





# “Samothraki Man and Biosphere Reserve Nomination form”

Final Official Document

March 2011



	<b>BIOSPHERE RESERVE NOMINATION FORM</b>  [March 2011]	
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## INTRODUCTION

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). They are established to promote and demonstrate a balanced relationship between humans and the biosphere. Biosphere Reserves are designated by the International Coordinating Council of the MAB Programme at the request of the State concerned. Individual Biosphere Reserves remain under the sovereign jurisdiction of the State where they are situated. Collectively, all biosphere reserves form a World Network in which participation by States is voluntary.

The World Network is governed by the Statutory Framework adopted by the UNESCO General Conference in 1995 which presents the definition, objectives, criteria and the designation procedure for biosphere reserves. The actions recommended for the development of biosphere reserves are set out in the "Seville Strategy". These documents should be used as basic references for the completion of this nomination form.

The information presented on this nomination form will be used in a number of ways by UNESCO:

- (a) for examination of the site by the Advisory Committee on Biosphere Reserves and by the Bureau of the MAB International Coordinating Council;
- (b) for use in a world-wide accessible information system, notably the UNESCO-MABnet, facilitating communications and interaction amongst persons interested in biosphere reserves throughout the world.

The nomination form consists of three parts:

Part one is a summary indicating how the nominated area responds to the functions and criteria for biosphere reserves set out in the Statutory Framework, and presents the signatures of endorsements for the nomination from the authorities concerned. Part two is more descriptive and detailed, referring to the human, physical and biological characteristics as well as to the institutional aspects. An annex to be used for updating the Directory of Biosphere Reserves on the MABnet, once the site has been approved as a biosphere reserve.

The form should be completed in English, French or Spanish. Two copies should be sent to the Secretariat, as follows:

1. The original hard copy, with the original signatures, letters of endorsement, zonation map and supporting documents. This should be sent to the Secretariat through the Official UNESCO channels, i.e. via the National Commission for UNESCO and/or the Permanent Delegation to UNESCO.
2. An electronic version (on diskette, CD etc.) of the nomination forms and if possible of maps (especially the zonation map). This can be sent directly to the MAB Secretariat:

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## PART I: SUMMARY

### 1. PROPOSED NAME OF THE BIOSPHERE RESERVE:

[It is advisable to use a locally accepted geographic, descriptive or symbolic name, which allows people to identify themselves with the site concerned (e.g. Rio Plátano Biosphere Reserve, Bookmark Biosphere Reserve). Except in unusual circumstances, Biosphere Reserves should not be named after existing national parks or similar administrative areas]

English (for international use): “Samothraki Man and Biosphere Reserve”

Greek (for domestic use): “Απόθεμα Ανθρώπου και Βιόσφαιρας Σαμοθράκης”

### 2. COUNTRY:

Greece

### 3. FULFILLMENT OF THE THREE FUNCTIONS OF BIOSPHERE RESERVES

(Article 3 of the Statutory Framework presents the three functions of conservation, development and logistic support. Explain in general terms how the area fulfills these functions.)

#### 3.1 "Conservation - contribute to the conservation of landscapes, ecosystems, species and genetic variation" (Stress the importance of the site for conservation at the regional or global scales)

The island of Samothraki is among the rare examples of island natural beauty in the Greek Aegean archipelago. It has a relatively small surface and most of its territory is mountainous rising up to 1611m making it the second highest island in the Aegean Sea. The mountainous terrain which kept large parts of the island inaccessible along with the relative isolation from the mainland (around 40km) created a variety of habitats that host a large number of species. Moreover the very early human presence on the island since prehistory created cultural landscapes in the lowland accessible areas, especially in the alluvial plain in the south west side, with traditional settlements, olive tree and grain cultivations that diffuse within the natural landscapes. Another unique characteristic of Samothraki is the abundance of water due to a winter cover of snow in high altitudes, cool freshwater that flows year round in the numerous streams and rivers of the island across hundreds of waterfalls. This is a rare physical characteristic that is mostly absent from the rest of the Greek islands.

There are 364 recorded plant species, among them 62 tree and bush species, many of them rare and endangered (Alkimos A. 1988; IUCN - Threatened plants Committee 1982; Strid and Tan 1991; Strid and Tan 1998). Furthermore Samothraki is home to 8 endemic local plant species that exist nowhere else in the world. It is worth mentioning that two of them, *Anchusa samothracica*, found only at Pachia Ammos beach, (Bigazzi and Selvi 2000) and *Allium samothracicum*, found only in the castle of Chora village (Tzanoudakis and Tan 2000) only recently were discovered by science - a fact that indicates that further investigations are needed on the flora of the island.

Furthermore Samothraki is known for its forests. On the north side of the island one of the last remaining old growth oak forests (*Quercus frainneto*) can be found in high altitudes, a remnant of lush oak forests that used to cover large parts of the territory. Another unique characteristic of Samothraki is the extensive riparian-alluvial forest of Oriental Plane (*Platanus orientalis*), which

is one of the largest in Greece and extends even next to the sea. Many of those trees have a diameter of several meters and are hundreds of years old. Large areas of land, especially in the lower parts of the mountain, are covered by Maquis sclerophyllus scrub communities which are evergreen broad leaves of the European Mediterranean vegetation zone. Finally *Taxus bacata* individuals, one of the rarest trees of Greece, can be found in high altitudes while above the tree line the ground cover vegetation consists of endemic and rare plant species grasslands.

### **Fauna**

Samothraki Island has a rich fauna. Until today 15 mammal species have been observed in Samothraki. Among them the Lesser Mole Rat (*Nannospalax leucodon*), which is one of the rarest mammals of the island, the Lesser Mouse-Eared Bat (*Myotis blythi*), which is listed as near threatened in the Red List of Endangered species in Europe and the Forest Dormouse (*Dryomys nitedula*), first observed in 2004 (Vohlarik and Sofianidou 1991; IUCN 2008). More research is needed in order to explore the number of small rodents and other mammals that exist on Samothraki.

Moreover, there are 27 reptile and amphibian species found on the island, including many snakes, lizards and fresh water turtles being rare and endemic in Greece (Broggi M. 1988; Buttle D. 1989; Clark R. 1991). Among them are the: European Legless Lizard (*Ophisaurus apodus*), Aesculapian Snake (*Elaphe longissima*), Cat Snake (*Tellescopus fallax*), European Pond Terrapin (*Emys orbicularis*) and the Greek Terrestrial Turtle (*Testudo graeca*).

In addition, 156 bird species have been recorded in Samothraki at various presence states. Many species use the island as a stop over during their migration. Among them the rare Eleonora's Falcon (*Falco eleonora*) with 80% of global population breeding in the Aegean Islands, other raptors like *Circaetus gallicus* and *Falco subbuteo*, wetland birds like the Black Stork (*Ciconia nigra*) and many sea birds. Many of the birds observed in Samothraki are listed in the Red book of endangered species. The Greek Ornithological Society is very active on the island implementing annual observations and monitoring of bird populations (Hellenic Ornithological Society 2007).

The insect fauna of the island is particularly species-rich, including many beetle species, butterflies, grasshoppers and hymenoptera of interest. However, more research is needed to estimate the exact species diversity on the island.

### **Marine environment**

The seas surrounding the island keep within them large amounts of biodiversity. In the south side deep sea trenches reach depths of up to 1000m and are considered of high importance for present populations of rare and endangered marine mammals, namely *Phocaena phocaena*, *Ziphius cavirostris*, as well as several other species of dolphins (*Tursiops truncatus*, *Delphinus delphis*, *Stenella coeruleoalba*). Moreover the marine area of the site includes some extensive submarine meadows of the angiosperm *Posidonia oceanica* which is a priority marine habitat type, and to a lesser degree *Cymodocea nodosa*. Furthermore, the Mediterranean Monk Seal (*Monachus monachus*) and the Mediterranean Sea Turtle (*Caretta caretta*) are frequent visitors of the site even if they don't breed there. The rocky islet of Zourafa lies in the easternmost edge of the marine area while several reefs are also to be found offshore Aghia Paraskevi village, reaching

down to a depth of 50m (Frantzis A. and Alexiadou P. 2003). The recent inclusion of a large marine area in the NATURA 2000 area opens a new era of marine research and protection.

The high ecological value of the island's natural ecosystems and landscapes is ranking to international standards and for that reason a large part of the terrestrial territory, most of it uninhabited by humans (almost 54% of the total surface, all the area above the 200m isoclines), has been included in the European NATURA 2000 (Habitat Directive 92/43/EEC) network characterized as Site of Community Importance (SCIs) with the code GR1110004. In August 2009 the NATURA 2000 area was extended to 16438 ha, of which 5055 ha is marine area of territorial waters connecting the terrestrial with the marine element.

The designation of Samothraki Island as a biosphere reserve within UNESCO's World Network of Biosphere Reserves would provide an ideal framework for all the ongoing conservation activities. The basic idea of biosphere reserves to link conservation with sustainable use may well be applied to the specific situation of Samothraki and its unique ecosystem.

### **3.2 "Development - foster economic and human development which is socio-culturally and ecologically sustainable".** (Indicate the potential of the proposed biosphere reserve in fulfilling this objective).

The proposed biosphere reserve Samothraki Island will bring a new era of economic and human development to the resident and visiting population. Fortunately, the natural and cultural values that make Samothraki special were kept intact during the years. This capital if preserved and maintained can provide a baseline for the path of the island towards a sustainable future. Samothraki does not have a strong potential to become a typical Greek Island destination for beach tourism: it lacks sandy beaches, has modest infrastructure, has a remote location and there is no easy access due to the absence of an airport. On the other hand, Samothraki has other attractions by being a hotspot of culture and nature that warrants it to be a UNESCO Man and Biosphere Reserve. The majority of local stakeholders and tourists regard Samothraki's natural and cultural heritage as unique and want it to remain preserved.

Samothraki is still an island based on small scale agriculture and livestock breeding. The absence of open flat land and complex land ownership relations due to repeated historical shifts between belonging to Greece and Turkey has diminished the opportunities for industrial agriculture. On the other hand, small scale tourism has been developing over the past decades. The basic idea is to use the biosphere reserve concept as a tool for implementing sustainable development on the island with reference to both main areas of economic activity: agriculture and tourism.

In the current situation Samothraki has the capability to produce high quality agriculture organic products such as olive oil, grains, grapes and wine along with products from livestock which is bred extensively under natural conditions. Local processing and labelling of such products, under conditions of a high demand potential for regional quality products, may create an added value which will give a better income to the locals while even lessening the burden on the environment.

At the same time, tourism based on the biosphere reserve concept can build upon a strong preference of the existing tourist population for the conservation of nature and the cultural heritage of the island, as has been proven by a recent survey. A more internationally oriented



ecotourism (even adventure tourism) and efforts to strengthen culturally motivated tourists can create new employment opportunities for the local young generation while it will allow to spread the tourist season further into spring and autumn. Such an extension of the tourist season will utilize existing infrastructures, thus providing a better income for residents with no greater burden on the environment. The island has still to benefit from the optimal but sustainable use of available resources and attractions: uniqueness of landscape, unique culture, thermal springs, and combination of mountain, island and sea atmosphere. Such a plan is rather realistic.

Another interesting opportunity is the development of green, sustainable energy on Samothraki. Samothraki ranks among the windiest places of Greece. The establishment of a new wind park that respects the environmental conditions can change Samothraki into a renewable electricity producer with several benefits for the locals and for further employment perspectives.

Finally, the human resources available on the island include a growing and strong community of well educated young people like scientists, artists and medical workers, often organized in social and environmental NGOs who are in search for interesting job opportunities on the island. Also the municipality of Samothraki has been implementing numerous ongoing projects and initiatives guided by sustainability objectives.

### **3.3 "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".**

(Indicate current or planned facilities).

Samothraki has for many years received attention from the scientific community and from public authorities due to its unique cultural and natural heritage. This will be a central aim of the biosphere reserve management committee that will be created to coordinate all the research, educational and development initiatives that are being and will be implemented. At the moment there are very good relationships with numerous institutions for environmental education and NGOs in the region and in Europe, while connections with national and international university departments have already been established. Just to mention, a feasibility study for the creation of the MAB reserve on the island has been implemented by the Vienna Institute of Social Ecology (Klagenfurt University) with the entire research funded by the Austrian Academy of Sciences. Presently, UNESCO Venice collaborates with Social Ecology Vienna to develop promising projects for the island's sustainable future. This is also funded by the Austrian Academy of Sciences. Moreover, during the feasibility study process several contacts have been established with European MAB national committees and staff from management authorities of already established MAB reserves in Europe and around. This has been done during the last two EuroMAB meeting in Antalya, Turkey and Stara Lesna, Slovakia but also in thematic MAB meeting like in Syracuse, Italy where researchers representing Samothraki were present. The cooperation with organizations active in the field of environmental education and ecological research will be intensified in the near future.

Last but not least, there is a general aim to connect Samothraki with the Long Term Socio-Ecological Research (LTSER) network. The emerging interdisciplinary field of Long Term Socio-Ecological Research (LTSER) aims at observing, analyzing, understanding and modelling of changes in coupled socioecological (or human-environment) systems over longer, i.e. at least

decadal, periods of time. LTSER is focused on interactions between societies and ecosystems at various spatial and temporal scales. By including long-term monitoring, historical research, forecasting and scenario building, empirical and conceptual research as well as participatory approaches, LTSER aims at providing a knowledge base that helps to redirect socioeconomic trajectories towards more sustainable pathways.

LTSER is an extension of Long Term Ecological Research (LTER), a strand of research that has gained prominence in the last decades among scholars concerned with questions of global environmental change. It is acknowledged that several relevant questions can only be answered by monitoring and analyzing ecosystem changes with respect to patterns and processes over long periods of time. In recent years, the inclusion of the “social” dimension within LTER has largely been driven by the sustainability agenda. There are plans to set up a LTSER research station on Samothraki in collaboration with the local archaeological directorate. These plans have already been discussed with them and there is a general agreement in principle.

#### **4. CRITERIA FOR DESIGNATION AS A BIOSPHERE RESERVE**

(Article 4 of the Statutory Framework presents 7 general criteria for an area to be qualified for designation as a biosphere reserve which are given in order below.)

##### **4.1. "Encompass a mosaic of ecological systems representative of major biogeographic regions, including a gradation of human intervention"**

(The term "mosaic" refers to a diversity of natural habitats and land cover types derived from human uses such as fields, managed forests, etc. The term "major biogeographic region" is not strictly defined but it would be useful to refer to the map of the "World Network of Biosphere Reserves" which presents 12 major ecosystem types at a global scale).

Within a comparatively small territory Samothraki Island includes a large number of diverse habitats, several of which are of European importance from a conservation point of view. According to the NATURA 2000 Habitats Directive and the map of the “World Network of Biosphere Reserves” Samothraki belongs clearly to the Mediterranean biogeographic region. However, the geomorphology, the microclimatic conditions and the historical human presence created a diversity of natural habitats on the island that is not common in small Mediterranean islands. According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area, including Endemic oro-Mediterranean heaths, Eastern Garrigues, *Sarcopoterium Spinosum* Aegean phrygana, Vegetated silicicolous inland cliffs with casmophytic vegetation, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, *Platanus orientalis* woods and Mediterranean *Taxus baccata* woods (Greek Biotope and Wetland Center 2001; Dimopoulos et. al. 2005). Many of these habitats, especially the old growth oak forests in high altitudes and the Oriental plane ones, are absent from most of the Greek Aegean islands, make Samothraki the last remaining island hosting such unique habitats in the Aegean.

Moreover the year-round availability of water creates special habitats absent from other islands. There is an extensive network of water courses that originate from the mountains which are all natural and their course and vegetation has not been altered by humans. In addition to that, Samothraki hosts a number of coastal lagoons of various sizes with the biggest one being St. Andreas Lagoon situated on the west part of the island. These lagoons create favourable habitats for migratory bird species.



The marine environment around Samothraki and the marine part to be included in the biosphere reserve host a variety of rare endangered habitats like the extensive submarine meadows of the angiosperm *Posidonia oceanica* but also rocky islets like the islet Zourafa which lies on the easternmost edge of the marine part of the NATURA 2000 area. Moreover several reefs are also found offshore, the coastal zone reaching down to a depth of 50m. Furthermore, outside the marine NATURA 2000 limits and especially on the south marine side of Samothraki there are deep sea trenches like the North Aegean trench which reach a depth of 1000m. These habitats are largely unexplored and probably host unidentified marine species.

The agricultural land that is found mostly in the south and south west part of the island is a result of the human presence on the island and can be considered as “colonised habitat” or a cultural landscape that hosts several species of plants and animals. Since industrial agriculture is absent on Samothraki, agricultural land constitutes a high quality habitat. Terraced olive cultivations, vineyards and grain fields synthesize a typical untouched Mediterranean landscape in the south side which contrasts the wild forested north side of the island.

There are also several cultural conservation sites, such as the capital of the island, the small mountain town Chora (*World Cultural Heritage, protected by UNESCO*), and the magnificent *City of the Gods*, a large temple area of pre-Greek origin that used to be a place of worship from the 3<sup>rd</sup> millennium BC onward, up into the 4<sup>th</sup> century AD when Christianity took over. This temple is the origin of the famous *Nike of Samothraki* exhibited in the Louvre. The Austrian archaeologist Lehmann was one of the scientists to start serious archaeological work there, a work that is still continued with support of the European Union and US funds by an American team of archaeologists. The abundance, significance and historical cultural importance of the structures uncovered at the temple city can be arguably matched to that of Crete. The village of Chora with the stone houses but also the different types of gardens of varying utilisation intensity, farmlands with horticultural character adjacent to traditional farm buildings add considerably to the remarkable biodiversity of this region.

#### **4.2 "Be of significance for biological diversity conservation"**

(This should refer not only to the numbers of endemic species, or rare and endangered species at the local, regional or global levels, but also to species of globally economic importance, rare habitat types or unique land use practices (for example traditional grazing or artisanal fishing) favouring the conservation of biological diversity. Give only a general indication here.)

The Mediterranean basin that Samothraki is part of has been characterized as a global biodiversity hotspot by Conservation International. Such biodiversity hotspots hold especially high numbers of endemic species, yet their combined area of remaining habitat covers only 2.3 percent of the earth's land surface. On Samothraki, the formerly almost entirely wooded area has become a mosaic of diverse landscape units characterized by different kinds of land use. These circumstances have fostered the development of a particularly high biodiversity on Samothraki Island recognized by Conservation International.

According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area and 3 habitat types within the marine constitute area. Among them there are priority habitats for conservation in European level. These include the alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and the Mediterranean *Taxus baccata* woods for the terrestrial environment and the *Posidonia Ocenica* sea beds for the marine environment. In specific, *Posidonia oceanica* is an endemic species to the Mediterranean Sea

that forms dense and extensive green meadows whose leaves can attain 1 meter in height. These underwater meadows provide important ecological functions and services and harbour a highly diverse community, including several species of economic interest (Diaz-Almela 2008).

Moreover, there are 8 endemic plant species on Samothraki (e.g. *Scrophularia spinulescens*, *Symphyandra samothracica*, *Potentilla halacsyana*, *Silene samothracica*) that exist only on the island and nowhere else in the world with two of them first discovered in 2000 (*Anchusa samothracica* and *Allium samothracicum*). In addition, there are other plant species found on Samothraki that are endemics of Greece and the Balkan Peninsula. Among them are: *Alyssum degenianum*, *Sideritis perfoliata subsp. athoa*, *Arabis verna*, *Cephalorrhynchus tuberosus*, *Leucojum aestivum*, *Saxifraga sibirica subsp. Mollis*, *Fritillaria drenovskii*. It is very probable that more plant species are to be found on Samothraki and more botanical expeditions are needed since many of these plants are rare and threatened by the extensive grazing occurring on the island.

Concerning the fauna of the island there are several species that are of European importance. These are the Lesser Mouse-Eared Bat (*Myotis blythi*), which is classified as near threatened, the Forest Dormouse (*Dryomys nitedula*) classified in the Appendix III of Berne convention, the Mediterranean Monk Seal (*Monachus monachus*) which uses the south rocky inaccessible part of the island as hunting ground and is listed as critically endangered in Europe and the endangered marine mammals *Tursiops truncatus*, *Delphinus delphis*, *Stenella coeruleoalba*, *Phocaena phocaena* and *Ziphius cavirostris*.

Furthermore, several reptile and amphibian species of Samothraki are listed as rare and endangered in Europe. Among them are the Loggerhead Sea Turtle (*Caretta caretta*) which is critically endangered, the Cat Snake (*Tellescopus fallax*) and the Dahl's Whip Snake (*Coluber najadum*) which both are endemic species of Greece, the European Pond Terrapin (*Emys orbicularis*) and Striped-Neck Terrapin (*Mauremys caspica*).

Numerous Samothraki insects have also been considered worthy of protection.

Finally there are 45 bird species included in the Annex I of the European Birds Directive as in need of protection. Priority is given to species that reproduce on the island like *Calonectris diomedea*, *Phalacrocorax aristotelis*, *Hieraaetus fasciatus*, *Falco peregrinus*, *Falco eleonora* and others.

**4.3 "Provide an opportunity to explore and demonstrate approaches to sustainable development on a regional scale"**(Describe in general terms the potential of the area to serve as a pilot site for promoting the sustainable development of its region (or "eco-region").

Samothraki Island and the municipality of Samothraki is already partner and participant to a great number of ongoing initiatives, projects and cooperation policies between communities, companies and organizations aimed at sustainable development and its active promotion. Examples would be:

### **International Projects and co operations**

1. The Municipality of Samothraki was a partner in CoPraNet Project that took place during 2004 – 2006 and was partly financed by the European Union (European Regional Development Fund) within the INTERREG IIIC Programme. The project had two primary objectives: First, to develop a network of coastal stakeholders to exchange information and examples of best practice which will support local and regional efforts for an integrated planning of coastal areas and will bridge the gap between planners, managers and the research community throughout Europe. Second, to support interregional exchange of best practice information on (a) sustainable tourism and (b) coastal erosion and beach management through an integrated approach.
2. Sustainable tourism development of Samothraki through the development of mountain sport tourism between Greece and Bulgaria (INTERREG IIIA/RHARE CBC 2008 – 2009). The project aimed to explore the potential of development of mountain sport tourism on Samothraki and how this would promote future sustainable perspectives.
3. Interpr@ Project which is part of South East Europe Program and is about Laboratories of Environmental Interpretation for developing and implementing management plans for natural/semi-natural and protected areas. The program will be launched in April 2010 and Municipality of Samothraki is a full partner in it.

### **National Projects and funds**

4. Implementation of the municipal spatial plan. The spatial plan of Samothraki has reached its final stage and within 2010 it will become a law in Greece. The plan has been a product of a three stage research and has been accepted by local and regional authorities. With the municipal spatial plan all land use and development perspectives are being translated into legal orders with a vision for the next 20 years.
5. Implementation of the municipal operational plan 2007 – 2010. The plan was made in order to set targets and priorities for the years to come and had four main targets: a) Increase quality of life through the sustainable utilization of natural and cultural resources b) Retain and attract permanent residents through the development of technical and social infrastructure c) New municipal governance d) Restructuring economic activity
6. Land restoration in all old waste disposal sites and implementation of recycling programs
7. Construction of a municipal sewage treatment plan along with an artificial wetland
8. Reconstruction and renewal of all drinking water supply systems
9. Construction of bicycle routes all over the island connecting main villages
10. Development of religious tourism
11. Further development of the thermal springs of the island towards a sustainable use of this natural resource
12. Restoration of overgrazed lands
13. Establishment of a management committee for the NATURA 2000 site in coordination with the establishment of a MAB reserve

Besides, it is expected that with the Samothraki becoming a biosphere reserve, new initiatives and projects would be implemented to secure the island as a model of sustainable development.

#### 4.4 "Have an appropriate size to serve the three functions of biosphere reserves"

(This refers more particularly to (a) the surface area required to meet the long term conservation objectives of the core area(s) and the buffer zone(s) and (b) the availability of areas suitable for working with local communities in testing out and demonstrating sustainable uses of natural resources.)

The proposed Samothraki biosphere reserve would cover the entire island of Samothraki and a part of its marine area. Samothraki Island is located in the north of the Aegean Sea and belongs to the Eastern Macedonia and Thrace periphery which is part of the Macedonia-Thrace administrative division. The following Table 1 summarizes the area of the reserve.

Surface distribution of Samothraki Biosphere Reserve	Area (ha)	% of total area
<b>Samothraki Biosphere Reserve total area</b>	<b>22,853</b>	<b>100</b>
of which: terrestrial	17,798	77.9
of which: marine	5,055	22.1
<b>Core areas total</b>	<b>14,658</b>	<b>64.1</b>
of which: terrestrial	9,603	42.0
of which: marine	5,055	22.1
<b>Buffer zones total</b>	<b>5,755</b>	<b>25.2</b>
of which: Archaeology A	1,019	4.5
of which: Archaeology B	2,681	11.7
of which: Wildlife Ref.	932	4.1
of which: SE Coast	1,123	4.9
<b>Transition zones</b>	<b>2,440</b>	<b>10.7</b>
of which: Settlements	332	1.5

Table 1: Area description of the proposed Samothraki MAB

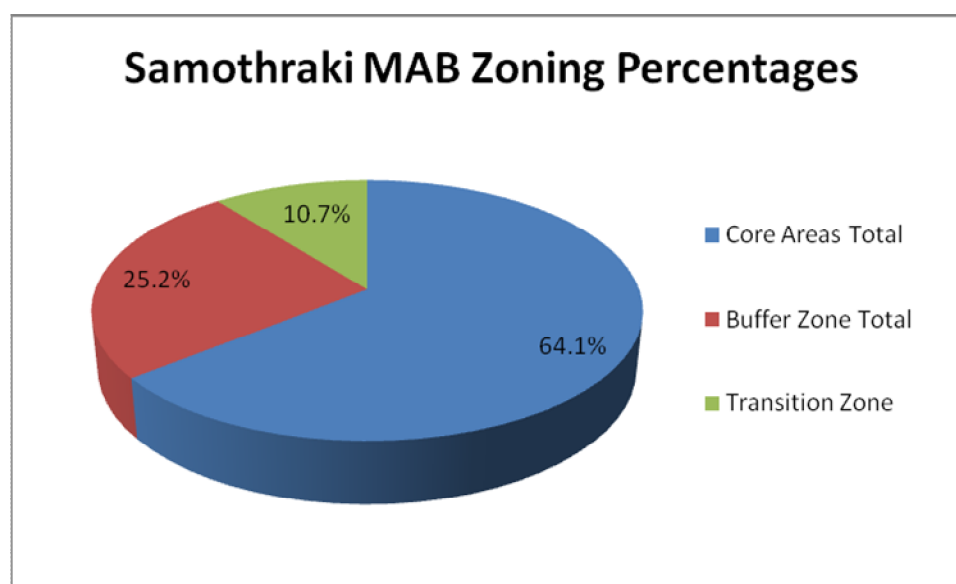


Figure 1: Zonation Percentages

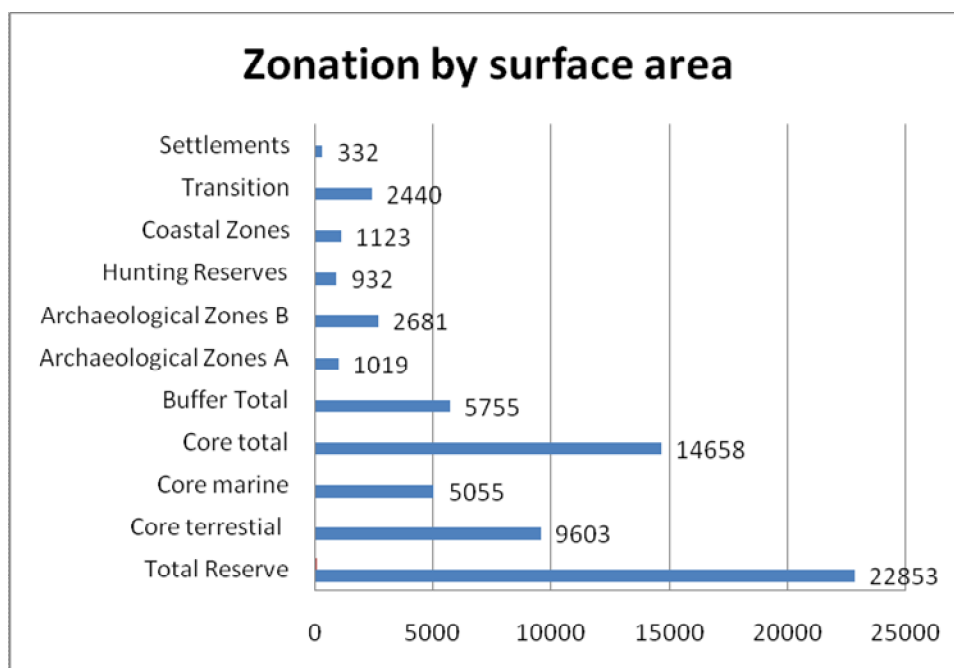


Figure 2: Zonation by surface area

#### 4.5 Through appropriate zonation:

**"(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" ?** (Describe the core area(s) briefly, indicating their legal status, their size, the main conservation objectives)

There are two proposed core areas in Samothraki biosphere reserve. One is terrestrial, it has a size of 9,603 ha and it accounts for 42% of the total reserve. The terrestrial core area includes all the mountain territory from 200m and above. It is home to a variety of habitats and rare species but also it is an area that important ecosystem services are taking place like the generation and purification of fresh drinking water. The marine area has a size of 5,055 ha and accounts for 22.1% of the total reserve. It includes diverse marine habitats and is home to rare marine species. Both of the core areas are included in the NATURA 2000 European network under the code SCI GR 1110004 "Feggari Samothrakis and marine area" and are protected by the European Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora. For more detailed information see chapter 7.4.

**"(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..."** (Describe briefly the buffer zones(s), their legal status, their size, and the activities which are ongoing and planned there).

Buffer zones on Samothraki MAB reserve exist only in the terrestrial part of the island. The size of all buffer zones is 5,755ha which is 25.2 % of the whole reserve. There are 4 types of buffer zones. The first one is Archaeological Zones A which are protected by national Archaeological law 3028/2002. The activities that are ongoing there is archaeological research and exhibition of antiquities. The second type of buffer zone is Archaeological zones B which surround Archaeological zones A. They are also protected by national Archaeological law 3028/2002. The

activities that take place there are archaeological research and agriculture. The third type of buffer zone is the 2 hunting refuges protected by national law 2637/1998. There are no planned or ongoing activities in the hunting refuge since they serve strictly nature protection. The final buffer zone type is the south inaccessible coastal zone which is not under a legal protection but it is mainly constituted by rocks and steep cliffs. There are no ongoing or planned activities in the south coastal zone.

**"(c) an outer transition area where sustainable resource management practices are promoted and developed"**

(The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. The transition area is by definition not delimited in space, but rather is changing in size according to the problems that arise over time. Describe briefly the transition area as envisaged at the time of nomination, the types of questions to be addressed there in the near and the longer terms. The size should be given only as an indication).

The transition area of Samothraki biosphere reserve includes all the terrestrial area that is not characterized as buffer or core zone. It mainly includes all the constituted limits of settlements of the island along with agricultural land and grazing lands. In the transition area, the focus will be on the implementation of an ecologically, economically and socio-culturally sustainable development. The size of the transition area is 2440 ha and it covers 10.7 % of the total reserve. The transition area will be the basis for most human activities within the proposed biosphere reserve (settlement, commercial and recreational activities). The needs of humans and nature have to be equally considered in all fields of action. Accompanying research and monitoring will document the impact of humans on the environment.

**4.6 "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."**

(Are such arrangements in place or foreseen)

Due to the small number of communities and total inhabitants living within the proposed biosphere reserve the implementation of participatory processes will be based on existing social structures and practices. There are several committees dealing with major issues of the island. Examples of these are the 'farmers committee' and the 'tourist operators committee'. Enhanced citizen involvement has to be achieved via representatives of the numerous interest and stakeholder groups. Furthermore the municipality of Samothraki has skilled personnel to deal with any issue arising between different group interests. For further advice on special issues several expert advisory boards will be set up to provided the special information needed.

**4.7 Mechanisms for implementation**

**Does the proposed biosphere reserve have:**

**"(a) mechanisms to manage human use and activities in the buffer zone or zones" ?**

(Briefly describe)

Human use and activities in buffer zones are strictly regulated by national archaeological law and the national law for forest and wildlife reserves. The archaeological authorities and forestry department are present on the island and responsible for the control and the presence of humans in the designated buffer zones.



**"(b) a management plan or policy for the area as a biosphere reserve" ?** (Briefly describe)

A biosphere reserve specific management plan or policy is not yet existing since the island is not designated as such yet. However the municipality of Samothraki has implemented the so called "Municipal Operational Plan" which is an integrated program of local development and sets targets until the year 2013. The main targets of the operational plan are a) Increase quality of life through the sustainable utilization of natural and cultural resources b) Retain and attract permanent residents through the development of technical and social infrastructure c) New municipal governance d) Restructuring economic activity.

Moreover, the managerial objective is quite clearly to establish in a systematic way plausible to the Greek partners, to the UNESCO organization and to the scientific community, the potential of Samothraki as a show case of a successful BR in line with sustainable development goals. This is closely linked to the ongoing MAB-BRIM process (*Biosphere reserve integrated monitoring*) and even more so to the MAB-BRIA process (*Biosphere reserve integrated assessment*) – an approach proposed in an earlier project (Introducing Social Science into Biosphere Reserve Integrated Assessment: Conceptual Frameworks and Indicators) and publicized with strong resonance in the MRI community (GLOCHAMORE). Samothraki provides an excellent test case for applying the BRIA approach from the very start of the potential development of a MAB Biosphere Reserve, with equally well developed observations and indicators on the nature conservation aspects, and on the socio-economic uses of the area, their impact on conservation goals, and opportunities for improvement. Moreover, a participatory process can be co-initiated and systematically observed throughout this initiation phase. This should provide an excellent case study and model tools that the international MAB community might use for other cases as well.

**"(c) a designated authority or mechanism to implement this policy or plan" ?** (Briefly describe)

At present, the municipality of Samothraki and the municipal council are responsible for implementing the above mentioned Municipal Operational Plan. The Mayor has endorsed the establishment of a Biosphere Reserve on Samothraki, and is committed to establishing necessary management structures for its administration.

☐    ☐    ☒  
 Yes    No    Planned

**"(d) Programmes for research, monitoring, education and training"?**

(Describe briefly research/activities monitoring (ongoing or planned) as well education and training activities)

At the moment the most important research activity going on the island has to do with archaeological research. There are several sites that have been excavated like the Sanctuary of Great Gods which has been triggering scientific publications since the end of 19<sup>th</sup> century. It has to be mentioned that archaeological excavations do not harm the landscape and most of the archaeological sites are designed to respect the landscape.

Another ongoing research activity is the annual monitoring of bird populations especially during migration period done by the staff of the Hellenic Ornithological Society. Moreover, several research institutions and universities have been doing research on the island like the Greek Fisheries Research Institute, the Aristotle University of Thessaloniki and the University of Thrace. Finally the local environmental NGOs implement frequently environmental education actions for the school children of the island.

Since 2008, the Institute of Social Ecology Vienna has undertaken a feasibility study (Phase 1) to explore the potential for the island to become a biosphere reserve to secure a sustainable future. The second ongoing phase looks into promising development projects towards sustainable goals that are expected to be taken up by the municipality, and other institutions. There is an agreement in principle to establish a Long Term Socio-Ecological Research (LTSER) station on Samothraki jointly in collaboration the archaeological department. The goal is towards an interdisciplinary research that combines archaeological and historical socioecological research (on former food systems, ecological conditions, adaptation by human societies, etc.) and find ways to enhance the island's profile by linking beach with cultural tourism which at present is under-emphasised.

Finally all the above mentioned on going research efforts but also future needed research will be combined in order to create a *medium term science plan* which will be submitted along with the management plan.

## 5. ENDORSEMENTS

### 5.1 Signed by the authority/authorities in charge of the management of the core area(s):

**Full name:** ΔΗΜΟΣ ΣΑΜΟΘΡΑΚΗΣ/  
Municipality of Samothraki  
Samothraki, Chora, 68002  
Tel: (0030) 2551041218  
Web: <http://www.samothraki.gr/>  
<http://www.samothrace.gr/>

### 5.2 Signed by the authority/authorities in charge of the management of the buffer zone(s):

**Full name:** ΔΗΜΟΣ ΣΑΜΟΘΡΑΚΗΣ/  
Municipality of Samothraki  
Samothraki, Chora, 68002  
Tel: (0030) 2551041218  
Web: <http://www.samothraki.gr/>  
<http://www.samothrace.gr/>

**5.3 Signed as appropriate by the National (or State or Provincial) administration responsible for the management of the core area(s) and the buffer zone:**

Full name/Όνοματεπώνυμο: κ. Γεώργιος Μ. Χανός / Mr. Georgios M. Chanos  
 Title/Τίτλος: ΔΗΜΑΡΧΟΣ ΣΑΜΟΘΡΑΚΗΣ/ Mayor of the municipality of Samothraki  
 Date/Ημερομηνία:



**5.4 Signed by the authority/authorities, elected local government recognized authority or spokesperson representative of the communities located in the transition area.**

Full name/Όνοματεπώνυμο: κ. Γεώργιος Μ. Χανός / Mr. Georgios M. Chanos  
 Title/Τίτλος: ΔΗΜΑΡΧΟΣ ΣΑΜΟΘΡΑΚΗΣ/ Mayor of the municipality of Samothraki  
 Date/Ημερομηνία:



**5.5 Signed on behalf of the MAB National Committee or focal point:**

Full name/Όνοματεπώνυμο: Δρ. Μιχαήλ Ι. Σκούλλος / Uni.Prof.Dr Michael I. Scoullous  
 Title: ΠΡΟΕΔΡΟΣ ΕΛΛΗΝΙΚΗΣ ΕΠΙΤΡΟΠΗΣ ΜΑΒ/ Chair Greek National MAB Committee  
 Date/Ημερομηνία:



## PART II: DESCRIPTION

### 6. LOCATION (LATITUDE AND LONGITUDE):

[Indicate in degrees - minutes, seconds the coordinates of the central point AND the external limits of the proposed biosphere reserve to be used for a Geographic Information System (GIS)]

	Latitude	Longitude
Most Central Point	40°28'35.55"N	25°34'16.63"E
Most Northern Point	40°30'37.19"N	25°33'53.76"E
Most Southern Point	40°23'31.42"N	25°35'3.40"E
Most Eastern Point	40°28'39.25"N	25°50'19.13"E
Most Western Point	40°28'34.77"N	25°26'35.86"E

Coordinates are according to WGS84 projection system.

### 7. AREA (see map):

**Total: 22,853 ha**

- 7.1 Size of terrestrial Core Area(s):** 9,603 ha;  
**If appropriate, size of marine Core Area(s):** 5,055 ha.
- 7.2 Size of terrestrial Buffer Zone(s):** 5,755 ha;  
**If appropriate, size of marine Buffer Zone(s):** \_\_\_\_0\_\_\_\_ ha.
- 7.3 Approx. size of terrestrial Transition Area(s) (if applicable):** \_\_\_\_2,440\_\_\_\_ ha;  
**If appropriate, approx. size of marine Transition Area(s):** \_\_\_\_0\_\_\_\_ ha.
- 7.4 Brief rationale of this zonation (in terms of the various roles of biosphere reserves) as it appears on the zonation map. In the cases where a different type of zonation is also in force at the national level, please indicate how it can coexist with the requirements of the biosphere reserve zonation system:**

The zonation of the proposed MAB Samothraki is entirely based on the newly finalized and approved spatial plan of the Municipality of Samothraki. The spatial plan has been implemented by an experienced urban planner, with the aim to create conditions under which sustainable development is promoted, social coherence and development and to protect the natural environment and resources. Furthermore the spatial plan sets up regulations on land use for the whole island, creates new spatial units and finally the most important aspect is that it bans house construction outside the constituted limits of settlements. This last regulation is especially important because it warrants the quality of Samothrakian landscapes for the years to come.

Moreover, for the creation of the three biosphere reserve zones (core, buffer, transition), specific zones from the spatial plan have been selected that serve the same or similar functions as needed from the Seville Strategy. In specific:

## Core Areas

In principle all core areas must be under a legal protection such as a national park and it must be safeguarding the goal of long term protection of natural ecosystems having also an appropriate size. Samothraki has one NATURA 2000 area which is protected by Habitats Directive 92/43/EEC and by the Greek law. The Habitats Directive (together with the Birds Directive) forms the **cornerstone of Europe's nature conservation policy**. It is built around two pillars: the NATURA 2000 network of protected sites and the strict system of species protection. All in all, the directive protects over 1,000 animals and plant species and over 200 so called "habitat types". In Samothraki, the designated NATURA 2000 site has one marine part and one terrestrial and both of them have a reasonable size as compared to the total island. In specific the terrestrial core area totals to 9603 ha (54% of total terrestrial area) while the marine area is 5055 ha. The two areas can perfectly serve as core areas for the proposed MAB reserve.

## Buffer Zones

The role of buffer zones is to minimize the effects of human activities towards the core areas. In this zone, only activities compatible with the conservation objectives can take place. For that reason four types of spatial elements were unified in order to create the buffer zone for Samothraki, namely the wildlife reserves, the archaeological zones A, archaeological zones B and the south coastal zone along with the two coastal lagoons in the west side.

a) There are two wildlife reserves on Samothraki. One exists on the north side in Katsabas and the second is on the south side near Xiropotamos river. Both of the areas have bush vegetation, phrygana and they host a number of species. Wildlife refuges are managed by Greek law 2637/1998 which declares that, “Within wildlife refuges hunting of any type of animal, destruction of vegetation, soil removal, pollution and urbanization are forbidden. Any other activity that would be planned there needs to have a type A Environmental Impact Assessment Study implemented beforehand”.

b) There are 66 sites on Samothraki that are characterized as Archaeological zones A, some of which cover big areas, while others being single monuments. Archaeological zones A are protected by Archeological Law and no urbanization can take place there. Usually these zones include large amounts of vegetated lands. Also, once a site has been excavated it is left untouched, opened to the public or fenced. For that reason, zones A host a great number of species and can be considered to simultaneously promote culture and nature protection.

c) Archaeological zones B are areas where archaeological research hasn't started yet, which are also protected by the same law that applies to zones A. Agriculture can still be practiced within Archaeological Zones B but the depth of soil tilling is controlled so that minimum damage is done to underlying antiquities. No other activity can take place in zone B before an archaeological excavation takes place.

d) The final spatial element that is included in the buffer zone is the south coastal zone that connects the two major and most visited beaches of the island: Pachia Ammos and Kipos beaches. The area's main characteristic is its vegetation, and steep rocks that reach down to the sea. The area is accessible only by boat and can be considered the hidden jewel of Samothraki. National laws that protect the coastline apply to the area.

### Transition Area

The size of the transition area is 2440 ha and accounts for 10.7 % of the total reserve. The purpose of the zone is the promotion and development of sustainable resource and management practices. However, it will host all human activities that took place in the past and will happen in the future. The transition area firstly includes all the urban – residential areas of the island. It has to be mentioned that the area that is marked as urban on the spatial plan does not mean that the area is already built. At the moment only 40% of it is built so there is a great room for estate development. The rest is land near the existing settlements that is going to be designed to be used only for house construction. This is a positive fact since no great infrastructure extensions will be needed as all the amenities like electricity and drinking water networks are already in place. Also valuable agricultural land or natural land will not be used for urbanization. Furthermore, there will be building restrictions on the size, type, and height of each new building.

Finally the transition area includes the majority of agricultural land with grains, olive trees and vines. Also within the transition area are private forests and grazing lands which are used mainly for livestock breeding and keeping. Even in the transition zones the control of grazing activity allows the development of new forest vegetation and the production of aromatic plants and herbs.

### 8. BIOGEOGRAPHICAL REGION:

[Indicate the generally accepted name of the biogeographical region in which the proposed Biosphere Reserve is located. You may wish to refer to the map of the World Network of Biosphere Reserves presenting 12 major ecosystem types.]

Samothraki biosphere reserve belongs clearly to the Mediterranean biogeographic region. However the orientation of the mountain chain has created two distinct microclimates on the island, the north side being more wet and vegetated and the south side being drier and of typical Mediterranean.

### 9. LAND USE HISTORY:

[If known, give a brief summary of past/historical land use(s) of the main parts of the proposed biosphere reserve]

Samothraki in the ancient times was called “Iliessa” meaning covered with forests. Since it was a holy place in antiquity probably these forest were kept intact until the coming of Christianity and the seizure of the ancient mysteries. In the middle ages the island was subject to logging and clearing for agriculture. The same practice continued until modern times. Today extensive grazing is taking place in large parts of the island while some areas have been used for building houses.

### 10. HUMAN POPULATION OF PROPOSED BIOSPHERE RESERVE:

[Approximate number of people living within the proposed biosphere reserve]

permanently / seasonally

10.1 Core Area(s): \_\_\_\_\_0\_\_\_\_\_ / \_\_\_\_\_0\_\_\_\_\_

10.2 Buffer Zone(s): \_\_\_\_\_0\_\_\_\_\_ / \_\_\_\_\_ 0\_\_\_\_\_

10.3 Transition Area(s): \_\_\_\_\_2712\_\_\_\_\_ / \_\_\_\_\_



#### 10.4 Brief description of local communities living within or near the proposed Biosphere

**Reserve:** [Indicate ethnic origin and composition, minorities etc., their main economic activities (e.g. pastoralism) and the location of their main areas of concentration, with reference to a map if necessary]

Samothraki Island is a self governing municipality which belongs to the Macedonia–Thrace, administrative division. The population in Samothraki is dominated by local Greek Samothrakians, while there are few immigrants established with their families on the island. According to the census of the National Statistical Service of Greece the permanent resident population was 2,712 inhabitants in 2001, having been decreased 12% in relation to the 3,080 inhabitants in 1991. The largest ever population size recorded on the island was in 1951 reaching 4,258 inhabitants. However, during the 1960's a wave of emigration began mainly to Central European countries especially to the region around Stuttgart in Germany in search of a better future (Kolodny 1982). Even nowadays there is a vibrant Samothrakian community in Stuttgart who visit their relatives on the island mainly during the summer months. According to the 2001 census there are 16 legally constituted settlements on the island. The biggest ones are Kamariotissa (940 inhabitants) which is the passenger and commercial port of the island, Chora (698 inhabitants) which is the traditional capital of the island protected by UNESCO and Lakkoma (329 inhabitants) in the south which is an agricultural farmers village. The demographic data of the municipality show that in ages below 50 years, men are significantly more than women, while above 50 there are more women than men. Moreover, ages ranging 15 – 64 represent almost 68% of the population. There has been a decrease in child population ages 6 – 11 years, which reached 30% in the decade 1991 – 2001 (National Statistical Service of Greece 2005). Tables 2 – 4 summarize the current population characteristics like composition according to sex and age group, education level and household composition according to the 2001 National Statistical Service of Greece population census.

**Table 2: Population composition according to sex and age group, 2001**

	Total		0 – 14 years		15 – 64 years		65 and above	
	Males	Females	Males	Females	Males	Females	Males	Females
Municipality of Samothraki	1519	1193	184	157	1077	766	258	270
Percentage (%)	56	44	12	13	71	64	17	23

**Table 3: Population Education level, 2001**

	Total	University degree and above	High school	Primary school	Illiterate
Municipality of Samothraki	2513	230	727	1428	128
Percentage (%)	100	9.15	28.93	56.82	5.10

**Table 4: Household composition according to family members, 2001**

	Total households	Persons per Household					
		1	2	3	4	5	6+
Municipality of Samothraki	1017	294	348	173	149	32	21
Percentage %	100	28.91	34.22	17.01	14.65	3.15	2.06

According to Table 2 males dominate the local population. Apparently, females have a stronger tendency to leave the island (for education and employment). Already among the children (0-14), there is a male majority of 54%; among adults, it is 58%. Only among the elderly, females slightly dominate. Finally, another important fact is that more than half of the population has only a very basic education level.

### **Economic activity**

According to 2001 official statistical data, the economically active population, meaning individuals above 10 years old declared that they are working or seeking for a job, represent 37 % of the total. Unemployment affects 8% of the active population. Economic activity is dominated by the primary sector (45% of the active population), followed by the service sector with 40% of the active population.

**Table 5: Economically active population per sector**

	Economically active (Total 1008)		Economically active per sector				Economically inactive
	Active	Unemployed	Primary Sector	Secondary Sector	Tertiary Sector	Not in a sector	
Municipality of Samothraki	930	78	416	123	376	15	1704
Percentage	92%	8%	45%	13%	40%	2%	

The main activities within the primary sector are agriculture, livestock keeping, and fishing. Forestry is absent because there is no management plan for the forests of the island. Agricultural land occupies 2,792 ha (around 15.7% of the total island territory), and the main products are grains, olives, grapes and horticultural products. Of the total agricultural land 470 ha are being irrigated by groundwater wells. The livestock on the island numbers some 53,000 goats and sheep used for milk and meat production, most of them grazing free. This constitutes a major challenge in terms of overgrazing and consecutive erosion. In addition, there are around 1,000 pigs, 9,000 poultry and 1,550 beehives for honey production. The annual honey production is around 15 tons. Fisheries are an important economic activity, and in 2007 2.200 tonnes of fish were caught worth an estimated price of 9.3 million Euros (National Statistical Service of Greece 2005; Greek Ministry of Agriculture 2008).

The secondary sector represents a small fraction of the economic activity on the island. There is one olive press, a municipal wheat mill, a small winery, a municipal slaughter house and some construction and mining activity by private entrepreneurs. There are also several bakeries and one cheese factory (which proudly sells its local produce also on the mainland). One of the most interesting production facilities is the Women's Cooperative of Samothraki. They have established a small production unit producing traditional local sweets and drinks only from products of the island to supplement their income.

Finally the tertiary sector is focussed on tourism and services and has grown substantially in the last decade on Samothraki Island. There are 14 small to medium sized hotels with 620 beds and 74 private houses for rent with 982 beds. In addition, there are two municipal camping sites on the north side of the island with a capacity of 1,700 people. The total capacity of all existing tourist accommodation is estimated to be 4000 people. In the light of more recent research, this

number seems too low an estimate: during the high season, some 30000 people arrive monthly per boat and stay for a week on average – this point at tourist numbers of about 7000-9000 per night in the peak season. In terms of services, there is an archaeological museum, a diving center, a thermal bath - spa center in Therma village, a municipal health center in Chora, two banks and several shops and restaurants (Evros Prefecture directorate of tourism 2008).

### **10.5 Name(s) of nearest major town(s):**

Alexandroupoli (Capital of the –now abolished– Evros prefecture, on the mainland, not included in the reserve)

Chora (Capital of Samothaki Island)

Kamariotissa (main port)

Lakkoma village

### **10.6. Cultural significance:**

[Briefly describe the proposed Biosphere Reserve's importance in terms of cultural values (religious, historical, political, social, ethnological)]

#### **From Neolithic time till Rome**

As indicated from recent excavations in Mikro Vouni and Vrihos sites, Samothraki Island must have been inhabited from Prehistoric times and definitely during Neolithic times. The first inhabitants of the island were of Thracian origin and they were the ones who introduced a mystic cult that developed during the years and established Samothraki as one of the biggest religious centers in ancient times.

At the end of the 8th century BC the island was colonized by Greeks from Aiolia (Asia Minor) especially from the island of Samos, from which it appears to have received the name Samos of Thrace, that later became Samothrace. The archaeological evidence suggests that Greek settlement dates at least from the 6th century BC. Samothraki since ancient times was also known as: Σαόννησος (Saonissos), Λευκανία (Lefkania), Ηλεκτρής (Elektris) and during the Middle ages as Mandrachi, Sanctus Mandrachi, Samathrachi, Samotratia.

The North Part of the Island and especially the area near Palaiapolis village was the home of the Sanctuary of the Great Gods, a center of the ancient world and site of important Hellenic and pre-Hellenic mystic religious ceremonies. The famous winged Nike statue exposed today in Louvre Museum was found inside the Sanctuary area. Moreover, considerable remains still exist within the ancient walls, which were built in massive Cyclopean style, as well as of the Sanctuary of the Great Gods, where mysterious rites took place open to both slaves and free people (in contrast to the Eleusinian Mysteries). The mystic religion practiced there had its roots in the pre-Greek tribes that were living on the island. The religion included the so called “Mysteries” and the initiated ones were classified into two groups, the “mystes” and the “epoptes”. Among those who visited this shrine to be initiated into the island cult were King Lysander of Sparta, Philip II of Macedon, Alexander the Great and Cornelius Piso, father-in-law of Julius Caesar.

The Persians occupied Samothrace in 508 BC, it later passed under Athenian control, and was a member of the Delian League in the 5th century BC. It was then subjected by Philip II and, until 168 BC, was under Macedonian control. With the battle of Pydna, Samothraki became independent, a condition that ended when Vespasian absorbed the island in the Roman Empire in 70 AD.

The Book of Acts in the Christian Bible records that the Apostle Paul, on his first missionary journey outside of Palestine, sailed from Troas to Samothraki and spent one night there on his way to Macedonia.

### **From Byzantine times till Present**

Very little information exists for Samothraki during the middle ages and Ottoman times. Main historical sources for this period are some byzantine historians and several foreign travelers who were stopping over during their trips from East to West and vice versa. On 768 AD Slavs occupied the island and during that time it was used as an exile place for Byzantine officials. During the 9<sup>th</sup> century the island was heavily attacked by pirates. The Byzantines ruled until 1204, when Venetians took over, only to be dislodged by a Genoan family in 1430, the Gattilusi. The Ottoman Empire conquered it in 1479 and during the 17<sup>th</sup> century it numbered 800 inhabitants.

In the late 18th century Samothraki was prospering. The population was estimated at around 4,000 residents. The prosperity was interrupted in 1821 with the total destruction of the island and the massacre of most of the population by the Turks when the locals stood up against the Ottoman regime. In 1835 there were only 500 inhabitants left that increased to 3,500 in the early 20th century. The island returned under Greek rule on 19<sup>th</sup> October, 1912 following the Balkan War. It was briefly occupied by Bulgaria during the Second World War.

In 1951 the population of the island reached 4258 residents but during the next years the population decreased due to emigration mainly to the region of Stuttgart in Germany. The long history of Samothraki has left many monuments on the island. At the moment there are 66 places and monuments of historical interest ranging from prehistory till present.

## **11. PHYSICAL CHARACTERISTICS**

### **11.1. General description of site characteristics and topography of area:**

[Briefly describe the major topographic features (wetlands, marshes, mountain ranges, dunes etc.) which most typically characterize the landscape of the area.]

Samothraki is by far a mountainous island with a large part of its total surface area of about 178 km<sup>2</sup> covered by high mountains. The highest peak, Feggari, meaning ‘moon’ in Greek, rises up to 1611m. Due to the orientation of the mountain range a wet microclimate exists on the north side that makes it more vegetated with numerous water streams coming down the mountain forming water pools and waterfalls. While the north side is more forested and wet, the south side is more typical Mediterranean. On the south-west side is where most of the settlements are found, along with the olive tree, vine and grain cultivations. In the west there is a peninsula with

two coastal lagoons. The coast of the island is generally rocky and there is one sandy beach in the south side.

**11.2.1 Highest elevation above sea level:** 1611 metres (peak Feggari)

**11.2.2 Lowest elevation above sea level:** 0 metres

**11.2.3 For coastal/marine areas, maximum depth below mean sea level:** - 50 metres

**11.3. Climate:** [Briefly describe the climate of the area using one of the common climate classifications]

Until recently there was no meteorological station in Samothraki and climatic data were derived from the nearby stations of the airport of Alexandroupoli and the island of Thasos. As mentioned previously, there are two climatic types occurring on the island which differ from north to south. The north side receives larger amounts of rainfall, it is largely affected by Northeast winds, is more vegetated and has an abundance of surface water while the south side has higher temperatures and generally has a Mediterranean climate. The mean annual temperature on the whole island is 16.1°C while the mean annual rainfall is 737.8mm. The coldest month of the year is February with mean temperature 3.3 °C while the hottest month is July with 27.1 °C.

**11.3.1 Average temperature of the warmest month:** 27.1 °C (in July)

**11.3.2 Average temperature of the coldest month:** 3.3 °C (in February)

**11.3.3 Mean annual precipitation:** 737.8mm, recorded at an elevation of 2.5 metres

**11.3.4 If a meteorological station is in or near the proposed Biosphere Reserve, indicate the year since when climatic data have been recorded:**

a) manually: 1951

b) automatically: 1991

c) Name and location of station: Alexandroupoli Airport meteorological Station

**11.4. Geology, geomorphology, soils:** [Briefly describe important formations and conditions, including bedrock geology, sediment deposits, and important soil types]

The geomorphology of the island is dominated by the mountain Saos or Fengari which occupies a large amount of the total surface of the 178km<sup>2</sup> while the highest peak is 1611m above sea level. On the west side of the island there is a small plain used mainly for agriculture. The total length of the coastline is 58.3km, most of it is rocky or pebble with no natural gulfs while there is only one sandy beach at the south side of the island. From a geological point of view the region belongs to the Mass of Rodope. The geology of the island is mainly dominated by granite, ophiolites, schist and other rock of volcanic origin while the plains are formed by eroded sediments (Christofides 2000). The hydrographic network is extensive and has a radial formation. There are numerous rivers, streams and springs coming down the mountain and most of them have water all year round due to the above mentioned geological features. Among the biggest ones are Xiropotamos, Vatos and Fonias. However, water discharge increases during

rainy season and much damage can be caused to existing infrastructure. There are two tectonic trenches one on the north and one on the south side of the island that cause the existence of thermal water springs in the area of Therma village in the north side.

## 12. BIOLOGICAL CHARACTERISTICS

[List main **habitat types** (e.g. tropical evergreen forest, savanna woodland, alpine tundra, coral reef, kelp beds) and **land cover types** (e.g. residential areas, agricultural land, pastoral land). For each type circle REGIONAL if the habitat or land cover type is widely distributed within the biogeographical region within which the proposed Biosphere Reserve is located to assess the habitat's or land cover type's representativeness. Circle LOCAL if the habitat is of limited distribution within the proposed Biosphere Reserve to assess the habitat's or land cover type's uniqueness. For each habitat or land cover type, list characteristic species and describe important **natural processes** (e.g. tides, sedimentation, glacial retreat, natural fire) or **human impacts** (e.g. grazing, selective cutting, agricultural practices) affecting the system. As appropriate, refer to the vegetation or land cover map provided as supporting documentation.

### DISTRIBUTION

#### 12.1. First type of habitat:

Regional

*Intermittently flowing Mediterranean rivers*

NATURA 2000 4 digit code: 3290

##### 12.1.1. Characteristic species:

*Plantanus orientalis*

##### 12.1.2. Important natural processes:

This habitat type includes all the stream rivers of Samothraki that flow periodically year round or during dry years especially in the north side of the island. Plant species that occur in this habitat type are included in the *Plantanus orientalis* tufts. Rivers and streams occur in areas with various slopes ranging from gentle in low altitudes to extreme (>100%) in elevations ranging from 1,000 to 1,400m. This habitat type is of very special value for Samothraki because it creates numerous locations with small waterfalls and ponds of very high scenic beauty. It also contributes to water purification and holding of the river banks.

##### 12.1.3. Main human impacts:

Illegal logging, grazing which minimize the habitats regeneration capacity, sand removal

##### 12.1.4. Relevant management practices:

Lopping branches for tree revival, reshaping of river course, small scale canalization.

### DISTRIBUTION

#### 12.2. Second type of habitat:

Local

*Endemic oro-Mediterranean heaths with gorse*

NATURA 2000 4 digit code: 4090

##### 12.2.1. Characteristic species:

This plant community hosts few plant species and it is dominated by *Genista acanthoclada*. Other characteristic species are *Berberis cretica* and *Prunus prostata*. Occasionally *Juniperous oxycedrus* and *Festuca valesiaca* species occur in abundance.



**12.2.2. Important natural processes:**

This habitat type occurs mainly in areas with medium or extreme slopes (50 – 100%) in high elevations 1140 – 1450m and in mainly East and North East exposures. The geological substrate is porphyry. It constitutes the only habitat type above tree line with the important role of holding the soil.

**12.2.3. Main human impacts:**

In some areas there is a severe degradation due to overgrazing.

**12.2.4. Relevant management practices:** None**DISTRIBUTION****12.3. Third type of habitat**

Local

*Bracken fields*

NATURA 2000 4 digit code: 5150

**12.3.1. Characteristic species:**

*Pteridium aquilium* dominates this plant community. Accompanying plant species are a mixture of *Juniperus oxycedrus* shrubs and some species of the ecotone Satureja-Garrigues. Very high presence of *Juniperus oxycedrus*, *Thymus sibthorpii*, *Hypericum cerastoides*, *Erica arborea*, *Origanum vulgare* και *Satureja montana*.

**12.3.2. Important natural processes:**

This habitat type occurs mainly in areas exposed to the northern part spread along various elevations (220 – 1250m.). It occupies areas with medium to extreme slopes (30 – 100%) and lies upon basalt and porphyry. A habitat type with limited distribution which occupies burned areas or locations of suitable humidity above the tree line in the North side of the island.

**12.3.3. Main human impacts:**

Grazing

**12.3.4. Relevant management practices:**

None

**DISTRIBUTION****12.4. Fourth type of habitat:**

Local

*Juniperus oxycedrus arborescent matorral*

NATURA 2000 4 digit code: 5211

**12.4.1. Characteristic species:**

The only characteristic plant species of this habitat type is *Juniperus oxycedrus ssp. Oxycedrus*. Other species found in relative abundance are *Galium samothracicum*, *Thymus sibthorpii*, *Pteridium aquilinum* and in some positions *Erica arborea*.

**12.4.2. Important natural processes:**

This habitat type occurs in a wide range of elevations (0 – 1400m.) lying upon basalt, porphyry and rarely granite substrate. This habitat type occurs mainly on the South – SouthEast slopes of the island which are exposed to strong sea winds.

**12.4.3. Main human impacts:**

None

**12.4.4. Relevant management practices:**

None

**DISTRIBUTION**

Local

**12.5. Fifth type of habitat:**

*Eastern Garrigues / Carrigues with Labiatae*  
NATURA 2000 4 digit code: 5340

**12.5.1. Characteristic species:**

This habitat type belongs to the class of Cisto-Micromerietetea. Garrigues are dominated by *Saturela montana* while in lower elevation *Ballota acetabulosa*, *Euphorbia characias* and *Picnemon acarna* are also found in abundance. In higher elevation *Origanum vulgare* can be found along with species that are also dominant in *Juniperus oxycedrus* matorrals (*Thymus sibthorpii*, *Galium samothracicum* and *Pteridium aquilium*).

**12.5.2. Important natural processes:**

Garrigues are found in medium to extreme slopes with all types of exposures in elevations varying from 500 – 1140m. The geological substrate is basalt and porphyry. The existence of this habitat type in these areas is very essential because it holds the soil in extreme steep slopes which are susceptible to erosion from water and wind.

**12.5.3. Main human impacts:**

Grazing

**12.5.4. Relevant management practices:**

None

**DISTRIBUTION**

Local

**12.6. Sixth type of habitat:**

*Pseudomaquis*  
NATURA 2000 4 digit code: 5350

**12.6.1. Characteristic species:**

This habitat type belongs to the plant community of Coccifero-Capinetum. The most characteristic species are *Quercus coccifera*, *Pistacia terebinthus*, *Phillyrea latifolia*. Another species that is common in the bush level is *Pyrus amygdaliformis*. Turf level is dominated by *Quercus coccifera*, *Ballota acetabulosa* and *Origanum vulgare* while the presence of *Euphorbia characias*, *Picnemon arcana* and *Carlina coymbosa* are signs of overgrazing.

**12.6.2. Important natural processes:**

This habitat type can be found in areas with gentle to medium slopes (10 – 50%) and rarely in extreme slopes, in North and NorthWest exposures where humidity levels are better in dry months while it can be rarely found in south exposures. It can be found in elevations ranging 240 – 550m over a substrate of basalt.

**12.6.3. Main human impacts:**

Threatened by overgrazing

**12.6.4. Relevant management practices:**

None

**DISTRIBUTION**

Regional

**12.7. Seventh type of habitat:**

*Aegean phrygana (Sarcopoterium spinosum)*

NATURA 2000 4 digit code: 5420

**12.7.1. Characteristic species:**

This habitat type belongs to the Astragalo-Sarcopoterietum spinosi plant community with characteristic species *Sarcopoterium spinosum*, *Ballota acetabulosa* while other species that can be found are *Hordeum murinum*, *Desmazeria rigida*, *Cerastium brachypetalum*, *Capsella bursa-pastoris*, *Polycarpon tetraphyllum*, *Cynodon dactylon* and *Origanum vulgare*. All of them can be considered as indicators of overgrazed, marginal and degraded soils.

**12.7.2. Important natural processes:**

This habitat type is mainly found in south and south west exposures in medium to extreme slopes (10 – 70%) in elevation that ranges from 10 – 600m over a substrate of porphyry and basalt. The habitat is the last to hold the soil in most degraded from grazing lands. This habitat mainly occupies marginal and degraded sites in the south side of the island.

**12.7.3. Main human impacts:**

Threatened by overgrazing

**12.7.4. Relevant management practices:**

None

**DISTRIBUTION**

Regional

**12.8. Eighth type of habitat:**

*Balkan scree*

NATURA 2000 4 digit code: 8140

**12.8.1. Characteristic species:**

Vegetation is scarce and it is reduced to some lichen species.

**12.8.2. Important natural processes:**

Balkan scree is formed by the weathering of the rocks of mount Feggari. Because of the nature of the bedrock of the mountain Balkan scree is contributing in storing large amounts of freshwater and in the creation of numerous water springs.

**12.8.3. Main human impacts:**

None

**12.8.4. Relevant management practices:**

None

**DISTRIBUTION**

Local

**12.9. Ninth type of habitat:**

*Vegetated silicicolous inland cliffs with casmophytic vegetation*

NATURA 2000 4 digit code: 8220

**12.9.1. Characteristic species:**

This habitat type belongs to the class of *Asplenietea trichomanis*. There are no characteristic species although there is a significant presence of *Symphyandra samothracica*, *Polygonum icaricum* and *Festuca valesica*.

**12.9.2. Important natural processes:**

It occurs mainly in north west rocky areas with extreme slopes (45 – 100%) in elevations ranging from 400 – 1670m while the geological substrate is porphyry. Even if this habitat is occupying the most inaccessible parts of the island, there are signs of overgrazing visible here. However, it is a very important habitat for the rare and endemic plant species of the island.

**12.9.3. Main human impacts:**

Overgrazing

**12.9.4. Relevant management practices:**

None

**DISTRIBUTION**

Local

**12.10. Tenth type of habitat:**

*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* – Residual alluvial forest*

NATURA 2000 4 digit code: 91E0

**12.10.1. Characteristic species:**

This habitat type belongs to the class of Alnion-Ulmion with characteristic species *Alnus glutinosa* in the tree level while bushes are absent. In the turf level the species *Rumex conglomeratus*, *Juncus bufonis*, *Ranunculus ophioglossifolius* και *Agrostis stolonifera* are characteristic of this wet area. *Juncus maritimus* presence indicates the vicinity of the habitat to the sea.

**12.10.2. Important natural processes:**

This habitat type is next to the sea in elevation 2 – 3m and it is established around a seasonal wetland which is formed in the estuary of Fonias river. The geological substrate is basalt and porphyry while the soil is wet and rich in nutrients and organic material brought by the river. This is the only *Alnus glutinosa* forest stand on Samothraki island and it is one of the few that are found in other Aegean island. This rare forest has been formed next to the sea by the alluvial depositions of Fonias river. It is a important wetland for migratory birds.

**12.10.3. Main human impacts:**

None

**12.10.4. Relevant management practices:**

Removal of fallen branches and trees

**DISTRIBUTION**

Local

**12.11. Eleventh type of habitat:**

*Eastern white oak woods and balkanic thermophilous oak woods*

NATURA 2000 4 digit code: 924A

**12.11.1. Characteristic species:**

This habitat type is divided into two unions Quercion frainetto and Ostryo-Capinion. Quercion frainetto forest is dominated by *Quercus dalechampii* oak species mainly in the north side but also in the south east side of mount Feggari in elevation above 540 – 1160m in medium to extreme slopes (60 – 90%) and in north and south exposures. Bush level vegetation is absent here. Characteristic turf level species are *Doronicum orientale*, *Viola reichenbachiana* and *Galium rotundifolium* although *Pteridium aquilinum* is showing the higher abundance. Between 200 and 500 meters *Quercus pubescens* dominates the union of Ostryo-Capinion with other characteristic species of the bush vegetation level *Carpinus orientalis* and with the turf vegetation species *Aremonia argrimoides*, *Phzsopermum cornubiense*, *Cardamine hirsuta* and *Cyclamen hederifolium*.

**12.11.2. Important natural processes:**

The geological substrate of this oak forest habitat is basalt and porphyry. The mature oak forests of Samothraki are the only remnant of such kind in the whole Aegean archipelago. Most of the trees are in mature age but regeneration is absent due to overgrazing.

**12.11.3. Main human impacts:**

Illegal logging, overgrazing

**12.11.4. Relevant management practices:**

None

**DISTRIBUTION**

Local

**12.12. Twelfth type of habitat:**

*Hop-hornbeam, oriental hornbeam and mixed thermophilous forests*

NATURA 2000 4 digit code: 925A

**12.12.1. Characteristic species:**

Hop-hornbeam, oriental hornbeam

**12.12.2. Important natural processes:**

This habitat type is lying upon basalt and porphyry, in areas of medium to extreme slopes that sometimes become smoother (20 – 50%). Exposure is mainly towards north and north west, elevation varying 500 – 800m. This habitat type is coming in succession in higher elevation after

the garrigues in the south west side of the island. It is occurring mainly between rocks where more humidity is concentrated.

**12.12.3. Main human impacts:**

Unknown

**12.12.4. Relevant management practices:**

None

**DISTRIBUTION**

Regional

**12.13. Thirteenth type of habitat:**

*Oriental plane woods (Platanion orientalis)*

NATURA 2000 4 digit code: 92C0

**12.13.1. Characteristic species:**

This habitat type is classified to the union of *Platanion orientalis* with characteristic species the *Platanus orientalis* at the tree level and *Nerium oleander* at the bush level. Turf species are rare and only *Adiantum capillus-venus*, *Rubus ulmifolius* και *Brachypodium sylvaticum* are typical. *Platanus orientalis* can be found in a variety of configurations next to small mountainous streams with extreme slopes up to 100% and in altitudes up to 980 m., near bigger rivers or streams in flat regions (altitude 0 - 100 m.).

**12.13.2. Important natural processes:**

The geological substrate is mainly basalts and porphyry. This ecotope together with the numerous streams of Samothraki constitute a landscape of particular aesthetical interest and beauty.

**12.13.3. Main human impacts:**

Illegal logging, free camping, grazing

**12.13.4. Relevant management practices:**

None

**DISTRIBUTION**

Regional

**12.14. Fourteenth type of habitat:**

*Quercus ilex forests*

NATURA 2000 4 digit code: 9340

**12.14.1. Characteristic species:**

This habitat type belongs in the union *Arbutus andrachne* - *Quercetum ilicis*. The characteristic species of ecotope are the bushes *Arbutus andrachne*, *Arbutus unedo*, *Phillyrea latifolia* and *Pistacia terebinthus* which dominate in the bush floor. The turf floor is non-homogeneous and includes only accompanying species as the *Poa bulbosa*, *Cerastium brachypetalum*, *Capsella Bursa-pastoris*, *Origanum vulgare* and *Bromus madritensis*.



**12.14.2. Important natural processes:**

The clumps of this habitat type are present in mountain side with north and north-western exposures in medium slopes (30 - 50%) and in altitudes between 200 and 500 m. The geological substrate is basalts and porphyry. The ecotope occupies the lower area (200 - 500 m.) of the northern sides of Mount Feggari. It has very dense and impenetrable structure, except of certain regions that have been burned in the past. In this habitat type, coppices or small teams, or even individual trees are found usually in the grounds of chapels and churches.

**12.14.3. Main human impacts:**

Illegal logging, wildfires, grazing

**12.14.4. Relevant management practices:**

Thinning of forest, traditional forest management

**DISTRIBUTION**

Local

**12.15. Fifteenth type of habitat:**

*Taxus baccata* woods

NATURA 2000 4 digit code: 9580

**12.15.1. Characteristic species:**

The habitat type is represented by old individuals *Taxus baccata* species, remnants of an extinct forest. The flora that surrounds these individuals is typical in the region constituted by thorny bushes or by *Platanus orientalis* forests.

**12.15.2. Important natural processes:**

It constitutes a residual habitat type with a very rare appearance in the Aegean islands. The trees are of very big age and efforts are needed for their rebirth and maintenance.

**12.15.3. Main human impacts:**

Historical logging

**12.15.4. Relevant management practices:**

None

**DISTRIBUTION**

Regional

**12.16. Sixteenth type of habitat:**

*Posidonia beds (Posidonion oceanicae)*

NATURA 2000 4 digit code: 1120

**12.16.1. Characteristic species:**

This marine habitat includes some extensive submarine meadows of the angiosperms *Posidonia oceanica* and –to a lesser degree– *Cymodocea nodosa*.

**12.16.2. Important natural processes:**

*Posidonia oceanica* meadows are key ecosystems within the Mediterranean Sea. The high rate of plant production ( $0.25 \pm 3 \text{ kg dry weight m}^{-2} \text{ year}^{-1}$ ), mainly due to annual leaf growth, and the abundance of epiphytes (which can reach up 20–30% of the biomass of leaves), support a high

secondary production *in situ* and in detritivore compartments of other communities (around 80% of total production), thereby sustaining complex food webs from beaches to bathyal areas.

A moderately wide (1 km) belt of *P. oceanica* meadow may produce litter in excess of 125 kg of dry seagrass material per meter of coastline each year (mostly during autumn). This material accumulates on the beach, developing cushions up to 4 meters high, which can in turn sustain a complex invertebrate food web, protect the shoreline from erosion, deliver sand in the form of carbonate and silica shells and, when transported further inland by the wind, act as seed material for dune formation.

In daylight, *P. oceanica* meadows oxygenate coastal waters, producing net oxygen releases to the atmosphere above the meadows. Due to the slow decomposition of lignified rhizomes and roots, the reef structure or “matte” acts as a long-term carbon sink. The leaves and rhizomes increase the surface available to sessile species and offer shelter to mobile species, thereby sustaining a diverse community. *P. oceanica* beds are especially valuable as nursery grounds for several commercial species.

The leaf canopy increases particle retention, so enhancing water transparency. This function, combined with the active formation of calcareous and silica sand from shelled organisms and cushions of seagrass litter, all contribute to reducing shoreline erosion. Finally, *P. oceanica* meadows are excellent indicators of environmental quality as they can only grow in clean unpolluted waters. Moreover, their rhizomes concentrate radioactive, synthetic chemicals and heavy metals, recording the environmental levels of such persistent contaminants (Diaz-Almela, 2008 97 /id).

#### **12.16.3. Main human impacts:**

Direct erosion by boat-trawling and boat anchoring

#### **12.16.4. Relevant management practices:**

None

### **DISTRIBUTION**

Regional

#### **12.17. Seventeenth type of habitat:**

*Coastal Lagoons*

NATURA 2000 4 digit code: 1150

##### **12.17.1. Characteristic species:**

There are reed species surrounding the coast of the lagoons of Samothraki Island. Several fish species are present there like *Mugil cephalus*, *Liza ramada*, *Liza saliens*, *Sparus aurata*, *Platichthys flesus*, *Dicentrarchus labrax*, *Atherina boyeri*. Moreover several bird species like the Black stork (*Ciconia nigra*), the Grey Heron (*Ardea cinerea*), the Great Egret (*Ardea alba*) and many sea birds are present in the area like the Aegean Sea Gull (*Larus audouinii*).

##### **12.17.2. Important natural processes:**

The continuous enrichments of coastal lagoons with nutrients, the mixture of fresh with saline waters and the favorable physicochemical conditions enhance the attraction and fast

development of fish populations. Coastal lagoons are also important for migratory bird populations which use them as stopping points. In Mediterranean coastal lagoons where tide and wave influences are minimal, environmental parameters like bathymetry, water circulation and salinity determine the size and productivity of fish populations.

#### **12.17.3. Main human impacts:**

The water exchange between the lagoon and the sea is rather limited because of the narrow channel and therefore the wind forced water circulation prevails. The lagoon was abandoned for at least three years before the present tenancy (by the local fishermen in 1997) resulting in the accumulation of dead organic material on the seabed. Despite the problems the fishermen are facing, the recovery of the ecosystem is still feasible.

#### **12.17.4. Relevant management practices:**

A number of actions must be taken for the recovery of the ecosystem and the potential for the development of a fish farm. The removal of the accumulated dead organic material and the deepening of this part of the lagoon are of top priority. The building of a breakwater outside the lagoon is also important and for this purpose the movement of the wind-induced waves was examined from three different wind directions and for a hypothetical breakwater 5 m long. The water circulation and flushing inside the lagoon should be ensured in order to avoid toxic conditions in the future and to allow for the attraction of fish population and their exploitation. The enrichment of the lagoon, which will enhance fish production, should also be considered because of the limited size of the lagoon and the low production anticipated (3-5 tons per year). In case of intensive aquaculture in the lagoon, the possibility of opening another channel to the sea should be examined (Koutrakis, 2001).

### **DISTRIBUTION**

Regional

#### **12.18. First type of land cover:**

*Agricultural land*

##### **12.18.1. Characteristic species:**

Olive (*Olea europaea*), grains like wheat, barley, fruit trees, aromatic plants, edible annual weeds

##### **12.18.2. Important natural processes:**

Agricultural land is home for many plant and animal species. It is important for supporting meta-populations of many wild species which use the agricultural land as hunting or foraging ground but live and reproduce in the core area (many raptor species).

##### **12.18.3. Main human impacts:**

Agricultural land is used also for grazing. There are also cases of fertilizer and pesticide use.

##### **12.18.4. Relevant management practices:**

The municipal spatial plan reorganized the functions of the islands agricultural land. A large amount of the agricultural land has been characterized as land for the production of high quality organic agricultural products which symbolizes the turn towards new types and methods of cultivation. Grazing on these lands will be regulated and controlled.

## DISTRIBUTION

Regional

### 12.19. Second type of land cover:

*Settlements*

#### 12.19.1. Characteristic species:

It is very difficult to determine the amount of species that live or use settlements. It is known that old houses are home to owls and other bird species like swifts (*Apus apus*).

#### 12.19.2. Important natural processes:

Building density and the degree of soil sealing are quite high in settlement areas.

#### 12.19.3. Main human impacts:

Settlement areas are generally characterized by a high degree of soil sealing, soil compaction and thus also surface run off. Large, densely built-up areas might have a lasting effect on the local climate.

#### 12.19.4. Relevant management practices:

With the new municipal spatial plan the construction of new settlement areas is strictly regulated. New houses are going to be built only within the constituted limits of development areas making use of existing infrastructure and minimizing the effects on the landscape.

## 13. CONSERVATION FUNCTION

**13.1. Contribution to the conservation of landscape and ecosystem biodiversity** [Describe and give location of landscapes, ecosystems, habitats and/or land cover types of particular significance for the conservation of biological diversity.]

Within a comparatively small territory Samothraki Island includes a large number of diverse habitats, several of which are of European importance from a conservation point of view. According to the NATURA 2000 Habitats Directive and the map of the “World Network of Biosphere Reserves” Samothraki belongs clearly to the Mediterranean biogeographic region. However, the geomorphology, the microclimatic conditions and the historical human presence created a diversity of natural habitats on the island that is not common in small Mediterranean islands. According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area, including Endemic oro-Mediterranean heaths, Eastern Garrigues, *Sarcopoterium Spinosum* Aegean phrygana, Vegetated silicicolous inland cliffs with casmophytic vegetation, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*, *Platanus orientalis* woods and Mediterranean *Taxus baccata* woods (Greek Biotope and Wetland Center 2001; Dimopoulos et. al. 2005). Many of these habitats, especially the old growth oak forests in high altitudes and the Oriental plane ones which are absent from most of the Greek Aegean islands, make Samothraki the last remaining island hosting such unique habitats in the Aegean.

Moreover the year-round availability of water creates special habitats absent from other islands. There is an extensive network of water courses that originate from the mountains which are all natural and their course and vegetation has not been altered by humans. In addition to that, Samothraki hosts a number of coastal lagoons of various sizes with the biggest one being St.

Andreas Lagoon situated on the west part of the island. These lagoons create favourable habitats for migratory bird species.

The marine environment around Samothraki and the marine part to be included in the biosphere reserve host a variety of rare endangered habitats like the extensive submarine meadows of the angiosperm *Posidonia oceanica* but also rocky islets like the islet Zourafa which lies on the easternmost edge of the marine part of the NATURA 2000 area. Moreover several reefs are also found offshore, the coastal zone reaching down to a depth of 50m. Furthermore, outside the marine NATURA 2000 limits and especially on the south marine side of Samothraki there are deep sea trenches like the North Aegean trench which reach a depth of 1000m. These habitats are largely unexplored and probably host unidentified marine species.

The agricultural land that is found mostly in the south and south west part of the island is a result of the human presence on the island and can be considered as “colonised habitat” or a cultural landscape that hosts several species of plants and animals. Since industrial agriculture is absent on Samothraki, agricultural land constitutes a high quality habitat. Terraced olive cultivations, vineyards and grain fields synthesize a typical untouched Mediterranean landscape in the south side which contrasts the wild forested north side of the island.

**13.2 Conservation of species biodiversity** [Identify main species (with scientific names) or groups of species of particular interest for the conservation of biological diversity, in particular if they are rare or threatened with extinction; use additional sheets if need be.]

According to the NATURA 2000 catalogue there are 16 habitat types found within the constituted designated terrestrial area and 3 habitat types within the marine constitute area. Among them are priority habitats for conservation in European level. These are the alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* and the Mediterranean *Taxus baccata* woods for the terrestrial environment and the *Posidonia Oceanica* sea beds for the marine environment. In specific, *Posidonia oceanica* is an endemic species to the Mediterranean Sea that forms dense and extensive green meadows whose leaves can attain 1 meter in height. These underwater meadows provide important ecological functions and services and harbour a highly diverse community, with some species of economic interest (Dvaz-Almela 2008).

Moreover, there are 8 endemic plant species on Samothraki (e.g. *Scrophularia spinulescens*, *Symphyandra samothracica*, *Potentilla halacsyana*, *Silene samothracica*) that exist only on the island and nowhere else in the world with two of them first discovered in 2000 (*Anchusa samothracica* and *Allium samothracicum*). In addition, there are other plant species found on Samothraki that are endemics of Greece and the Balkan Peninsula. Among them are: *Alyssum degenianum*, *Sideritis perfoliata* subsp. *athoa*, *Arabis verna*, *Cephalorrhynchus tuberosus*, *Leucojum aestivum*, *Saxifraga sibirica* subsp. *Mollis*, *Fritillaria drenovskii*. It is very probable that more plant species are to be found on Samothraki and more botanical expeditions are needed since many of these plants are rare and threatened by the extensive grazing occurring on the island.

Concerning the fauna of the island there are several species that are of European importance. These are the Lesser Mouse-Eared Bat (*Myotis blythi*), which is classified as near threatened, the Forest Dormouse (*Dryomys nitedula*) classified in the Appendix III of Berne convention, the

Mediterranean Monk Seal (*Monachus monachus*) which uses the south rocky inaccessible part of the island as hunting ground and is listed as critically endangered in Europe and the endangered marine mammals *Tursiops truncatus*, *Delphinus delphis*, *Stenella coeruleoalba*, *Phocaena phocaena* and *Ziphius cavirostris*.

Furthermore, several reptile and amphibian species of Samothraki are listed as rare and endangered in Europe. Among them are the Loggerhead Sea Turtle (*Caretta caretta*) which is critically endangered, the Cat Snake (*Tellescopus fallax*) and the Dahl's Whip Snake (*Coluber najadum*) which both are endemic species of Greece, the European Pond Terrapin (*Emys orbicularis*) and Striped-Neck Terrapin (*Mauremys caspica*).

**13.3. Conservation of genetic biodiversity:** [Indicate species or varieties of traditional or economic importance and their uses, e.g. for medicine, food production, etc.]

There is not enough research to determine local species of economic importance. However there is one endemic species of plum tree that locals call "Praousti" that local women gather in order to make traditional sweets and liqueurs. There are also several herb species that are gathered like *Hypericum perforatum* which if put in olive oil create a very powerful medicine for curing cuts and scars on the skin. There are also several herbs that are used for making tea to cure colds and asthma but also herbs used for cooking like Oregano.

## 14. DEVELOPMENT FUNCTION

**14.1. Potential for fostering economic and human development which is socio-culturally and ecologically sustainable:** [Describe how the area has potential to serve as a pilot site for promoting the sustainable development of its region or "eco-region". Describe how the area has potential to serve as a pilot site for promoting the sustainable development of its region or "eco-region"]

Samothraki holds a great potential to serve as a pilot site for promoting sustainable development. It has several attractions that make the island a hotspot of culture and nature that warrants it to be a MAB reserve. On the island there is an abundance of natural resources and beauties along with a rich historical past. The human capital is willing to keep all these values and through innovative perspectives the island can be an example of sustainable development in the whole Mediterranean Sea. Besides its attraction for nature and culture tourism, the island can develop sustainably in branding itself for organic products such as cheese, meat, leather and olive oil. Explorations into the secondary processing sector that so far has a rather modest profile could be beneficial for the island's sustainable development.

**14.2. If tourism is a major activity:**

- how many visitors come to the proposed Biosphere Reserve each year?

- is there a trend towards increasing numbers of visitors? (Give some figures if possible)

Tourism is a major activity for Samothraki and is concentrated in the summer months between June and September, with a peak in July and August. Tourism earns the island gross revenue that ranges between €16-19 million from an estimated 40,000 tourists each year (results from the study undertaken by the Institute of Social Ecology, Vienna, 2009). Most of these tourist are of Greek origin (86%), below 40 years of age (75%) and have attended university (64%). Two-



thirds of the tourists who visit Samothraki show an inclination towards the natural and cultural endowments on the island, and wish it to remain so. The following graphs are generated from arrivals and departure shipping data.

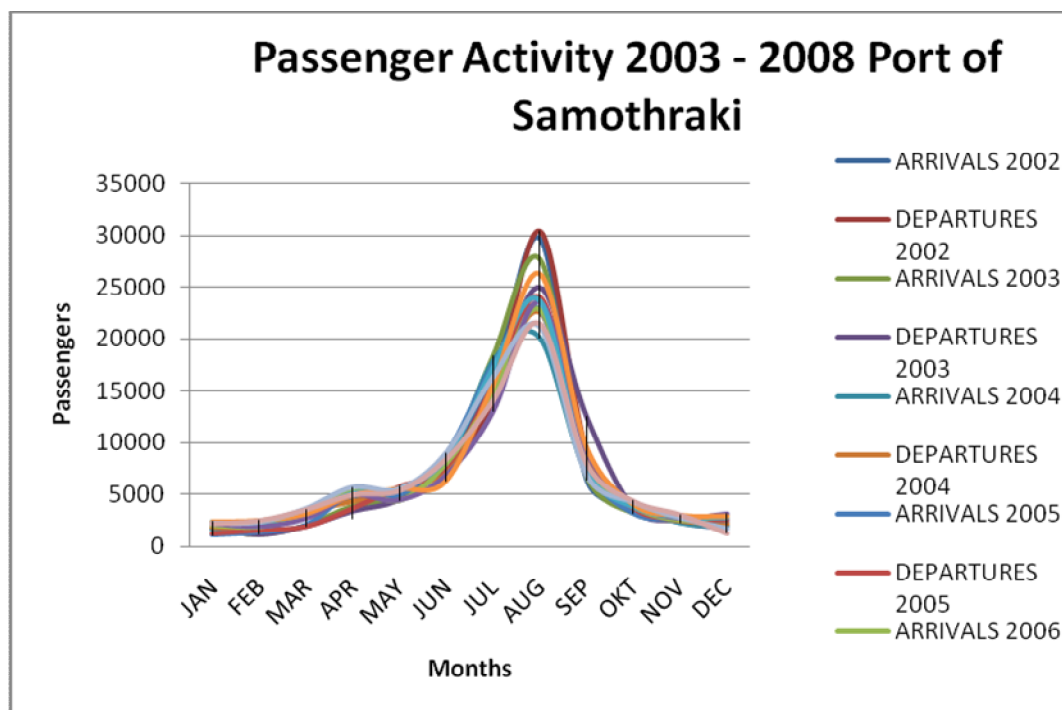


Figure 3: Arrivals and departures Port of Samothraki 2002 - 2008

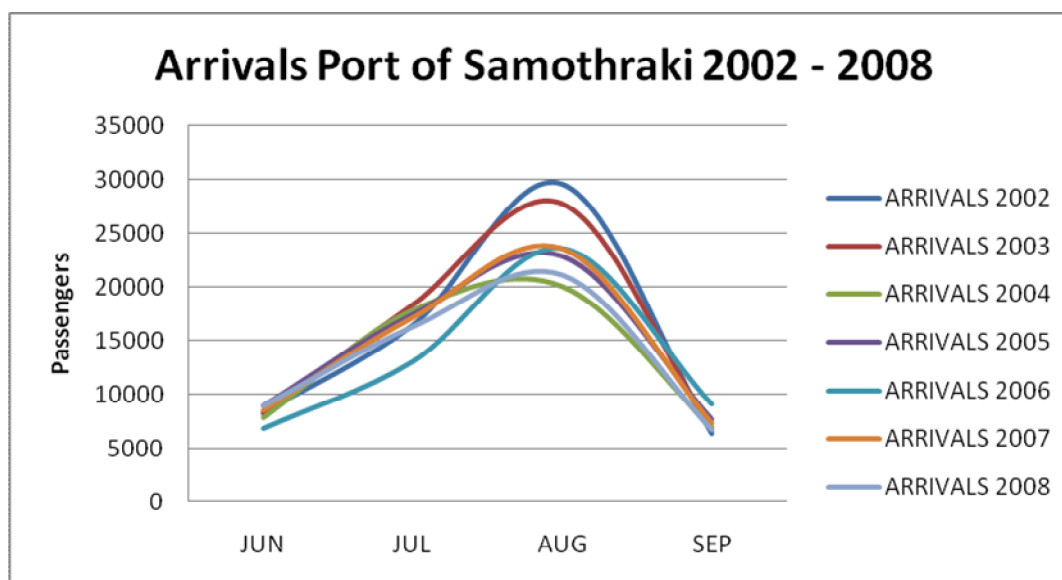


Figure 4: Arrivals Port of Samothraki 2002 - 2008

As can be seen from the figure above, passenger activity in Samothraki has slightly declined between 2002 and 2008. Since these figures represent the total arrivals and make no distinction between tourists and those who are permanent residents, seasonal workers and secondary home owners, it is hard to comment on the actual dynamics of this data.

**14.2.1. Type(s) of tourism** [Study of flora and fauna, recreation, camping, hiking, sailing, horse riding, fishing, hunting, skiing, etc.]

The most common attraction for people to come to Samothraki is its nature and culture attributes. Nearly half of these come to experience one of the most famous camping sites of Greece, situated in a forest next to the sea. Also hiking on the mountain and doing nature walks is very popular since most of the natural beauties like waterfalls can be easily reached by foot. There are people who come to study the flora and fauna of the island or be close to it. Moreover, tourists come to swim in the clean river water and the sea. Fishing is a popular activity done by tourists. Others come to visit the antiquities and archaeological sites to witness the ancient culture and history of the island, and to some extent experience the local traditions. There is also a large amount of people who consider Samothraki as sacred so they visit the island for spiritual healing. Finally there is a group of people who come to the island in order to taste the famous wild goat meat available in the local taverns.

**14.2.2. Tourist facilities and description of where these are located and in which zone of the proposed biosphere reserve:**

Tourism is the second basic economic activity that takes place on the island and it keeps busy 40.7% of the economically active population. Around tourism other activities like commerce and transports are also being developed. There are 14 small to medium size hotels with 620 beds and 74 private houses for rent with 982 beds. Moreover there are two municipal camping sites on the north side of the island with a capacity of 1,700 people. The total capacity of all existing tourist accommodation is estimated to be 4,000 people.

The following table summarizes the amount of accommodation on Samothraki. All hotels are in the transition zone with most of them being situated in Kammariotissa and Therma villages.

**Table 6: Tourist facilities in Samothraki**

Category	Units	Rooms	Beds
Hotels 3*	5	203	401
Hotels 2*	7	100	193
Hotels 1*	2	12	26
<b>Total</b>	<b>14</b>	<b>315</b>	<b>620</b>
Furnished Houses	2	14	30
Rooms for Rent	72	462	952
<b>Total</b>	<b>74</b>	<b>476</b>	<b>982</b>

**14.2.3. Indicate positive and/or negative impacts of tourism at present or foreseen:**

Tourism is an activity with positive and negative impacts on the island. The positive aspect of it is that it supplements the income of locals, it gives employment to local young people and it

brings attention to the island. However tourist activities are concentrated in a small period of time between June and August with a peak during the mid August. This concentrated activity produces excessive garbage generation and puts a burden in water and other resources being used excessively. Under the new biosphere reserve model, it is planned to research and recommend to the municipality projects and schemes on how the inflow of tourists could be spread across the year to reduce peaks and related ecological burdens, and thus optimal use of existing infrastructure throughout the year. In other words, the goal is not to increase the number of summer tourists in the peak season (thereby discouraging the growth of new infrastructure), but to identify attractions, activities, information channels and target groups to populate Samothraki with visitors at other times of the year.

### **14.3. Benefits of economic activities to local people:**

**[Indicate for the activities described above whether the local communities derive any income or benefits directly or indirectly from the site proposed as a Biosphere Reserve and through what mechanism]**

The local who are directly engaged with tourism have direct economic benefits from this activity. Hotel and restaurant owners benefit directly. However other groups like livestock owners benefit indirectly from tourism by selling their animal for meat in the restaurants of the island.

## **15. LOGISTIC SUPPORT FUNCTION**

### **15.1. Research and monitoring**

**15.1.1. To what extent has the past and planned research and monitoring programme been designed to address specific management questions in the potential biosphere reserve?** (For example, to identify areas needing strict protection as core areas, or to determine causes of and means to halt soil erosion, etc.).

Past and planned research has not been designed to address specific management questions for the time being. Most of the times research has been guided by fund availability from the state or from independent research foundations. The designation of the island as a MAB reserve along with the establishment of a MAB management authority will gather all the scattered efforts for research and fund availability under its umbrella and will guide it towards a more integrated approach. However, since 2008, the Institute of Social Ecology (Vienna) has initiated research on Samothraki with the financial support of the Austrian Academy of Science to look into the future potential of Samothraki as a biosphere reserve. So to say, this research is driven by the ambition to design a sustainable model for the island, in which the concept of a biosphere reserve should play an important role (this application is a result of these efforts). To this end, relevant socio-economic research was undertaken which is presented below. The research also included collation of secondary data concerning the socioeconomic and natural features of the island. The Institute is presently supporting the Mayor in developing first new project ideas that could be implemented by the new MAB management once the biosphere reserve is constituted.

**15.1.2. Brief description of past research and/or monitoring activities** [Indicate the dates of these activities and extent to which the research and monitoring programmes are of local/national importance and/or of international importance.]

• **Abiotic research and monitoring** [climatology, hydrology, geomorphology, etc.]

Some examples of abiotic research on the island are concern the geology and the surface waters. There is also a study on the management and physicochemistry of the St. Andreas Lagoon (Koutrakis 2001).

• **Biotic research and monitoring** [flora, fauna]:

The following bibliographic references indicate the biotic research and monitoring that has been done on Samothraki in the past (Bigazzi 2000; Broggi M. 1988; Buttle D. 1989; Cattaneo 2001; Clark R., 1991; Crucitti P. 1988; Dimitriadis 1937; Greek Biotope and Wetland Center; Gruber 1979; Hellenic Ornithological Society 2007; Strid 1998; Tzanoudakis 2000; Vohlarik 1991; Watson, 1962; Zapparoli 1993).

• **Socio-economic research** [demography, economics, traditional knowledge, etc.]:

The island of Samothraki has received international scientific attention mainly due the rich ground for the science of archaeology. Since the late 19<sup>th</sup> century foreign archaeological missions have been performing excavations on the island (Conze, Hauser, and Niemann 1875; Conze, Hauser and Benndorf 1880; Chapouthier 1935). This activity continued during the 20<sup>th</sup> century, it is active till present time producing a large amount of publications (Lawrence 1926; Lehmann-Hartleben 1939; Bakalakis and Scranton 1939; Oliver 1939; Bloch 1940; Rostovtzeff 1940; Lehmann-Hartleben 1940; Lehmann-Hartleben 1943; Lehmann-Hartleben 1955; Lehmann-Hartleben and Lehmann 1959; Oliver 1966; Lehmann 1972; Moore 1975; Brown 1977; Dusenbery 1978; McCredie 1979; Cole 1984; Bouzek, Hošek and Ondřejová 1985; Dinsmoor 1992; Harris 1992; Welch 1996; Graham 2002; Dimitrova and Clinton 2003; Pounder and Dimitrova 2003). Moreover there are like the one of (Kolodny 1982) that has given an insight to the immigration phenomena of Samothraki.

### 15.1.3. Brief description of on-going research and/or monitoring activities:

• **Abiotic research and monitoring** [climatology, hydrology, geomorphology, etc.]:

The ongoing abiotic research and monitoring activities include climatology and geothermal energy. There is a recently renovated newly equipped meteorological station on the north side of the island, while in 2011 there has been an international competition on geothermal energy research application.

• **Biotic research and monitoring** [flora, fauna]

Ongoing biotic research and monitoring is concentrated on the islands migratory and resident bird population. Moreover, research is conducted on the island rare endemic plant species.

• **Socio-economic research** [demography, economics, traditional knowledge, etc.]:

The most prominent ongoing socio-economic research is that of the Institute of Social Ecology (IFF-Social Ecology), Vienna, Austria. Upon the request of the Mayor of Samothraki, IFF-

Social Ecology initiated a feasibility study in 2008 to explore whether the creation of a UNESCO MAB reserve on Samothraki would provide a promising future alternative for the island, one that combines ecological preservation with social and economic development. In an interviewing and participation process involving main stakeholders the project explored the qualitative and quantitative distribution of interests and development perspectives.

Between July and September 2008, the project undertook a survey of 1,511 visitors to the island and generated valuable data on the various island dynamics such as population flows, activities, economic behaviour, future preferences on the islands, etc. Using these data, economic models were developed with respect to various scenarios of development and changes in visitor flows. During the process, a significant amount of secondary socio-economic data was collated for Samothraki pertaining to the socio-economic and environmental aspects such as demography, education levels, employment, economic sectors and their relevance, ecological features, species distribution, land-use, climate variability, etc. Final results of this research were promising enough for the Mayor of Samothraki to begin the application process for designating the island into a Biosphere Reserve by UNESCO, and gain support of major parts of the community council.

#### **15.1.4. Brief description of planned research and/or monitoring activities:**

**•Abiotic research and monitoring** [climatology, hydrology, geomorphology, etc.]:

Unknown

**•Biotic research and monitoring** [flora, fauna]:

Unknown

**•Socio-economic research** [demography, economics and traditional knowledge]:

The IFF-Social Ecology plans to undertake some research on possible development projects that could be useful for the new MAB management for implementation. Areas that are expected to be explored are overgrazing, waste management, water management, management of the marine area, and ways to optimise existing tourist infrastructure by attracting target groups at other times of the year. There is also a principle agreement to establish a long term socio-ecological research (LTSER) station on Samothraki in collaboration with the archaeological department. The goal is towards an interdisciplinary research that combines archaeological and historical socio-ecological research (on former food systems, ecological conditions, adaptation by human societies, etc.) and find ways to enhance the island's profile by linking beach with cultural tourism which at present is under-emphasised.

#### **15.1.5. Estimated number of national scientists participating in research within the proposed biosphere reserve on:**

- a permanent basis: 3
- an occasional basis: 10

**15.1.6. Estimated number of foreign scientists participating in research within the proposed Biosphere Reserve on:**

- a permanent basis: 2
- an occasional basis: 4

**15.1.7. Estimated number of masters and/or doctoral theses carried out on the proposed biosphere reserve each year:**

At the moment there are no master theses being carried out on the proposed biosphere reserve. However there are two doctoral theses carried out on Samothraki.

**15.1.8. Research station(s) within the proposed Biosphere Reserve:**

[.1.] = permanent                      [.1.] = temporary

On Samothraki there is one permanent research station that belongs to the Archaeology Directorate and is situated near the village of Palaiaapolis next to the archaeological museum. A temporary research station is created every summer inside the camping site by visiting scientists.

**15.1.9. Permanent research station(s) outside the proposed Biosphere Reserve:**

[If no permanent research station exists within the proposed Biosphere Reserve, indicate the location, distance to the core area, name and address of the most relevant research station]

There are no permanent monitoring plots outside the proposed reserve since it is an island.

**15.1.10. Permanent monitoring plots**

[Indicate the year established, the objective of monitoring, the type and frequency of observations and measurements, and whether an internationally recognized protocol is being used, for example the Smithsonian-MAB MAPMON protocol for monitoring forest biodiversity]:

There are no permanent monitoring plots within the limits of the proposed Biosphere reserve.

**15.1.11. Research facilities of research station(s)**

[meteorological and/or hydrological station, experimental plots, laboratory, computerized databases, Geographical Information System, library, vehicles, etc.]:

Recently the National Meteorological service of Greece has established a permanent meteorological station near Kato Karyotes village on the sea side. However, there is a private automated meteorological station operating on the island since 2001. Moreover the archaeological service has a permanent research laboratory near the archaeological museum in Palaiaapolis village. The forestry department have a 4WD vehicle on the island while the municipality has a new library with books aging from the 18<sup>th</sup> century. There is even one original copy of the "Encyclopedia" from D'Alaber and Ditero. The newly built high school is a rather big building which can be used for further research facilities. Finally there are 3 conference halls on the island, one in the Cultural Center of Chora and two others in the biggest hotels of the island.



**15.1.12. Other facilities** [e.g. facilities for lodging or for overnight accommodation for scientists etc.]:

It is very fortunate that the municipality of Samothraki owns six wooden houses on a hill next to the sea with a capacity of 4 persons per house. They are situated in a beautiful forested and green plot of land and can host outdoor mini conferences or seminars.

**15.1.13. Does the proposed biosphere reserve have an Internet connection?**

Yes, internet access is possible on the island in the settlement areas. Information for the municipality of Samothraki can be accessed at the following websites

[www.samothraki.com](http://www.samothraki.com),

[www.samothraki.gr](http://www.samothraki.gr)

**15.2. Environmental education and public awareness** [Environmental education -- sometimes now referred to as education for sustainable development -- can be aimed at schoolchildren, the adult population of the local communities, and visitors from home and abroad].

The local environmental NGO “Samothraki in Action” is rather active in environmental education and raising public awareness of locals of all ages, as well as visitors.

**15.2.1 Describe environmental education and public awareness activities, indicating the target group(s):**

The local environmental NGO “Samothraki in Action” is active mainly with school children. They visit schools and help the teachers in environmental education. The local mountaineering club organizes free excursions every summer for tourist to get to know the island better.

**15.2.2. Indicate facilities for environmental education and public awareness activities** [visitors' centre; interpretative programmes for visitors and tourists; nature trails; ecomuseum demonstration projects on sustainable use of natural resources]:

It is in the immediate plans of the municipality to establish an environmental education – interpretation centre in Therma village which will contain an information centre and an ecomuseum.

**15.3 Specialist training**[Acquisition of professional skills by managers, university students, decision-makers etc.] [Describe specialist training activities: for example research projects for students; professional training and workshops for scientists; professional training and workshops for resource managers and planners; extension services to local people; training for staff in protected area management]

A plan for establishing a school for training mountain guides already exists. Furthermore several students from universities of Greece have undertaken summer practice or prepared their thesis on the island.

**15.4 Potential to contribute to the World Network of Biosphere Reserves**

[Collaboration among biosphere reserves at a national, regional and global level in terms of exchange of scientific information, experience in conservation and sustainable use, study tours of personnel, joint seminars and workshops, Internet connections and discussion groups, etc. ]

Samothraki has a lot to offer to the World Network of Biosphere Reserves. The hospitality of the locals and their will to share their knowledge with others but also learn from them will be a major contribution. In addition, the island is open to all kinds of collaborations and hosting of events or organizing joint seminars and training of personnel.

**15.4.1. Collaboration with existing biosphere reserves at the national level (indicate on-going or planned activities):**

There is no collaboration with existing biosphere reserves at national level at the moment.

**15.4.2. Collaboration with existing biosphere reserves at the regional or subregional levels, including promoting transfrontier sites and twinning arrangements (indicate on-going or planned activities)** [Here, 'regional' refers to the regions as Africa, Arab region, Asia and Pacific Latin America and the Caribbean, Europe. Transfrontier biosphere reserves can be created by two or more contiguous countries to promote cooperation to conserve and sustainably use ecosystems which straddle the international boundaries. Twinning arrangements usually consist of agreements between sites located at some distance in different countries to promote activities such as cooperative research projects, cultural exchanges for schoolchildren and adults, etc.]

Staff from the future MAB Samothraki has been actively participating in the last two EuroMAB meetings in Antalya, Turkey and Stara Lesna, Slovakia.

**15.4.3 Collaboration with existing biosphere reserves in thematic networks at the regional or international levels (indicate ongoing and planned activities)** [Networks of sites which have a common geographic theme such as islands and archipelagoes, mountains, or grassland systems, or a common topic of interest such as ecotourism, ethnobiology etc.]

Samothraki is part of the thematic network Mediterranean Coastal and Marine MAB Reserves.

**15.4.4 Collaboration with existing biosphere reserves at the international level (indicate ongoing and planned activities):** [Notably through Internet connections, twinning arrangements, bilateral collaborative research activities, etc.]

There is no official collaboration yet at the international level with other biosphere reserves. However, great help has been received from Wienerwald Biosphere reserve (Austria) in supporting the effort of filling the nomination form. There is a plan by the Austrian Academy of Science to organise a regional workshop of BR managers of several European countries such as Austria, Poland, Slovakia, Czech Republic, Germany, Switzerland, etc. This could be a starting point for the new Samothraki reserve to integrate into more international collaborations.

## 16. USES AND ACTIVITIES

### 16.1 Core Area(s):

**16.1.1 Describe the uses and activities occurring within the core area(s):** [While the core area is intended to be strictly protected, certain activities and uses may be occurring or allowed, consistent with the conservation objectives of the core area ]

The only use of the terrestrial part of core area is of extensive grazing by semi-wild goats and hiking of small groups of people for educational purposes. In the marine part the only activity is amateur sport fishing and scuba diving.

**16.1.2. Possible adverse effects on the core area(s) of uses or activities occurring within or outside the core area(s):** (Indicate trends and give statistics if available)

There are no adverse effects on the terrestrial core area occurring within or outside the core area except wild fires. The marine component of the core is very sensitive to marine pollution that can be transferred from other parts of the Thracian sea, or even an oil spill.

### 16.2. Buffer zone(s)

**16.2.1 Describe the main land uses and economic activities in the buffer zone(s):**

[Buffer zones may support a variety of uses which promote the multiple functions of a Biosphere Reserve while helping to ensure the protection and natural evolution of the core area(s).]

The majority of the buffer zone is protected by archaeological law especially in the zones A of archaeological interest. The rest of the buffer zone is used for agriculture and for livestock breeding.

**16.2.2. Possible adverse effects on the buffer zone(s) of uses or activities occurring within or outside the buffer zone(s) in the near and longer terms:**

There are no adverse effects occurring within or outside the buffer zone.

### 16.3. Transition area

[The Seville Strategy gave increased emphasis to the transition area since this is the area where the key issues on environment and development of a given region are to be addressed. The transition area is by definition not delimited in space, but rather is changing in size according to the problems that arise over time. Describe briefly the transition area as envisaged at the time of nomination, the types of questions to be addressed there in the near and the longer terms. The size should be given only as an indication]

**16.3.1 Describe the main land uses and major economic activities in the transition area(s):**

The main land uses in the transition area are agriculture, settlements and trade. The analysis of economic sectors on Samothraki Island shows the dominance of the primary sector among the residents of the island. Main categories within the sector are agriculture, livestock keeping and fisheries. Forestry is absent because there is no management plan for the forests of the island. Agricultural land occupies 2,792 ha (around 15.7% of the total island territory) and the main products are grains, olives, grapes and horticultural products. Of the total agricultural land 470 ha are being irrigated by groundwater wells. Moreover, the livestock capital of the island numbers some 53,000 goats and sheep on the island used for milk and meat production most of

them grazing free on the island, around 1,000 pigs, 9,000 poultry and 1,550 beehives for honey production. The annual honey production is around 15 tons. Fisheries are an existent economic activity and in 2007 2.200 tonnes of fish were caught. The price of the 2007 fish catch was estimated at around 9.3 million Euros (National Statistical Service of Greece 2005; Greek Ministry of Agriculture 2008).

The secondary sector represents a small fraction of the economic activity on the island. There is one olive press, a municipal wheat mill, a small winery, a municipal slaughter house and some construction – mining activity by private entrepreneurs. There are also several bakeries and one cheese factory. One of the most interesting production facilities is the one of the Women's Cooperative of Samothraki. They have established a small production unit producing traditional local sweets drinks only from products of the island in order to supplement their income.

Finally, the tertiary sector which includes tourism and services has grown substantially the last decade on Samothraki Island. There are 14 small to medium size hotels with 620 beds and 74 private houses for rent with 982 beds. Moreover there are two municipal camping sites on the north side of the island with a capacity of 1,700 people. The total capacity of all existing touristic accommodation is estimated at around 4,000 people. In term of services there is an archaeological museum, a diving center, a thermal spring - spa center in Therma village, a municipal health center in Chora, two banks and several shops and restaurants (Evros Prefecture directorate of tourism 2008)

### **16.3.2 Possible adverse effects of uses or activities on the transition area(s):**

There are no possible adverse effects on the transition area.

## **17. INSTITUTIONAL ASPECTS**

### **17.1. STATE, PROVINCE, REGION OR OTHER ADMINISTRATIVE UNITS:**

[List in hierarchical order administrative division(s) in which the proposed Biosphere Reserve is located (e.g. state(s), counties, districts)]

Country: Greece

Administrative division: Macedonia-Thrace

Periphery: East Macedonia and Thrace

Municipality: Municipality of Samothraki

### **17.2 UNITS OF THE PROPOSED BIOSPHERE RESERVE:**

[Indicate the name of the different land management units (as appropriate, e.g. protected area, territories of municipalities, private lands) making up the core area(s), the buffer zone(s) and the transition area).

The core areas are two NATURA 2000 areas, the buffer constitutes from Archaeological zones A and B, two hunting refuges and coastal protected zones. The transition is formed by the settlements and agricultural land.

#### **17.2.1. Are these units contiguous or are they separate?**

[A biosphere reserve made up of several geographically separate units is called a "cluster biosphere reserve". Please state if this is the case of the proposal.]

The proposed MAB Samothraki is a cluster biosphere reserve since it is made from several geographically spatial units.

### **17.3. Protection Regime of the core area(s) and, if appropriate of the buffer zone(s)**

#### **17.3.1. Core area(s):**

[Indicate the type (e.g. under national legislation) and date since when the legal protection came into being and provide justifying documents (with English or French summary of the main features)]

NATURA 2000 protected by international and national legislation since the year 2000.

#### **17.3.2 Buffer zone(s):**

[Indicate the type (e.g. under national legislation) and date since when the legal protection came into being and provide justifying documents (with English or French summary of the main features. If the buffer zone does not have legal protection, indicate the regulations that apply for its management.)]

The buffer zone constitutes of four types of areas. The archaeological zones A and B are protected by national law on antiquities, the hunting reserves protected by national law and the coastal zones which are protected by several national legal documents.

### **17.4. Land use regulations or agreements applicable to the transition area (if appropriate)**

The land regulations that are imposed on the transition area are the same ones that apply to the whole country. The municipal spatial plan summarizes and reassesses the land use regulations on the transition area.

#### **17.5. Land tenure of each zone:**

[Describe and give the relative percentage of ownership in terms of national, state/provincial, local government, private ownership, etc. for each zone.]

##### **17.5.1. Core area(s):**

National and private ownership. No accurate percentage of ownership is available.

##### **17.5.2. Buffer zone(s):**

National and private ownership. No accurate percentage of ownership is available.

##### **17.5.3. Transition area(s):**

Private ownership. No accurate percentage of ownership is available.

**17.5.4. Foreseen changes in land tenure:** [Is there a land acquisition programme, e.g. to purchase private lands, or plans for privatization of state-owned lands?]

There are no foreseen changes in land tenure since it is regulated by the municipal spatial plan.

**17.6. Management plan or policy and mechanisms for implementation** [The Seville Strategy recommends promoting the management of each biosphere reserves essentially as a "pact" between the local community and society as a whole. Management should be open, evolving and adaptive. While the aim is to

establish a process leading to elaborating a comprehensive management plan for the whole site reflecting these ideas and involving all stakeholders, this may not yet exist at the time of nomination. In this case however, it is necessary to indicate the main features of the management policy which is being applied to guide land use at present for the area as a whole, and the ‘vision’ for the future.]

**17.6.1. Indicate how and to what extent the local communities living within and next to the proposed biosphere reserve have been associated with the nomination process** [This can range from being an entirely locally driven initiative, to a more ‘top down’ approach led by government authorities or scientific institutions. Describe the steps taken and the stakeholders involved]

The present application to UNESCO is an outcome of a long stakeholder process that was undertaken as part of a feasibility study by the Institute of Social Ecology, Austria between 2008 and 2009. The process included in depth interviews with twenty-four relevant stakeholders of the island using a semi structured interview methodology. These interview partners were selected from a variety of sectors (government, business, NGO, agriculture, church) with relevant representatives and by their importance weighed in the context of biosphere reserve. The main aim was to extract the opinion of each stakeholder towards a possible MAB reserve, his/her views on what a suitable future of the island might be. Between July and September 2008, a survey of 1,511 visitors to the island was undertaken and this generated valuable data on the various island dynamics such as population flows, activities, economic behaviour, future preferences on the island, etc. In the summer of 2009, consultation with civil society and media was undertaken on the outcomes of the feasibility study, including presentations at the camping facility of Samothraki organised by the young Green party of Greece, Iliosporoi. Later, an open public meeting and presentation was organised at the Municipal cultural center of Chora, the capital of the island.

#### **17.6.2 Main features of management plan or land use policy**

(Describe the ‘vision’ of what the proposed biosphere reserve is expected to achieve in the short and longer term, and the benefits foreseen for the local communities and other stakeholders)

The management plan of the proposed biosphere reserve is yet to be prepared. So far the municipality of Samothraki has prepared an “Operational plan” up to the year 2013 where priorities for projects and actions are listed, and for which it seeks support from the private sector and the EU. Some of the relevant projects concern the issue of overgrazing by goats, waste management, optimizing tourism across the year without new infrastructure, and water management. However the vision of the proposed biosphere reserve can be described in the following sustainable development modules:

- *Sustainable tourism management plan*

Tourism is one of the most important sources of income for the island and provides employment to local people. There are about 40,000 visitors annually, around 90% of which concentrate in a very small time period between mid July and mid August. This creates a substantial challenge for all infrastructures that have to cope with a very high demand in a short time, while remaining underutilized for the rest of the year. So the challenge of a development towards a more sustainable form of tourism should be met by efforts to reduce the environmental burden associated with tourism while seeking to increase the local income derived from it, including the generation of more highly qualified jobs that would allow young, educated people to stay on the island and sustain their lives there. We propose to outline a sustainable tourism management plan that would give credit to the unique natural environment (hiking, diving, thermalism, etc), but



would also put emphasis on the rich cultural heritage of the island, promoting sites of significant cultural importance. The key idea here is that tourism management cannot exist without (at least some degree of) ecosystem management. Moreover, sustainable tourism based on the biosphere reserve concept can help to spread tourist season into spring and autumn and utilize the same infrastructure for a longer period thus providing a better income for residents with lesser burden on the environment. This can be achieved by targeting specific ‘fragmented’ tourists, driven by a distinct interest such as research and education, wellness and healing, adventure, culture, attractions for old people etc.

- *Managing tourism metabolism and waste*

The issue of waste management in Samothraki is a very pressing one. This is especially relevant to the tourist season at which time infrastructural facilities are lagging much behind growing demand. There is effectively no waste management plan, with all waste being collected and either deposited on open dumps or incinerated without control, posing a risk to both human health and the environment. This study will look at innovative ways to reduce and manage waste, using methodological tools from the field of social metabolism. For example, an increased and more efficient use of local products can significantly reduce imports and as a result waste entering the island. Methodologically, this study should be based on stakeholder interviews and statistics and employ international estimates and standards for waste management.

- *Water supply management*

Increasing demand for environmental services not only puts a burden on the disposal systems, but also on the supply systems. Water supply in particular is organized via communal cisterns on the one hand, and ancient (or less ancient) neighborhood rights on the other. While there is still an abundance of freshwater at some places, there is scarcity at other places, and the archaic distribution system is reaching its limits, particularly if – as a consequence of climate change – winters continue to remain with little or no snow as happened in the past years. Further planning and management of tourist facilities should systematically take in to account their water supply issues.

- *Grazing and soil erosion issues*

Within the past 20 years, there has been an exponential growth in the number of sheep and semi-wild goats roaming on the island, strongly enhanced by the agricultural policies of the European Union. Overgrazing, coupled with the steepness of the terrain has led to quite dramatic levels of soil erosion, also within the NATURA 2000 area, posing a major threat to its conservation goals. One direction that requires further investigation is the overall effect of overgrazing on the land of Samothraki. For example, the economic damage caused by erosion can be compared to the costs of rebuilding the roads destroyed or threatened by soil erosion. A second part of this study should look more specifically at the economics of goats. On the island there is currently an estimated population of 80.000 goats, a number that lies way beyond the sustainable limit. The challenge here is to find drastic ways to achieve a better utilisation of the goats, i.e. reaching the same productivity with a substantially reduced number of animals. The present form of European CAP subsidy financing the keeping of goats irrespective of their effective utilization will cease by 2013 – so there is a real window of opportunity to engage in different practices.

- *Towards energy self reliance of Samothraki*

While the environmental opportunities for low or even zero-emission electricity generation from renewable sources on Samothraki seem excellent, they are insufficiently utilized (Kaldelis, 2003). The four windmills on site are out of order, while solar energy collection is confined to private warm water supply. Despite the fact that the demand for electricity supply is rising, the

main part of the island's electricity is brought onto the island by submarine power cables. There is a great potential for Samothraki to becoming self-reliant, following the example of neighboring island Agios Efstratios, and this might be incentivized by steeply increasing prices for electricity. An energy scheme for the island based solely on renewable energy can also be a role model of a development plan that would simultaneously meet the goals of sustainability and climate change mitigation. Methodologically, this will rely on existing statistics and estimates for local energy use, and explore with stakeholder interviews the obstacles and opportunities of more sustainable solutions.

- *Integrated marine and coastal zone management plan*

The uncontrolled coastal development over the past decades coupled with overfishing has put considerable pressure on the marine and coastal ecosystem. The diverse group of environmental and social issues urges for a long-term management plan that would deal with the protection and sustainable development of marine and coastal areas. The recent inclusion of a large marine area in the NATURA 2000 network coupled with the forthcoming ratification of the Mediterranean ICZM protocol open a new era of marine and coastal research and protection. The designation of a marine protected area with clear zones and fishing restrictions can help the recovery of the fish stocks, while attracting alternative adventure tourism (e.g. diving, eco-sailing) which in the long run would increase local income and can provide the incentive to maintain the pristine character of the island.

### **17.6.3 The designated authority or coordination mechanisms to implement this plan or policy** (Name, structure and composition, its functioning to date)

The designated authority for implementation of the management plan is the Municipality of Samothraki along with the Biosphere Reserve Management Authority that will be established after the acceptance from UNESCO. The main tasks of the Municipality and the Management Authority will be:

- Coordinating the overall development in accordance with the functions and objectives of biosphere reserves based on the Seville Strategy
- Coordinating nature conservation and natural landscape management, particularly in core and buffer areas
- Coordinating plans and measures for a comprehensive, sustainable regional development
- Coordinating research and monitoring as well as education and training activities
- Coordinating participation processes
- Cooperating with partners

### **17.6.4 The means of application of the management plan or policy** (For example through contractual agreements with landowners or resources users, traditional users' rights, financial incentives, etc.)

The means of application of the management plan are going to be decided and designed with the resource users and the interested stakeholders and will be developed during the management plan implementation process.

### **17.6.5 Indicate how and to what extent the local communities participate in the formulation and the implementation of the management plan or policy** [informed/consulted: decision making role etc.]

The local Samothrakian community plays the key role in formulating and implementing the management plan since such a plan has the aim apart from promoting nature conservation, to promote human livelihood. The key is to develop with the community and its representatives successful participation models for different stakeholder groups. Advisory forums will be organized on a regular basis so that the implementation process is monitored openly by any interested individual.

#### **17.6.6 The year of start of implementation of the management plan or policy**

The year of start of the implementation of the management plan will be the same year (hopefully 2011) when Samothraki Biosphere Reserve will be accepted and nominated by UNESCO.

**17.7. Financial source(s) and yearly budget:** [Biosphere reserves require technical and financial support for their management and for addressing interrelated environmental, land use, and socio-economic development problems. Indicate the source and the relative percentage of the funding (e.g. from national, regional, local administrations, private funding, international sources etc.) and the estimated yearly budget in the national currency]

The basic funding of the Samothraki Biosphere Reserve will be raised jointly by national and international resources. Funds can be raised by the Greek Government, the European Union as well as funds from private sponsors and voluntary contributions from communities for the implementation of management activities. The estimated yearly budget will be around 30000 – 50000 Euros, a sum which will be covering the annual allowances of two Biosphere Reserve Managers along with the covering of the expenses organization of several activities like seminars, field trips, visits to other biosphere reserves.

#### **17.8. Authority(ies) in charge**

##### **17.8.1. The proposed biosphere reserve as a whole:**

**Name:** ΔΗΜΟΣ ΣΑΜΟΘΡΑΚΗΣ/  
Municipality of Samothraki  
Samothraki, Chora, 68002  
Tel: (+30) 2551041218  
Web: <http://www.samothraki.gr/>  
<http://www.samothrace.gr/>

##### **17.8.2. The core area(s):**

[Indicate the name of the authority or authorities in charge of administering its legal powers (in original language with English or French translation)]

**Name:** ΔΗΜΟΣ ΣΑΜΟΘΡΑΚΗΣ/  
Municipality of Samothraki  
Samothraki, Chora, 68002  
Tel: (+30) 2551041218  
Web: <http://www.samothraki.gr/>  
<http://www.samothrace.gr/>

**17.8.3. The buffer zone(s)**

Name: ΔΗΜΟΣ ΣΑΜΟΘΡΑΚΗΣ/  
Municipality of Samothraki  
Samothraki, Chora, 68002  
Tel: (+30) 2551041218  
Web: <http://www.samothraki.gr/>  
<http://www.samothrace.gr/>

**18. SPECIAL DESIGNATIONS:**

[Special designations recognize the importance of particular sites in carrying out the functions important in a biosphere reserve, such as conservation, monitoring, experimental research, and environmental education. These designations can help strengthen these functions where they exist or provide opportunities for developing them. Special designations may apply to an entire proposed biosphere reserve or to a site included within. They are therefore complementary and reinforcing of the designation as a biosphere reserve. They are therefore complementary and reinforcing to designation as a biosphere reserve. Check each designation that applies to the proposed biosphere reserve and indicate its name]

**Name:**

( ) UNESCO World Heritage Site:  
No such designation for Samothraki Biosphere Reserve

( ) RAMSAR Wetland Convention Site:  
No such designation for Samothraki Biosphere Reserve

(X) Other international/regional conservation conventions/directives [Please specify]:

European Protected Areas: Natura 2000-Sites according to the Fauna-Flora-Habitats Directive  
(Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora)

European Protected Areas: Natura 2000 sites according to the Wild Birds Directive (Council Directive 79/409/EEC on the conservation of wild birds)

( ) Long term monitoring site [Please specify]  
No such designation for Samothraki Biosphere Reserve

(X) Other [Please specify]  
Archaeological Area

## **19. SUPPORTING DOCUMENTS (to be submitted with nomination form)**

[Clear, well-labelled maps are indispensable for evaluating Biosphere Reserve proposals. The maps to be provided should be referenced to standard coordinates wherever possible. Electronic versions are encouraged]

### **Annexes:**

#### **(A1) General location map**

[A GENERAL LOCATION MAP of small or medium scale must be provided showing the location of the proposed Biosphere Reserve, and all included administrative areas, within the country, and its position with respect to major rivers, mountain ranges, principal towns, etc.]

See ANNEX 1

#### **(A2) Biosphere Reserve zonation map [large scale, preferably in black & white for photocopy reproduction]**

[A BIOSPHERE RESERVE ZONATION MAP of a larger scale showing the delimitations of all core area(s) and buffer zone(s) must be provided. The approximate extent of the transition area(s) should be shown, if possible. While large scale and large format maps in colour are advisable for reference purposes, it is recommended to also enclose a Biosphere Reserve zonation map in a A-4 writing paper format in black & white for easy photocopy reproduction. It is recommended that an electronic version of the zonation map be provided ]

See ANNEX 2

#### **(A3) Vegetation map or land cover map**

[A VEGETATION MAP or LAND COVER MAP showing the principal habitats and land cover types of the proposed Biosphere Reserve should be provided, if available].

See ANNEX 3

#### **(A4) List of legal documents (if possible with English or French translation)**

[List the principal LEGAL DOCUMENTS authorizing the establishment and governing use and management of the proposed Biosphere Reserve and any administrative area(s) they contain. Please provide a copy of these documents, if possible with English or French translation].

As a principal legal document, the decision of Samothraki Municipal Council to support the application is being listed. See ANNEX 4

#### **List of land use and management plans**

[List existing LAND USE and MANAGEMENT PLANS (with dates and reference numbers) for the administrative area(s) included within the proposed Biosphere Reserve. Provide a copy of these documents]

There are no land use or management plans available for the time being.

#### **(A5) Species list (to be annexed)**

[Provide a LIST OF IMPORTANT SPECIES (threatened species as well as economically important species) occurring within the proposed Biosphere Reserve, including common names, wherever possible.]

See ANNEX 5

#### **(A6) List of main bibliographic references (to be annexed)**

[Provide a list of the main publications and articles of relevance to the proposed biosphere reserve over the past 5-10 years].

See ANNEX 6

## 20. ADDRESSES

### 20.1 Contact address of the proposed biosphere reserve:

[Government agency, organization, or other entity (entities) to serve as the main contact on the MABnet to whom all correspondence within the World Network of Biosphere Reserves should be addressed.]

**Name:** Municipality of Samothraki

**Street or P.O. Box:** Samothraki

**City with postal code:** Chora, 68002

**Country:** Greece

**Telephone:** (+30) 2551350800, (+30) 2551041218

**Telefax (or telex):** (+30) 2551041204

**E-mail:** [info@samothraki.gr](mailto:info@samothraki.gr), [samothrakimab@gmail.com](mailto:samothrakimab@gmail.com)

**Web site:** [www.samothraki.gr](http://www.samothraki.gr), [www.samothrace.gr](http://www.samothrace.gr)

### 20.2. Administering entity of the core area:

**Name:** Municipality of Samothraki

**Street or P.O. Box:** Samothraki

**City with postal code:** Chora, 68002

**Country:** Greece

**Telephone:** (+30) 2551350800, (+30) 2551041218

**Telefax (or telex):** (+30) 2551041204

**E-mail:** [info@samothraki.gr](mailto:info@samothraki.gr), [samothrakimab@gmail.com](mailto:samothrakimab@gmail.com)

**Web site:** [www.samothraki.gr](http://www.samothraki.gr), [www.samothrace.gr](http://www.samothrace.gr)

### 20.3. Administering entity of the buffer zone:

**Name:** Municipality of Samothraki

**Street or P.O. Box:** Samothraki

**City with postal code:** Chora, 68002

**Country:** Greece

**Telephone:** (+30) 2551350800, (+30) 2551041218

**Telefax (or telex):** (+30) 2551041204

**E-mail:** [info@samothraki.gr](mailto:info@samothraki.gr), [samothrakimab@gmail.com](mailto:samothrakimab@gmail.com)

**Web site:** [www.samothraki.gr](http://www.samothraki.gr), [www.samothrace.gr](http://www.samothrace.gr)



## Annex to Biosphere Reserve Nomination Form, February 2004

### MABnet Directory of Biosphere Reserves

#### Biosphere Reserve Description<sup>1</sup>

#### Administrative details

**Country:** Greece

**Name of BR:** Samothraki Man and Biosphere reserve

**Year designated:** *(to be completed by MAB Secretariat)*

**Administrative authorities:** Municipality of Samothraki

**Name Contact:** Municipality of Samothraki

**Contact address:** Samothraki, Chora, 68002, Greece

**Related links** (web sites): [www.samothraki.gr](http://www.samothraki.gr) , [www.samothraki.com](http://www.samothraki.com)

#### Description

##### **General description:**

The island of Samothraki is among the rare examples of island natural beauty in the Greek Aegean archipelago. Its total surface area of about 178 km<sup>2</sup> is mostly mountainous rising up to 1611m, making it the second highest island in the Aegean Sea. The mountainous terrain which kept large parts of the island inaccessible along with the relative isolation from the mainland (around 40km) created a variety of habitats that host a large number of species. Moreover the very early human presence on the island since prehistory created cultural landscapes in the lowland accessible areas, especially in the alluvial plain in the south west side, with traditional settlements, olive tree and grain cultivations that diffuse within the natural landscapes. Another unique characteristic of Samothraki is the abundance of water due to a winter cover of snow in high altitudes, cool freshwater flows year round in the numerous streams and rivers of the island across hundreds of waterfalls. This is a rare physical characteristic that is mostly absent from the rest of the Greek islands. The coast of the island is generally rocky and there is one sandy beach on the south side. Samothraki Island is a self governing municipality which belongs to the administrative division of Macedonia-Thrace. The Greek resident population numbers 2700 individuals who are mainly busy with agriculture, livestock keeping, fisheries, tourism and other services. Samothraki was a very important and sacred place in the ancient Greek world due to the existence of the Sanctuary of the Great Gods where holy rituals were performed. The island's history has left its marks with monuments of international interest. The basic land management units of the Biosphere Reserve consist of two core areas, one marine and one terrestrial, which are designated as NATURA 2000 sites, a buffer zone which is constituted from existing Archaeological zones, Wildlife Reserves and coastal protected zones. The transition zone is formed by the settlements and agricultural land.

**Major ecosystem type:** Mediterranean biogeographic region

**Major habitats & land cover types:** Intermittently flowing Mediterranean rivers, Endemic oro-Mediterranean heaths with gorse, Bracken fields, Juniperus oxycedrus arborescent matorral, Eastern Garrigues / Carrigues with Labiatae, Pseudomaquis, Aegean phrygana (*Sarcopoterium spinosum*), Balkan screes, Vegetated silicicolous inland cliffs with casmophytic vegetation, Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* –Residual alluvial forest, Eastern white oak woods and balkanic thermophilous oak woods, Hop-hornbeam, oriental hornbeam and mixed thermophilous forests, Oriental plane woods (*Platanion orientalis*), *Quercus ilex* forests, *Taxus baccata* woods, *Posidonia* beds (*Posidonium oceanicae*), Coastal Lagoons, Agricultural land (Olive trees, vines, serials), Settlements

**Location** (latitude & longitude): 40°28'35.55"N & 25°34'16.63"E

**Area** (ha): 22,853 ha

**Total:** 22,853 ha

<sup>1</sup> To be posted on the MABnet once the nomination has been approved. The numbers refer to the relevant sections of the nomination form.

**Core area(s):** Terrestrial: 9,603 ha, Marine: 5,055 ha

**Buffer zone(s):** 5,755 ha

**Transition area(s) (when given):** 2,440 ha

**Different existing zonation:** Municipal Spatial Plan

**Altitudinal range** (metres above sea level): 1611 m

### **Research and monitoring**

#### **Brief description:**

Ongoing abiotic research and monitoring activities include climatology and geothermal energy. Ongoing biotic research and monitoring mainly deals with the island's migratory and resident bird population. Moreover research is carried out upon the island's rare endemic plant species.

#### **Specific variables (please fill in the table below and tick the relevant parameters)**

<b>Abiotic</b>		<b>Biodiversity</b>	
Abiotic factors		Afforestation/Reforestation	X
Acidic deposition/Atmospheric factors		Algae	
Air quality		Alien and/or invasive species	
Air temperature	X	Amphibians	X
Climate, climatology		Arid and semi-arid systems	
Contaminants		Autoecology	
Drought		Beach/soft bottom systems	
Erosion	X	Benthos	
Geology	X	Biodiversity aspects	
Geomorphology		Biogeography	
Geophysics		Biology	
Glaciology		Biotechnology	
Global change		Birds	
Groundwater	X	Boreal forest systems	
Habitat issues		Breeding	
Heavy metals		Coastal/marine systems	
Hydrology	X	Community studies	
Indicators		Conservation	
Meteorology	X	Coral reefs	
Modeling		Degraded areas	X
Monitoring/methodologies		Desertification	
Nutrients		Dune systems	
Physical oceanography		Ecology	X
Pollution, pollutants		Ecosystem assessment	X
Siltation/sedimentation		Ecosystem functioning/structure	
Soil	X	Ecotones	
Speleology		Endemic species	X
Topography		Ethology	
Toxicology		Evapotranspiration	
UV radiation		Evolutionary studies/Palaeoecology	
		Fauna	
		Fires/fire ecology	X
		Fishes	
		Flora	X
		Forest systems	X

	Freshwater systems	X
	Fungi	
	Genetic resources	
	Genetically modified organisms	
	Home gardens	
	Indicators	
	Invertebrates	
	Island systems/studies	
	Lagoon systems	X
	Lichens	X
	Mammals	
	Mangrove systems	
	Mediterranean type systems	
	Microorganisms	
	Migrating populations	
	Modeling	
	Monitoring/methodologies	
	Mountain and highland systems	X
	Natural and other resources	
	Natural medicinal products	X
	Perturbations and resilience	
	Pests/Diseases	
	Phenology	
	Phytosociology/Succession	
	Plankton	X
	Plants	X
	Polar systems	
	Pollination	
	Population genetics/dynamics	
	Productivity	
	Rare/Endangered species	X
	Reptiles	X
	Restoration/Rehabilitation	
	Species (re) introduction	
	Species inventorying	
	Sub-tropical and temperate rainforest	
	Taxonomy	
	Temperate forest systems	
	Temperate grassland systems	
	Tropical dry forest systems	
	Tropical grassland and savannah systems	
	Tropical humid forest systems	
	Tundra systems	
	Vegetation studies	X
	Volcanic/Geothermal systems	
	Wetland systems	X
	Wildlife	

<b>Socio-economic</b>		<b>Integrated monitoring</b>	
Agriculture/Other production systems	X	Biogeochemical studies	
Agroforestry		Carrying capacity	
Anthropological studies		Conflict analysis/resolution	
Aquaculture		Ecosystem approach	
Archaeology	X	Education and public awareness	
Bioprospecting		Environmental changes	
Capacity building		Geographic Information System (GIS)	X
Cottage (home-based) industry		Impact and risk studies	
Cultural aspects		Indicators	
Demography		Indicators of environmental quality	
Economic studies		Infrastructure development	
Economically important species		Institutional and legal aspects	
Energy production systems		Integrated studies	
Ethnology/traditional practices/knowledge		Interdisciplinary studies	
Firewood cutting	X	Land tenure	
Fishery		Land use/Land cover	
Forestry		Landscape inventorying/monitoring	
Human health		Management issues	X
Human migration		Mapping	
Hunting		Modeling	
Indicators		Monitoring/methodologies	
Indicators of sustainability		Planning and zoning measures	
Indigenous people's issues		Policy issues	
Industry		Remote sensing	
Livelihood measures		Rural systems	
Livestock and related impacts		Sustainable development/use	X
Local participation		Transboundary issues/measures	
Micro-credits		Urban systems	
Mining		Watershed studies/monitoring	
Modeling			
Monitoring/methodologies			
Natural hazards			
Non-timber forest products			
Pastoralism			
People-Nature relations			
Poverty			
Quality economies/marketing			
Recreation	X		
Resource use			
Role of women	X		
Sacred sites			
Small business initiatives			
Social/Socio-economic aspects			
Stakeholders' interests			
Tourism			

# “Samothraki Man and Biosphere Reserve Nomination form”

## ANNEXES

