negra, Funda, Comprida, Rasa, Lomba and Patas Lagoons (POBHL Flores);
- Municipal Master Plan of Santa Cruz das Flores (PDM Santa Cruz das Flores);
- Municipal Master Plan of Lajes das Flores (PDM Lajes das Flores);

From which we highlight the following, which we briefly explain below:

Programme of the XI Government of the Azores

The programme of the XI Government of the Azores mentions that in addition to the internal actions aimed at guaranteeing or recovering the quality of the landscape, the Azores today have a set of internationally recognised certifications that reflect the level of quality achieved. Classifications such as Biosphere Reserves, Natura 2000 Network, European Network of Destinations of Excellence, QualityCoast, among many others, demonstrate achievements to date. In this sense, it is necessary to maintain or, where appropriate, extend this type of certification.

The programme also mentions that among the environmental classifications of the Azores, Biosphere Reserves in particular represent a huge opportunity for increasing the visibility of the islands of the Azores. Thus, as part of the objective of coordinating the Action Plans of the Island's Nature Parks, a proposal has been put forward to ensure that environmental certifications such as Biosphere Reserves, Natura 2000 Network, RAMSAR sites and others are reflected in the Action Plans of the Island Nature Parks.

In addition, and in order to increase the impact of the certifications of environmental quality, the Government Programme proposes to increase the use of the Biosphere Reserve brand in regional products originating on the relevant islands.

Medium-Term Guidelines 2013-2016

The Medium-Term Guidelines 2013-2016 refer to a set of internationally-recognised certifications demonstrating the level of quality achieved by the Azores, such as the Natura 2000 Network and Biosphere Reserves, and maintaining the image of environmental quality of the Azores.

For the period 2013-2016 it is proposed that the work of the Regional Government in the field of environment and planning is based on 7 major pillars, namely nature conservation and environmental awareness, land use planning, water resources, environmental quality and world heritage, waste management, coastal rehabilitation and the monitoring, promotion, supervision and actions regarding the marine environment. At the level of nature conservation and environmental awareness, the management of biodiversity and the natural heritage of the Azores is given special emphasis.

Operational Programme Azores 2014-2020

As part of *Priority Axis 6: Environment and resource efficiency* of the Operational Programme Azores 2014-2020, Investment Priority 6.3 is highlighted, referring to conservation, protection, promotion and development of the natural and cultural heritage. This includes several interventions aimed at enhancing and promoting sustainable tourism based on natural and cultural heritage, such as promotion and awareness-raising projects for the renewal/expansion of internationally awarded environmental certifications, namely Biosphere Reserves, Azores Geopark, the European Destinations of Excellence Network, QualityCoast, Blue Flag, Accessible Beach and the European Charter for Sustainable Tourism.

In the Azores, the connection of culture to tourism and the environment occurs naturally, though it is necessary to articulate and coordinate the actions to be developed. Collaboration between stakeholders should be close and clear, allowing for more lasting results and progressively greater sustainability.

In addition, priority is given to Investment Priority 6.4, regarding the protection and rehabilitation of biodiversity and soils and the promotion of ecological services systems, notably through the Natura 2000 network and green infrastructure. In a territory with the characteristics of the Autonomous Region of the Azores, the protection and valuation of biodiversity and natural resources is a strategic priority for the social, economic and environmental sustainability of the territory.

- POSEIMA

The Specific Options Programme addressing Distance and Insularity in Madeira and the Azores provides a specific supply regime and measures to support local agricultural production of animals, plants, processing and marketing.

- PRORURAL

The Rural Development Programme for the Autonomous Region of the Azores is developed along 4 axes: increasing the competitiveness of the agricultural and forestry sectors; improving the environment and the rural landscape; quality of life in rural areas and diversification of the economy; and a focus on leadership. PRORURAL+ for the period 2014-2020 is available now.

- PROPESCAS

The PROPESCAS programme is based on creating the conditions for improved competitiveness and sustainability of the regional fisheries sector, taking into account the application of biologically and

ecologically sustainable exploitation regimes, better organisation of the catch, processing and commercialisation sector, strengthening productive activity, diversification and addition of capital gains and the quality assurance of fishery products. The guidelines for the development of the fisheries sector in the region presuppose the inclusion in PROPESCAS of the following priority axes: Priority axis 1 - adaptation of the regional fishing fleet; Priority axis 2 - aquaculture, processing and marketing of fishery products; Priority axis 3 - measures of general interest; and Priority Axis 4 - sustainable development of fishing areas.

PRO-EMPREGO

PRO-EMPREGO is structured in 6 intervention areas: youth employability; consolidation of the employability conditions in the private sector; modernisation of the productive fabric and support for entrepreneurship; employability and entrepreneurship based on R&D; regional competitiveness in the information and knowledge society; and social inclusion through qualification, employment and entrepreneurship.

Azorean Agenda for the Creation of Employment and Business Competitiveness

The Azorean Agenda for the Creation of Employment and Business Competitiveness foresees several incentive policies, of which the following stand out:

- The creation of the new system of incentives for developing handicrafts, with the aim of promoting the improved quality of products made by craft businesses in the Azores, taking into account the structural changes arising from the creation of the status of artisans and craft production units, thus boosting support for the development of this sector of activity;
- The creation of a system of incentives for external promotion and marketing, with the aim of boosting the external competitiveness of regional products and increasing intra-regional trade;
- Commitment to the special Azores brand, identifying the region as a brand synonymous with quality and excellence as a strategy for attracting and retaining markets. Azorean products, whether traditional commodities such as meat, dairy products and tuna or services such as tourism must be distinguished from direct competitors as coming from a Region with an Ecological profile of high environmental value;

Figure 97 - Azores Brand Symbol.

- 50% reduction of the air cargo tariff and 77% reduction in the handling fee for fresh produce from the region (vegetables, fruit, eggs, fresh dairy products – yoghurts, fresh cheese, etc.), originating from and destined for the Cohesion Islands (São Jorge, Graciosa, Santa Maria, Flores and Corvo);
- Implementation of a training programme to promote entrepreneurship related to local sectors and products of the Azores, such as fishing and its derivatives, dairy-related agroindustry, tourism, other activities related to the sea and renewable energy sources;

- The creation of the Terra-Açores project to create a stock of public land on each island available for young farmers to establish themselves, promoting the creation of hubs of nascent agricultural enterprises and thus promoting regional agricultural diversification;
- The creation of the Agir Agricultura and Agir Indústria projects, aimed at combating unemployment and creating new jobs;

Strategic Plan for the Cohesion of the Azores

- The regional cohesion has been designated by the Government of the Azores as a strategic factor of governance and an element that brings people together and improves the conditions offered in the different physical spaces of the Region, promoting the settlement of people and families, including their enhancement (social cohesion), and also providing conditions for the development of entrepreneurial activities that generate wealth and employment (economic cohesion).

Participating islands in the Cohesion Plan include Flores, São Jorge, Santa Maria, Graciosa and Corvo. In the specific case of the island of Flores, the Strategic Plan for the Cohesion of the Azores proposes a set of factors to be considered in a cohesion strategy:

- Tourism still exhibits a significant margin of development, especially by linking various potentials and segments (walking trails, diving activities and visits to the island by boat, observation of various animal and plant species, monitoring of rural activities, cuisine, etc.), creating 'tour packages' integrated with a brand associated with the Flores Biosphere Reserve, which implies organising, training and supporting tour operators and promoting marketing and dissemination campaigns;
- Maximising the possibilities for increased local production on each island is always a key factor in long-term cohesion;
- Flores Island is particularly suitable for hosting local, national or international creative industries, namely in the audiovisual, documentary and soap opera fields;
- This is also the case for aquaculture, with breeding and development of captive species in the maritime environment;
- There can be a better and more coherent use of existing positive discrimination measures and incentive schemes, in particular regarding support for entrepreneurship and the establishment of young people, as well as the technical monitoring of emerging projects and initiatives;
- The issue of maritime freight transport continues to be criticised by local actors, and every possible scenario for improvement should be considered, particularly in order to facilitate exportation;
- The role of existing social economy institutions on the island should not be underestimated in terms of their contribution to cohesion, particularly as regards responses to social needs.

Strategic Plan for the Promotion of Entrepreneurship in the Autonomous Region of the Azores 2013-2016

The Strategic Plan for the Promotion of Entrepreneurship in the Region features the following action proposals:

- START-UP AZORES - implementation of an international programme to attract qualified entrepreneurs;
- EMPREENDE AZORES - implementation of an action-training programme to promote entrepreneurship related to the local products of the Azores;
- INCUBA AZORES - establishment of an incubator of benchmark companies in the Azores;
- BIC AZORES - establishment of a Business Innovation Centre in the Azores;
- ENTREPRENEURSHIP OBSERVATORY - implementation of a structure to monitor the evolution of the Azores' entrepreneurship ecosystem;
- AZORES ANGELS - creation of a Business Angels network in the Azores;
- ENTERPRISE AZORES - implementation of a programme to promote the external visibility of the Azores' entrepreneurship ecosystem.

Regional Strategy for Climate Change

Given the specificities and vulnerabilities of the islands of the Azores, a number of key strategic sectors have been identified in the Regional Strategy for Climate Change (ERAC), including: land use and coastal zones planning; biodiversity and natural heritage; marine environment and fisheries; agriculture and forestry; tourism and industry. The ERAC will be implemented through a Regional Plan for Climate Change that is composed of sectoral strategies and integrates the measures and actions considered pertinent for each of the above-mentioned sectors.

8. CRITERIA AND PROGRESS MADE:

[Conclude by highlighting the major changes, achievements, and progress made in your biosphere reserve since nomination or the last periodic review. How does your biosphere reserve fulfill the criteria. Develop justification for the site to be a biosphere reserve and rationale for the zonation. What is lacking, and how could it be improved? What can your biosphere reserve share with others on how to implement sustainable development into practice?]

Brief justification of the way in which the biosphere reserve fulfills each criteria of article 4 of the Statutory Framework of the World Network of Biosphere Reserves:

1. 'Encompass a mosaic of ecological systems representative of major biogeographic region(s), including a gradation of human interventions'.
   (The term 'major biogeographic region' is not strictly defined but it would be useful to refer to the Udvardy classification system (http://www.unep-wcmc.org/udvardys-biogeographical-provinces-1975_745.html)).

Flores Island, with a surface area of 143 km^2 and a maximum altitude of 914 metres at Morro Alto (central part of the island), has unique landscapes and geological, environmental and cultural assets at regional, national and international levels. The island has a Central High Plateau, with a northern plateau at an average altitude of 600-700 metres, encompassing Morro Alto, and a lower plateau in the south, with altitudes of between 500 and 600 metres, on which a set of regionally important lagoons are located.

The coast of the island has high cliffs for most of its length, dotted with promontories and islets. Due to the prehistoric oscillation of relative sea level, there is even a set of fossil cliffs located within the interior of the island. The high rainfall throughout the year, combined with the morphology of the Central High Plateau and the unusual features of its vegetation cover, result in a high hydrological potential that translates into the extensive high-altitude -bogs and multiple waterways that run radially across the island, many of them ending in hanging valleys, from where they fall as waterfalls of high scenic value.

The geomorphology has conditioned the human colonisation of the island, so that even today the dwellings are restricted to the lower areas and with easier access to the sea. However, this fact has not prevented profound change in natural environments over the last five hundred years, mainly due to deforestation, the introduction of exotic species of fauna and flora, aggregate extraction and, more recently, the intensification of agriculture. The current situation is that of a heavily humanised landscape, but still retaining areas containing habitats with little human intervention, particularly in high-altitude areas and in low but hard to reach areas such as the cliffs and islets. It is within these areas that the island's main environmental assets are currently located.

The largest peat bog in the region can be found in the high and humid areas of the Central High Plateau and is vital to the island's water balance and its characteristic landscape-defining streams and waterfalls. Active raised bogs and bog woodlands are priority habitats (Habitats Directive), the latter being associated with the largest forest of Azores juniper (*Juniperus brevifolia*) in the Azores. Endemic Macaronesian heaths and Laurel forest, two other priority habitat types, are also well represented, surrounding both lentic freshwater habitats (lagoons of various dimensions, including Lagoa Negra, the deepest in the Region) and lotic habitats (perennial and intermittent streams).

In the medium and low altitude zones, agricultural soils and forest prevail, dominated by introduced species, among which hydrangea (*Hydrangea macrophylla*) stands out, which is used to divide the plots of land. Following a recent period of agricultural intensification and, above all, livestock farming, some farmers on the island are investing in a return to milder forms of land exploitation, resulting in increased quality and greater environmental compatibility. The difficulties of accessing coastal areas have the limited human impact

Figure 98 - Dragon tree (*Dracena draco* - locally known as 'dragoeiro') in Lajes das Flores.

on one of the great biological riches of Flores Island: seabirds. Threatened around the world, these birds find an important refuge for nesting and rest on the islets and cliffs of this island. The Flores Island Biosphere Reserve is a particularly important area for the roseate tern (*Sterna dougallii*), a bird classified as vulnerable and the colonies of which on this island account for about 40% of the European population. Pockets of natural vegetation, containing species of high conservation value, such as dragon trees (*Dracaena draco*) are also preserved on these cliffs, some of which are fossil cliffs.

Figure 99 - Roseate tern juvenile (*Sterna dougallii*).

A substantial part of the Flores Island Biosphere Reserve consists of an oceanic marine area which is very rich in terms of habitats and species, both regionally and internationally. This richness supports small-scale fisheries which are regulated to ensure their sustainability and, at the same time, translates into a major attraction in maritime-tourism diving activities, shore walks and whale watching.

2. 'Be of Significance for biological diversity conservation'.

Flores Island is one of the richest in the archipelago in endemic taxa[5] in relation to its surface area, only surpassed by Corvo Island. This relative richness in endemic species reflects the great diversity of biotopes found on the island, as well as the existence of less altered patches of vegetation. The island is an important reserve of vidalia (*Azorina vidalii*) and four species exclusive to the western group, *Myosotis marítima*, *Veronica dabneyi, Euphrasia azorica* and *Cerastium azoricum.* The stand of dragon trees (*Dracaena draco*) on the Lajes cliff (Figure 98), with more than 100 individuals, is unique in the Azores. Laurel clusters in the upper areas of the island, namely the largest stand of the Azorean endemic species, the Azores juniper (*Juniperus brevifolia*), also constitute a valuable natural asset.

[5] Technical term, plural of taxon, any taxonomic classification. In this context, it designates a set of species and subspecies.

There are a total of 103 endemic species on Flores Island, of which 89 are exclusive to the Azores, providing Flores Island with a particular richness. At the level of terrestrial flora, there are 66 endemic taxa, 53 for the Azores, 7 Macaronesian and 6 European. Endemic invertebrates total 28 taxa, 23 of which are arthropods and 5 of which are molluscs. As for fish, there is only one species endemic to the Azores, the Azores wrasse (*Centrolabrus caeruleus*, locally known as bodião), and regarding birdlife, there are 8 endemic subspecies. To round off the richness of endemic species on Flores Island, there is a species of bat, the Madeira pipistrelle (*Pipistrellus maderensis*), a species endemic to Macaronesia, in small numbers on Flores Island. This species is included in Appendix IV of the European Union Habitats Directive, having been granted strict protection status.

Figure 100 - Azores grayling butterfly (*Hipparchia azorina occidentalis*).

Also notable is the presence of the rare Azores grayling butterfly (*Hipparchia occidentalis* known locally as borboleta-castanha), endemic to the Azores, whose presence is limited to the islands of Corvo and Flores. This butterfly, which IUCN categorises as being of great concern - 'Danger of extinction', is abundant on the Western Group of islands of the Azores.

Flores Island is home to internationally important classified areas which are nesting sites for important bird species, many of which are listed in Annex I of the Birds Directive of the European Union. The island possesses 4 areas that belong to the European Union Natura 2000 Network (2 Special Protection Area [SPA] and 2 Sites of Community Interest [SCIs]) and 24 natural habitats listed on Annex I of the Habitats Directive of the European Union, 5 of which are considered to be priority habitats.

Among the 9 endemic subspecies of birds present on Flores Island (8 endemic to the Azores and 1 endemic to Macaronesia), the Azores wood pigeon (*Columba palumbus azorica*) is particularly noteworthy, as a priority species listed in Annex I of the European Union Birds Directive. The Biosphere Reserve also houses important seabird colonies, many listed in Annex I of the Birds Directive, which return there every year to nest.

Among these are the Audubon's shearwater (*Puffinus lherminieri baroli*, known locally as 'frulho') and the Cory's shearwater (*Calonectris borealis*, known locally as 'cagarro'), which are present in high percentages

compared with the rest of the Azores archipelago. The only sites in the Azores archipelago where the estapagado (Manx shearwater - *Puffinus puffinus*) nests are the islands of Corvo and Flores.


Figure 101 - Seabirds - Cory's shearwater (*Calonectris borealis* - known locally as cagarro) / Audubon's shearwater (*Puffinus lherminieri baroli*, known locally as 'frulho').

Other seabirds nesting on the island are the band-rumped storm petrel *Oceanodroma castro*, known locally as 'angelito'); the common tern (*Sterna hirundo*, known locally as 'garajau-comum') and the roseate tern (*Sterna dougallii*, known locally as the 'garajau rosado'). The latter is a species classified as priority in Annex I of the Birds Directive.

There are also other birds which use the island as a crossing point, and it is common to see accidental migratory birds from North America and the Arctic.

In the marine areas of the Biosphere Reserve several species occur that are important from a conservation point of view, including communities of limpets (*Patella aspera* and *Patella candei*, known locally as 'lapas'), yellowbelly groupers (*Epinephelus marginatus*, known locally as 'meros'), and comb groupers (*Mycteroperca fusca*, known locally as 'badejos'). Several species of cetaceans also occur, a group which is included in its entirety in Annex IV of the Habitats Directive and is increasingly important for marine-tourism activities.

Local fishermen are the primary users of the marine resources. The main recreational marine activities include coastal line fishing, trolling and spearfishing, and catching octopus (*Octopus vulgaris*), limpets (*Patella spp*.) and harvesting the seaweed *Porphyra sp.*, a red algae locally known as 'erva-patinha'. Handline and pole-and-line are the most commonly employed fishing gear for catching demersal species and tuna and, to a lesser extent, bottom longline fishing. The most sought-after species of fish are the blackspot seabream (*Pagellus bogaraveo*, locally known as 'goraz'), the wreckfish (*Polyprion americanus*, locally known as 'cherne'), the red porgy (*Pagrus pagrus*, locally known as 'pargo') and tunas. The type of fishing carried out on the island is small-scale and has been managed so as to be compatible with the preservation of the exploited resources.

Agricultural activity is extensive, well-developed and diversified. Several traditional agricultural techniques are still used although in recent years there has been an increase in mechanization and the use

of agricultural additives. Livestock production, also extensive in nature, consisting mainly of cattle production, has seen a decrease over the last decades. Silviculture is also practiced alongside farming, based mainly on the Japanese cedar (*Cryptomeria japonica*).

The Autonomous Region of the Azores is currently equipped with appropriate planning tools to regulate economic activities in order to preserve environmental assets. This is particularly important as the isolation of islands makes clear the need to combine sustainability with development. As with the economic plan, quality must take precedence over quantity to enable competitive advantages.

The classification of Flores Island as a Biosphere Reserve has strengthened ongoing efforts undertaken at regional level to ensure and promote the conservation of ecosystems, biodiversity, and natural resources, ensuring that they are in harmony with socio-economic development.

3. 'Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale'.

(Including examples or learning experiences from putting sustainable development into practice).

The nature, history and socio-economic and natural reality of Flores Island, together with its size, provide it with optimal conditions for the development of innovative, experimental and demonstrative actions, with an observable logic and scale in terms of sustainable development.

Nature conservation, agricultural activities and techniques, fishing, tourism and leisure are sectors of excellence for the development of initiatives and projects, the scope of which, beyond demonstration, can contribute significantly and visibly to the sustainability of the island itself and its inhabitants.

In a way, the Biosphere Reserve has entrenched a number of valid sectoral initiatives that have been developed over the last few years and, consequently, their results will certainly be the reason for consolidating a regional dynamic around the sustainability of the archipelago itself.

The Biosphere Reserve is therefore a catalyst that brings together infrastructures and human resources around historical, social, natural and economic assets that also provide opportunities for valuing the activities, goods, products and services that Flores Island has to offer.

On the other hand, the Flores Reserve integrates the ongoing dynamics of the REDBIOS (East Atlantic Biosphere Reserve Network), together with the Corvo, Graciosa and Fajãs de São Jorge Island Biosphere Reserves, thus expanding cooperation and, consequently, broadening the vision of sustainable development to the entire Autonomous Region of the Azores.

It was within the Flores Island Biosphere Reserve that the construction and operation of the first Waste Processing Centre and Organic Composting Centre (CPRCVO) began, opened on 30 April 2012, envisioned in the Strategic Waste Prevention and Management Plan for the Autonomous Region of the Azores - PEGRA.

Recognition of the Flores Island Biosphere Reserve has created a common platform for discussion and guided efforts to achieving socio-economic development that is compatible with the preservation of natural and cultural values.

There are already several pieces of local infrastructure that offer information on the Biosphere Reserve and sustainable development measures implemented. Among these we can highlight the Eco-library and the walking trails marked with interpretive plaques and written information available at several locations. Flores Island is emblematic for its natural beauty, which helps spread successful examples of socio-economic development based on environmental and cultural sustainability to other islands.

Figure 102 - "Welcome, Flores Biosphere Reserve" panel, placed in the commercial port of Lajes das Flores.

In addition, strong collaboration on various international projects between Governments of the Region and several institutions from the Archipelagos of the Azores, Madeira and the Canary Islands has created excellent opportunities to spread information throughout the entire Macaronesian region. These capabilities have been bolstered by integrating the Flores Island Biosphere Reserve into several cooperation networks, both national (National MaB Committee, National UNESCO Biosphere Reserves Network) and international (REDBIOS, EuroMAB, IberoMAB, among others).

4. 'Have an appropriate size to serve the three functions of biosphere reserves'.

The area of the Biosphere Reserve includes the entire island of Flores and a significant marine area surrounding the island, bringing the total area of the Reserve to 58,619 hectares. Although the total area of Flores Island is relatively small, it incorporates a significant diversity of habitats of international importance, recognised and classified by the European Union through the Natura 2000 Network, as well as landscapes of volcanic origin which are unique in the world.

Alongside conservation, the inclusion of a large marine area explicitly promotes an integrated management practice between terrestrial, coastal and marine environments and ensures the protection of the marine area that constitutes the entire outer area of the Biosphere Reserve, allowing coastal systems and unique habitats of high natural importance, such as some of the islets, to be efficiently managed in a sustainable manner, providing refuge for a number of marine species.

In summary, we can say that the general dimensions and characteristics of Flores Island favour the integrated management of environmental, economic and social components, along with the administrative (and functional) dimension on a scale adjusted to their reality. The scaling and zoning of the Flores Biosphere Reserve provides for a good implementation of the conservation, development and logistical support functions inherent in a Biosphere Reserve. The dimensions for the different types of areas are sufficient to

allow the preservation of natural assets in a perennial manner. The buffer zone was designed and scaled to function as a protective membrane for the most important natural assets located in the Core Area and at the same time it ensures local socio-economic development by promoting sustainable practices of use of natural, social and cultural assetsand resources.

The Flores Island Biosphere Reserve is tailored to meet all the expected functions of a Biosphere Reserve within the broader framework of the Azores archipelago. The total area of the Reserve is 58,619 ha (approximately 586 km^2). Core Areas constitute 1,615 ha (16,15 km^2), corresponding to around 3% of the total area and consist only in terrestrial areas. These dimensions are sufficient to ensure the long term environmental preservationof the island, including the most important areas from the point of view of the island's natural biodiversity and marine environment.

The Buffer Zone corresponds to about 12% of the area of the Biosphere Reserve, totalling 7,143 ha (71,43 km^2), of which 3,169 ha are terrestrial and 3,974 ha are marine. This area is designed to efficiently protect the Core Areas, allowing for the development of human activities in the bordering areas without jeopardising the natural valuesto be protected.

	Area (ha)	% land use	Terrestrial area (ha)	Marine area (ha)
Core Area	1,615.0	3%	1,615.0	0.0
Buffer Zone	7,143.0	12%	3,169.0	3,974.0
Transition Area	49,861.0	85%	9,332.0	40,529.0
Total	**58,619.0**	**100,00%**	**14,116.0**	**44,503.0**

5. Appropriate zonation to serve the three functions

The zoning of Flores Island Biosphere Reserve remains unaltered with regard to the original proposal for its candidacy and classification as a Biosphere Reserve, and ensures the fulfilment of the functions of conservation, development and logistical support.

Covering a total of 1615 ha, the three existing Core Areas correspond to the three protected areas of the Flores Island Nature Park, classified under the category of Nature Reserves by the International Union for Conservation of Nature (IUCN), in addition to an area designated as an 'Important Bird Area' (IBA) under the BirdLife International IBA programme.

These three Core Areas feature several species and habitats protected by international conventions and national and regional legislation. A large part of their area forms part of the European Union's Natura 2000 Network. In addition to the natural values promoted by the Natura 2000 Network, efforts were also aimed at preserving those geological values that are globally unique and which in 2015 merited the inclusion into the Azores Geopark within the International Geoscience and Geoparks Programme of UNESCO (IGGP).

Conservation problems within the Core Area have been identified in the Natura 2000 Network Sector Plan for the Autonomous Region of the Azores and the conservation objectives outlined are organised at different levels. The main conservation objectives of these areas are to interrupt and reverse degradation factors, to control human activities in the surrounding areas and to regulate the surrounding settled areas and the activities carried out there. Another aim is to implement changes in the usage practices of the area, with the objective of guaranteeing the maintenance of natural habitats in the long term, restoring natural habitats in both the Core and Surrounding Areas, as well as promoting knowledge and awareness among the local population.

With the creation of the Flores Nature Park in 2011 (Regional Legislative Decree No. 8/2011/A of 23 March), a diverse set of acts and activities in the various core/protected areas of the nature park were formally prohibited or conditioned.

Morro Alto and Pico da Sé Nature Reserve

With an area of 1,592.8 ha, the main objective of this homogeneous landscape area is the conservation of a set of priority habitats in the context of the Habitats Directive, generically designated as high-altitude bogs. Carpeted by *Racomitrium* moss, commonly known as sphagnum, these wetlands play a crucial role in regulating the water cycle, specifically:

- In the efficient interception capacity of precipitation, both visible and hidden;
- In high surface retention, functioning as a true suspended water reservoir;
- As an effective regulating agent for precipitation and infiltration, subsurface and underground runoff, surface runoff and soil erosion;
- As a regulator of the island micro-climate.

This core area was defined by the concern to prevent further changes in the fragile hydrological balance of an island domain with the characteristics occurring on Flores Island resulting from activities that would lead to a substantial reduction of this coverage. At the same time, areas of peat bog are associated with high and characteristic plant diversity, which grants them added value in terms of conservation.

Nature Reserve of Ihéu Maria Vaz

The coast of Flores Island is characterised by a predominance of island erosion processes, namely marine abrasion phenomena, since the main constructive mechanism, volcanic activity, is currently in the midst of a dormant period, with the most recent volcanic manifestations on this island dating back to over 3000 years ago. A complex pattern of cliffs, *fajãs* and islets of high scenic value emerge from the varied combinations of erosive agents, lithologies and geotectonic structures. Prior to human colonisation, the absence of predators allowed the entire coastline of the islands to be used for nesting of numerous seabird populations. Human predation, land use and the introduction of predators such as rats and cats have led to a sharp decrease in the original densities of seabirds, and the reduction of their habitat to inaccessible coastal sites such as cliffs

and islets. It is these areas that the Nature Reserve intends to protect in a small area, seeking to ensure the integrity of nesting sites for seabird populations, some of them of international importance.

Rocha dos Bordões Natural Monument

This geological formation, a set of large vertical basalt columns, is an imposing geological structure, unique in the Azores. This rock originated from a thick layer of rapidly cooling basalt, and as a result of that fact, it was subjected to a prismatic disjunction, thus giving the appearance of a huge set of pillars made of stone. The solidification will have taken place inside a volcanic cone that has been subjected to an erosive process over time, eventually exposing its interior. Several streams of water run down these basaltic rocks, forming a waterfall. The area of the natural monument is 10.29 ha.

The buffer zones total 7,143 ha, of which 3,974 ha are marine areas and 3,169 ha are terrestrial, and consist mainly of public domain land. These buffer zones coincide with Habitats/Species Management Areas, the management of which is particularly directed towards the active intervention in certain habitats that are particularly important, or depending on certain species, with a view to their recovery.

Caldeiras Funda and Rasa Nature Reserve and the Protected Landscape of the Central Zone and West Coast Cliffs

These two zones (the first covering 426 ha and the second covering 1,390.6 ha) function as a complement to the Morro Alto Nature Reserve, adopting the principles of the consolidation of protected areas into territorially contiguous patches and the creation of an ecological corridor for the more effective and efficient management of protected spaces. The central zone is dominated by juniper forested peat bogs (*Juniperus brevifolia*) and large wetland complexes. The lower, southern part contains a greater diversity of habitats (several types of wetlands, but also heather and recolonising scrubland). These habitats are smaller and have suffered greater changes as a result of the creation of pastures. A feature of these areas is the presence of large lagoons. The considerable number of lagoons on Flores Island and their location in high elevation zones give these entities an important role in the fragile and limited hydrogeological balance of the island. This intervention is mainly carried out at the continuous and approximately uniform levels of recharge of the aquifer system, acting as a regulator of the flow of the springs, as an indirect source of surface runoff and a dampener for the flow of streams, especially during the winter period and as support for the climatic characteristics of the surrounding areas by stabilising evaporation rates throughout the year. In recognition of its importance, the Central Zone of Flores Island was classified as a RAMSAR site on 16 June 2018 under number PT01806.

Habitats/Species Management Areas of the North Coast, South Coast and Ponta da Caveira

The common denominator of the set of these three protected areas, with 504 ha, 3,983.8 ha and 74.8 ha, respectively, is landscape preservation and the preservation of habitats and species associated with the coastal areas of the island. Consisting of long and high coastal cliffs cut by numerous valleys with streams and waterfalls, the coastline includes a complex system of bays, rocky beaches, natural terraces, submerged

and semi-submerged caves and easy-to-reach small coastal islets just metres from the coast. It covers an important set of habitats, some of them endemic, and critical nesting points for various seabird species. Grazing and tourism have some impact on this zone, as do fishing, diving and bathing activities, shellfishing and spearfishing. These activities threaten to cause degradation of the vegetation cover, with the consequent aggravation of soil erosion in coastal cliffs and a decrease in the available habitat with favourable conditions for seabird nesting.

Most of the Flores Island Biosphere Reserve (85%) is covered by the Transition Zone, which comprises a 9,332 ha terrestrial component and a 40,529 ha marine component extending from the coastline (or from the boundary of the Protected Area for Resource Management of the Northern Coast) to a distance of 3 miles, reaching depths of 1000 m.

The marine component represents a considerable area encompassing a wide variety of habitats and activities. This area is used by fishermen and shellfish gatherers within the context of small-scale coastal fishing, with a strong subsistence and local consumption component. Exports are mostly of blackspot seabream (*Pagellus bogaraveo*), fished with a handline. Nautical sports have exhibited a trend towards diversification and the number of practitioners has increased. With a good reputation in scuba diving circles, the island has witnessed a growing demand in the field of marine tourism, with coastal boat trips and whale watching tours. Recent fishing tourism legislation will certainly add another source of business in an area that has high potential in terms of the economy and natural resource optimisation, provided that the balance with environmental sensitivity can be maintained. Livestock, agriculture and forestry occupy the largest areas of the terrestrial component. The challenge in this area is to capitalise on the island's potential to diversify its domestic supply, reducing its dependence on external supplies while investing in a range of high value-added export products to bring more economic gains.

The general conservation objectives of the terrestrial area stem from the establishment of the Flores Nature Park and the application of the Natura 2000 Network Sector Plan for the Autonomous Region of the Azores[6]. Objectives include the control of human activities in the areas surrounding the Core Areas, land-use and human activities planning and, where necessary, implementation of changes to land and water use practices in order to guarantee the long term maintenance and restoration of natural habitats in areas bordering the Core Areas, as well as the promotion of training and awareness among the local population[7].

The main objectives in the Marine Buffer Zones are to maintain environmental quality and the sustainability of the activities carried out there, to recover resources and habitats, to gradually phase out and transform mining-related activities in order to reclaim the value of natural resources and to promote training and awareness to the population.

[6] Regional Legislative Decree no. 20/2006/A of 6 June, as amended by Regional Legislative Decree No. 7/2007/A of 10 April.

[7] Regional Legislative Decree no 38/2008/A, of 11 de Agust.

Other general objectives for the Buffer Zones are to achieve a common understanding among various local interests and users of the importance of using these areas in such a way that has a positive impact on the Core Areas and on the development of sustainable human activities.

6. 'Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and the carrying out of the functions of a biosphere reserve'.

A management body made up of local representatives participating in the management of the Flores Island Biosphere Reserve was created in 2012 (Regional Legislative Decree No. 15/2012/A, of 2 April). This body is composed of the main public entities, representatives of the local community and main interest groups related to the Biosphere Reserve.

The Island's small population allows for efficient consultation processes and for the active participation of various groups with an interest in the Reserve. The most important management measures are presented to the population and widely discussed in order to obtain the best possible consensus between environmental and cultural preservation objectives and those of development.

7. Mechanisms for implementation:

a) Mechanisms to manage human use and activities

b) Management policy or plan

c) Authority or mechanism to implement this policy or plan

d) Programmes for research, monitoring, education and training

a) Mechanisms to manage human use and activities in the buffer zone(s)

There are several mechanisms to manage the activities in the Reserve's buffer zones, such as the EAFRD (European Agricultural Fund for Rural Development) (Code of good agricultural practice), implemented in the Azores through the Pro-Rural Programme (2007-2013) and Pro-Rural+ Programme (2014-2020). At the Regional level, the POOC - Coastal Area Land-Use Plan, the Sectoral Plan for the Natura 2000 Network, the POTRAA - Tourism Management Plan for the Autonomous Region of the Azores[8], the PROTA - Regional Land-Use Plan for the Azores [9], the PGRH-Azores 2016-2021 - Plan for Managing the Hydrographic Region of the Azores 2016-2021[10], the legal regime for nature conservation and the protection of biodiversity, and at the municipal level, the PDM of the two municipalities of Flores Island, the Municipal Master Plan for Santa Cruz das Flores [11] and the Municipal Master Plan for Lajes das Flores.[12]

[8] Regional Legislative Decree No 38/2008/A of 11 August.
[9] Regional Legislative Decree No 26/2010/A of 12 August.
[10] Regional Legislative Decree No 1-A/2017/A of 6 February.
[11] Regional Regulatory Decree No. 32/2006/A of 16 November.
[12] Regional Regulatory Decree No 3/2007/A of 2 February.

b) Management policy or plan of the area as a biosphere reserve

The lines of action that have already been initiated will be maintained, namely those established in the Regional Land-Use Plan for the Azores, in the Tourism Management Plan for the Autonomous Region of the Azores and in the Sectoral Plan for the Natura 2000 Network in the Autonomous Region of the Azores.

The Flores Island Nature Park was created in 2008 and, in 2012, the Legal Regime for the Conservation of Nature and the Protection of Biodiversity was published, under which the Management Board of the Flores Island Biosphere Reserve was created.

For the Buffer Zones and Transition Areas, in addition to the plans previously mentioned, the ProRural Programme is also included in the set of instruments for the management of human activities.

The preparation of the Action Plans for the Azores Biosphere Reserves is currently under way, as determined by the Government Council Resolution No. 65/2017, of 22 June, approved by the Regional Government Council.

These Action Plans are of a legal nature and form, and are set out in Article 52 of Regional Legislative Decree No. 15/2012/A, of 2 April.

c) Authority or mechanism to implement this plan or policy

In the Region, the Network of Protected Areas in the Azores, the classification by the International Union for Conservation of Nature (IUCN) was adopted, adapting it to the specific geographic, environmental, cultural and political-administrative characteristics of the Azores archipelago.

Considering the diversity of situations resulting from the implementation of the Natura 2000 Network in the Autonomous Region of the Azores and the need to adopt a model based on management criteria that standardise the diversity of designations of areas classified as protected and which concentrate competences into an island territorial unit as a management base unit, the legal regime for classification, management and administration of the Protected Areas of the Region was reformulated through Regional Legislative Decree No. 15/2007/A, of 25 June, later rectified by the Declaration of Rectification No. 79/2007, of 21 August.

As regulated by Regional Legislative Decree No. 28/2011/A, of 11 November, with the amendments resulting from Regional Legislative Decree No. 13/2016/A, of 19 July, which structured the Azores Marine Park (PMA in its Portuguese acronym), the marine areas that are located in the territorial sea adjacent to each of the islands of the archipelago are excluded from the PMA because they are included in the corresponding Island Nature Parks.

d) Programmes for research, monitoring, environmental education and training

Research has been carried out in several scientific fields on Flores Island within the scope of several scientific and university training programmes, promoted mainly by the University of the Azores. Several research projects on the biology and ecology of several species, ecological modelling, volcanology and seismology are currently under way.

Monitoring is one of the fundamental aspects of the operation of a Reserve, to evaluate the efficiency of the measures implemented. One of the main functions of the managing authority of the Biosphere Reserve is to ensure the means and the implementation of monitoring measures. On the other hand, constant monitoring is required within the scope of several research works being undertaken in the area. The visibility achieved with the current status of Biosphere Reserve has made it possible to strengthen monitoring by means of an increase in investors and research projects.

Environmental Education and Training Programmes have been developed at both local and regional level. Since 1999, the Regional Government of the Azores has set up a Regional Network of *Eco-libraries*, in collaboration with municipalities and Environmental Non-Governmental Organisations (ENGOs). The Flores Eco-Library, created in 2003, in partnership with the Santa Cruz das Flores City Council, which provided the facilities and administrative support, and the Flores Island Youth Association, has been managed since 2013 by the Island Environmental Services, who are responsible for the operation and management of the eco-libraries. Since then, numerous training and environmental awareness actions have been promoted, foreseen in the Regional Plan for Environmental Education and Awareness of the Azores (PRESAA), but also in the areas of agriculture and fisheries, in order to improve and boost these activities, which are of great social and economic interest for Flores Island.

Does the biosphere reserve have cooperative activities with other biosphere reserves (exchanges of information and staff, joint programmes, etc.)?

At the national level:

The Flores Island Biosphere Reserve is part of the Azores Biosphere Reserves Network, the UNESCO National Biosphere Reserves Network and is represented in the National MaB Committee.

Ate the regional level:

The Flores Island Biosphere Reserve is a member of REDBIOS, the Macaronesia and Western Atlantic Biosphere Reserves Network and the World Network of Biosphere Reserves on Islands and in Coastal Zones and it participates in the activities of the EuroMAB and IberoMAB Networks.

Through twinning and/or transboundary biosphere reserves:

Together with the other Biosphere Reserves in the Azores Archipelago, the Flores Island Biosphere Reserve is preparing to twin with REDBIOS Biosphere Reserves (La Palma and Fuerteventura in the Canary Islands and Príncipe Island, in São Tomé and Príncipe).

Within the World Network:

The Flores Island Biosphere Reserve is part of the World Network of Island and Coastal Biosphere Reserves (WNICBR)

Obstacles encountered, measures to be taken and, if appropriate, assistance expected from the Secretariat:

Main objectives of the Biosphere Reserve:

Describe the main objectives of the biosphere reserve integrating the three functions and the sustainable development objectives for the coming years.

As a result of the vision and mission defined and agreed upon for the Flores Island Biosphere Reserve, the envisioned environmental, economic, social, cultural and identity sustainability goals will be pursued over the next six years through a diverse set of priority actions listed below:

Mission (1) – Conservation Function (of landscapes, ecosystems and species)

- **Conservation of Natural Resources:** to actively promote the conservation of natural elements to allow them to continue into the future. To promote the conservation of biodiversity, including both wild indigenous and domesticated species, by preserving their populations (in particular the rarest species) and genetic diversity and by eradicating alien and invasive species. To promote actions aimed at restoring and preserving spaces with geological and/or geomorphologic features of particular interest. To establish tools for monitoring populations and conservation plans, and to encourage research into natural resources.

- **Functionality of ecosystems:** to promote actions that deter the development of adverse effects on ecosystem diversity resulting from human activity or the introduction of exotic and invasive species. To develop initiatives to promote ecological restoration through the recovery of local species, pollution control, water and carbon cycle maintenance and soil conservation.

- **Land management:** to develop actions which promote judicious, sustainable use of the land, organising human activity in order to maintain biological and cultural diversity. To strive to maintain the spatial continuity of ecosystems and prevent fragmentation, and to stimulate traditional land use practices that prevent erosion.

- **Landscape:** to use landscape as a structural element for zoning and social cohesion, taking measures aimed at its protection, management and planning. To maintain the inherent values, both natural and cultural, of landscapes by minimising harmful impacts and preventing the loss of landscapes.

Mission (2) – Development Function (culturally, socially and ecologically sustainable economic and human development)

- **Quality economy:** to stimulate the production, distribution and use of goods in a way that does not subject future generations to environmental risks or to significant ecological threats. To promote the responsible use of local resources to generate economic activity and stable employment. To create synergies between tradition, local products, business and industrial activity, responsible processing, differentiated marketing, new technologies and territoriality as an inherent singularity of the product, good or service provided. To develop products of guaranteed environmental quality, which allows them to be exploited in specific markets which value quality over cost.

- **Responsible tourism:** based on the promotion of an offer that prizes quality and respect for the environment, involving stakeholders responsible for the development of these resources, targeting an

audience that seeks excellence as an added value for the destination, turning tourism into an engine for economic growth, job creation and local wellbeing, while leading to a more efficient use of resources. Promote nature tourism activities, *Canyoning, Birdwatching*, an important market niche.

- **Energy sustainability:** to switch from a road mobility paradigm sustained by external dependence on fossil fuels to a new paradigm supported by clean energy via incentives for electric vehicle use. Flores Island and its Biosphere Reserve must implement an integrated alternative energy system, combining solar, wind and hydroelectric energy, creating a sustainable energy project which will contribute to the sustainable development of the Azores.

Mission (3) – Logistical Function (supporting research, monitoring and education)

- **Enhancement of knowledge:** The Biosphere Reserve will act as a catalyst to mobilise the intellectual capital of the island, promoting the transmission and dissemination of knowledge to the community, with the support and collaboration of the University of the Azores in conducting projects involving research, training and environmental education, with the aim of implementing sustainable development models on the island.

- **Traditional knowledge:** to identify and validate cultural elements, customs and traditions as constituents of identity and distinctive elements of the Flores population to counteract the homogenising effect of globalisation, which appears to replace local identities and cultures.

9. SUPPORTING DOCUMENTS

[List of the annexes submitted with periodic review report.]

(1) Updated location and zonation map with coordinates

[Provide the biosphere reserve's standard geographical coordinates (all projected under WGS 84). Provide a map on a topographic layer of the precise location and delimitation of the three zones of the biosphere reserve (Map(s) shall be provided in both paper and electronic copies). Shapefiles (also in WGS 84 projection system) used to produce the map must also be attached to the electronic copy of the form. If applicable, also provide a link to access this map on the internet (e.g. Google map, website…).]

The cartographic base map with the precise location and delimitation of the three zones of the Flores Island Biosphere Reserve is attached to this form, as well as the shapefiles (in the WGS 84 projection system) used to produce the map.

This map can also be accessed on the Internet via the following link: http://servicos-sraa.azores.gov.pt/grastore/DRA/Flores_Biosphere_Reserve_Map.jpg

(2) Updated vegetation map or land cover map

[A vegetation map or land cover map showing the principal *habitats* and land cover types of the biosphere reserve should be provided, if available.]

The vegetation, land use and occupation maps of the Flores Island Biosphere Reserve are attached to this form.

(3) Updated list of legal documents (if possible with English, French or Spanish synthesis of its contents and a translation of its most relevant provisions)

[If applicable update the principal legal documents since the nomination of the biosphere reserve and provide a copy of these documents.]

The list of the main legal instruments and normative acts authorising the creation and governing the use and management of the Flores Island Biosphere Reserve are attached to this form.

(4) Updated list of land use and management/cooperation plans

[List existing land use and management/cooperation plans (with dates and reference numbers) for the administrative area(s) included within the biosphere reserve. Provide a copy of these documents. It is recommended to produce an English, French or Spanish synthesis of its contents and a translation of its most relevant provisions.]

The list of management plans and land use and management plans of the Flores Island Biosphere Reserve is attached to this form.

(5) Updated species list (to be annexed)

[Provide a list of important species occurring within the proposed biosphere reserve, including common names, wherever possible.]

The list of the main species that are found in the Flores Island Biosphere Reserve is attached to this form.

(6) Updated list of main bibliographic references (to be annexed)

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve.]

The list of main bibliographical references relevant to the Flores Island Biosphere Reserve is attached to this form.

(7) Further supporting documents.

The annex to this form contains the suporting letter from Biosphere Reserve partners, and also, the Action Plan (2019-2025) to the Flores Island Biosphere Reserve .

10. ADDRESSES

10.1 Contact address of the proposed biosphere reserve:

[Government agency, organization, or other entity (entities) to serve as the main contact to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

Name: DIREÇÃO REGIONAL DO AMBIENTE

Street or P.O. Box: Rua Consul Dabney, Colónia Alemã, Apartado 140

City with postal code: 9900-014 Horta, Faial

Country: Portugal (Autonomous Region of the Azores)

Telephone: (+351) 292 207 300

E-mail: info.dra@azores.gov.pt

Web site: http://www.azores.gov.pt/Portal/pt/entidades/sreat-dra/

10.2. Administering entity of the core area(s):

10.3. Administering entity of the buffer zone(s):

10.4. Administering entity of the transition area(s):

Name: PARQUE NATURAL DAS FLORES

Street or P.O. Box: Rua João Augusto Silveira

City with postal code: 9960-443 Lajes das Flores

Country: Portugal (Autonomous Region of the Azores)

Telephone: (+351) 292 241 440

E-mail: parque.natural.flores@azores.gov.pt

Web site: http://parquesnaturais.azores.gov.pt/pt/flores

Annex I to the Biosphere Reserve Periodic Review, January 2013

MABnet Directory of the Biosphere Reserves

Administrative details

Country: Portugal (PT)

Name of BR: Flores Island Biosphere Reserve

Year designated: 2009

Administrative authorities: Direção Regional do Ambiente / Parque Natural das Flores

Name Contact: Direção Regional do Ambiente (Secretaria Regional da Energia, Ambiente e Turismo da Região Autónoma dos Açores)

Contact address: Rua Consul Dabney - Colónia Alemã

Apartado 140

9900-014 HORTA

PORTUGAL

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Related links: http://www.azores.gov.pt/Portal/pt/entidades/sreat-dra/;

http://www.azores.gov.pt/Gra/srrn-natureza/conteudos/livres/Reserva+da+Biosfera+das+Flores.htm

Social networks: (6.5.4) none

Description

General description:

The Flores Island Biosphere Reserve occupies the entire area of Flores Island in the Azores Archipelago, and also includes the adjacent strip of ocean to a distance of 3 miles from the coast. Flores Island is the part of a seamount located along the Mid-Atlantic Ridge that rises above the ocean, formed from volcanic phenomena that started less than 10 million years ago. With a roughly oval outline, this island of 14,300 ha is dominated by a Central High Plateau with an average altitude of 600-700 m. The largest area of high-altitude bogs in the archipelago is located here, a priority conservation habitat at European level and critical to the hydrological cycle of an island characterised by abundant waterways, many of which end in cascading waterfalls. The coastline is formed by high cliffs with numerous promontories, islets and caves, resulting from the action of over 3,000 years of marine erosion.

Flores Island is located in the Western Group of the Azores archipelago, on the North American Plate and is the largest of the islands that make up that group. It occupies an area of143 km², consisting primarily of mountainous terrain, characterised by large ravines and gigantic cliffs. The highest point of the island is Morro Alto, at an altitude of 914 metres. The resident population is 3,662 inhabitants (2017), distributed throughout the municipalities of Santa Cruz and Lajes das Flores. It is the westernmost point of the archipelago and also often considered to be the westernmost point of Europe.

The zoning of this Biosphere Reserve is contiguous, consisting of different territorial management units:

- The Core Areas coincide with the protected areas defined in the Flores Island Nature Park with the categories of Nature Reserve and Natural Monument (Ilhéu Maria Vaz Nature Reserve, Caldeiras Funda and Rasa Nature Reserve, Morro Alto and Pico da Sé Nature Reserve and Rocha dos Bordões Natural Monument};

- The Buffer Zones coincide with the protected areas defined in the Flores Island Nature Park with the categories of Habitats/Species Management Areas, Protected Landscape Area and Protected Area with Sustainable Use of Natural Resources;

- The Transition Zones consist of forestry and agricultural land and urban or urbanisable land, with rules of use laid out by means of spatial planning and activities, and a 3-mile wide marine strip around the island, within which fishing and tourism activities are carried out, regulated by legislation appropriate to the sustainable management of these activities.

Major ecosystem type: Subtropical Oceanic Island.

Major habitats & land cover types: Blanket bogs (active bogs), Active raised bogs, bog woodland, Macaronesian Laurel forests, Macaronesian forests of *Juniperus* spp., Endemic Macaronesian heathland, cliffs with endemic flora of the Macaronesian coasts.

Bioclimatic zone: The geographic location of the islands of the Azores, in the context of global atmospheric and oceanic circulation, conditions the climate of the archipelago. The atmospheric circulation is controlled by the Azores Anticyclone, the position, intensity, development and orientation of which influences the meteorological conditions felt in the archipelago. Thus, the Azores have a markedly Atlantic climate, with high precipitation and humidity, substantially more intense in the westernmost islands. The climate of the archipelago is intermediate between humid subtropical and Mediterranean, with little variation in temperatures between summer and winter. Precipitation is high and increases from east to west. The air humidity is also high, particularly at altitudes above 600 m. The average annual temperature on Flores is 17°C, with average monthly maximums in August (22°C) and minimums in February (13°C). The average monthly relative humidity is between 79% and 81% all year round. The prevailing winds, from the North and South quadrants with very close average speeds, are similar to those of the other islands. Mean annual precipitation is 1,716 mm.

Location (latitude & longitude):

Cardinal points:	Latitude	Longitude
Most central point:	39.454145	-31.196828
Northernmost point:	39.583297	-31.241248
Southernmost point:	39.322467	-31.229679
Westernmost point:	39.424897	-31.328998
Easternmost point:	39.45565	-31.060813

Total Area (ha): 58,619 ha

Core area*(s)*: 1,615 ha

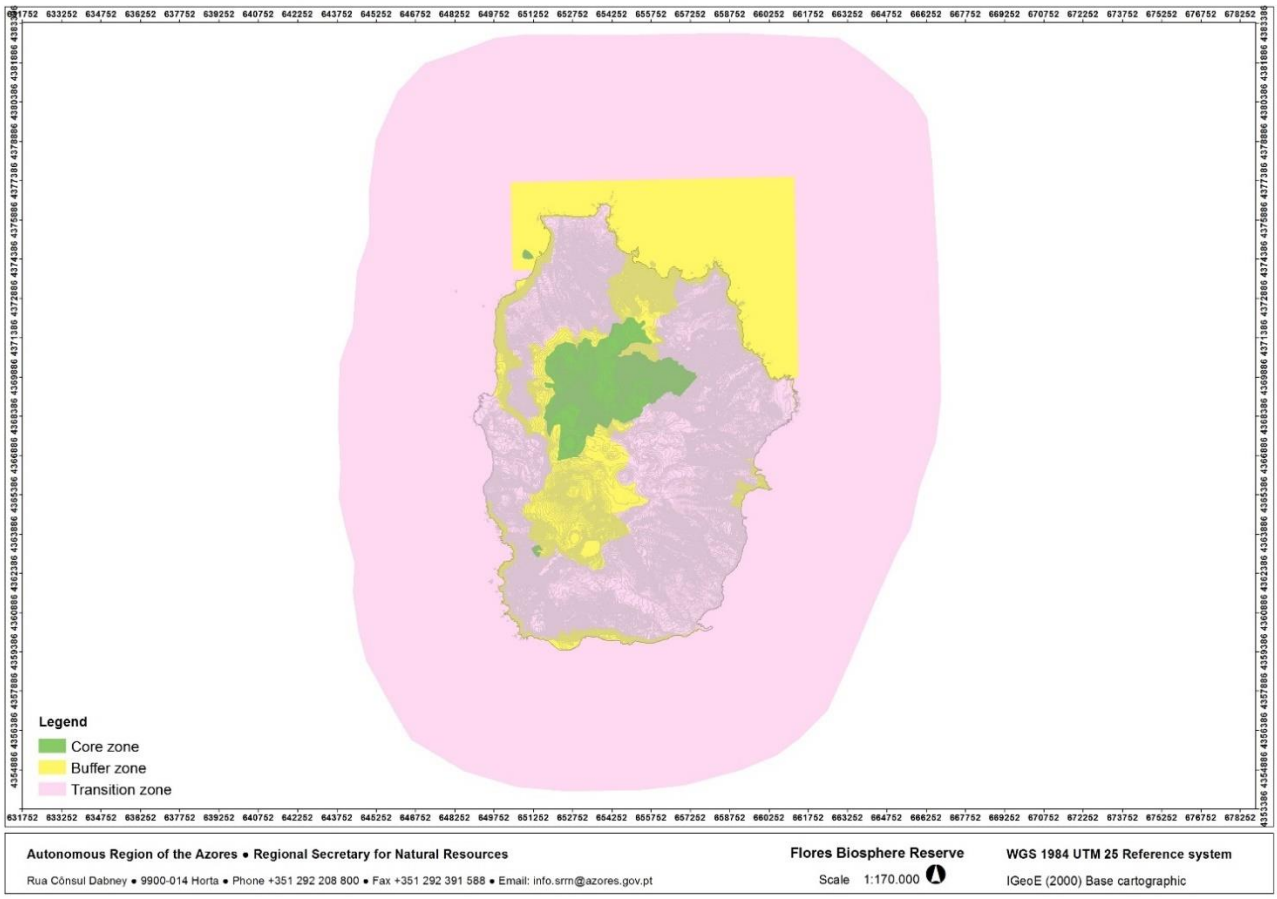
Buffer zone*(s):* 7,143 ha

Transition area*(s):* 49,861 ha

Different existing zonation: The zonation defined for this Biosphere Reserve has taken into account the natural, social, economic and cultural characteristics of Flores Island, taking as its main reference point the vulnerability of (marine, coastal and terrestrial) environments in relation to human activities and the implications of these activities for the territory. The scaling and zoning that make up this Biosphere Reserve enable the proper implementation of the conservation, development and logistical support functions inherent in a Biosphere Reserve. The sizes of the different area typologies are sufficient to allow the preservation of natural values in a perennial manner. The buffer zone was designed and scaled to function as a protective membrane for the most important natural assetslocated in the Core Area and at the same time it ensures local socio-economic development by promoting sustainable practices of use of natural, social and cultural assets and resources.

Altitudinal range *(*metres above sea level): 914

Zonation map(s) (refer to section 2.2.2):



Main objectives of the biosphere reserve

Brief description

The main objectives of the Flores Island Biosphere Reserve include the conservation and sustainable use of genetic biodiversity and of species, habitats, ecosystems and landscapes, making them a central component of Flores Island's sustainable development model. In addition to supporting good environmental quality, they also serve as instruments for generating economic opportunities by creating fair and stable employment relevant for the local economy. In this context, the activities related to livestock production, fisheries and nature tourism stand out.

Research

Brief description

In recent years, a series of research and profiling projects regarding environmental and human aspects have been developed within the Biosphere Reserve. Most were expressly planned to provide information to develop coherent management systems, either at the natural resource level or at the territorial planning or activity level. The information gathered, covering topics from geology to health, and including the monitoring of species and habitats, is widely available and will serve as a basis for future work that has already been planned, the usefulness of which will be enhanced within the framework of the networks to be established in accordance with the new status.

Monitoring

Brief description

Many of the ongoing scientific research projects adopt a component of monitoring species, habitats, ecosystems, geotechnics and hydrology, especially in the monitoring of slope movements. For this purpose, 2 geomorphological instability monitoring systems were designed and installed. On the other hand, as part of the expansion of the Azores Hydrometeorological Network to all the islands of the archipelago, a meteorological station and several hydrometric, udometric and limnigraphic stations were installed.

Specific variables (fill in the table below and tick the relevant parameters)

Abiotic		Biodiversity	
Abiotic factors	✓	Afforestation/Reforestation	✓
Acidic deposition/Atmospheric factors	✓	Algae	✓
Air quality	✓	Alien and/or invasive species	✓
Air temperature	✓	Amphibians	✓
Climate, climatology	✓	Arid and semi-arid systems	
Contaminants		Autoecology	✓
Drought	✓	Beach/soft bottom systems	✓
Erosion	✓	Benthos	✓
Geology	✓	Biodiversity aspects	✓
Geomorphology	✓	Biogeography	✓
Geophysics		Biology	✓
Glaciology		Biotechnology	
Global change	✓	Birds	✓
Groundwater	✓	Boreal forest systems	
Habitat issues	✓	Breeding	✓
Heavy metals		Coastal/marine systems	✓
Hydrology	✓	Community studies	✓
Indicators	✓	Conservation	✓
Meteorology	✓	Coral reefs	

Modeling		Degraded areas	
Monitoring/methodologies	✓	Desertification	
Nutrients	✓	Dune systems	
Physical oceanography	✓	Ecology	✓
Pollution, pollutants		Ecosystem assessment	✓
Siltation/sedimentation		Ecosystem functioning/structure	✓
Soil	✓	Ecosystem services	
Speleology	✓	Ecotones	✓
Topography	✓	Endemic species	✓
Toxicology		Ethology	✓
UV radiation		Evapotranspiration	
		Evolutionary studies/Palaeoecology	✓
		Fauna	✓
		Fires/fire ecology	
		Fishes	✓
		Flora	✓
		Forest systems	✓
		Freshwater systems	✓
		Fungi	✓
		Genetic resources	
		Genetically modified organisms	
		Home gardens	✓
		Indicators	
		Invertebrates	✓
		Island systems/studies	✓
		Lagoon systems	✓
		Lichens	✓
		Mammals	✓
		Mangrove systems	
		Mediterranean type systems	
		Microorganisms	
		Migrating populations	
		Modeling	
		Monitoring/methodologies	✓
		Mountain and highland systems	✓
		Natural and other resources	✓
		Natural medicinal products	✓
		Perturbations and resilience	
		Pests/Diseases	
		Phenology	
		Phytosociology/Succession	
		Plankton	
		Plants	✓
		Polar systems	
		Pollination	
		Population genetics/dynamics	
		Productivity	
		Rare/Endangered species	✓
		Reptiles	
		Restoration/Rehabilitation	
		Species (re) introduction	
		Species inventorying	
		Sub-tropical and temperate rainforest systems	
		Taxonomy	✓
		Temperate forest systems	✓

		Temperate grassland systems	
		Tropical dry forest systems	
		Tropical grassland and savannah systems	
		Tropical humid forest systems	
		Tundra systems	
		Vegetation studies	✓
		Volcanic/Geothermal systems	✓
		Wetland systems	✓
		Wildlife	✓

Socio-economic		Integrated monitoring	
Agriculture/Other production systems	✓	Biogeochemical studies	
Agroforestry	✓	Carrying capacity	
Anthropological studies		Climate change	✓
Aquaculture		Conflict analysis/resolution	
Archaeology		Ecosystem approach	✓
Bioprospecting		Education and public awareness	✓
Capacity building	✓	Environmental changes	✓
Cottage (home-based) industry		Geographic Information System (GIS)	✓
Cultural aspects	✓	Impact and risk studies	✓
Demography		Indicators	
Economic studies		Indicators of environmental quality	✓
Economically important species	✓	Infrastructure development	✓
Energy production systems	✓	Institutional and legal aspects	✓
Ethnology/traditional practices/knowledge	✓	Integrated studies	✓
Firewood cutting		Interdisciplinary studies	✓
Fishery	✓	Land tenure	✓
Forestry	✓	Land use/Land cover	✓
Human health	✓	Landscape inventorying/monitoring	✓
Human migration		Management issues	✓
Hunting		Mapping	✓
Indicators		Modeling	
Indicators of sustainability		Monitoring/methodologies	✓
Indigenous people's issues		Planning and zoning measures	✓
Industry		Policy issues	✓
Livelihood measures		Remote sensing	✓
Livestock and related impacts	✓	Rural systems	✓
Local participation	✓	Sustainable development/use	✓
Micro-credits		Transboundary issues/measures	
Mining		Urban systems	
Modeling		Watershed studies/monitoring	✓
Monitoring/methodologies	✓		
Natural hazards	✓		
Non-timber forest products			
Pastoralism			
People-Nature relations			
Poverty	✓		
Quality economies/marketing	✓		
Recreation	✓		
Resource use	✓		
Role of women			
Sacred sites			
Small business initiatives	✓		
Social/Socio-economic aspects	✓		
Stakeholders' interests	✓		
Tourism	✓		
Transports	✓		

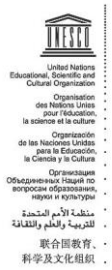
Annex II to the Biosphere Reserve Periodic Review, January 2013

Promotion and Communication Materials

for the biosphere reserve

Provide some promotional material regarding the site, notably high quality photos, and/or short videos on the site so as to allow the Secretariat to prepare appropriate files for press events. To this end, a selection of photographs in high resolution (300 dpi), with photo credits and captions and video footage (rushes), without any comments or sub-titles, of professional quality – DV CAM or BETA only, will be needed.

In addition, return a signed copy of the following Agreements on Non-Exclusive Rights for photo(s) and video(s).



UNESCO Photo Library

Bureau of Public Information

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   b) These rights are granted to UNESCO for the legal term of copyright throughout the world.

   c) The name of the photographer will be cited alongside UNESCO's whenever his/her work is used in any form.

2. I certify that:

   a) I am the sole copyright holder of the photo(s) and am the owner of the rights granted by virtue of this agreement and other rights conferred to me by national legislation and pertinent international conventions on copyright and that I have full rights to enter into this agreement.

   b) The photo(s) is/are in no way whatever a violation or an infringement of any existing copyright or licence, and contain(s) nothing obscene, libellous or defamatory.

Name and Address: Hernâni Hélio Jorge
Regional Director for the Environment
Rua Consul Dabney - Colónia Alemã (Apartado 140)
9900-014 HORTA - PORTUGAL

Signature: Date:

(Sign, return to UNESCO two copies of the Agreement and retain the original for yourself)

Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687

Direct Fax: 00331 – 45685655; e-mail: photobank@unesco.org; m.ravassard@unesco.org

United Nations Educational, Scientific and Cultural Organization
Organisation des Nations Unies pour l'éducation, la science et la culture
Organización de las Naciones Unidas para la Educación, la Ciencia y la Cultura
Организация Объединенных Наций по вопросам образования, науки и культуры
منظمة الأمم المتحدة للتربية والعلم والثقافة
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Rua Consul Dabney - Colónia Alemã (Apartado 140)
9900-014 HORTA - PORTUGAL

Signature: Date:

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Mailing address: 7 Place Fontenoy, 75352 Paris 07 SP, Direct Telephone: 00331 – 45681687
Direct Fax: 00331 – 45685655; e-mail: photobank@unesco.org; m.ravassard@unesco.org

Annex III to the Biosphere Reserve Periodic Review, January 2013

The Statutory Framework of the World Network of Biosphere Reserves

Introduction

Within UNESCO's Man and the Biosphere (MAB) programme, biosphere reserves are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere reserves are designated by the International Co-ordinating Council of the MAB Programme, at the request of the State concerned. Biosphere reserves, each of which remains under the sole sovereignty of the State where it is situated and thereby submitted to State legislation only, form a World Network in which participation by the States is voluntary.

The present Statutory Framework of the World Network of Biosphere Reserves has been formulated with the objectives of enhancing the effectiveness of individual biosphere reserves and strengthening common understanding, communication and co-operation at regional and international levels.

This Statutory Framework is intended to contribute to the widespread recognition of biosphere reserves and to encourage and promote good working examples. The delisting procedure foreseen should be considered as an exception to this basically positive approach, and should be applied only after careful examination, paying due respect to the cultural and socio-economic situation of the country, and after consulting the government concerned.

The text provides for the designation, support and promotion of biosphere reserves, while taking account of the diversity of national and local situations. States are encouraged to elaborate and implement national criteria for biosphere reserves which take into account the special conditions of the State concerned.

Article 1 - Definition

Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's programme on Man and the Biosphere (MAB), in accordance with the present Statutory Framework.

Article 2 - World Network of Biosphere Reserves

1. Biosphere reserves form a worldwide network, known as the World Network of Biosphere Reserves, hereafter called the Network.

2. The Network constitutes a tool for the conservation of biological diversity and the sustainable use of its components, thus contributing to the objectives of the Convention on Biological Diversity and other pertinent conventions and instruments.

3. Individual biosphere reserves remain under the sovereign jurisdiction of the States where they are situated. Under the present Statutory Framework, States take the measures which they deem necessary according to their national legislation.

Article 3 - Functions

In combining the three functions below, biosphere reserves should strive to be sites of excellence to explore and demonstrate approaches to conservation and sustainable development on a regional scale:

(i) conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation;

(ii) development - foster economic and human development which is socio-culturally and ecologically sustainable;

(iii) logistic support - support for demonstration projects, environmental education and training, research and monitoring related to local, regional, national and global issues of conservation and sustainable development.

Article 4 - Criteria

General criteria for an area to be qualified for designation as a biosphere reserve:

1. It should encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human interventions.

2. It should be of significance for biological diversity conservation.

3. It should provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale.

4. It should have an appropriate size to serve the three functions of biosphere reserves, as set out in Article 3.

5. It should include these functions, through appropriate zonation, recognizing:

(a) a legally constituted core area or areas devoted to long-term protection, according to the conservation objectives of the biosphere reserve, and of sufficient size to meet these objectives;

(b) a buffer zone or zones clearly identified and surrounding or contiguous to the core area or areas, where only activities compatible with the conservation objectives can take place;

(c) an outer transition area where sustainable resource management practices are promoted and developed.

6. Organizational arrangements should be provided for the involvement and participation of a suitable range of inter alia public authorities, local communities and private interests in the design and carrying out the functions of a biosphere reserve.

7. In addition, provisions should be made for:

(a) mechanisms to manage human use and activities in the buffer zone or zones;

(b) a management policy or plan for the area as a biosphere reserve;

(c) a designated authority or mechanism to implement this policy or plan;

(d) programmes for research, monitoring, education and training.

Article 5 - Designation procedure

1. Biosphere reserves are designated for inclusion in the Network by the International Co-ordinating Council (ICC) of the MAB programme in accordance with the following procedure:

(a) States, through National MAB Committees where appropriate, forward nominations with supporting documentation to the secretariat after having reviewed potential sites, taking into account the criteria as defined in Article 4;

(b) the secretariat verifies the content and supporting documentation: in the case of incomplete nomination, the secretariat requests the missing information from the nominating State;

(c) nominations will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC;

(d) ICC of the MAB programme takes a decision on nominations for designation. The Director-General of UNESCO notifies the State concerned of the decision of ICC.

2. States are encouraged to examine and improve the adequacy of any existing biosphere reserve, and to propose extension as appropriate, to enable it to function fully within the Network. Proposals for extension follow the same procedure as described above for new designations.

3. Biosphere reserves which have been designated before the adoption of the present Statutory Framework are considered to be already part of the Network. The provisions of the Statutory Framework therefore apply to them.

Article 6 - Publicity

1. The designation of an area as a biosphere reserve should be given appropriate publicity by the State and authorities concerned, including commemorative plaques and dissemination of information material.

2. Biosphere reserves within the Network, as well as the objectives, should be given appropriate and continuing promotion.

Article 7 - Participation in the Network

1. States participate in or facilitate co-operative activities of the Network, including scientific research and monitoring, at the global, regional and sub-regional levels.

2. The appropriate authorities should make available the results of research, associated publications and other data, taking into account intellectual property rights, in order to ensure the proper functioning of the Network and maximize the benefits from information exchanges.

3. States and appropriate authorities should promote environmental education and training, as well as the development of human resources, in co-operation with other biosphere reserves in the Network.

Article 8 - Regional and thematic subnetworks

States should encourage the constitution and co-operative operation of regional and/or thematic subnetworks of biosphere reserves, and promote development of information exchanges, including electronic information, within the framework of these subnetworks.

Article 9 - Periodic review

1. The status of each biosphere reserve should be subject to a periodic review every ten years, based on a report prepared by the concerned authority, on the basis of the criteria of Article 4, and forwarded to the secretariat by the State concerned.

2. The report will be considered by the Advisory Committee for Biosphere Reserves for recommendation to ICC.

3. ICC will examine the periodic reports from States concerned.

4. If ICC considers that the status or management of the biosphere reserve is satisfactory, or has improved since designation or the last review, this will be formally recognized by ICC.

5. If ICC considers that the biosphere reserve no longer satisfies the criteria contained in Article 4, it may recommend that the State concerned take measures to ensure conformity with the provisions of Article 4, taking into account the cultural and socio-economic context of the State concerned. ICC indicates to the secretariat actions that it should take to assist the State concerned in the implementation of such measures.

6. Should ICC find that the biosphere reserve in question still does not satisfy the criteria contained in Article 4, within a reasonable period, the area will no longer be referred to as a biosphere reserve which is part of the Network.

7. The Director-General of UNESCO notifies the State concerned of the decision of ICC.

8. Should a State wish to remove a biosphere reserve under its jurisdiction from the Network, it notifies the secretariat. This notification shall be transmitted to ICC for information. The area will then no longer be referred to as a biosphere reserve which is part of the Network.

Article 10 - Secretariat

1. UNESCO shall act as the secretariat of the Network and be responsible for its functioning and promotion. The secretariat shall facilitate communication and interaction among individual biosphere reserves and among experts. UNESCO shall also develop and maintain a worldwide accessible information system on biosphere reserves, to be linked to other relevant initiatives.

2. In order to reinforce individual biosphere reserves and the functioning of the Network and sub-networks, UNESCO shall seek financial support from bilateral and multilateral sources.

3. The list of biosphere reserves forming part of the Network, their objectives and descriptive details, shall be updated, published and distributed by the secretariat periodically.

Annex IV to the Biosphere Reserve Periodic Review

Suporting Letters

Action Plan