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La Palma was the first island in the Canary Archipelago to receive the Biosphere Reserve distinction. The property known as “El Canal y Los Tiles”, located in the north-eastern part of the island of La Palma and with a surface area of 511 hectares, was acquired by the National Institute for the Conservation of the Nature (ICONA) in 1977. ICONA stated the Special Regulations for the protection of El Canal y Los Tiles Forest in a Resolution dated November 16th, 1982, specifically forbidding indefinitely any economic exploitation of its natural resources.

The following year, on June 30th, 1983, UNESCO announced the approval of El Canal y Los Tiles Biosphere Reserve and included it in the World Biosphere Reserve Network, under the MaB (Man and Biosphere) Programme.

The original objective of the El Canal y Los Tiles Biosphere Reserve was to protect the Macaronesian Laurel Forest. However, the role of Biosphere Reserves rapidly evolved, transforming them into pioneering examples of sustainable development. This change created obstacles when fulfilling the MaB requirements for Biosphere Reserves. Even though this Canary Biosphere Reserve possessed undeniable territorial values for the conservation and study of habitats, the designated territory prevented three functions from being carried out: conservation, logistic support and development. Only two of these functions were partially fulfilled under the reduced space of the original Biosphere Reserve.

An extension of the protected area was proposed in the 1990’s. The MaB Programme officially approved it in 1997. The new Biosphere Reserve included 13,931.15 hectares, which represented 19.67% of the island, approximately 27 times larger than the earlier wooded area. The original 511 hectares maintained its role as an emblematic part of the Reserve and its core area. Nevertheless, the protected space now covers an entire district, from the summit to the coast.

The extension of the Reserve brought about a change in its name that was changed into “Los Tiles Biosphere Reserve”. The reference to the original property was removed since it now only accounted for one section of the territory. The new Reserve represented a significant portion of the habitats of La Palma, with all its diversity which is so evident when travelling from the coast to the summit. In addition, the role of the local residents in the new comprehensive development model within the Biosphere Reserve could not be forgotten.

There are several reasons why the Reserve was extended. Some are due to endogenous factors, such as the confirmation that the goals to be satisfied in the MaB Programme in such a limited territory were difficult to meet. Others were exogenous, and they can be summarized in two parts. First, the new vision of the Programme as defined in the Seville Conference concerning strategy, and second, the joint statement by new island new territories, as in the case of Lanzarote and Minorca, both Biosphere Reserves.

La Palma society has matured towards a greater understanding of its natural environment and a progressive use of its resources since the original Biosphere Reserve distinction in 1983. The level of civic participation and the channels of information on the objectives of the Biosphere Reserves have simultaneously increased in an equally spectacular way during the period.

Under this framework, this beneficial effect impacted the rest of the island territory, and, consequently, the Meeting of the Bureau of the International Co-ordinating Council of the UNESCO Programme on Man and the Biosphere (MaB), held in Paris on November 6th, 2002, will be remembered as the day when the extension of the Los Tiles Biosphere Reserve was approved to include the entire island territory, under its new name “La Palma Biosphere Reserve”.

This declaration of a complete island territory as a Biosphere Reserve completely changed the perspective with respect to the original version. In such areas, reduced size, widespread fragility and complicated coexistence of conservation and socioeconomic development do not allow a further division of territory for its conservation, but rather a comprehensive response is needed for such a complex situation. International approaches have shown that this approach is evidently one of the characteristics of small and mid-size islands, where territories and activities are interrelated in a constant and changing mix: In this setting it is very difficult to ignore island spaces of a certain size.

In addition to that, advances in management and development within the new reserve, together with the MaB Programme strategy, began to quickly influence the rest of the island. In fact, in the last three years, a process of assimilation has taken place in which strategies and initiatives oriented towards sustainable development, generated within or outside the Reserve, have adopted the formulation of initiatives, plans and programs which coincide with the Biosphere Reserve strategy outlined.

This phenomenon is clearly evident in key programs and initiatives that affect the entire island, but are in accordance with the premises of the MaB Programme, such as:

- The Leader+ Rural Development Program. This Programme is almost exclusively focused on the appraisal of natural and cultural resources which are included in areas of community interest under the Natura 2000 Network framework.
- The adoption of the La Palma Sustainable Development Plan (Island Government of La Palma).
- The rural tourism strategy which is now fully in place on the island, based on innovation, diversification and environmental and cultural integration.
- Developed advances in the system of public use of natural areas that have provided experience and created a clear regional reference for other territories.
- The recovery of traditional products and the incorporation of new ecologically-friendly methods which have allowed La Palma to serve as a strong model for

traditional productive sectors, linked to conservation and the landscape, by means of the qualification of its products.

- The important function of PLASIA (La Palma Plan for Environmental Information and Awareness) (Island Government of La Palma).
- The development of a very innovative Solid Waste Plan.
- The Hydrological Plan of the island can not be ignored. This Plan plays an important role in the functions of the newly defined transition areas.

La Palma Biosphere Reserve Action Plan

The La Palma Biosphere Reserve prepared and is carrying out an action Plan that provides specific proposals to meet the challenges present in the areas of conservation, development and logistic support. This Plan reflects the diagnosis of the current situation, as well as high-priority recommendations and actions, and allows the Plan to act as an instrument of public utility for the reorientation, promotion and permanent improvement of the Island Strategy for Sustainable Development.

The intent of the Action Plan is to identify the fundamental aspects which will aid in the advancement of attaining the objectives of Sustainable Development, by approaching its three contributing factors: environmental, economic and social, according to different axes:

CONSERVATION axis

Conservation

The La Palma Biosphere Reserve is dedicated to protecting its biodiversity. The existence of the Island Biodiversity Strategy is one tool which allows existent information to be organized and the establishment of priorities for the use and management of biological diversity of wild, domesticated or cultivated species.

PAISAPAL

It is an acronym for the Landscape Plan for the Island of La Palma. The La Palma Biosphere Reserve is developing PAISAPAL in order to guarantee the conservation, development and valuation of the island landscapes. Thus, it is a key important for territorial and environmental management for the island.

This document will serve as a guide and a management tool for any actor or agency with interests in the island landscape. The Plan covers areas ranging from basic environmental protection to tourist activity promotion, joining Public Administrations, key strategic sectors, diverse social groups and the local population.

Applied Research: Island Biodiversity, Singularity And Productivity

The La Palma Biosphere Reserve is developing this project which will contribute to the conservation of the rich natural and cultural heritage found on the island.

The research activity includes determining existent island species and cataloguing areas of interest which will assist in establishing priorities that will guarantee the conservation of the natural environment of the island.

Observatory of Sustainability

The Island Consortium of the La Palma Biosphere Reserve has established as one of

its main lines the construction of Indicators of Sustainable Development. These indicators will serve as a control and follow-up tool at the municipal and island level. The Observatory not only gathers, synthesizes and updates information on the current conservation conditions of natural resources, the environment and the historical heritage of the island, but also seeks to stay current with all of the tendencies that affect the economic and social sustainability of the island.

The indicators of sustainable development that are compiled at the Island Consortium are valuable because of their general interest for the local community and also because it serves as a working tool with clear applications for political and other acting institutions in the island. They not only provide information, but also allow statistical data to be easily available, well documented and completely up-to-date.

DEVELOPMENT AXIS

Programme of Quality Economies

The La Palma Biosphere Reserve is currently developing a programme of Quality Economies which is not only interested in informing the local population of the importance of the distinction of the island territory as a Biosphere Reserve, but also to value, differentiate and promote local resources, within the island and away from it, emphasizing their important cultural components, as seen in the case of agricultural products.

The island population has always known how to harvest, transform and produce raw materials. These special efforts have endowed certain peculiarities in these products, where their evident quality stands out. However these resources which so typically characterize these efforts are insufficiently exploited and have barely been marketed. This situation, when added to the progressive abandonment of relatively unproductive areas, contributes to the scarcity of various raw materials as well as to the negative impact on the local economy.

Several objectives have been established within the programme including actions that have been developed, including: recovering unproductive areas, promoting the creation of local employment, and making headway toward new markets where the quality and origin of the islands products is supported and endorsed by the La Palma Biosphere Reserve.

Sustainable Tourism

The Strategic Planning document of the island of La Palma and the Declaration of Québec on Ecotourism are used as a base by the La Palma Biosphere Reserve to work on strategic axes that seek to incorporate the principles of sustainable tourism in connection with the economic, social and environmental impacts of tourism. This effort has received external support from the Instituto de Turismo Responsable (ITR: Institute of Responsible Tourism in English)

The La Palma Biosphere Reserve has been working since 2005 on attaining a declaration of the island as a Sustainable Tourism Destination. These efforts, combined with those by the ITR, have led to the promotion of the certification of hotels, apartments, rural tourism houses, restaurants, visitor centres, museums and leisure-time activity companies. The certifications are awarded by the System of Responsible Tourism.

This system of certification by the ITR has been endorsed by the MaB Committee at

UNESCO. UNESCO recognizes how the island has offered incentives for responsible environmental management of the establishments, as well as for the efficiency of the services and also because it embraces other fundamental aspects of responsible management.

LOGISTICAL SUPPORT AXIS

Participation

The La Palma Biosphere Reserve has led the way in the application of the Local 21 Agenda process in the island since 2002. Its leadership includes collaboration with 14 townships in the program. When the initiative of the programme is under way in each and every island township, then the methodology and philosophy of the Local 21 Programme is applied to different scales throughout the island territory, developing distinct Sectoral Agendas (scholastic, women, youth, tourism, cultural...).

Information Society

The La Palma Biosphere Reserve is actively seeking local businesses to make important advances by entering into the information society by offering different programs, leading to an improvement in their competitiveness and at the same time allowing them to appreciate the singularity of their resources.

International Cooperation

The La Palma Biosphere Reserve is working with other regions to pursue a variety of objectives. Development of local populations, the protection of the environment, the conservation of natural resources and the strengthening of organizational and institutional skills, all leading to improved planning and local management. The underlying idea is to generate a real impact on human development, compatible with the conservation of natural resources and the protection of the environment, which will help meet assumed responsibilities in international forums of this nature.

Training

The aim of the annual training activities by the La Palma Biosphere Reserve covers several sectors by offering a varied selection of courses that can be pursued in one of two ways: traditional classes or web-based learning at www.lapalmabiosfera.es. This approach by the Biosphere Reserve offers opportunities for the improvement in training and island competitiveness by embracing different matters that are directly related with the three bases of Sustainable Development: social, economic and environmental.

Guides of Good Environmental Practices

Good environmental practices (GEP) are one of the most effective instruments for the environmental improvement of a company. They are based on carrying out a series of measures whose purpose is to improve the environment in the work place, reducing the systematic or accidental losses of materials, in the form of pollutants (waste, emissions or dumpings), thus increasing productivity, without needing to introduce changes in technologies, raw materials, or products, but instead focusing on human and organizational factors in their production.

The contents included in these guides adopt a comprehensive, outreach focus, while maintaining a scientific and normative accuracy. At the same time they rely on other

manuals and documents produced by different institutions. In this way it is possible to deepen our understanding of environmental behaviours that workers should generally observe, propitiating a change of attitudes while carrying out their professional activities.

The Starlight Initiative

The island of la Palma has become an international reference within the World Biosphere Reserve Network. Local projects that can be applied to other islands or Biosphere Reserve territories as well as proposals with origins from the island that have been adopted in different networks or international forums where the island of La Palma is present have contributed to its worldwide prestige.

A clear example is seen in the important role that the La Palma Biosphere Reserve has played as the starting point of the International Starlight Initiative in Defence of Night Sky Quality as Mankind's Scientific, Cultural and Environmental Right.

This International Initiative in Defence of the Quality of the Night Skies as Mankind's Scientific, Cultural and Environmental Right has as its main objective the preservation and restoration of visible space which allows us to access starlight. The goal is to reinforce the importance of clear skies for humankind and promoting and extending the value of this heritage which is in danger and clearly affects science, education, culture, tourism and quality of life.

There is no doubt about the roles played by Biosphere Reserves as ideal sites to apply actions which coordinate conservation and development, taking advantage of the knowledge and participation of local populations.

The La Palma Biosphere Reserve has taken a front-seat role among the Biosphere Reserves, MaB Committees and Focal Points of the World Network with regard to the Starlight Initiative, first, as a laboratory for sustainable development, a clear example of the defence of the clarity of the night skies and the threatened right of firmament observation, in addition to seeking guarantees for a common asset under attack and the defender of an improved concept of quality of life for citizens. Second, because of its natural qualities and its historical and determined defence of the sky, an unique framework for the attainment of the objectives established in the initiative.

Why La Palma?

- The Roque de Los Muchachos Astronomical Observatory is located on the island of La Palma. It is one of the largest astronomical complexes of its kind in the world and is the best observatory in all of the Northern hemisphere for astronomical observation.
- La Palma has been declared a UNESCO Biosphere Reserve. Biosphere Reserves are designed to be world laboratories for scientific development, protection of natural resources (where the sky is included for the first time) and sustainable development. La Palma, with the backing of the World Biosphere Reserve Network, has strongly positioned itself as a defender and promoter of territories where skylight needs to be protected.
- La Palma is one of the groundbreaking territories when it comes to applying the

Sky Law. Eighteen years ago a specific law was promulgated to protect sky quality for astrophysics observatories, leading to spectacular international advances. It is the 31/1998 Law, dated October 31, and concerns the protection of Astronomical Quality of the Observatories belonging to the Instituto de Astrofísica de Canarias.

- The GTC (Gran Telescopio de Canarias) has recently been inaugurated on La Palma. It possesses the most advanced characteristics of any telescope in the world. This project is considered to be the first international collaboration where Spain is at the forefront and where a project of this dimension takes place in Spanish territory.

The objective of this initiative is to reinforce the importance of clear skies for humankind, spreading and enhancing this endangered heritage's value of for science, education, culture, tourism and, of course, quality of life. Developing the clear sky initiative within the World Network of Biosphere Reserves is an important objective that the island, as a Biosphere Reserve, must focus on and achieve, being them laboratories for science and sustainable development, and taking into account their capacity to act as international references in the appreciation and valuation of environmental resources. We must not forget the three functions that Biosphere Reserves must fulfil, and that an important part of the Starlight Initiative clearly satisfies the UNESCO mandates on these three basic functions.

The *Conservation* function, since the access to this resource is seriously threatened by the unstoppable increase in light and radio-electric pollution, and atmospheric contamination. This resource can contribute knowledge and unlimited benefits for current civilization. All of these factors have a special incidence in the quality of night vision of the firmament.

It was only a few years ago when we began to realize that the clarity of the sky also has a decisive influence in the conservation of biodiversity and in natural ecosystems. We usually forget that more than half of all living creatures are nocturnal; as such, the loss of quality in the night sky will have progressive and unpredictable repercussions in the balance of the biosphere.

The progressive occupation of territory forces habitats, ecosystems and environmentally sensitive communities to be exposed to the impact of artificial light at night and to the direct effects of the atmospheric contamination that reduce the quality of the night sky. Our present knowledge of the complete range of consequences derived from the loss of quality of the night sky is still limited. It is necessary to become more aware and responsible of the need to further research and develop a scientific methodology capable of evaluating the reach of these phenomena.

The right to star watching and a clear sky represents something that goes beyond the guarantee of the development of science or the enjoyment by people, since it also implies a commitment to the conservation of the environment and the possibility of having continuous access to technological, economic and cultural benefits. It is also, after all, a promise for future generations.

The *Development* function, since tourism, one of the most important, controversial, and innovative activities on the planet, can be transformed into the focus/vector/point of a new alliance in favour of the quality of the night sky. The vision of a clear sky can and

should be incorporated as a resource in tourism for the development of specific products of tourism such as knowledge or scientific tourism. However it is also easily forgotten that the attraction of a site determines the quality of a tourist destination when considering its landscape component. On occasions, the starry sky is part of the same essence of the tourism product, such as the case with Northern Lights, multiple nautical packages of sailing by the stars, pilgrimage routes or that of the innovative visions of tourism in deserts.

The cultural heritage associated with astronomy also constitutes the motivation of many travellers nowadays. They are already many places and destinations consolidated in heritage related with astronomy, including archaeoastronomy heritage, an excellent example of attracting tourism.

Observatories such as Roque de Los Muchachos and the areas where they are located are also candidates for the development of innovative and culturally enriching tourist activities, where you can cleverly coordinate the visit with the careful protection of extraordinary natural conditions of those places and their quality for astronomical observation. Astronomy and astrophysical observation make up one of the main scientific, cultural and tourist assets of the Island of La Palma, declared a Biosphere Reserve by UNESCO, a tourist destination that has thought this way for the future.

Logistical function, since many of the important advances in the development of communications, of navigation systems and even in the advanced medical technologies of image projection, can be attributed to the development of modern astronomy.

Today we can consider the universe as a laboratory that stores infinite knowledge waiting to be discovered. Observation of the universe produces new scientific achievements and technological benefits each day. Hence, the role of astronomy and of the astrophysics observatories must be contemplated under an expanded vision.

Astrophysics development can have a direct impact on the increase of the technical and scientific capacity in many areas of the world, something that is increasingly obvious and essential in all the strategies of sustainable development.