

**UNITED NATIONS UNIVERSITY  
INSTITUTE OF ADVANCED STUDIES  
(UNU-IAS)**

**Regional Centres of Expertise (RCE) on Education for  
Sustainable Development**

**Proposal for the constitution of the  
RCE “ATLANTIS”**

***REGIONAL CENTRE FOR EDUCATION AND RESEARCH ASSOCIATED TO  
SUSTAINABILITY IN THE AZORES, PORTUGAL & MACARONESIA***



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## **Macaronesia**

Macaronesia includes the groups of islands in the North Atlantic Ocean off the coast of southern Europe and northern Africa: Azores and Madeira (Portugal), Canary Islands (Spain) and Cape Verde (Cape Verde). They are volcanic in origin and have a unique biogeography with many endemic species. Laurel-leaved forests once covered most of the Azores, Madeira, and parts of the Canaries. These forests resemble the ancient forests that covered the Mediterranean basin and northwestern Africa before cooling and drying of the ice ages.

Felling of the forests, clearing vegetation for grazing and agriculture, and the introduction of exotic plants and animals has displaced much of the native vegetation. Only small pockets of the Laurel-leaved forests remain. Many of the other endemic species of the islands are endangered or have already become extinct.

These islands also share other similarities. Their economies are primarily based on agriculture, fisheries and tourism. They have similar issues of isolation, and vulnerability to negative impacts of major influx of tourists. Emigration between islands as well as to North America and Europe is a significant social factor of life on these island chains. Students move off as well as between the islands for higher education and the universities collaborate as well as engage in research projects that cover parts and the entirety of this region.

This proposal focuses only on the nine islands of the Azorean archipelago, rather than the entire Macaronesia region as the initial development of RCE Atlantis involves only these islands. Region-wide sustainable development issues mean that the Azorean-based members identified in this proposal are involved in other collaborative efforts with organizations from Madeira, the Canary Islands and Cape Verde. We expect that this RCE will later include members from these other island archipelagos, hence our use of “Atlantis”, rather than Azores within our name.

## **Azores: Geographical Scope and Major Characteristics**

Discovered by the Portuguese in the early fifteen century and populated less than 100 years later, the archipelago of the Azores is located in the Atlantic Ocean, approximately 1500 km from Lisbon and 3900 km from New York. The archipelago has nine islands divided into three groups, the Western Group with Flores and Corvo, the Central Group with Terceira, Graciosa, São Jorge, Pico, and Faial, and the Eastern Group with São Miguel and Santa Maria (Figure 1).

The Azores, like Madeira, is an autonomous region of Portugal with a fair degree of political and financial leeway. Both regions have been recognized as ultraperipheral by the European Union, considering their “conditioning structural or limiting factors of the respective dynamics of economic and social development - distance, insularity, size, topography and climate” (QREN, 2007).

The Azores are classified as a NUTS II region under the European Nomenclature of Territorial Units System. The region has 19 municipalities with 156 parishes, covering a total land area of

2332.74km<sup>2</sup> (2.5% of Portugal). The largest islands are São Miguel (746.79km<sup>2</sup>) and Pico (447.74km<sup>2</sup>) and the smallest Graciosa (61.17km<sup>2</sup>) and Corvo (17.12km<sup>2</sup>). All islands are served by an airport and one or more sea ports (SREA, 2007).

In 2006 the Azorean population was estimated at 243,000 representing 2.4% of the Portuguese population. The most populated islands are São Miguel (54.6%) and Terceira (22.9%), which also have the higher population density (178.2 and 139.1 respectively). With 104.7 inhabitants per square kilometre, the Azores had a low population density when compared to the mainland (113.6 inh/km<sup>2</sup>). The crude rates of increase and natural increase are low but positive and higher than the mainland values. The population shows some ageing but at a lower ratio than in the mainland (64.4 vs. 114.2) (data from SREA, 2007).

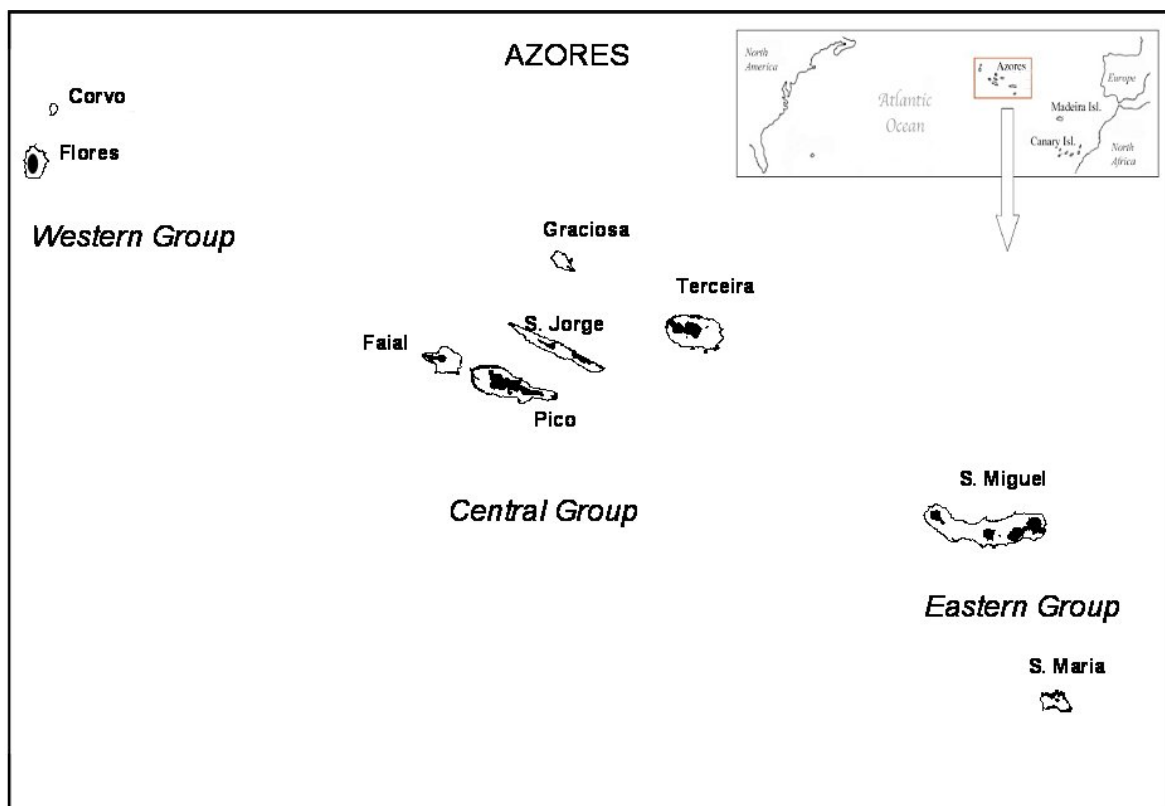


Figure 1- Map of the Azores

### ***Travel, Emigration and Immigration***

From the beginning of Azorean history, the islands served as supply bases and stopovers for ships in their long ocean voyages to the New World or from Africa and India. They were populated by people from the poorer areas of Portugal and by Flemish settlers. The isolation of the islands has often meant that visitors have stayed for extended periods and engaged in significant cultural exchange with some locals. However, other Azoreans may not have left the island on which they were born nor encountered anyone beside their family and neighbours within less than a 50 km radius.

Although there have not been many Canadian or American tourists coming to the Azores, there have been long-standing ties between North America and the Azores due to heavy immigration to Toronto, Boston and Oakland in particular as well as the presence of a US military base on the island of Terceira. Azorean communities in the USA and Canada are quite important, for example, for Azores Day 2009, the regional government went to Toronto for the official celebration which moves location every year. Carlos César, President of the Regional Government of the Azores said that "in truth, being Azorean is a state of mind, a way of being and that it is therefore possible to live "açorianidade" (azoreaness) outside or inside of our islands." Music, dance and food traditions are strong on the islands as well as within the immigrant Azorean communities elsewhere.

The natural beauty of the region is one of its key features and main attraction for visitors. Farming is characteristic of the region with as many cows as people in the islands and milk production has doubled in the last ten years. But there is growing conflict between this activity and environmental protection. Pollution is degrading aquatic ecosystems (e.g., lagoons in São Miguel). Tourism is rising with an increase in lodging capacity and other services. In Faial and Pico there are approximately 25 companies dedicated to whale watching and other activities. Several daily flights connect the Azores to the mainland. Typical regional products and religious festivals are still strong in communities with or without tourists.

Several protected areas were created in the Azores in the last three decades, by regional initiative or as a consequence of the application of the Habitats and Birds Directives from the European Union. Recently the Azorean regional government has changed the management of these areas so that each island manages their various areas together as a Natural Island Park.

#### **Santa Maria Natural Island Park:**

- Reserva Natural da Baía da Maia
- Reserva Natural da Baía dos Anjos
- Reserva Natural da Baía da Praia
- Reserva Natural da Baía de São Lourenço
- Reserva Natural dos Ilhéus das Formigas
- Monumento Natural Regional da Pedreira do Campo
- Paisagem Protegida de Interesse Regional Barreiro da Faneca e Costa Norte
- Reserva Natural Regional Figueiral-Prainha

#### **São Miguel Natural Island Park:**

- Reserva Natural da Lagoa do Fogo.
- Reserva Natural do Ilhéu de Vila Franca.
- Paisagem Protegida das Sete Cidades.
- Monumento Natural e Regional da Caldeira Velha.
- Área Protegida para a ZPE do Pico da Vara

#### **Terceira Natural Island Park:**

- Paisagem Protegida do Monte Brasil
- Monumento Natural Regional do Algar do Carvão
- Monumento Natural Regional das Furnas do Enxofre

- Reserva Natural da Alagoa da Fajãzinha
- Área Protegida para a Zona SIC da Serra de Santa Bárbara e Pico Alto

**Graciosa Natural Island Park:**

- Monumento Natural da Caldeira

**São Jorge Natural Island Park:**

- Área Ecológica Especial da Lagoa da Fajã da Caldeira de Santo Cristo
- Reserva Natural Parcial da Lagoa da Fajã da Caldeira de Santo Cristo
- Reserva Natural Parcial do Ilhéu do Topo

**Faial Natural Island Park:**

- Paisagem Protegida do Monte da Guia
- Reserva Natural da Caldeira do Faial
- Parque Natural Regional do Canal e Monte da Guia

**Pico Natural Island Park:**

- Reserva Natural da Montanha do Pico
- Paisagem Protegida de Interesse Regional da Cultura da Vinha da Ilha do Pico
- Monumento Natural Regional da Gruta das Torres

**Flores Natural Island Park:**

- Área Protegida para a Zona SIC do Planalto Central

**Corvo Natural Island Park:**

- Parque Natural Regional Marinho do Corvo

Corvo, Graciosa and Flores are also classified as UNESCO Biosphere Reserves.

In 1983 UNESCO classified as a World Heritage site the central zone of the Town of Angra do Heroísmo in Terceira, for its architecture and historic relation to the discovery period. In 2004, the landscape of the Pico Island vineyard culture also was classified as World Heritage because it illustrates a unique response to a hostile environment that resulted in a livelihood and a quality product.

***Relationship between Cultural and Natural Heritage***

Settlers first arrived on the islands during a time when mythological tales from the Atlantic Ocean were still prevalent. In this context, they interpreted their new environment using familiar symbols from their earlier places of residence. For example, their religious acts, such as rituals and festivities still respect the cosmic timings of the Equinoxes and Solstices, from the pre-historical Europe. Although their new home was surrounded by sea, most of the settlers persisted in developing agricultural rather than fishing activities. Today, the ocean is still a sacred (although strange) space where boat travel is not very common to most of the population, but where religious acts happen. What defines the actual religious life on the Azores is a combination of the European pre-historical heritage, more or less successfully covered by

Catholic Christian rituals, revealing the emergence of localisms tied to specific situations, like catastrophes due to volcanism. On Pico Island, for example, Saint Lourdes is the patron saint of whaling and her protection is still sought through a blessing by the local priest and placing her statue on small fishing boats.

While the government began creating areas for protection of natural biodiversity in 1972, and much current tourism is aimed at promoting this natural heritage, there were no indigenous peoples on the islands and none of the settlers developed any specific forest based cultures. Montanheiros, which now also promotes nature hikes and photography, and bird watching for the local population was founded as a speleological based organization in 1963 on Terceira. It was not until the 1990s, that NGOs for the protection of nature began appearing in the Azores (Carqueijeiro, 2005; Rodrigues, 2007). As such, cultural heritage seems to take priority over natural heritage for the general public. Azorean farmers practice environmental conservation not because of specific concerns for nature, but for preserving their cultural and familial heritage which is linked to the land.

## Sustainable Development in the Azores

A defining characteristic for sustainable development issues in the Azores, and the larger Macaronesia region, is that this region is made up of islands located far into the Atlantic Ocean with significant distances between the different groupings of islands as well as between individual islands.

A SWOT analysis (strength, weaknesses, opportunities and threats) for sustainable development was developed by the participants in the Regional Plan for the Sustainable Development of the Azores base studies by the University of Minho and the Regional Azorean Secretariat for the Environment and the Sea. The final set of driving forces for the Azores region is presented in Table 1.

Table 1 – Driving forces for the Azores Region (adapted from Lobo et al., 2005)

Positive	Negative
<p><i>Strategic location:</i> in the middle of the Atlantic Ocean, between Europe and America. There is an extra incentive for the use and development of new information and communication technologies that can improve communication and minimize the peripheral factor.</p> <p><i>Geothermal resources:</i> of high enthalpy, due to the islands volcanic origin. It is an added value in a global economy based on fossil fuels.</p>	<p><i>Transportation:</i> airplane fares are considerably high affecting the mobility between the islands and the connections outside the region.</p> <p><i>Ultra-periphery:</i> the isolation, the geographic fragmentation in nine small islands and the typical problems that affect islands are difficult to overcome. The islands have different dimensions which add a problem for balanced development.</p> <p><i>Education:</i> the low level of qualifications at</p>

<p><i>Young population:</i> important in a national and European context of accelerated aging.</p> <p><i>Regional products:</i> of natural origin, typical and of high quality, such as the agricultural ones (pineapple, tea, wood products), derived from cattle (milk, cheese, meat), fish (e.g., tuna), mineral and thermal waters, etc. All with high commercial potential and added value for tourism activities.</p> <p><i>Natural heritage:</i> unique landscapes of great beauty, balanced with human use; biodiversity; strong presence of the sea with excellent conditions for leisure activities and commercial exploration of resources.</p> <p><i>Cultural heritage:</i> characteristic and diversified culture with festivities, traditions, gastronomy, ethnography with strong expression in the local communities and associations. UNESCO World Heritage sites: Angro do Heroismo historical centre and the cultural landscape of the vineyards in Pico.</p> <p><i>Diaspora:</i> a result of an emigration past, mainly to USA and Canada. The region can gain socially and economically with connection to the emigrant community.</p> <p><i>European Union funds:</i> a chance to support the strategic sectors of the Azorean society and economy.</p> <p><i>Farming:</i> of strong socio-economic importance, increased quality of regional production of that is gaining in the national context.</p>	<p>different levels is caused by deficiencies in the educational system. This problem is not exclusive of the region, but constitutes a national problem. There is a lack of qualified people in some areas and islands.</p> <p><i>Pressure on the natural resources:</i> wastewater without adequate treatment, deficient solid waste systems, lack of enforcement and application of legal instruments. Urban pressure is also rising in some of the islands.</p> <p><i>Geologic risks:</i> medium/high probability of seismic activity and earthquakes due to the volcanic origin of the islands.</p> <p><i>Social exclusion:</i> some situations of poverty and exclusion persist despite significant improvements in the last years.</p> <p><i>European Union Policy:</i> can interfere with the development process, not only in terms of funds for the region, but also with new strategic options on fisheries or on agriculture policy (e.g., milk quotas).</p>
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Additional weaknesses and threats were identified during the April 20th 2009 initial RCE Atlantis meeting.

- Biodiversity and habitat loss
- Pollution
- Depletion of natural resources
- Low diversity in economic activities



- Dependence on the mainland
- Loss of cultural identity
- School dropout and poor training
- Low public participation in civil society
- Lack of economic initiatives
- Land planning issues
- Lack of a regional development strategy
- Low personal valuing and self-esteem
- Low accessibility
- Loss of population (emigration)
- Unemployment
- Health care
- Dependence on government subsidies
- Lack of professionalism

Energy dependency is an important local issue. Researchers from the MIT Portugal programme have teamed up with several Portuguese universities, to include the Azores in the worldwide Green Islands project. The goal of the Green Islands Initiative is to make two or more islands (initially São Miguel and Flores) energy self-sufficient by 2018, and to develop technologies that could serve as models for energy sustainability in Portugal and in the wider world.

The Green Islands Project will be collecting detailed information on how the Azores currently uses energy, how they might use it in the future, and the characteristics of the islands' numerous indigenous energy resources. Half of São Miguel's energy production is currently green, coming mainly from geothermal sources and in Flores there is a growing amount of hydro and wind energy being produced.

## Education in the Azores

Enrolment in formal education has been dropping in recent years; as a consequence, classes have become smaller, thus creating better pedagogical conditions, with a higher teacher/student ratio (DREP, 2008). There has also been a trend toward higher success rates and transition between education cycles (DREP, 2008) although the region still has a lower prevalence of students completing secondary education than in the mainland (SREA, 2007).

Table 2 - Educational institutions, students and teachers/other staff by education cycle (from SREA, 2007).

	Pre-primary Education	1 <sup>st</sup> cycle	2 <sup>nd</sup> cycle	3 <sup>rd</sup> cycle	Secondary Education and Professional Schools	Higher Education
Educational institutions	251	210	28	41	57	3
Enrolled students	9006	16067	7987	11117	9371	13193
Teaching and other staff	3342	2176	1117	1745		2716

Bedo *et al.* (2007) have studied the return on education investment in the Azores and verified that despite a growing tendency for achieving the 3<sup>rd</sup> cycle of education and higher[1] (9<sup>th</sup> grade), formal education levels are still low, with 57% of hired workers not having more than the 2<sup>nd</sup> cycle and 78% with less than the 3<sup>rd</sup> cycle (civil servants not included). The same authors found that the Azores are characterized by low levels of formal education and by low wages, in comparison with mainland Portugal, and that from the individual's perspective, the investment in education has a return rate of approximately 8%.

Some groups are particularly affected by low education levels associated with low-valued or unrecognized work. The wives and daughters of fishers traditionally work long hours in the preparation of fishing gear and other onshore fisheries work, but their work is recognized as only 'helping out'. The UMAR Project and its associates have worked extensively on recognizing and dignifying the role of these women. In their book, Sempere and Sousa (2008) characterize and quantify this work. They verify that 47% of these workers only concluded the 1<sup>st</sup> education cycle and that only 20% achieved the 2<sup>nd</sup> level, when in Portugal the 3<sup>rd</sup> level is compulsory. 73% of these women had no professional training after school. 75.8% of them work from 3 to 12 hours per day but most (67.3%) are paid in cash or fish or have their wages paid to their husbands (32%).

Rodrigues (2007) found that school children (ages 9-10 years old) from the island of Terceira had complex understandings of the environment, however, the sea and marine life were rarely mentioned in any of the multiple images, stories and discussions with which the children and researcher engaged. Kindergarten teachers of the Azores rarely included local history content on their lessons and many of these teachers felt they needed more information concerning the sea and sea life (Pacheco, 2008).

## **Regional Challenges**

### ***Social Challenges***

Specificity and isolation are major challenges on these small islands. There is a double insularity (distance and isolation to the European continent, but also between the archipelago's islands themselves). The actual geographic isolation limits the economies of scale. One consequence is the large relative weight of government on the local economy. The close economic base, based on a limited number of economic activities (mainly livestock, fisheries and tourism) weakens the economy. There is strong dependence on other countries for markets, investment and transport. In the Azores there is a strong dependence on the mainland, as there are scarce natural resources. There is also a dependence on the mainland for major health care and there is a lack of doctors on the islands.

The small size of the population carries several problems including lack of human resources, specifically those highly qualified. The limited technical capacity may be an obstacle to development. Although the Azores have the lowest unemployment rate of Portugal (SREA, 2006), there are still limited employment opportunities for youth in many professions. Many young people move to Lisbon for employment. On many islands, there is less support to help

educators who can be isolated professionally as well as physically. Transportation costs are high which also limit professional development opportunities.

The Azores generally show a lack of public participation within civil society. Farmers and other individuals do not engage in activities even when governments specifically seek their participation. Decision-making is generally supported but the process is less transparent than in the mainland because it does not allow for appeal or for public participation.

Small islands have a narrow economic base and high dependency on tourism. There is much potential for sustainable tourism in the Azores however the experience of tourism development in the Canary Island warns of potential serious impacts. In 2007, nine million foreign tourists visited the Canary Islands (official Canary Islands Tourism, [www.turismodecanarias.com](http://www.turismodecanarias.com)). An influx of that magnitude will affect cultural and natural heritage. Rapid tourism development, particularly on the coastline of the Canaries have had environmental and socio-economic impacts, including loss of biodiversity, degradation of coastal and marine habitats, reduction of land for agriculture and other non-touristic use, destruction of archaeological sites, and unsustainable demands for water and energy. Public demonstrations reveal opposition toward the regional government's inability to balance the interests of developers against the social and environmental concerns of the general public. Stark patterns of intra- and inter-regional disparities of wealth exist. Working conditions vary considerably. Casual and unskilled labourers have continuing problems related to low wages, job insecurity, high housing costs, and poor levels of public infrastructure for environmental health (Bianchi, 2004).

Increased tourism also brings challenges to whose perspectives are highlighted, and whose identities become targets of tourists gaze. Understanding of local cultural heritage can be significantly altered by the messages and informal education from whale watching and other marine tourism when locals are not involved in creating or debating the perspectives privileged in such activities. Neves-Graça (2002) explored the transition from whale hunting to whale watching tourism in the Azores, and found whalers had provided much aid and expertise to scientific researchers, but the expertise of whalers was largely ignored when regulations for whale watching was developed, even though former whalers are employed by many of the whale watching companies. Oliveira and others (2007) indicate that whale watching in the Azores is a small-scale industry and that tourists who were visiting family on the islands did not engage in whale watching activities to the same extent as the other tourists.

### ***Environmental Challenges***

Islands and coasts face particular significant challenges. For example, coastlines are especially vulnerable to impacts of climate change (e.g., rising sea levels, more extreme weather events, meltwater impacting on routing of the Gulf Stream) and of diverse development of the coastal fringe (e.g., from tourism, nature and density of residential developments, retirement complexes, industrial plants, increased sea traffic). Impacts on ecosystems and life-support processes are far-reaching.

One of the environmental problems in the Azores is the shortage and contamination of water resources. The islands that have more pressure on water resources are Graciosa, São Miguel and

Terceira and the agricultural and industrial activities as a whole represent about 40% of the total water requirements of the archipelago. Practically every house in the Azores has potable water, supplied by the local municipality, but the average water quality in the archipelago, albeit within legal values is not the highest. Many of the towns and villages are served by a wastewater collection and treatment system, although a few homes still use septic tanks. All municipalities have a solid waste collection system with residue separation, although not all are able to actually recycle the waste and it has to be shipped to another island or the mainland (e.g., Corvo has no facilities for this process).

Groundwater meets about 97% of the needs of the region but its contamination as well as pollution in lakes is primarily due to poor sewage disposal (in 2001 only 38% of the population was served by the sewage network) in the region and the excessive use of fertilizers. Streams are also polluted by the dumping of solid waste.

In Azores large gaps still exist in the management of solid waste. The specificity of the island (small size, low population density, distance inter-islands and from the mainland, importation of most goods consumed and economic dependency), further exacerbates the issue. Garbage is seen scattered on the roads and countryside; there is a lack of recycling bins in many areas and little awareness among the population regarding the proper management of waste.

Pollution also affects the marine and coastal areas. There is a decrease of fish resources and insufficient knowledge of marine resources due to ineffective management of fish stocks as well as ineffective monitoring of the Exclusive Economic Zone, which is causing environmental and economic losses.

Another major problem is land management. There has been an increase in urban pressure on the fertile soil for agriculture and a reduction of areas of natural forest (only 8% of the land is covered by forests native to the Azores). As a result of degradation, there is a reduction of natural habitats and imbalances in ecosystems, particularly from invasive exotic species. One example is the proliferation of exotic species of plants such as *Gunnera tinctoria*, *Hedychium sp.*, *Pittosporum undulatum* that are invading the natural forest "Laurisilva" and insects such as the termite that infests individual homes and is also causing patrimonial damage on historical buildings mainly in Angra do Heroísmo (Terceira) and Ponta Delgada (São Miguel). Other examples are the possible disappearance of the already endangered bird *Pyrrhula pyrrhula murina* (now only in São Miguel) and the plant *Marsilea azorica* which grows only in one place on Terceira.

Finally, the islands are challenged by their volcanic foundation. The Azores archipelago forms part of the mid-Atlantic ridge and suffers cyclically the effects of natural disasters, since it is located in an area of tectonic instability and volcanic activity. This enhances the vulnerability of production systems and ecosystems. Earthquakes cause damage to buildings as well as water supplies and human death. As the growing presence of termites becomes an increasing problem, especially in the urban areas of Angra do Heroísmo and Horta, the risk of building collapse during minor seismic activity becomes greater.

## Mission of RCE Atlantis

RCE Atlantis supports the efforts of a network of organizations and individuals engaged in education for sustainable development within and between the various islands of these ultra-peripheral archipelagos. This network aims to create mechanisms for fuller participation in civil society and to overcome challenges posed by the isolation of this region. RCE Atlantis aims to support ongoing as well as create new opportunities for citizens to reflect on their relationships with the social and natural environment and disseminate their expertise and experience of sustainability into all sectors of society.

RCE Atlantis aims to be a focal point for transformative education for regional sustainable development. The network consists of universities, other schools, cultural institutions, municipalities and other government agencies, NGOs and regional associations and, private and cooperative enterprises.

*“Transformative learning involves experiencing a deep, structural shift in basic premises of thought, feelings, and actions. It is a shift of consciousness that dramatically and permanently alters our way of being in the world.*

*This shift includes our understanding of ourselves and our self-locations and our relationships with other humans and with the natural world. It also involves our understanding of power relations in interlocking structures of class, race and gender, our body awareness, our visions of alternative approaches to living, and our sense of possibilities for social justice, peace and personal joy.*

*In sum, transformative learning makes us understand the world in a different way, changing the way we experience it and the way we act in our day-to-day lives. Transformative learning has an individual and a collective dimension, and includes both individual and social transformation... we are inspired by the notion of grounded hope. We believe that one of the best ways to predict the future is to actively create it, moving together towards our collective visions by developing viable alternatives that recognize the limitations and possibilities.”*

(Transformative Learning Centre, Ontario Institute for Studies in Education of the University of Toronto <http://tlc.oise.utoronto.ca/wordpress/about/>)

## **Main Objectives**

RCE Atlantis will build on the rich natural and cultural heritage of the region to meet its main objectives:

- to facilitate links between a network of organizations on different islands interested in promoting education for sustainable development in the region;
- to promote transformative education activities which integrate community and formal educational efforts as well as those which integrate natural and cultural history;
- to raise awareness of how sustainable development in the Atlantis region can improve the quality of human life; and,
- to develop training activities that are relevant for the creation of sustainable jobs in the region.

## **Monitoring and evaluation**

The steering committee in consultation with other partner members will develop criteria for RCE Atlantis projects. As well, specific partners have expressed interest in engaging in research which could support evaluation of the networks' activities. Specifically, both the Biodiversity Group and the Group for Nature Conservation and Management, at the University of the Azores have masters programs with students who could easily be engaged to support monitoring and evaluation efforts of the RCE activities.

## **Ongoing and planned activities**

Partners have identified two main foci for the initial activities of RCE Atlantis:

### *Sustainable Tourism*

### *Youth/Senior Partnerships for Transformative Education.*

These are themes of the work that is currently being planned as well as ongoing projects.

### ***1. Photography Contest: Biodiversity - A Closer Look***

#### *Organizing groups:*

Escola Secundária Jerónimo Emiliano de Andrade (plus parents Association)

Ecoteca da Terceira

Gê-Questa

Os Montanheiros

Câmara Municipal de Angra do Heroísmo

Azorean Biodiversity Group, University of the Azores

April 2009 – Educational talks and basic training in photographic methods were given by members of the organizing groups to implement a contest among students and teachers that aimed to explore and photograph the native or naturalized species of the Azores Archipelago. The first edition of the contest was well attended, and much debate and discussion occurred after the public talks.

All the partners evaluated the submissions and the photographs were made public for Environment Day, 5<sup>th</sup> of June. The photographs were exhibited for all the 3000 students of the High School to see and were placed in the Azorean Biodiversity Portal [http://www.azoresbioportal.angra.uac.pt/files/noticias\\_Preview%20of%20Images%20of%20%20School%20Context.pdf](http://www.azoresbioportal.angra.uac.pt/files/noticias_Preview%20of%20Images%20of%20%20School%20Context.pdf) Interest for additional contests with broader participation has been expressed by other schools and groups.

Planning for a 2<sup>nd</sup> Photography Contest is underway with discussions amongst the original collaborating partners and new partners from the RCE Atlantis network. We hope to expand the participation to additional schools and to add a youth/senior partnership aspect to the project. Along with the addition of community members, the theme for the contest will likely broaden to include cultural as well as natural heritage. One of the goals is to provide opportunities for seniors to become more active recalling their experiences and for youth and seniors to work together in creating photographic presentations of these stories. These representations may also prove useful resources for additional educational efforts in both school based and community based programs as well as tourism.

## ***2. World Day of the Sea***

Groups involved:

Ecoteca da Terceira

Gê-Questa

Capitania do Porto (Marinha Portuguesa)

Coastwatch

SOS Terceira

Observatório do Ambiente

IMAR/University of the Azores

Escola Básica 1/JI da Carreirinha

Escola Básica 1/JI do Posto Santo

Delegates from tourism Azores

Other teachers and coordinators of the Eco-school network

During the period of September 23 to 30, 2008, a series of educational activities were offered, including exhibitions, documentary films, guided walks, beach clean-ups, whale watching, hands-on lessons with live and dissected fish, as well as technical meetings (Coastwatch and tourism). Activities involved interactions between community members and professionals working on various issues related to the sea. The broad objective of the program was awareness raising to the huge, beautiful and wonderful sea that surrounds us.

The biodiversity group of the University of the Azores is beginning development of an educators' workshop focusing on creative methods for teaching about the sea. Discussions have begun about involving these same partners and similar activities as part of a workshop for teachers as well as other educators and perhaps tourist guides. The tentative date for the workshop is mid December 2009.

### **3. Azorean Biodiversity Portal** ([www.azoresbioportal.angra.uac.pt](http://www.azoresbioportal.angra.uac.pt))

This database for the inventory of natural history on the Azores islands was created by the University of the Azores Biodiversity Group and the Research Centre in Biodiversity and Genetic Resources (CIBIO), University of Porto. Approximately 5,903 images are now available covering about 2,036 of the 5,000 terrestrial species of the Azores. The Portal was launched in June 2008 and provides educational and research opportunities for at least four distinct sectors:

1. Scientists can use this database for specific research inquiries;
2. Students in all levels of school from primary to university can use the images and information for their school work, while teachers can use both the database and the additional curriculum activities;
3. Government agencies and others working on land management issues can use the database for decision making; and,
4. Photographers and naturalists can send images to help build the database of images.

### **4. The Group for Nature Conservation and Management Collaborations**

The University of the Azores has a long history of many interactions with the other partners for the proposed RCE Atlantis. Below is a description of some of the informal education and research interactions with the group for Nature Conservation and Management.

- Centro de Artes e de Ciências do Mar (Pico): Master degree student doing her thesis work there.
- Museu dos Baleeiros (Pico): Collaboration in an EFTA project (The EEA and Norwegian Financial Mechanisms The Financial Mechanism Office (FMO) Brussels Belgium) Limited Project Appraisal - Portugal PT0021 BALEIAÇOR - Preservation, recovering, survey and spreading of whalers patrimony (The Azores)
- Câmara Municipal de Angra do Heroísmo: Annual study visits with our regional economy students.
- Câmara Municipal da Praia da Vitória: Regular cooperation in small informal projects and give lectures on water management related subjects
- Informal cooperation in several little projects with Ecotecas, Os Montanheiros, Gê-questa, and Escola Secundária Jerónimo Emiliano de Andrade.



## **RCE Atlantis development**

- 2000: University of the Azores offers environmental education as a subject
- 2003/2004: In-service training for teachers in environmental education, University of the Azores
- January 2005: Launch of Masters of Environmental Education programme, University of the Azores
- 2005-2007: FCT Foundation for Science and Technology from the Regional Government of the Azores and the European Fund for Regional Development sponsor research about attitudes toward the environment in peripheral regions, University of the Azores (book published 2009)
- January 2008: Beginning of a Postdoctoral Fellowship for research for education for the environment and sustainable development at the University of the Azores
- June 2008: Launch of Azorean Bioportal
- October 2008: Initial introduction to RCE program at education congress in Canada
- December 2008: Meeting of RCE Europe network in Limerick
- January 2009: Biodiversity Group at the University of the Azores met to discuss initiating RCE group with existing educational partners
- February 2009: Biodiversity Group began introducing the RCE Atlantis idea to existing education partners
- March 2009: meeting with RCE CREIAS-Oeste to discuss development of RCE Atlantis
- April 2009: inaugural meeting of interested organizations for the development of RCE Atlantis and launch of the e-learning Moodle site for further online discussions
- May 2009: Participation in the 4<sup>th</sup> International RCE meeting in Montreal, Canada
- June 2009: Submission of initial proposal for RCE Atlantis
- July 2009: Meeting with RCE Atlantis partners to finalize structure, mission, objectives, themes and activities for RCE Atlantis proposal

## **Short and long term resource arrangements**

Member organizations do educational work as part of their regular activities supported by various funding sources. Past collaborative projects have been supported by sharing resources and we envision that this will be sufficient for most of the activities of the RCE. The University of Azores has created an online presence (an e-learning site, Moodle) for the initial development of the RCE and will be able to continue to provide a webpage and coordination of RCE activities. RCE Atlantis will not need additional funding to undertake collaborative education and research projects. Initially coordination of the RCE activities can be undertaken by University of the Azores personal. However, we will seek funds in the future to ensure RCE Atlantis' ability to maintain coordination and continuity of communications.

Given the diverse nature of the organizations that form RCE Atlantis, there is a wide range of public and European funding programmes that can be accessed by members if we coordinate in joint projects within RCE Atlantis and/or with other RCEs.

At the European level, FP7 2007-2013 comprises several funding schemes that are useful for research, professional development and capacity building. This funding would be available through joint projects with other European RCE members as it generally requires three European partners.

Other European funding opportunities can be seized in programmes such as LEADER, Smart Energy –Europe, LIFE-Nature, EQUAL, and Leonardo da Vinci.

At the national level, QREN 2007-2013 (National Strategic Reference Framework) distributes funds from the European Commission for projects contributing to these goals (QREN, 2007):

- Reform of the public administration;
- Promotion of the long-term sustainability of the social security system;
- Improvement in the quality of current public expenditure and investment;
- Simplification and moralization of the fiscal system and improved efficiency of the fiscal administration;
- Reduction of the state's role in the economy.

The NUTS II region of the Azores is targeted for convergence under this programme and it is eligible with Madeira to the Operational Programme for Transnational cooperation with the Canary Islands. This may be useful especially if RCE Atlantis expands to include these Spanish islands.

At the regional level, the Direcção Regional para a Ciência e Tecnologia (DRCT) offers funding for conference attendance and organization, book editing and for research purposes.

## **Structure and Partners of RCE Atlantis**

RCE Atlantis is a non-formal association with a simple flat structure in order to best facilitate communications and welcome involvement of partners from all islands of the Azores as well as Madeira and other parts of Macaronesia. The steering committee in consultation with other partner members will be responsible for the coordination and management of activities and develop criteria for RCE Atlantis projects. Regional partners may play varying roles in the network, sometimes being actively involved in developing educational activities in working groups and other times being in receptive role as stakeholders.

### ***Steering Committee***

- The University of the Azores, Angra do Heroísmo
- Ecoteca, Angra do Heroísmo
- AMPA-IT Associação de Mulheres de Pescadores e Armadores da ilha Terceira
- Escola Secundária Jerónimo Emiliano de Andrade

## **Regional and National Partners**

### **Research, Polytechnic and Professional Training Centres**

- University of the Azores ([www.uac.pt/intro.php](http://www.uac.pt/intro.php)) (*endorsement*)
  - The Azorean Biodiversity Group ([www.angra.uac.pt/gba/](http://www.angra.uac.pt/gba/))
  - The Group for Nature Conservation and Management ([www.angra.uac.pt/ggcn/en/index.html](http://www.angra.uac.pt/ggcn/en/index.html))

### **Cultural institutions**

- Museu de Angra do Heroísmo (<http://museu-angra.azores.gov.pt/>) (*expressed interest, attended RCE development meeting*)
- Centro de Ciência de Angra do Heroísmo (<http://ccah-oaa.blogspot.com/>) (*invited, expressed interest*)
- Centro de Artes e de Ciências do Mar (*invited*) ([www.lifecooler.com/Portugal/patrimonio/CentrodeArtesedeCienciasdoMar](http://www.lifecooler.com/Portugal/patrimonio/CentrodeArtesedeCienciasdoMar))
- Museu dos Baleeiros (*invited*)

### **Government agencies**

- Ecoteca (<http://ecotecas.blogspot.com/>) (*endorsement*)
- Câmara Municipal de Angra do Heroísmo ([www.cm-ah.pt/](http://www.cm-ah.pt/)) (*invited, expressed interest*)
- Câmara Municipal da Praia da Vitória (<http://cm-praiadavitoria.azoresdigital.pt/>) (*endorsement*)
- Gabinete de Promoção Ambiental dos Açores (*expressed interest, attended RCE development meeting*)

### **Non governmental organizations and regional associations**

- Os Montanheiros ([www.montanheiros.com/](http://www.montanheiros.com/)) (*expressed interest, attended RCE development meeting*)
- Gê-questa (<http://ge-questa.blogspot.com/>) (*endorsement*)
- Amigos dos Açores – Associação Ecológica (<http://amigos-acoeres.freehostia.com/>) (*invited, expressed interest*)
- AMPA-IT, Associação das Mulheres de Pescadores e Armadores da ilha Terceira (*endorsement*)
- Ilhas em Rede, Associação de Mulheres na Pesca nos Açores (*endorsement*)
- Associação para a Defesa do Património Marítimo dos Açores ([www.cabotagem.org/](http://www.cabotagem.org/)) (*endorsement*)
- RMA (Rede de Educação Marinha dos Açores) Education Network of Marine Azores (*invited*)

### **Schools**

- Escola Secundária Jerónimo Emiliano de Andrade (Angra do Heroísmo) (*endorsement*)
- Escola Básica Integrada Mouzinho da Silveira (Corvo island) (*invited, expressed interest*)
- Escola Básica 1,2,3/JI Francisco Ornelas da Câmara (*invited, expressed interest*)
- Escola Secundária Manuel de Arriaga (Horta, Faial island) (*invited*)
- Azorean Network of Eco-schools (*invited*)

### **Enterprises**

- BioAzorica – Organic Produce Cooperative (*expressed interest, attended RCE development meetings*)

- Various individuals who work for various local whale watching tour companies have expressed interest and attended RCE development meetings.

## **Main Institutions' Background**

### ***University of the Azores***

The University of Azores was created in 1976 with the declared purpose of creating, transmitting and diffusing culture, science and technology by means of research, teaching, outreach and community service [2]. It is a public body with juridical personality, its own patrimony and statutory, scientific, administrative, financial and disciplinary autonomy, and is an integral part of the Portuguese system of higher education. With 10 departments and 2 colleges, spread through three campuses in São Miguel, Terceira and Faial, the University of Azores offers 30 undergraduate degrees, 3 post-graduations, 13 master degrees and one doctoral degree for more than 4000 students in a wide range of themes covering from literature to mathematics.

Within the University of the Azores, the two main groups involved are the Azorean Biodiversity Group (ABG) and the Group for Nature Conservation and Management (GGCN).

The Azorean Biodiversity Group (ABG) is one of the four research groups of the FCT Centre CITA-A (University of Azores) and focuses on the fields of Macroecology, Evolutionary Biology, Conservation and Environmental Education, with emphasis on Island Ecology. This group officially started in 2006, but has its roots in the BALA (*Biodiversity of Arthropods from the Laurisilva of the Azores*) project in 1999. The group has been growing with over 25 members on Terceira, other locations in the Azores and in collaboration with numerous other universities around the world.

In addition to research activities, the ABG focuses on communicating science to a wider audience via various projects including the *Azorean Biodiversity Portal* ([www.azoresbioportal.angra.uac.pt](http://www.azoresbioportal.angra.uac.pt)) created in collaboration with members of the CIBIO-Azores (Dep. Biology, UA), as well, education for sustainable development is promoted via informal community outreach and a Master Degree on “Environmental Education”.

The Group for Nature Conservation and Management (GGCN) is based at the Department of Agriculture and Environment of the University of Azores. The group is involved in teaching, research and providing services. The teaching is mainly focused on the Master on Nature Conservation and Management and the research has targeted issues such as cost-benefit analysis, water management, marine management, land use planning, regional development, and agro-environmental management. The work group has eleven researchers working in the fields of economics, fisheries, agronomics, geography, and environment.

### ***Regional Network of Ecotecas***

The Regional Network of Ecotecas was initiated by the Government of Azores in 1998 to provide educational opportunities that focus on awareness, training and information on the

environment. Although an entity of the government, Ecotecas are managed in partnership with various non-governmental entities and municipalities, thus giving rise to the prominence of civil society to influence the needs and operations of each Ecoteca.

There are Ecotecas on each island: Ecoteca Pico (inaugurated in October 1999, in Madalena); Ecoteca of Graciosa (July 2000, Santa Cruz da Graciosa, in the Headquarters of the Cultural Association, Youth Sport and Recreation); Ecoteca of Ribeira Grande (September 2000, at the Museum of Pico da Pedra, Island of São Miguel); Ecoteca in Ponta Delgada (September 2001, Quinta de São Lourenço, with the Regional Directorate of Agricultural Development Ponta Delgada, São Miguel); Ecoteca São Jorge (March 2003, Botanical Garden of Vila das Velas, São Jorge); Ecoteca of Flores (September 2003, Association of Young People of Flores, Santa Cruz das Flores); Ecoteca of Faial (June 2005, Castle of San Sebastian, Horta, Faial); Ecoteca in Santa Maria (October 2005, Collection Santa Maria Madalena, in the Port Vila, Isle of Santa Maria); Ecoteca of Terceira (January 2007 Association Montanheiros, Angra do Heroísmo, Terceira); Ecoteca Lagoa (2008, Observatório Vulcanológico e Geotérmico dos Açores, São Miguel)

The work of the Ecoteca network involves the community as a whole, with activities that allow for interaction with either the general public, children, youth or adults such as activities for Eco-Schools, thematic sessions, environmental routes, study tours, econet room, afternoons in the Ecoteca, support for activities of schools, activities laboratory, workshops, educational games, composition and production of teaching materials, environmental commemoration of days, support the Green Key program (quality and environmental education in hotel.), amongst others.

### ***Ilhas em Rede – Associação de Mulheres na Pesca nos Açores***

Ilhas em Rede is a non-profit organization that promotes the work of women in fisheries in the Azores, specifically valuing the labour of women and gender equity in the fishery sector. They promote exchanges between women fishers from different islands; develop partnerships at the regional, national and international level; work toward social and economic equity within fisheries, develop and share information resources about women in fisheries, and support studies, publications, seminaries, debates and other educational activities aimed at helping women in this sector.

### ***AMPA-IT Associação de Mulheres de Pescadores e Armadores da ilha Terceira***

AMPA-IT began in May 2008 and focuses on helping women who work in fisheries or whose family work in fisheries on the island of Terceira. Their activities for 2009 are based on social security, health, tourism amongst other areas: social security (providing doctors, medicine exchanges, connection to other medical clinics, provide exercise classes), training (diabetes, recycling, first aid, family planning); tourism (ocean tours, lunch for tours, craft shop); and other education (forums, seminars, conferences in partnership with UMAR União de Mulheres Alternativa e Resposta).

## **International Links**

### ***RCE Linkages***

RCE Atlantis hopes to develop partnerships with other RCEs, in particular the two Portuguese RCEs, RCE CREIAS-OESTE and RCE Porto Metropolitan Area, who have kindly contributed to this application. Other Portuguese speaking RCEs are also likely partners (e.g., RCE Curitiba-Paraná, Brazil; RCE Maputo, Mozambique). RCE Toronto is also a potential for linking with the Azorean community who lives in that city. Additionally, RCE Atlantis' island reality means there is much potential to find relevant interest with RCE Pacific, also island based and RCE Southern North Sea as they focus on their marine environment.

***Islands Sharing and Offering Learning and Teaching in Environment and Development, (ISOLATED)*** – program of the European Commission, Lifelong Learning Program, Grundtvig Learning Partnerships, partners include: University of the Azores, University of Chichester (Chichester, UK), University of Malta, Donegal County Council (Ireland), LANDVERND – The Icelandic Environment Association.

Project Summary: All our partners wish to learn from each other some novel ways in which we can make environmental education, heritage education and education for sustainable development more effective. We want to focus on the special challenges faced by all of us as we work on islands and on coasts. We want to build on opportunities offered by experienced, motivated local people who have not previously seen themselves as educators as they inspire other local people. These will be new educators, mostly volunteers and many of them from disadvantaged groups. For example, in the Azores, these may be former whalers and fishermen. They will be a valuable human resource playing a new, active role helping their own communities and also visitors to our islands and coasts to understand environment, heritage and development challenges. Partners and learners will work and learn together to document some of their experiences to inspire others to lead in the same way. Outputs will set out a vision, highlight practical challenges and propose solutions for environmental, heritage and sustainability education for adults on islands.

### ***EDUMAR – Perspectives about the sea and sea life: Cetaceans and tourism in the Azores, Portugal and Newfoundland, Canada***

This research project of the Biodiversity Group of the University of the Azores currently involves other RCE Atlantis members (Centro de Artes e de Ciências do Mar, AMPA-IT and Ilhas em Rede) and will involve one or more of the Ecotecas and at least one of the local schools in the community arts-based part of the research in the Azores. This will involve the local community hearing about the experiences of former whalers and fishers as they engage in their own story telling and picture making describing how they understand the sea. A parallel process will also occur in Newfoundland Canada with the local community. Sharing of the research findings and

activities in the two countries will provide an opportunity for RCE Atlantis to engage with Canadians.

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## Attachments

### Letters of endorsements:

- University of the Azores
- Associação para a Defesa do Património Marítimo dos Açores
- AMPA-IT Associação de Mulheres dos Pescadores e Armadores da Ilha Terceira
- Ilhas em Rede - Associação de Mulheres na Pesca nos Açores
- Municipal government of Praia da Vitória
- Escola Secundária Jerónimo Emiliano de Andrade
- Ecoteca de Angra do Heroísmo
- Gê-Questa - Associação de Defesa do Ambiente



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**[1] The Portuguese Education system has the following levels: 1<sup>st</sup> cycle (1<sup>st</sup>-4<sup>th</sup> grades); 2<sup>nd</sup> cycle (5<sup>th</sup>-6<sup>th</sup> grades); 3<sup>rd</sup> cycle (7<sup>th</sup>-9<sup>th</sup> grades); Secondary Education and Professional Courses (10<sup>th</sup>-12<sup>th</sup> grades); Higher education.**

**[2] The full statutes of the University of Azores are published in the Despacho Normativo n.º 178/90, in Diário da República – I Série, n.º 297 of December 27th 1990.**

## Summary – RCE Atlantis Proposal

This proposal focuses only on the nine islands of the Azorean archipelago, rather than the entire Macaronesia region (Figure 1) as the initial development of RCE Atlantis involves only these islands. Region-wide sustainable development issues mean that the Azorean-based members identified in this proposal are involved in other collaborative efforts with organizations from Madeira, the Canary Islands and Cape Verde. We expect that this RCE will later include members from these other island archipelagos, hence our use of “Atlantis”, rather than Azores within our name.



Figure 1 - Macaronesia

### Azores: Geographical Scope and Major Characteristics

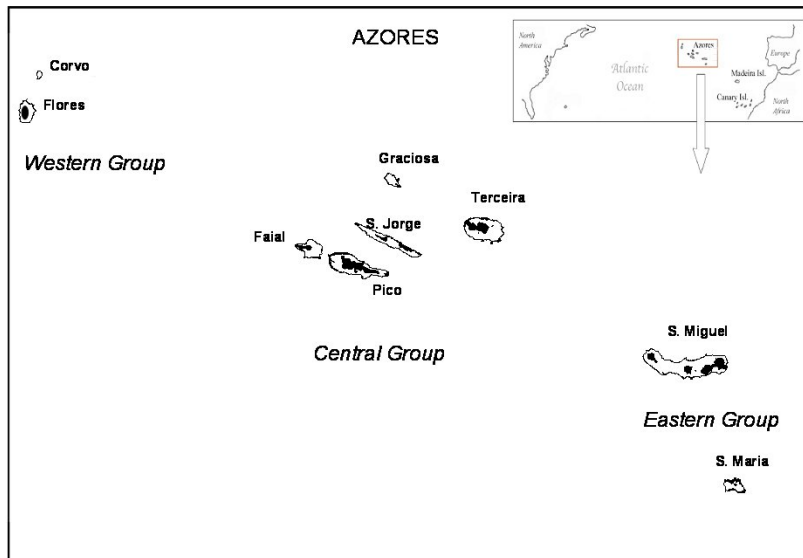
Discovered by the Portuguese in the early fifteen century and populated less than 100 years later, the Archipelago of the Azores is located in the Atlantic Ocean, approximately 1500 km from Lisbon and 3900 km from New York. The archipelago has nine islands divided into three groups, the Western Group with Flores and Corvo, the Central Group with Terceira, Graciosa, São Jorge, Pico, and Faial, and the Eastern Group with São Miguel and Santa Maria (Figure 2).

The Azores is an autonomous region of Portugal with a fair degree of political and financial leeway. It has been recognized as ultraperipheral by the European Union, considering the “conditioning structural or limiting factors of the respective dynamics of economic and social development - distance, insularity, size, topography and climate” (QREN, 2007).

The region has 19 municipalities with 156 parishes, covering a total land area of 2332.74km<sup>2</sup> (2.5% of Portugal). The largest islands are São Miguel (746.79km<sup>2</sup>) and Pico (447.74km<sup>2</sup>) and the smallest Graciosa (61.17km<sup>2</sup>) and Corvo (17.12km<sup>2</sup>). All islands are served by an airport and one or more sea ports (SREA, 2007).

In 2006 the Azorean population was estimated at 243, 000 representing 2.4% of the Portuguese population. The most populated islands are São Miguel (54.6%) and Terceira (22.9%), which

also have the higher population density (178.2 and 139.1 respectively). With 104.7 inhabitants per square kilometre, the Azores had a low population density when compared to mainland density (113.6 inh/km<sup>2</sup>) (data from SREA, 2007).



**Figure 1- Map of the Azores**

The isolation of the islands has often meant that visitors have stayed for extended periods and engaged in significant cultural exchange with some locals. However, other Azoreans may not have left the island on which they were born nor encountered anyone beside their family and neighbours within less than a 50 km radius. Although there have not been many Canadian or American tourists coming to the Azores, there have been long-standing ties between North America and the Azores due to heavy immigration to Toronto, Boston and Oakland in particular as well as the presence of a US military base on the island of Terceira.

The natural beauty of the region is one of its key features and main attraction for visitors. Several protected areas were created in the Azores in the last three decades, by regional initiative or as a consequence of the application of the Habitats and Birds Directives from the European Union. Recently the Azorean regional government has changed the management of these areas so that each island manages their various areas together as a Natural Island Park.

In 1983 UNESCO classified as a World Heritage site the central zone of the Town of Angra do Heroísmo in Terceira, for its architecture and historic relation to the discovery period. In 2004, the landscape of the Pico Island vineyard also became classified as World Heritage, because it illustrates a unique response to a hostile environment that resulted in a livelihood and a quality product.

A defining characteristic for sustainable development issues in the Azores, and the larger Macaronesia region, is that this region is made up of islands located far into the Atlantic Ocean with significant distances between the different groupings of islands as well as between individual islands.

Important positive forces for sustainable development in the Azorean region include strategic location, geothermal resources, a young population, high quality regional products (agricultural, natural resources), natural heritage, cultural heritage, diaspora, availability of European Union funds and a strong agricultural sector. Negative forces include high cost and difficulty of transportation, the ultra-peripheral nature of the region, education levels, pressures on natural resources, geological risks (seismic activity), social exclusion and European Union policies (Lobo et al., 2005).

The Azores are characterized by low levels of formal education and by low wages, in comparison with mainland Portugal, and that from the individual's perspective, the investment in education has a return rate at approximately 8% (Bedo et al, 2007). Some groups are particularly affected by low education levels associated with low-valued or unrecognized work. The wives and daughters of fishers traditionally work long hours in the preparation of fishing gear and other onshore fisheries work, but their work is recognized as only 'helping out'. There has been a trend toward higher success rates and transition between education cycles (DREP, 2008) although the region still has a lower prevalence of students completing secondary education than in the mainland (SREA, 2007).

## **Regional Challenges**

Specificity and isolation are major challenges on these small islands. There is a double insularity (distance and isolation to the European continent, but also between the archipelago's islands themselves). The actual geographic isolation limits the economies of scale. One consequence is the large relative weight of government on the local economy. The close economic base, based on a limited number of economic activities (mainly livestock, fisheries and tourism) weakens the economy. There is strong dependence on other countries for markets, investment and transport and a strong dependence on the mainland for scarce natural resources and for major health care.

There is much potential for sustainable tourism in the Azores however the experience of tourism development in the Canary Island warns of potential serious impacts. Increased tourism also brings challenges to whose perspectives are highlighted, and whose identities become targets of tourists gaze. Understanding of local cultural heritage can be significantly altered by the messages and informal education from whale watching and other marine tourism when locals are not involved in creating or debating the perspectives privileged in such activities. Additionally, the Azores generally show a lack of public participation within civil society.

One of the environmental problems in the Azores is the shortage and contamination of water resources. The islands that have more pressure on water resources are Graciosa, São Miguel and Terceira and the agricultural and industrial activities as a whole represent about 40% of the total water requirements of the archipelago. Groundwater meets about 97% of the needs of the region but its contamination as well as pollution in lakes is primarily due to poor sewage disposal in the region and the excessive use of fertilizers. In Azores large gaps still exist in the management of solid waste. Pollution also affects the marine and coastal areas. There is a decrease of fish resources and insufficient knowledge of marine resources due to ineffective management of fish stocks as well as ineffective monitoring of the Exclusive Economic Zone, which is causing environmental and economic losses.

Another major problem is land management. Because of degradation, there is a reduction of natural habitats and imbalances in ecosystems, particularly from invasive exotic species. One example is the proliferation of exotic species of plants such as *Gunnera tinctoria*, *Hedychium sp*, *Pittosporum undulatum* that are invading the natural forest "Laurisilva" and insects such as the termite that infests individual homes and is also causing patrimonial damage on historical buildings mainly in Angra do Heroísmo (Terceira) and Ponta Delgada (São Miguel). Other examples are the possible disappearance of the already endangered bird *Pyrrhula pyrrhula murina* (now only in São Miguel) and the plant *Marsilea azorica* which grows only in one place on Terceira.

Finally, the islands are challenged by their volcanic foundation. Earthquakes cause damage to buildings as well as water supplies and human death. As the growing presence of termites become an increasing problem, especially in the urban areas of Angra do Heroísmo and Horta, the risk of building collapse during minor seismic activity becomes greater.

### **Mission of RCE Atlantis**

RCE Atlantis supports the efforts of a network of organizations and individuals engaged in education for sustainable development within and between the various islands of these ultra-peripheral archipelagos. This network aims to create mechanisms for fuller participation in civil society and to overcome challenges posed by the isolation of this region. RCE Atlantis aims to support ongoing as well as create new opportunities for citizens to reflect on their relationships with the social and natural environment and disseminate their expertise and experience of sustainability into all sectors of society.

RCE Atlantis aims to be a focal point for transformative education for regional sustainable development. The network consists of universities, other schools, cultural institutions, municipalities and other government agencies, NGOs and regional associations and, private and cooperative enterprises.

### **Main Objectives**

RCE Atlantis will build on the rich natural and cultural heritage of the region to meet its main objectives:

- to facilitate links between a network of organizations on different islands interested in promoting education for sustainable development in the region;
- to promote transformative education activities which integrate community and formal educational efforts as well as those which integrate natural and cultural history;
- to raise awareness of how sustainable development in the Atlantis region can improve the quality of human life; and,
- to develop training activities that are relevant for the creation of sustainable jobs in the region.

## **Ongoing and planned activities**

Developing work is based on multiple collaborative relationships between regional partners. Some relationships are long established involving numerous projects in the past, while others represent new working relationships sparked by the development of the RCE Atlantis. Activities are multi-faceted and serve transformative education as well as research and development. The four projects detailed (Photography Contest: A Closer Look; World Day of the Sea; Azorean Biodiversity Portal ([www.azoresbioportal.angra.uac.pt](http://www.azoresbioportal.angra.uac.pt)); and, The Group for Nature Conservation and Management Collaborations) raise awareness of sustainable development issues, highlight knowledge and experience from multiple sources, bring scientific knowledge to the general public, as well as privilege alternative forms of communication and offer opportunities to reconsider economic activities within a sustainable framework.

Partners have identified two main foci for the initial activities of RCE Atlantis: *Sustainable Tourism* and *Youth/Senior Partnerships for Transformative Education*.

## **RCE Atlantis development**

### **Stage 1 – Drafting of RCE Atlantis concept among core actors**

The University of the Azores began considering the concept after learning about the network from other RCEs in Europe and attending the meeting of the RCE Europe network in Limerick in December 2008. Initial discussions involved the university and organizations with whom the university already had an established history of collaboration. This led to identifying stakeholders and inviting participation from across the islands and among a broad concept of organizations involved in education for sustainable development.

### **Stage 2 – Local stakeholder consultations**

Beginning in February 2009, a series of informal meetings and email correspondence investigated the local situation and interest among local stakeholders. In March, we met with RCE CREIAS-Oeste to discuss development of RCE Atlantis and in April, we held the inaugural meeting of the proposed RCE Atlantis as well as launched an e-learning Moodle site for further online discussions. Two members of the proposed RCE from the University of the Azores participated in the 4<sup>th</sup> International RCE meeting in Montreal, Canada in May.

### **Stage 3 – Development of Application**

Further online and informal correspondence defined the beginning structure and themes for the initial submission of a draft proposal for RCE Atlantis in June 2009. In July, all stakeholders were invited to comment on the draft proposal and to contribute to finalizing the structure, mission, objectives, themes and activities for the proposal. Stakeholders are invited to comment on this draft before re-submission to the RCE service centre.

## **Short and long term resource arrangements**

Member organizations do educational work as part of their regular activities supported by various funding sources. Past collaborative projects have been supported by sharing resources and we envision that this will be sufficient for most of the activities of the RCE. The University of Azores has created an online presence (an e-learning site, Moodle) for the initial development of the RCE and will be able to continue to provide a webpage and coordination of RCE activities. RCE Atlantis will not need additional funding to undertake collaborative education and research projects. Initially coordination of the RCE activities can be undertaken by University of the Azores personal. However, we will seek funds in the future to ensure RCE Atlantis' ability to maintain coordination and continuity of communications. Given the diverse nature of the organizations that form RCE Atlantis, there is a wide range of public and European funding programmes that can be accessed by members if we coordinate in joint projects within RCE Atlantis and/or with other RCEs.

## **Structure and Partners of RCE Atlantis**

RCE Atlantis is a non-formal association with a simple flat structure in order to best facilitate communications and welcome involvement of partners from all islands of the Azores as well as Madeira and other parts of Macaronesia. The steering committee in consultation with other partner members will be responsible for the coordination and management of activities and develop criteria for RCE Atlantis projects. Regional partners may play varying roles in the network, sometimes being actively involved in developing educational activities in working groups and other times being in receptive role as stakeholders.

### ***Steering Committee***

- The University of the Azores, Angra do Heroísmo
- Ecoteca, Angra do Heroísmo
- AMPA-IT Associação de Mulheres de Pescadores e Armadores da ilha Terceira
- Escola Secundária Jerónimo Emiliano de Andrade

## **Regional and National Partners**

### **Research, Polytechnic and Professional Training Centres**

- University of the Azores ([www.uac.pt/intro.php](http://www.uac.pt/intro.php))
  - The Azorean Biodiversity Group ([www.angra.uac.pt/gba/](http://www.angra.uac.pt/gba/))
  - The Group for Nature Conservation and Management ([www.angra.uac.pt/ggcn/en/index.html](http://www.angra.uac.pt/ggcn/en/index.html))

### **Government agencies & institutions**

- Ecoteca (<http://ecotecas.blogspot.com/>)
- Câmara Municipal de Angra do Heroísmo ([www.cm-ah.pt/](http://www.cm-ah.pt/))
- Câmara Municipal da Praia da Vitória (<http://cm-praiadavitoria.azoresdigital.pt/>)
- Gabinete de Promoção Ambiental dos Açores
- Museu de Angra do Heroísmo (<http://museu-angra.azores.gov.pt/>)

**Non governmental organizations and regional associations**

- Os Montanheiros ([www.montanheiros.com/](http://www.montanheiros.com/))
- Gê-questa (<http://ge-questa.blogspot.com/>)
- AMPA-IT, Associação das Mulheres de Pescadores e Armadores da ilha Terceira
- Ilhas em Rede, Associação de Mulheres na Pesca nos Açores
- Associação para a Defesa do Património Marítimo dos Açores ([www.cabotagem.org/](http://www.cabotagem.org/))

**Schools**

- Escola Secundária Jerónimo Emiliano de Andrade(Angra do Heroísmo)
- Azorean Network of Eco-schools

**Enterprises**

- BioAzorica – Organic Produce Cooperative

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