

The potential for Biosphere Reserves to achieve UK social, economic and environmental goals

Appendix 1: Case Studies

1. Kristianstads Vattenrike Biosphere Reserve, Sweden
2. Braunton Burrows Biosphere Reserve, North Devon, UK
3. Rhoen Biosphere Reserve, Germany
4. Entlebuch Biosphere Reserve, Switzerland

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Kristianstads Vattenrike

Ecomuseum and Biosphere Reserve



Case study



Key findings

The Kristianstads Vattenrike Biosphere Reserve appears to have substantial support and influence, it has generated modest tangible benefits, and is seen as contributing to a development philosophy and municipal profile or image which could deliver substantial social and economic benefits in the longer term.

The Vattenrike Ecomuseum and its associated “sustainable use” philosophy became established over a period of more than 16 years prior to the BR designation, and was effectively transformed into a BR in 2005. It is therefore difficult to separate out the actual added value attributable to the BR designation itself.

However, there was a strong and consistent view amongst those with whom I talked that the BR designation has provided international “quality assurance” for the natural values and the way they are being managed, and also strengthened a sense of pride in their approach to these assets. According to some of the key players in planning and development in the Municipality, the BR and its philosophy are key elements in the profile and image of Kristianstad, and fundamental to a dynamic and modern future economy.

Many factors have contributed to this perception, which are discussed in more detail in the case, but three in particular stand out:

- the groundwork of engagement done over more than 16 years prior to designation;
- the effective networking and practical issues resolution by the leading players; and
- the intimate and evident historic and continuing relationship between town and wetlands.

This case suggests that the identification of a set of criteria by which to evaluate or select a site in order to generate maximum benefit is to come at this from the wrong direction. Almost anywhere could be a good biosphere reserve; it all depends whether there are people there who wish to embrace the philosophy, who are capable of inspiring and influencing other key players in the local economy, and who have the time, resources and freedom to demonstrate practical application. And it also depends on whether others in the mainstream of economic planning are able to recognise the strategic development and marketing potential of the designation.

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Introduction

Purpose

The purpose of this case study is to investigate the social, economic and environmental value, actual and potential, added by Kristianstads Vattenrike Biosphere Reserve, and to derive lessons learned which may inform any expansion of the existing network of biosphere reserves in the UK.

Selection

The case was selected on the basis of relatively easy access; good communications and minimal language constraints; similar level of development to UK; good example of a “town in a biosphere”; locally-developed (‘bottom-up’) BR.

Sources

The case study is based on a review of readily available materials, academic publications, and a three day visit to conduct interviews with some of the key players involved in the development and future realisation of of the BR. They are listed above under acknowledgements.

Context

Location and main features

Kristianstads Vattenrike BR is located in the Skane region of SE Sweden, at roughly latitude 56 degrees North and longitude 14 degrees East (Figure C2.1). It covers terrestrial, freshwater and marine areas totalling 104,375ha (13,860 ha marine) and including 7,179ha core area; 22,899ha buffer zone, and 74,597 transition zone. It includes the greater part of the Municipality of Kristianstad. **Map***.

The following is taken from the BR nomination form:

***The core areas** consist mainly of lakes and contiguous, seasonally inundated grasslands, wet forests and shoreline forests. In addition, the core areas also include running water, dry grasslands with elements of xeric sand calcareous grasslands, outfield pastures, areas of sand dunes, smaller forested areas and part of a raised bog. These areas have high natural values and enjoy the protection afforded by Swedish legislation to nature reserves, habitat protection areas and Natura 2000 areas.*

***The buffer zones** consist mainly of privately owned land and include forests, agricultural land on the margins of valuable, seasonally inundated grasslands or forested areas, running water, lakes, areas of sand dunes and coastal areas. The limits of the buffer zones are demarcated by other previously identified boundaries, such as the Ramsar site, areas of national interest for the purposes of nature conservation, shore protection areas, forests covered by nature conservation agreements and municipally owned nature conservation areas with non-statutory protection.*

***The transition area** in the proposed biosphere reserve consists mainly of agricultural land, forest, built-up areas and scattered settlement.*

The town of Kristianstad (30,000+ inhabitants) lies within the transition zone at the heart of the Biosphere Reserve and around 80,000 live within the Municipality.

The BR team has identified ten theme areas with high natural values, and these provide an initial framework within which to address issues, and where appropriate to develop specific initiatives relating to the three functions of conservation, development and logistic support:

- The rich wetlands along the River Helgeå
- Tributaries of the River Helgeå originating on Linderödsåsen Ridge
- Rich woods and forests on the slopes of Linderödsåsen Ridge
- Balsberget Hill and Lake Råbelövssjön
- Ancient trees and wooded habitats in cultivated areas
- Sandy grasslands formerly managed under a rotational system of cultivation and fallow
- The coastal landscape with extensive sand dunes
- The coastal waters of Hanöbukten Bay
- Urban natural values
- Groundwater

The biodiversity in the area is rich. The BR is home to 20 globally red listed species, 60 EU listed species, and 700 nationally red listed species of flora and fauna. 120-130 species of bird breed in the area, and more than 260 species have been recorded. Particularly spectacular are the white tailed sea eagles, the cranes, and the flowery meadows

The historic role of the wetlands

Kristianstads Vattenrike, meaning the rich water kingdom of Kristianstad, is a 35km long wetland area of more than 100,000 ha surrounded by cultivated landscape, and immediately adjacent to significant urban development, including the Municipality capital and historic town of Kristianstad. The wetlands are fed by the River Helge which rises and flows through forests and agricultural lands upstream, the town of Kristianstad itself, and finally discharges into the Bay of Hanöbukten on the Baltic Sea coast (Magnusson 2004).

Kristianstad is a historic town, established in 1614 by the Danish King Christian IV. It was strategically located – the wetlands serving as defence against the (at the time Swedish) enemy. The wetlands have been used for grazing and hay for centuries, and have been subject to significant alteration and management over the years. In particular, the hydrology of the whole system was changed dramatically when farmers dug a channel through to the Baltic coast in 1774 to release flood water. Subsequent flooding scoured out the channel, resulting in lowered water levels for 35km upstream. Around Kristianstad itself water levels fell by 0.6-0.7m. Embankments were also built, and land drained for agriculture and urban development.

In the early 20th century pollution increased, and the town was no longer able to draw its drinking water from the river. As industrialisation took hold factories were built next to the wetland. The town also used the adjacent wetlands as a major garbage dump. In 1964 a massive fish mortality occurred. The swamps were seen by the municipality as “unhealthy swamp areas in need of cleaning up”.

Origins of the Ecomuseum and Biosphere Reserve

In 1967 plans were developed to embank and drain the wetlands to extend agricultural use. Concern about this from local and regional nature conservation interests led to the plans being abandoned, and instead a series of nature reserves were created. The nature conservation values were reinforced in 1975 when the 35 km stretch of wetlands gained Ramsar status.

However, ecological values (mainly perceived as wild birds) continued to decline through the '80s. It became apparent that this decline related, at least in part, to the decline in traditional grazing and haymaking. Initially this created conflict: bird enthusiasts tended to blame the farmers. Some however began to recognise that farmers were simply trying to make a living. Furthermore – the *lack* of management of nature reserves was also resulting in declining biodiversity.

A more holistic approach to nature conservation was required - not directed at preservation, but rather seeking to promote a policy and economic framework which would encourage farmers to manage in more traditional ways: “to preserve and develop the ecological values and cultural heritage of the area while at the same time making careful and judicious use of them” (Magnusson 2004). Sven Erik Magnusson (now the BR coordinator) was able to source money from both the County Administration and WWF to do something, and began also to gain political support from the Municipality. At the same time money became available from the Swedish Environmental Protection Agency to manage herb rich meadows. This was not just about money. For example, if a farmer had given up livestock, he might be persuaded to allow others to graze his wet meadows which had little alternative use. And the team explored and promoted new technologies (such as large double wheels on tractors) which would allow for continued haymaking in the wet meadows. The area of managed wet meadows rose from 1,200ha in 1989 to 1,700ha in 2005. There are around 1,500 farmers in the BR and most of them are now considered to be supportive.

The name Kistianstads Vattenrike (Rich wetlands/water kingdom) was coined (in 1989?), and ideas and initiatives began to be focused around the idea of “Ecomuseum” – an array of visitor sites and awareness raising initiatives spread throughout the area, closely linked with schools. The Ecomuseum and its staff was also the focus for funding from the Municipality, and linked people and on-going projects connected to water in the area into a network dealing with nature conservation, environmental protection, tourism, education, and cultural heritage.

It was the success of this initiative that led ultimately to the chair of the local municipal executive committee (a politician) to request the development of an application for a BR.

As Sven Erik Magnusson puts it: *“there has been a major shift in perceptions from valueless waterlogged areas, to internationally valuable wetlands”*

And this was confirmed by the Head of Landuse and Planning in Kristianstad Municipality: *there were many doubters to begin with; now there are few.*

Economy

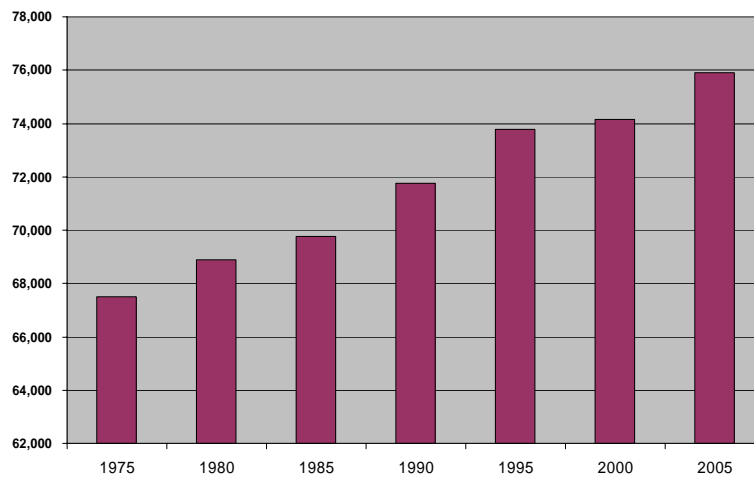
The population of Kristianstad Municipality has grown steadily from 67,499 in 1975 to 79,915 in 2005 (Figure C2.1). The economy is firmly based in agricultural production, with food processing (meat, poultry, soup, vodka) being major employers, although the service sector dominates overall. There is also a small hi-tec sector producing mobile phones and the like, and strong building sector. Tourism is modest but increasingly important (Figure C2.2).

The logo for the Municipality¹ is “Spirit of Food” reflecting their economic profile and image within Sweden.

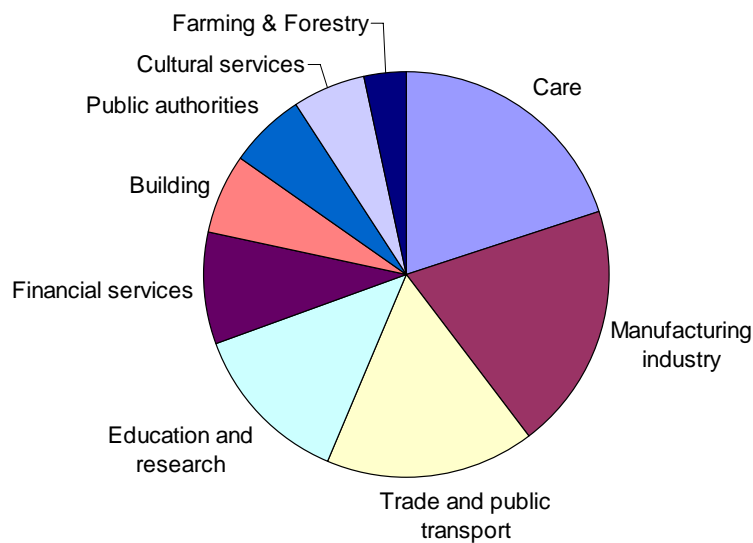
Figure C2.1

¹ We refer to the Kommun Kristianstad as “the Municipality” throughout this case.

Kristianstad - population growth



Kristianstad Municipality: employment by sector



The historic role of the wetlands has been described above. The modern day economic relationship between town and wetland is more subtle. Its ecological values have been recognised nationally (in terms of rare and listed species and habitats of national and international importance), and a few ecotourism enterprises now base their business on this resource. Farmers who conserve the special qualities are able to access specific grants or payments of up to SEK 3,000/ha. Schools and Universities use it as an educational resource. Tourists and local people use it for recreation – the 7km Linnérundan trail and boardwalk attracts 25,000 people each year, and taken together the 20 visitor sites attract around 150,000 visits per year.

Water quality and flood mitigation are key “ecosystem services” provided by the wetlands and associated systems, and linked directly to the economy and human wellbeing. The sedimentary bedrock of Kristianstadsslatten Plain – a large part of which lies beneath the BR - contains Sweden’s largest groundwater reservoir and one of the most extensive in N

Europe. 3-4,000 drilled wells and around 5,000 dug wells are used to access the water. It is used for municipal water supplies, irrigation, heating and cooling, and mineral water production.

Existing governance and management structures

Core Zone

There are 14 nature reserves, designated under national legislation, within the BR amounting to 1,855 ha and comprising 25% of the core area². Work to establish the reserves is on-going and the proportion is likely to increase. There are also 12 Forest Habitat Protection areas, amounting to a total of 19ha, also designated under national legislation. The BR contains 34 areas designated under the European Habitats Directive, and 4 areas designated under the Birds Directive amounting to a total of 6,844 ha or 95% of the core area.

Nature Reserves are designated by the County Administrative Board or the Municipality and managed in accordance with the provisions of the 1999 Swedish Environmental Code. They can use national and EU funds to support environmentally friendly farming and forestry practices.

53% of the core zone is government owned (Municipality 25%; State 28%). However, it is notable the core area includes Sweden's largest area of seasonally flooded wet grasslands owned by farmers and used for haymaking and grazing.

Buffer Zones

The buffer zones cover an area of 22,900 ha. They consist of a Ramsar Convention site, areas of national interest for the purposes of nature conservation (designated by the Swedish Environmental protection Agency), and shore protection areas, on which the state, through its agent the Regional Forestry Board, has signed long-term nature conservation agreements with landowners. There are also municipally-owned or state-owned nature conservation areas with non-statutory protection.

Only 4% of the buffer zone is Government owned

Transition Zones

The primary control over land use in transition zones is through the Planning and Building Act (SFS 1987-10). Effectively this vests responsibility with the Municipal Authority which is charged to develop a comprehensive (strategic/spatial) plan and other more detailed guidance for development practice. The existing Comprehensive Plan was produced back in 1990 but is currently being revised.

There are specific areas within the transition zone designated as being of National Interest for cultural environment, outdoor recreation and commercial fishing, and these are subject to a presumption in favour of protection under the Swedish Environmental Code

The Environmental Code also includes regulations relating to particular activities. Thus state permission is required for land drainage, and for the quarrying of rock, stone, gravel, sand/soil, or if operations risk substantially changing the natural environment.

Agriculture in the wider countryside is regulated in part by the provisions of the Environmental Code and the *Förordningen om miljöhänsyn i jordbruket* ("The Ordinance concerning Environmental Concern in Agriculture"), which deals for example with husbandry and nutrient management issues.

Forestry comes under the Forestry Act of 1979 and the forest resource "must be managed in such a way as to provide valuable yield and at the same time preserve biodiversity". Various practical management provisions apply. Hunting and Fishing are similarly subject to the environmental provisions of Government Acts.

² Kristianstads Vattenrike Biosphere Reserve Nomination Form 2005

8% of the transition zone is government owned (Municipality 6%; State 2%)

The BR governance and management structures

The BR governance and management structures have evolved from those previously associated with the “Ecomuseum” (since 1989), and consist of a coordinator, supporting staff, and a “consultation group”.

The Biosphere Coordinator is employed by the Municipality, and works directly to the Municipality Executive Board. The coordinator is supported by a consultation group of 25 members representing a wide range of interests in the area, including local and regional government politicians, farmers, nature conservation groups, tourism and health. This group is purely advisory – most initiatives are developed and/or facilitated by the coordinator and his team. The group fulfils a key role nonetheless – as a forum for debate; to identify key issues; to resolve conflict; to review the activities of the BR. This group meets several times a year – at least once outdoors.

The BR designation does not involve any new restrictions. Rather, the zonation builds on and raises awareness of existing values and opportunities – at all times emphasising the relationships between people and biosphere. It facilitates prioritisation of different forms of initiative and support. It informs the Municipality’s “comprehensive plan” (structure plan/strategic plan/spatial plan).

Despite its lack of formal authority, the Biosphere Office has become a focus for initiative related to sustainable development. It has done this through:

- Building up awareness of the values of the wetlands and associated habitats
- Building trust by working steadily over many years (including 15 years prior to designation) to identify new opportunities to benefit from environmental values and to resolve conflict;
- Networking effectively – and gaining influence and support - at all levels including local community, sectoral interests, local, regional and national government and associated agencies, and international.
- Leadership – using influence within the network to support initiative in terms of political support, financial support, and “people” support
- Exploiting “windows of opportunity”

Its function may be summarized as *flexible and adaptive facilitation and interpretation*.

The work of the BR team cannot be described as “bottom up” in any strategic sense: they are very much their own bosses; and they are not accountable to stakeholder committees or steering groups. The bottom-up element comes into play in specific projects or initiatives. While there is no real “participatory planning” there is always “participatory doing”. Mutual respect is seen as the starting point and foundation for all the projects.

The BR office develops a 3 year programme, which is reviewed and approved by the Consultative Group, the Municipal Board and the Skane County Administrative Board (Nature Conservation Department). This is not a comprehensive management action plan characterised by dates, milestones, targets etc, but rather a readable strategic document outlining key areas of work to be prioritised. It is developed over a period of around 6 months, involving four staff and roughly one month total input. The BR “landcover” plan is implemented through the Municipality’s Comprehensive plan.

Staff and budget

The BR Office has 5 full time staff (coordinator; logistics; ecologist, exhibition designer and nature conservation worker) and another part time ecologist, who also works for the County Administration (Nature Conservation Department). Several others work part time or on a contract basis. Many of the activities associated with the BR are achieved through other

departments of the Municipality – such as the technical department for path and bridge building; Nature School under the Schools Authority etc. The total number of persons engaged directly or indirectly is likely to be around 22.

The total budget is estimated at around SEK 5.5m/yr (c. £450k), of which roughly 50% is directly associated with the BR Office³.

Preparation of the BR bid required significant resources. It took most of the time of the coordinator and the logistics specialist over a two year period. Many others also supported the process, including authorities, researchers, farmers, and ornithologists.

Achievements and values of the Biosphere Reserve

The BR plans its activities and reports its achievements in terms of the three functions of BRs:

- Conservation
- Development
- Logistic support

Awareness, understanding and pride

In practice the BR team and other stakeholders placed **logistic support** firmly up front. More than 15 years were spent raising awareness of the values of the area through the “Ecomuseum” organisation – working with the “nature school”, with farmers, and developing access and interpretation centres for visitors. A key feature of the Ecomuseum approach is that it comprises small outdoor interpretive centres throughout the Vattenrike. A film: “Wings over Vattenrike” was made on the initiative of a local nature photographer, and shown on national television several times. 40-50 articles appear in the local press every year. Several national radio programmes have been broadcast from Vattenrike.

It is notable that in Sweden, as for many other European Countries, there has been widespread and generally unpopular designation of Natura 2000 sites – with limited associated interpretation. The values of these sites have not been well articulated to the general public. The work in the Vattenrike, unencumbered by negative association of top down designation and regulation, has met a significant need – to explain to ordinary people why these areas are valuable.

Specific initiatives in recent years include:

- More outdoor museums
- Nature School – *experience*, discovery, study
- A 7 km walkway through the wetlands (including bridges, boardwalks etc)
- Access for wheelchair users to visitor sites within the reserve
- Demonstration sites (e.g. rotational management of sandy grasslands) and outdoor museums
- University research (eg University of Lund– soil profile in sandy grasslands, migration of the Marsh harrier); University of Kristianstad (pupils learning about ecosystems);
- Documentation and monitoring of wildlife values
- Local meetings to discuss local land and water use issues

Statistics which allow us to measure the benefits associated with most of these activities are few and inadequate. However, It is known that the 7km Linnérundan trail and boardwalk attracts 25,000 people each year – roughly 60% locals – and in all 150,000 visit the 20 visitor sites. It would also be possible to aggregate information on e.g. numbers of people involved in all the various activities. However this would still fail to capture the actual value added of the

³ Kristianstads Vattenrike Biosphere Reserve Nomination Form 2005

Biosphere Reserve designation itself – many of these activities were initiated under the *Ecomuseum* prior to designation.

In any case this approach would not capture what may well be the most important benefit of all. Almost all the people I talked to emphasised one key benefit: **pride**. Local people have realised that they have on their doorstep not a dangerous mosquito infested swamp, but something of great beauty and value; and this value has been confirmed by a fine TV film and an international designation. These values in turn add value to their lives and community. This sense of pride leads directly to, and underpins, opportunities in terms of both conservation and development. Farmers are no longer ticking boxes for regional or national bureaucrats; they are making their *Vattenrike* richer. And they are playing a part in deciding how to do this. And for local politicians especially the BR designation is seen as an international accolade of which they are very proud.

The *Naturum*, discussed below, is likely to further enhance both knowledge and pride.

Informed debate and conflict resolution

The BR Office monitors issues – some of which arise in discussions of the consultation group, and others more widely. For example, summer droughts can spark conflict between farmers in need of irrigation water, and fishermen, conservationists and mill owners concerned about river levels. The BR office facilitates the establishment of local interest groups to seek resolutions to these issues. There have also been conflicts relating to the Cranes, which are an important tourist attraction, but also eat the farmers' grain, and geese which graze the pastures. The office has brokered a range of initiatives to address the problems ranging from scaring to feeding.

The head of Landuse and Planning (Kristiandstad Municipality) believed that facilitating early informed discussion of emerging issues was a key value of the BR team. When asked whether a local government employed ecologist could not fulfil the same role the answer was clear: these people have a different attitude. *They know they have to accommodate development; its part of their philosophy to be positive.* The planners consult the BR team regularly but on an informal basis. Their knowledge and opinion is valued.

Equally, having signed up to the designation, local politicians and developers have signed up to a set of principles, and they in turn are duty bound to take nature conservation and "ecosystem management" seriously.

A major test for this approach is emerging as the attractions of the city increase, and the demand for housing increases – especially on the waterfront. The BR team are putting down some clear *no-go* areas; the Municipality is keen to develop some quality sites. This will serve as a real test of sustainability in practice. Can a win-win be identified? If not, how will the trade-offs be made? And can positive relations be maintained? Either way, the situation is probably better than it would have been: *"there is no way that the BR interests will be the least respected"*

Development

There are many examples of development associated with the BR. Some are directly related to the designation; others are associated with the values addressed by the BR.

Farming

Most farmers in the BR can access national and EU schemes to support environmentally friendly farming. The BR has played, and continues to play a role, for example ensuring that grant conditions are sufficiently practical and flexible; or by showing the presence of nationally important species and thus allowing access to higher rates of payment. The Director of the Science park – also a farmer's wife – was clear that flexibility over e.g. cutting dates or hunting was crucial to getting farmers on-board.

The BR office also serves as a “one stop shop”. In the past farmers were pulled in different directions by different levels and departments of government and agencies. Now they can engage in locally informed and practical discussions with the BR team.

Some farmers have clubbed together to seek further value added from conservation sensitive farming by launching “meat from the Waterkingdom”. The BR is also at the forefront of “piloting” a national scheme that would involve 50 year conservation management agreements with farmers.

Tourism

There are 2 “ecotourism” enterprises directly linked to the natural values of the Vattenrike – one taking relatively large numbers of tourists for boat tours around the wetlands; another taking smaller groups for a more “in-depth” experience of landscape, history and nature – including in particular watching the eagles and the cranes. Both are accredited according to the national “ecotourism standard” (Nature’s Best), and both are experiencing growth. A guide also operates according to demand. Other enterprises hire boats, canoes etc Fishing is a significant recreational activity.

However, it is tough to make much money from ecotourism – it is necessarily a specialist low volume niche market, and major growth in this area is not anticipated – or necessarily desired.

The Vattenrike is also part of the general attraction of the town of Kristianstad, over and above its direct link to eco-tourism. The 7km walkway is now the biggest single “attraction” in the town, followed closely by history/culture sites. The location adjacent to the town centre is fundamental to this success.

The Head of Tourism in the Municipality suggested that nature is attractive to a wide range of visitor types – from kids to grannies. It is ideal family material. And the BR designation serves as a form of quality assurance. The **Naturum** (see below) will be unique – *in the reeds and in the town* – and most local people are very positive about it. It has for example had a much better press than the proposal for a new sports facility.

Local enterprise

The *golf club* has become involved in management for biodiversity – tussocks of turf with high conservation values have been transplanted to the course to extend their range and link natural habitats. The local *riding school* uses the sandy grasslands, and this use is being developed as a positive management tool to enhance some of the ecological values

The overall economic impact of these is likely to be modest and there are no reliable statistics that would allow us to quantify the impact. In any case the farming is also related to cultural issues and heritage, and ecotourism to wider awareness raising issues.

It was noted by one source that business and private enterprise (other than farming and tourism) have been rather little engaged to date. The emphasis has been very much on land use and natural values. This is not surprising however – the Man and Biosphere concept is precisely that human wellbeing and economic success is founded in and dependent on a healthy biosphere.

“I think everybody is proud”
Anders Olsson, Head of
Trade and Industry,
Kristianstad Municipality.

Development vision

There may be a much more fundamental impact on development, with substantial implications for the future of the economy of the Municipality. Development depends to a significant degree on profile and image, and this in turn is closely related to the sense of pride. The Head of Trade and Industry of the Municipality was clear about this. The “Water Kingdom” is a good brand (quality assured through international designation) especially for Kristianstad. It complements the municipality logo “Spirit of Food”. The town is seeking to create an image and a profile which will attract the best kind of development, closely associated with a high quality environment, high quality and healthy food, and a high quality

healthy lifestyle. The future lies, he believes, with sustainable development. As many as 20-25 small companies are now moving in the direction of quality and sustainability. The town already has a reputation in this area: its biogas powered buses for example, and Vattenrike is another key dimension. "A lone farmer would find it hard to gain a reputation for quality in Stockholm, but a "biosphere product" would not". Last year saw food exports from the region at record levels – which he attributes to quality. And at local level 15 farm shops have sprung up over the last 3 years – testament to increasing interest in locally produced healthy foods.

This perspective was reinforced by the Head of Landuse and Planning. The "vision" for Kristianstad is sustainable development – a mixed and beautiful city; health and wellbeing. Rather than restrict people (e.g. car use) we need ideas to create better alternatives.

Evidence that the town's "quality" profile is encouraging quality economic activity is of course hard to find, but population growth in recent years has been steady (see fig C2.1) and appears to have been increasing in the last few years. The Head of Trade and Industry in the Municipality was of the view that people were being attracted from the city of Malmo because they wish to bring up families in a pleasant environment. And "*the ruby is the Vattenrike*".

However – the Director of the Science Park did not believe that there was any evidence that the BR was attracting business to the area, though there was some potential. On the other hand she thought there was potential for the town to become a role model for sustainable development, and that this in turn might create opportunities to strengthen its knowledge based and consultancy sector. Getting a "champion" within the enterprise community will be the key to embedding the concept firmly in the business community. "*We need to show that it means more than fields of flowers*"

Physical planning

For the reasons given above, the zoning, the information on natural values, and the views of the BR team are all taken seriously in the physical planning process. Although some of this might be seen as having negative impact in the short term (for example a presumption against building in areas of high recreational or conservation value), it should enhance the quality of development in the longer term. The head of Land-use and Planning in the Municipality stated that the BR is a key consideration – a "layer on the map" subject to informed and reasoned debate rather than mindless restriction. It introduces "new and thoughtful ways of looking at development issues".

The Naturum

Confirmation that local and regional Government is persuaded of the value of the Biosphere Reserve concept is evidenced by the plan to build a *Naturum* – a significant visitor centre – rising from the reeds in the wetlands, but close to the town centre. 7 million Euros will be invested in the project, a collaborative project between the Municipality, Sweden's National Environmental Protection Agency, the County Administrative Board and others. It is anticipated that it will build on and confirm the values of the biosphere area. The Municipality believes it will pay for itself – in terms of visitor spending, associated services, and the overall reputation and image of the area.

The Head of Landuse and Planning (Krtianstad Municipality) was clear that this is not simply a big "ecomuseum". People and nature both lie at its heart: it is more of a "man-ecomuseum". It will address these bigger issues, including climate change and quality of life.

It will also enhance infrastructure. Local people will be able to park near the site and then walk over a new pedestrian bridge into the heart of the town.

Nature conservation

Benefits to nature conservation and ecosystem services arise both directly from management specifically designed to conserve or enhance values (e.g. appropriate land management or farming practices for wet meadows and sandy grassland; re-introduction of the European catfish and Atlantic salmon) and from greater awareness leading to more sensitive development more widely. These benefits can only be measured in terms of areas of land

under sensitive management or higher level statistics of e.g. bird numbers, wildflower meadows etc.

The Ekomuseum and BR office has also provided a focus by which to address ecosystem service issues – water quality and ecological change in the wetlands; climate change and the role of the wetlands in flood mitigation.

Multiple benefits

The whole point about sustainable development is that natural values and human development are intimately related. Many of the initiatives associated with the BR therefore cross benefit boundaries. The following are some specific examples:

- Low maintenance wild flower verges to roads entering the town of Ahus;
- Restoration and education sites;
- Demonstration and visitor sites;
- The Naturum (recreation; education; spin off services).

These initiatives all raise awareness of the need and opportunity to manage the wetlands and associated areas for biodiversity, recreation, sustainable use, and ecosystem services – including the climate change responses of carbon sequestration and flood mitigation. And crucially in this case, this raised awareness feeds directly into the key mechanisms for change: the image building and physical planning processes of the Municipality and regional authorities.

Table C2.1 Summary of potential social, economic and environmental benefits associated with Kristianstads Vattenrike Biosphere Reserve

<i>Dimensions</i>	<i>Criteria</i>	<i>Contributing activities BR Vattenrike</i>
A healthy environment		
Biodiversity	species diversity, range and abundance	Wet meadows management; sandy grassland management; re-introduction of the European catfish and Atlantic salmon; greater awareness leading to more sensitive development.
	habitat extent and condition	Wet meadows management; sandy grassland management; greater awareness leading to more sensitive development.
	structural diversity	Wet meadows management; sandy grassland management; greater awareness leading to more sensitive development.
Landscape	character, condition and qualities	Wet meadows management; sandy grassland management; greater awareness leading to more sensitive development; rationalisation and coordination of existing designations within a zonal framework
Ecosystem services	quality and productivity of soil, water, air	Farm demonstration plots; forum discussions; conflict resolution
	efficient drainage	Forum discussions; informed physical plan
	erosion resistance	Forum discussions; informed physical plan
	carbon sinks	Forum discussions; informed physical plan
	other ecosystem services	
A healthy society		
Recreation and access	active recreation	150,000 visits to walkway; fishing; canoeing; cycling etc
	access	Specific initiatives to improve access, including in farmland areas, and for disabled
	passive recreation and inspiration	"Wings over Vattenrike"; associated book
Understanding and awareness	understanding and awareness	15 years of awareness raising and educational activity leading up to designation; facilitation of informed debate; Naturum planned; decisions are better informed; opportunities for the Universities and Schools
Community	engagement of BR <i>with</i> community	Consultative group; fora
	involvement <i>of</i> community with BR	Schools outdoor lesson

	vitality and cohesion	Sense of pride in place and shared value; agreed vision and “way of doing things”
The quality of places to live	near environment (greenspace)	Access; walkways; wildflower verges
	houses and gardens	?
Environmental justice	equitable access to, and utilisation of, environmental benefits	Disabled access; access, education throughout the BR
A healthy economy		
Employment and income	direct employment and income	Maintenance of farm employment and income; BR team; ecotourism employment and income;
	indirect employment and income	Employment and income associated with increased tourism and economic growth associated with enhanced image, and “Naturum”
	job quality	Quality environment associated with new high quality jobs?
	income and jobs foregone	Possible restrictions on housing development in buffer zone
Business	business opportunities and constraints	Internationally approved “quality brand” and enhanced profile for Kristianstad; infrastructure associated with Naturum
	short term investment	E.g. the Naturum;
	long term investment	Anticipated as a result of enhanced profile
	human resources	Attracts educated and skilled workers and entrepreneurs
Resource use	conservation of resources with an economic value	Better management of natural tourist attractions. Better management of fishery resources?
	conservation of resources with <i>potential</i> economic value	The wetlands future ecotourism value; the outdoor recreational activities likely to underpin a dynamic economy

Added value

It is apparent from table C2.1 that there is evidence of significant contribution of the BR across the range of criteria for sustainable development, although it has not been possible to measure the “marginal” contribution for two main reasons:

1. The BR designation is the culmination of many years activity under the “Ecomuseum” banner. Many of the direct and tangible benefits would have been realised irrespective of BR designation - assuming the Ecomuseum activities had maintained momentum.
2. Some of the key benefits – which may have the greatest overall long term social and economic value – are associated with pride, image, and “ways of doing things” – and are probably impossible to measure in the short term.

However, willingness to invest 7 million euros in the “Naturum” serves as some form of indicator of the confidence that local politicians and planning officers have in the concept. Three of these officers (head of trade and industry; head of land-use planning; head of tourism) made it clear that the BR designation was a crucial factor informing this investment and ensuring support for such an investment amongst politicians and within the wider community. *It would not have happened without.* Although the Ecomuseum had done the groundwork, the BR designation conferred the status required, and guaranteed some kind of “pulling power”. The background work, crowned with the designation, has persuaded people that it is worth investing in nature, and in sustainable development as a driving philosophy. It will be many years before we can evaluate whether the investment was worth while.

The Head of Landuse and Planning was of the view that the BR designation had added significant value to the groundwork undertaken by the Ecomuseum team. The Ecomuseum was “eko” first; the Man and Biosphere programme and BR designation puts man in equal place.

Implications for new site selection and evaluation criteria

This case study has significant implications for both site selection and evaluation criteria.

Firstly, this site was *self selected*. It was not spotted on a map according to a set of social, economic and ecological criteria. The ideas of conservation and development - sustainable development – were nurtured, demonstrated, taught and promoted by committed and strategic individuals over more than 15 years. The designation has now reinforced this activity, and the historic groundwork has reinforced and enriched the designation. In other words - the designation was part of a long and complex process; it was not an isolated event.

Secondly, this process has had strong political backing for many years. This has led to stability, and allowed for a committed team of individuals to raise awareness and build up experience, track record and strong reputation.

Thirdly, this is a managed landscape surrounding a town and several smaller conurbations. People are living with or close to the “natural values”. The relationship between humans and nature is self evident to most people. The core and buffer zones are not some abstract zone of interest to specialist scientists. They represent a resource – meadows for farmers, walks for town dwellers and visitors, water for everyone. *Sustainable development has real practical meaning in this situation*, and if presented in a non-threatening way, most people will sign up to it.

It is not easy to translate these points into evaluation or selection criteria, although the following might be suggested:

- There should be an existing initiative which has laid the groundwork;
- There should be strong local and political support;

- There should be strong existing or potential links between the natural values and people's daily lives

The first of these – crucial for the success of Kristianstad – might not however be necessary in all circumstances. Strong initial backing from a range of government, land-use and business interests might be sufficient to kick start a biosphere reserve as a focus for sustainable development initiatives.

One of the key criteria which has been identified in the literature on community based management of natural resources in developing countries is “an identifiable *community* of interest”, and the means to establish (a sense of) joint “ownership” of a resource. The wetlands are a key part of the identity of many in Kristianstad (both positive and negative), and this idea has been nurtured for many years by the project team. The wetlands can now be used to strengthen the profile of the town, and in so doing unite disparate interests.

Achieving Impact

The BR seems to have substantial support and influence, it has generated modest tangible benefits, and it is seen as contributing to a development philosophy and municipal profile or image which could deliver substantial social and economic benefits in the longer term.

Several factors, identified and explored in the interviews, are thought to have contributed to these achievements:

- Very thorough and steady “**step by step**” groundwork on education, access and awareness raising.
- **Work with children** can influence 2 generations
- **Don't parachute** in a package of jargon.
- **Mutual respect** – in particular respect for farmers' understanding of nature.
- Emphasis on **recognising values**, and finding practical solutions to conserve or enhance those values and at the same time improving peoples lives. This was the key to gaining the support of the farming community – but took a great deal of time.
- Emphasis on **getting people out** to look and discuss.
- **Language** and image are important: “natural values” rather than “biodiversity”; Biosphere “Area” rather than Biosphere “Reserve”; water, flowing water as a recurrent theme.
- Formal and informal **connections and alliances** in all directions – with resource users, local politicians, NGO's, regional and national government and agencies, Universities, and international institutions.
- **Professionalism**: while NGOs can make a great contribution to audit and monitoring, professionals add credibility and neutrality.
- **Political backing and flexible line management**; trust in professional competence rather than micro-management and tight control; lack of bureaucracy.
- **Leadership**, and ability to recognise opportunities in both time and space.
- Identification of flexible **win-win strategies** – such as new sources of funding for ecologically beneficial farming, taking account of practical constraints.
- **Distancing from regulation** – allowing for development of trust; and avoidance of the use of the word “reserve”⁴; encouraging user codes of practice.
- Direct **input** from the BR team into the Municipality's **comprehensive (strategic) plan**

⁴ the Swedish word used for Vattenrike Biosphere “reserve” translates as “area”

- Skilled **facilitation** and conflict resolution.
- A strong link with the marketing or **profiling of the Municipality** or region.
- A **gap** to be filled in the existing governance system.

The last of these is of considerable importance but hard to pin down. In Sweden as in the UK there are other sustainable development initiatives. What distinguishes the Biosphere Reserve so clearly is its physical existence – the “Vattenrike” - which unites people of disparate interests around a shared sense of pride in place. A key factor throughout has been the steady building of this shared sense of pride through emphasis on natural “values”, access, education and quality of life.

It remains to be seen whether the momentum which has been achieved can be maintained, especially in view of political changes. But most seem to think that this is an idea with legs.

Conclusion

The Vattenrike is a good product which has been well marketed. The term Biosphere *Reserve* has not been allowed to compromise this image – *Vattenrike* remains the headline name, and the word “area” rather than reserve is used in the Swedish translation.

Water is a fine focus for a biosphere reserve. It brings together ecology and ecosystem services, history, and economics. It is much easier to make the connection between a wetland and recreation, water quality, flood mitigation and carbon sequestration, than it is for an upland grassland for example.

In this case, the BR designation has been embraced by a clearly defined institution - the Municipality (incorporating the Ecomuseum) - and is seen by them as a key tool in guiding the future development of the area, and in developing a powerful and attractive image which will secure a dynamic and high quality future. In other words it functions effectively as an international quality assurance label – for both location *and* management. While the original driving force for the *Ecomuseum* was individual conviction and commitment with the emphasis squarely on natural values, the designation has allowed for wider ownership within the Municipality, with the emphasis on sustainable development.

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Case Study

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Introduction

Purpose of this case study

To investigate the social, economic and environmental value, actual and potential, added by North Devon Biosphere Reserve, this being the only such reserve in the UK to be designated as such under current UNESCO criteria.

A brief description of the North Devon Biosphere Reserve

This Biosphere Reserve covers much of the northern half of Devon in the South-West of England, and encompasses scenic coastline and attractive countryside. Part of the core area was de-designated as an NNR in 1996 because of a disagreement between the landowner and English Nature over grazing management practices. This loss of one designation may have encouraged interest in re-designation as a larger BR in November 2002. The core of the reserve is Braunton Burrows, an active sand dune system of some 1,333 ha, owned and managed by Christie Devon Estates and the MoD, working within a management agreement administered by Natural England. This is an area of international importance, an SSSI and a Special Area of Conservation under the EU Habitats Directive. After the enclosed feel of narrow Devon lanes, high hedges and small fields the Burrows and the huge beach give a real sense of space and freedom.

The buffer zone is 3,120ha of mainly grassland, owned and managed by many private individuals and encompassing a large section of the estuary of the rivers Tay and Torridge. This zone also contains one of the only two surviving Mediaeval Open Strip field systems in the UK and is therefore of historical significance. It is an interesting landscape, open and green, with attractive small stone barns and the feel of the sea being nearby.

The transition area has a fuzzy boundary and is designed to include any issues in the wider region that affect the rest of the reserve⁵. Geographically, it extends out to sea round Lundy Island, and inland to encompass the towns of Oakhampton, Barnstaple and Bideford. The whole Reserve extends to about 3,500 sq km (350,000 ha) of which approximately 2000 sq km (200,000 ha) is on land. Approximately 440 people live in the buffer zone, and more than 150,000 in the transitional area.

A map of the North Devon BR is included in Appendix 1

Existing governance and management structures.

The BR is co-ordinated by the manager of the North Devon Coast and Countryside Service (NDCCS). Working from the old Railway Station at Bideford, heated by woodstoves burning local fuel, this experienced team of countryside managers have four functions:

- Co-ordination of the Biosphere Reserve
- Co-ordination and management of the Area of Outstanding Natural Beauty (AONB)
- Management of the Tarka Trail
- Management of the Southwest Coast Path between Exmoor and Dartmoor.

They have to cover both the traditional role of a Coast and Countryside Service, as required by the district councils, and to fulfil the new wider role of Biosphere co-ordinators, as required by the county council. They provide a range of interpretation and education events, the usual

⁵ Biosphere Reserves. The opportunities and potential benefits to people living in and around them. UNESCO MAB/DEFRA PB9693 undated.

land-management practicalities and various local initiatives, including a volunteer programme. They are the only Coast and Countryside service left in Devon still to be funded by Devon County Council and their area is co-incident with the Biosphere Reserve.

The relevant Local Authorities are Torridge District Council and North Devon District Council, whose boundaries are shown in figure 1.

Figure 1. District Council Boundaries.



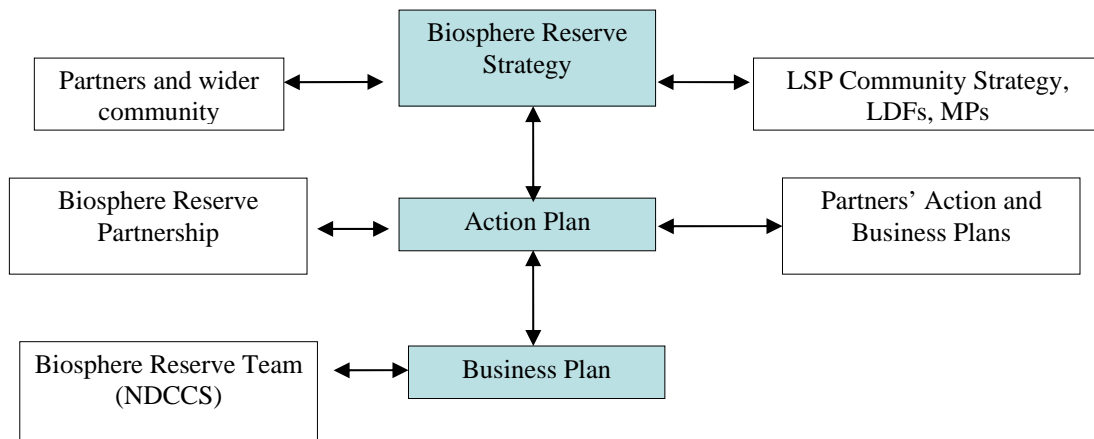
Torridge and North Devon Districts and extent of Exmoor National Park (in orange)

Being essentially co-incident with the wider Biosphere Reserve, we look to statistics from these two council areas to examine the facts relating to the social and economic situation in the area.

BR Strategy

A recent draft strategy document for the BR, accompanied by an Action Plan and a Technical appendix sets out the strategy for the sustainable development of the reserve for the next 5 years. It is envisaged that the reserve will link with a partnership team, the wider community, business plans and local strategic partnerships and elected representatives as shown in figure 2.

Figure 2.



As almost all the work undertaken by the NDCCS is within the BR, it could reasonably be argued that all they do has a direct impact on the Reserve and should all be assessed.

Many of the actions of the BR, particularly in supporting funding bids by other organisations, are filtered through a morass of Strategies, Action Plans and Working Groups. This was clear from initial desk study, and confirmed on-site. As an example of the conflicting mass of documents, there exists a “Strategy for Sustainable Economic Regeneration in North West Devon”, prepared by WSP Environmental Limited for the North West Devon Economic Partnership in May 2004. This document headlines the Biosphere Reserve, and cites the natural environment as the key economic driver, with the BR as the catalyst for that theme⁶. Yet reference to this partnership on the Devon County Council Website brings up a Strategy dating to 2006 which makes few specific mentions of the BR⁷. North Devon Plus, which is a council-led amalgam of various enterprise bodies⁸, affords the BR some recognition in its comprehensive recent business plan⁹.

Relationship with local planning

The Local Development Framework Team of Torridge District Council, and the Planning Policy team of North Devon District Council are currently engaged in a consultation exercise with a view to producing a Core Strategy in 2010. This is to “set the context for local policies in all other local development documents” and “will set out the key elements of the planning framework for the delivery of development across northern Devon until 2026”¹⁰. The consultation is being carried out for the district areas of North Devon and Torridge, excluding Exmoor National Park.

Each Core Strategy is expected to:

- Present the spatial activities of our communities in an understandable way, following consideration of needs and aspirations
- Integrate the guiding principles of sustainable development:
- Effective protection of the environment

⁶ A Strategy for Sustainable Economic Regeneration in North West Devon. Prepared by NSP Environmental Ltd for the NWD Economic Partnership May 2004.

⁷ http://www.northdevon.gov.uk/index/lqcl_council_government_and_democracy/lqcl_publications_leaflets-2/nonlqcl_business_reports/nonlqcl_north_west_devon_economic_partnership_strategy.htm#anchor2

⁸ North Devon Enterprise Agency, North Devon Marketing Bureau, North Devon and Exmoor Regeneration Company.

⁹ North Devon Plus Business Plan 2007/08. Supported by Deloitte, part-funded and supported by North Devon District Council, Torridge District Council, South West of England Rural Development Agency and Devon County Council.

¹⁰ Core Strategy Development Plan Documents Issues and Options, Nov 2007. Torridge District Council. http://consult.torridge.gov.uk/portal/planning_policy/ics/csdpd?pointId=project_6

- Social progress that recognises the needs of all
- Maintenance of high and stable levels of employment and economic growth
- Prudent use of finite natural resources

This clearly chimes with the overall objectives of any BR and is a hopeful pointer for future District Council involvement.

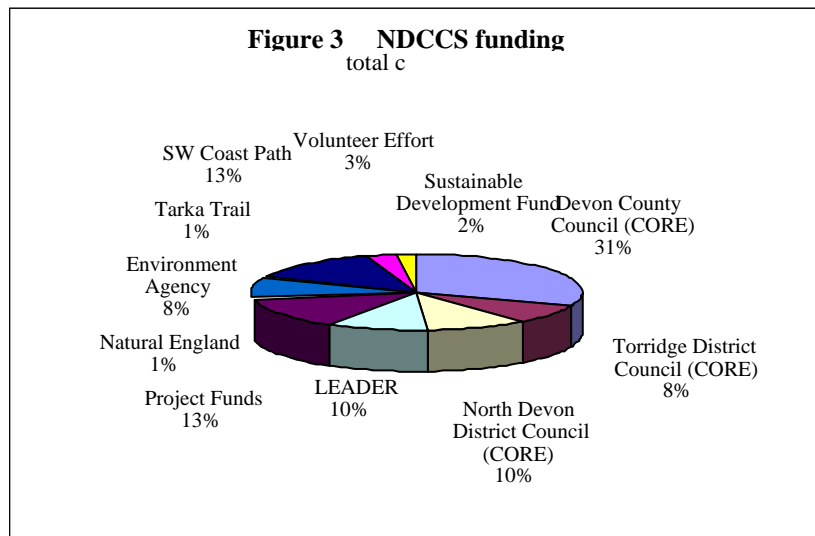
The Biosphere Reserve co-ordinator is consulted by district councils on major planning proposals, and on all planning applications within the AONB.

Funding

Funding of the BR is somewhat indirect and uncertain. There is no guaranteed funding for the BR itself. It is funded indirectly in that Devon County Council, North Devon District Council and Torridge District Council fund the NDCCS. This core funding is matched from a variety of sources, to take the total spend by NDCCS in 2006 up to about £420,000 as shown in Fig 1.

Four years ago Devon County Council were on the brink of withdrawing funding from the NDCCS, as it had done from all other Coast and Countryside Services in Devon. Re-shaping (although not yet re-naming) the NDCCS as the Biosphere Reserve co-ordinators saved the service in its present form. Devon County Council are currently minded to fund countryside services such as NDCCS if they are associated with an area carrying an international as well as a UK designation, and are also picking up the difference as district council funding has decreased slightly.

Figure 3. North Devon Coast and Countryside Service (BR Service) Funding



There exists an extraordinary range of local government bodies involved in some way with the Biosphere Reserve, (See Appendix 2) and variously designed for consultation, representation, and perhaps resolution. Most funding bids pass through some section of this system. This makes direct analysis of the value added by the BR in most spheres totally impossible.

Issues surrounding the North Devon Biosphere Reserve

The case study – people, place and perceptions

Fifteen people gave us their views on the issues surrounding the BR. Our initial desk-based familiarisation with some of the key issues in the area enabled us to use semi-structured interviews. We rarely needed to prompt discussion, or ask for views on particular BR programmes or actions, but having set the scene as to the clear purpose of our work we left it to the respondents to identify those issues which they personally found memorable and relevant. We drew out many passionately held views and perceptive analyses of the current situation, frequently followed by a raft of imaginative suggestions for the future. We sorted the subjects raised by our interviewees into social/economic, environmental and governance, accepting that these divisions are somewhat artificial, and allowed the key issues identified to lead our thinking and conclusions. Interweaving the comments of our interviewees (boxed) with the fact and discussion should give some idea of the complexity of the various situations in which the BR is involved. Not all the comments received make comfortable reading, and may not be factually correct, but nonetheless represent the views of those we talked to. We have included all the major points raised in a relatively unedited format so that the reader may get a fair picture of the range of opinions held.

With full co-operation from NDCCS we identified the full range of BR activities and programmes (Section 3) to see how these addressed the key issues raised before using a more formal framework to see to what extent this BR assists in meeting UK social, economic and environmental goals. We arrived, with no little difficulty, at a synopsis of the governance structures surrounding the BR, assisted by Andrew Bell of NDCCS and driven by the many forthright comments from our interviewees on this subject. (Appendix 2).

We have also made use of the comments of our respondents to begin consideration of the future of the UK MAB Committee and the wisdom or otherwise of launching a network of twelve BRs throughout the UK.

Projects

Appendix 3 lists the majority of the BR projects and actions since designation in November 2002, including those events run by NDCCS that are in the BR area although not identified as such.

In addition, the BR, through the NDCCS Manager, has lent support to funding bids (lottery and LEADER), which have been led by other agencies.

Additionally, the NDCCS team has maintained the Tarka Trail, which is estimated to bring some £7 million a year into the local economy¹¹. NDCCS won an award in 2006 for maintaining their section of the South West Coast path to a high standard.

In 2006, NDCCS

- Worked with over 800 students from 17 schools
- Dedicated over 300 hours of staff time to environmental education
- Organised a total of 286 volunteer days
- Won the 2006 Award for the best maintained section of the South West coast path.
- Organised 514 volunteer hours on beach surveys
- Advised 20 farms and 6 landowners (this figure much increased following the 2007 orchard scheme)
- Held various practical training courses in e.g. hedge-laying.
- Implemented innovative information provision through MP3 for the major recreation routes.

¹¹ NDCCS Annual Review 2006.

It would be reasonable to make particular reference to work undertaken since April 2007, starting with the development of an invigorated and fresher partnership, combined with a resolution of long-standing land management issues in the core area has led to what almost amounts to the start of a quiet re-launch of the Reserve.

NDCCS projects since April 2007:

- Biosphere Schools Project
- Explore Braunton Project
- Coastal processes/climate change study, with 2 public seminars
- Twinning with Kenyan BR
- Exhibits at North Devon Festival and Oceanfest, engaging with over 1500 young people over the weekend
- Strategy and action plan through participatory workshops
- BR fully embedded in LSP Core Strategy
- BR fully embedded in next Leader Plus bid (£7m)
- 1st e-newsletter
- BR Partnership established, four quarterly meetings
- Three working groups established covering outreach, conservation and research and all have met

Notwithstanding all the above, the perception amongst our interviewees is that awareness of the BR, what it stands for and what it does, is poor. Few could think of any particular tangible action or influence, the most often mentioned being the Explore Braunton Project, a joint initiative with the AONB. This is funded to a total of £93 k, largely from Lottery funding, and uses one full time project officer, hand-held GPS units, a website and various other novel approaches to provide information and interpretation. Even our most local of interviewees, a sharp Braunton resident with childhood memories of camping on the Burrows (no longer allowed but not because it is a Biosphere Reserve), had no real concept of a BR, but a very real feel and great fondness for the space and freedom of the beach and dunes.

Social and economic issues

As North Devon District Council themselves admit, this is a low wage economy with pockets of deprivation. Economic growth

and prosperity are limited by distance from markets, by a low skills base and poor education opportunities, and by expectations for the future.

Community comments

The most obvious change in the last few years is the building of new housing.

In the last 10 years there has been a noticeable increase in population and a loss of familiarity and community.

The last 12 months has seen a huge increase in the number of immigrants and there are associated housing problems.

Change is obvious over the last maybe 15 years; less so over the last 3 or 4, with the exception of immigrants, who are obvious.

The rich/poor gap is widening, due mainly to housing costs

North Devon is an intolerant society. Strategic Plans, BRs and the like are mainly "done" by incomers.

Whole BR concept is too middle class.

Devon is below the UK average in terms of income from earnings, and North Devon and Torridge are the worst of all the Devon District council areas.¹² Those of our interviewees who identified low wages and high house prices are quite correct. Devon ranked 24th out of 83 local authority areas for house prices in 2003¹³.

Community comments

Money and well-being are not quite the same thing.

Rural poverty is not easy to measure.

Bideford is low wage; low skills. Always has been.

There is third-generation hopelessness here, partly as a result of the collapse of the shipbuilding industry. Particularly evident in Bideford.

People can get caught in a tax credit trap and find it not worth their while to earn more money.

The area GDP per head is around 75% of the national average.

The economy lacks resilience and self reliance

The BR could be good for the tourist industry.

The tourist industry employs mainly immigrants.

The situation is that Devon, and North Devon in particular, has a higher percentage of people working in traditionally low-paid industries than does England as a whole. (Figure 2). The hotel and catering trade employs nearly 10% of the population, over twice the national

¹² State of the Devon Economy. Devon County Council January 2007.

¹³ Devon Economic Concordat 2005.

percentage, and financial industries are less well represented than the national average. Devon as a whole has a higher than (national) average dependence on the public sector.

In comparison with most authorities in England, northern Devon has low levels of deprivation¹⁴. However, North Devon and Torridge have some of the most deprived neighbourhoods in Devon and there are pockets of severe deprivation in each district (Figure 3). Most of the towns (Bideford, Barnstaple) contain areas that fall into the most deprived 25% nationally. All Torridge district and part of North Devon district, excluding Barnstaple and the north coast, are located within the Leader Plus (LEADER+) area, a funding stream that supports community initiatives.

Figure 2 – Employment of people living in the area by industry.

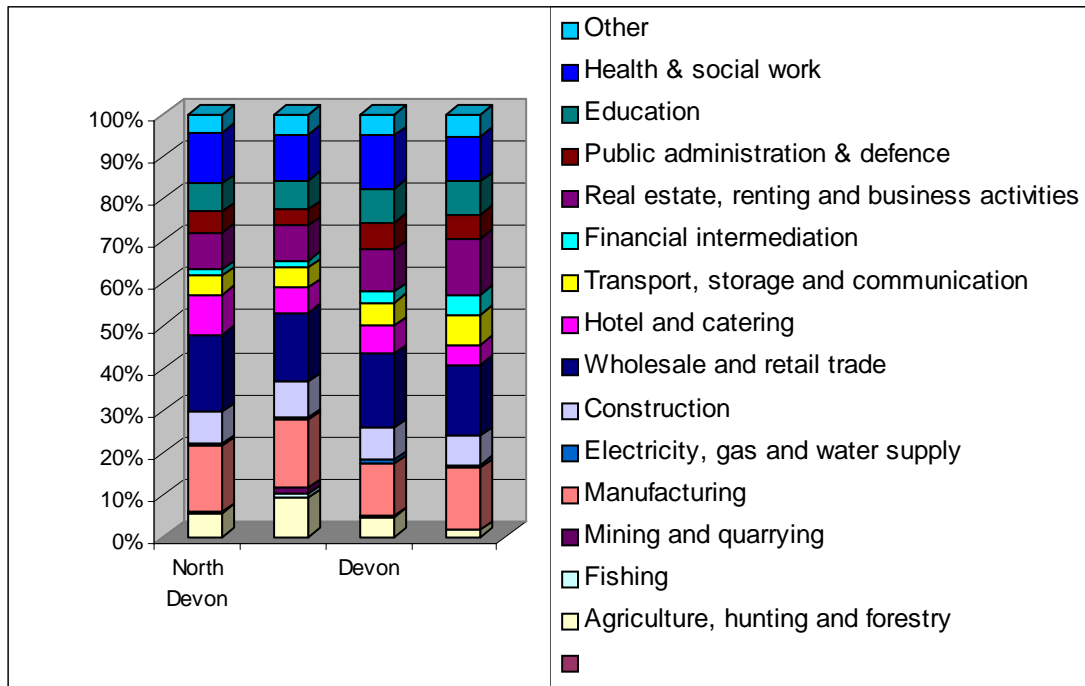
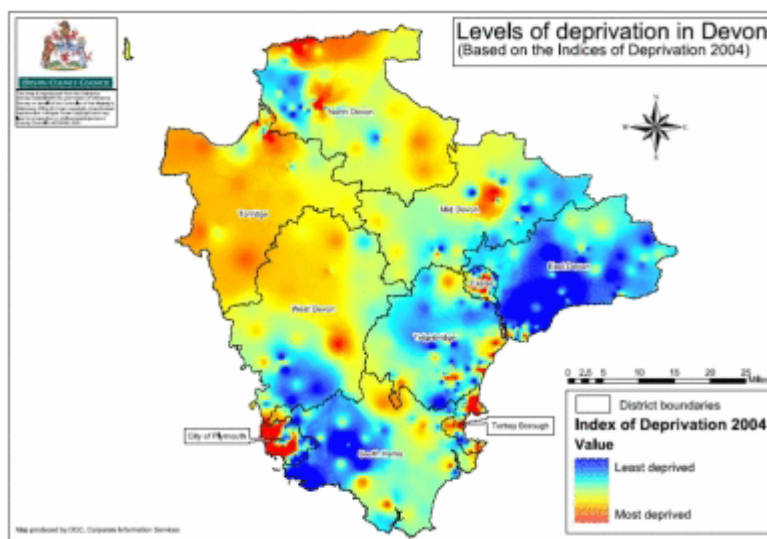


Figure 3. Distribution of Deprivation 2004



¹⁴ Draft North Devon Plus Business Plan (Deloitte Study) 2007

The educational picture is somewhat mixed. Bideford College, a State Secondary School of some 1700 pupils, is socially, but not ethnically mixed. It is a Specialist Science College, an accolade which carries with it financial advantages, and which was awarded at least partly because the school is involved with the Biosphere Reserve. A 2006 Ofstead Report awarded mainly 3's, which is not particularly good in itself but may well represent enormous effort under the circumstances. Anecdotally, there are persistent social problems within groups of families, particularly in Torridge District.

The collapse of the local shipbuilding industry explains much. Bideford and the nearby village of Appledore grew on the proceeds of this historical trade, and Barnstaple would have also benefited. In shipbuilding terms, Bideford was not at all disadvantaged, being relatively near Bristol, and with the deep sheltered water of the Torridge Estuary. The industry having been declining for many years, the only remaining sizeable company, Appledore Shipbuilders, went into receivership in September 2003 with the loss of some 500 jobs. Bought out, they laid off nearly all their staff until a luxury yacht contract in early 2007 secured some 200 jobs.

Pockets of persistent deprivation certainly exist in North Devon. This gives impetus to any kind of designation designed to have social and economic benefits. Starting from a low baseline, there is more of a chance that a Biosphere Reserve could make a difference.

Environmental Issues

The key issues here are the effective management of protected sites, land use change in the wider countryside, built developments, the marine environment and climate change.

Regarding protected sites, the Biosphere Reserve designation confers no more legal environmental protection than already exists under national legislation. Protection for the SSSIs (such as the core area) and other protected areas, such as Local Nature Reserves is therefore officially unchanged by the designation. It is entirely possible that the partnership working style fostered by the existence of a Biosphere Reserve may lead to improved management agreements on such sites, or better compliance with those agreements already in existence. This depends largely on intelligent initial consultation, appropriate incentives and good working relationships with land managers.

Community comments

Traditional industries need to be supported in order to make a transition to a more sustainable economy.

An overall drive to low cost production of commodities makes it difficult to fit in environmental improvements

Businesses need support to make a transition to being more environmentally friendly and find niche markets.

The concept of the BR as an economic driver is more easily taken on board by tourist businesses than others.

The tourism industry does not adequately value and use the benefits of the natural environment

The local people must feel that they are benefiting from the designation.

More is wanted on general knowledge/local history about the reserve, not just beasties.

Outwith protected sites, agricultural land use is very largely dependent upon commodity prices, land capability, farm structure and such financial schemes as may be sufficiently powerful to over-ride market signals. At the time of writing fertiliser prices have been increasing rapidly, forcing many farmers to do a radical re-think of their level of nitrogen input, and leading to great interest in organic schemes. Beef, sheep, pig and poultry producers currently face trying financial circumstances, and for many, continuing as they are is not viable. Some may plough, but this too carries risks, particularly if the yields are low. Under the new European funding programme the Environmental Stewardship Scheme offers grants at Entry Level (ELS) and Higher Level (HLS), with a financially attractive organic option. Entry into the HLS is governed by a points system to fit the limited funding, and is currently rather dependent upon having an SSSI on the land. For a Biosphere Reserve itself to influence any land use change in an environmentally favourable direction the reserve itself must offer financial incentives that over-ride all others; not a cheap solution. A more realistic option is for BR status itself to confer much the same extra points as does the presence of an SSSI. It does confer extra points at present, but not enough. A stronger points weighting would have the added advantage of popularising the concept of a reserve among the farming community, but would require some change to the present system.

Community comments

Land use in North Devon is fairly inflexible, grass or trees. It does not always plough well.

Struggling livestock farmers are queuing to get into the organic scheme.

If livestock will not pay, they may plough. This land can be ploughed, and it is being. DEFRA slope guidelines are not necessarily followed.

Land use change is very slow.

A client of my interviewee has just ploughed his entire farm, which, depending on his tractor, was a fairly fast land use change.

There is no effective protection on ploughing most permanent pasture. Sanctions would be after the event and there may be no proof as to what has gone.

Sites with boundaries are not working. Natural England and DEFRA need to use an ecosystem approach

The financial pot for the HLS Environmental Stewardship Scheme is just too small. No chance of Higher Level Scheme (HLS) unless there is an SSSI on the land.

The North Devon BR Strategy ¹⁵ identifies various environmental issues, which are listed in Section 2.2.1 above, and addressed in an Action Plan ¹⁶. For each issue the required action has been noted, targets and indicators defined and lead and support organisations identified. If this leads to implementation, it is clearly of environmental benefit.

Built developments are the province of County and District Council planners. A BR may feasibly have some influence on what developments are proposed, and could be influential in setting overall priorities for planning departments. Given the inclusion of the BR concept in recent District Council planning policy literature it seems that this is happening. Issues of new build housing and industrial development are very much within the remit of a Biosphere Reserve.

¹⁵ Our Strategy for Sustainable Development 2008-2012. North Devon BR partnership 2007

¹⁶ Our Action Plan for Sustainable Development 2008-2012. North Devon BR partnership 2007

Community comments

Scrub is encroaching on the dune systems

We are losing salt marsh.

Marine wildlife is changing

There is too much exploitation of crab and lobster

Fragmentation of habitats is reducing the resilience of some of the ecosystems

Pollution is affecting marine life.

There is pressure for development along the coastline

What will climate change do?

The sea area of the BR includes a Marine Nature Reserve, and as such, rather like the core area, is already "protected" by such legislation and agreement as is normal for such a designation. The BR confers no extra. What it does do is offer the opportunity, under the BR "tag", to publicise and explain the work of local fishermen, who although few in number are a valued link with the history of the area. They are also a very current asset, selling fresh fish to tourists and local alike and reminding all of our ultimate dependence on the environment. Following their international research on marine litter, the Biosphere Reserve team have developed a value based accreditation scheme which supports good fishing business practices through a partnership scheme with local food businesses. This will be expanded to all business

sectors and will be launched in March 2008.

In terms of climate change, a key UK policy theme, the BR is fulfilling an educational role. Using the predicted effects of climate change on the reserve itself brings home the reality of the inevitable. Efforts to encourage low-carbon footprint development may be more effective where the climate change profile has been raised by such initiatives.

Community comments

Recycling targets are a good idea, but we need to do much better, partly because there are no landfill sites in the area.

Council do not properly understand green/carbon footprint issues. They recycle to get government credits but do not consider their true carbon footprint.

BRs can be linked by Internet; there is no need for visits and the resultant heavy carbon footprint.

New housing is too small, too concrete; no gardens, flash floods, no thought.

Houseboats are becoming increasingly popular due to housing costs, and why not?

It needs better maps. The ponds on the Burrows are lovely, but hard to find.

Local publicity is a bit lacking.

Public access is controlled. The gate on the toll road into the Burrows shuts too early.

As with all issues, the potential for the BR to affect the above themes, all UK policy issues in some sense, depends on effective implementation, which in turn depends on personalities, resources and governance.

Governance Issues

Community comment

It needs an authority like Exmoor, all to itself.

It needs an independent charitable trust foundation, and a small, active governing body.

Needs to be a test bed for land and sea management with total integration; a single service, with a carbon offset fund to feed into a trust.

The BR has made a brave attempt to involve all but it does not yet quite compute. It is unsung, and does not have enough council support.

Governance is not conventionally thought of as a policy issue, but in this context, it falls somewhere between an issue, a significant problem and an opportunity. This was a popular subject amongst our interviewees, but cannot easily be separated into bullet points. The governance system surrounding the Biosphere Reserve has been described in section 2. Certainly governance it is itself a matter of policy. Various social, economic and environmental policies swirl around, but the actions that might translate them into meaningful resolution of at least some of the problems facing the area are controlled by governance structures.

Community comment

Too many organisations are doing the same thing, with implications both for administrative costs and carbon footprint.

Much talk and strategies, little action.

It is quite possible to network without a committee.

Indigenous North Devon is an intolerant, racist society. The Local Authority are seen as "Local". Strategic Plans, BRs and the like are mainly "done" by incomers.

The area is totally over-managed.

Devon CC is supportive, the District Councils less so.

Local Authorities do not like Local Strategic Partnerships or their plans; it threatens their power.

North Devon Plus is run by the council, not by business.

There is no will to integrate the public, voluntary and private sectors.

Summary of potential social, economic and environmental benefits associated with North Devon Biosphere Reserve.

<i>Dimensions</i>	<i>Criteria</i>	<i>Contributing activities North Devon BR</i>
A healthy environment		
Biodiversity	species diversity, range and abundance	Contribution to management of core and buffer area; Local Nature reserves. Dormice project. Orchards project. Wildflowers. Volunteer management. greater awareness leading to more sensitive development.
	habitat extent and condition	Contribution to management of core and buffer area; Local Nature reserves . Orchards project. Hedge-laying . Volunteer management. Assistance with agri-environment schemes. Greater awareness leading to more sensitive development.
	structural diversity	Contribution to management of core and buffer area; Local Nature reserves . Orchards project. . Volunteer management. Assistance with agri-environment schemes. Greater awareness leading to more sensitive development.
Landscape	character, condition and qualities	Contribution to management of core and buffer area; Local Nature reserves . Orchards project. . Volunteer management. Hedge-laying. Assistance with agri-environment schemes. Greater awareness leading to more sensitive development
Ecosystem services	quality and productivity of soil, water, air	Contribution to management of core and buffer area . Assistance with agri-environment schemes. River UMBER catchment pollution reduction scheme. Greater awareness leading to more sensitive development. Input to planning process.
	efficient drainage	
	erosion resistance	
	carbon sinks	
	other ecosystem services	
A healthy society		
Recreation and access	active recreation	Management of Tarka Trail and South West Coast path. Volunteer programme.

	access	Management of Tarka Trail and South West Coast path. Volunteer programme
	passive recreation and inspiration	"Website. Sculpture Project. Links with local artists.
Understanding and awareness	understanding and awareness	Biosphere Schools project. Volunteer programme. College foundation course. Youth work
Community	engagement of BR <i>with</i> community	Youth work. Taw and Torridge Estuary forum input to BR. Wildflowers. Dormice. Orchards. Programme of family events. Involvement with North Devon festival and Oceanfest.
	involvement <i>of</i> community with BR	Biosphere Schools project. Volunteer programme. Business scheme.
	vitality and cohesion	Long-term goal.
The quality of places to live	near environment (greenspace)	Wildflowers. Orchards. Tarka trail. South-west coast path.
	houses and gardens	Not yet.
Environmental justice	equitable access to, and utilisation of, environmental benefits	Biosphere Schools project. College foundation course.
A healthy economy		
Employment and income	direct employment and income	BR team
	indirect employment and income	Employment and income associated with increased tourism and economic growth associated with enhanced image. Work in progress
	job quality	Quality environment associated with new high quality jobs? Work in progress.
	income and jobs foregone	Depends on results of BR input into planning process.
Business	business opportunities and constraints	Internationally approved "quality brand" and enhanced profile for North Devon. Work in progress.
	short term investment	Unknown;
	long term investment	Anticipated as a result of enhanced profile
	human resources	May eventually attract educated and skilled workers and entrepreneurs

Resource use	conservation of resources with an economic value	Better management of natural tourist attractions. Tarka trail and south west coast path management.
	conservation of resources with <i>potential</i> economic value	Future benefit.

Implications for new site selection

In our report for SNH on UNESCO designated sites we identified suitable geography, leadership and governance as being the three crucial aspects of a “successful” UNESCO site designation. The economic geography of the North Devon area is ideal for a Biosphere Reserve. Plenty of people, pockets of social problems, difficult but not impossible communications and an environment good enough to hang the concept on. The local economy is not without problems, but there is a mix of local business talent and a strong self-employed sector. Farm business finances are sufficiently stretched for that sector to be very open to suggestions. There is strong leadership and good practical skills, both within the NDCCS and, crucially, in the voluntary sector.

Governance, in the widest sense, is the problem. The essence of a real BR, which is undoubtedly a Good Idea, if a little Utopian, is hidden behind the language and bureaucracy of strategy plans, feasibility studies, funding bids, project officers, working groups, forums and partnerships. Unless someone is actually involved in one of these august bodies, the chances are that they have very little idea what the BR is trying to do.

There are plenty of readily available statistics which one can use to monitor the social, economic and environmental health status of a community. Indices of multiple deprivation, area economic statistics, habitat information from Natural England and the Environment Agency together with DEFRA's own land use figures. As none of these changes can be directly attributed to the presence of a BR without tailored, expensive, possibly misleading in-depth business interviews, it is quite pointless to examine them. Furthermore, there is available a great list of Indicators relating to the local economy and environmental sustainability¹⁷, all similarly useless in the circumstances.

In terms of selecting suitable areas on which to offer the potential of a Biosphere Reserve, consideration of such statistics is vital, cost-effective and not at all difficult. Reliably unpicking the effect of a BR from all the other influences on the environment and society is essentially impossible.

North Devon is ideal for a Biosphere Reserve in that there are social and economic issues to address and that the environment is the key to the tourist industry. It may still prove effective, but is working indirectly and ensnared in a tangle of working groups, forums, action plans and strategies, as are the local government bodies involved. This is delivering many documents, but precious few tangible benefits that are publicly attributable to the Biosphere Reserve. The continued existence of the North Devon Coast and Countryside Service, if due in part to the existence of the Biosphere Reserve, is by far the most tangible benefit of this designation in North Devon. The greatest potential for the designation to bring about long-term social improvement in the area is probably the link with Bideford College.

Delivering social and economic benefits in a cost-effective manner clearly needs a well-populated area, preferably with a fairly low baseline so that improvements are marked. Bringing people out of a somewhat sad situation, however measured, is clearly of more social advantage than improving the lot of the already comfortable. This is a common-sense concept that required little by way of explanation. Galloway certainly comes into this category, and could prove a most effective test-ground for a council-led Biosphere Reserve with real social problems to address.

¹⁷ South West Observatory – Local Economy and Environmental sustainability.
www.swo.org.uk/observatory/links

The bigger picture

Unfortunately, because this BR currently works almost entirely behind the scenes, lending “support” to local funding bids but having essentially no funding of its own, the extent to which the designation itself adds value to UK social, economic and environmental goals is totally obscured, except in the case of the NDCCS direct management interventions. The value added depends on how other bodies use the funding which they have obtained using the BR label to strengthen their bid. It also depends on the extent to which the BR label actually did strengthen the bid.

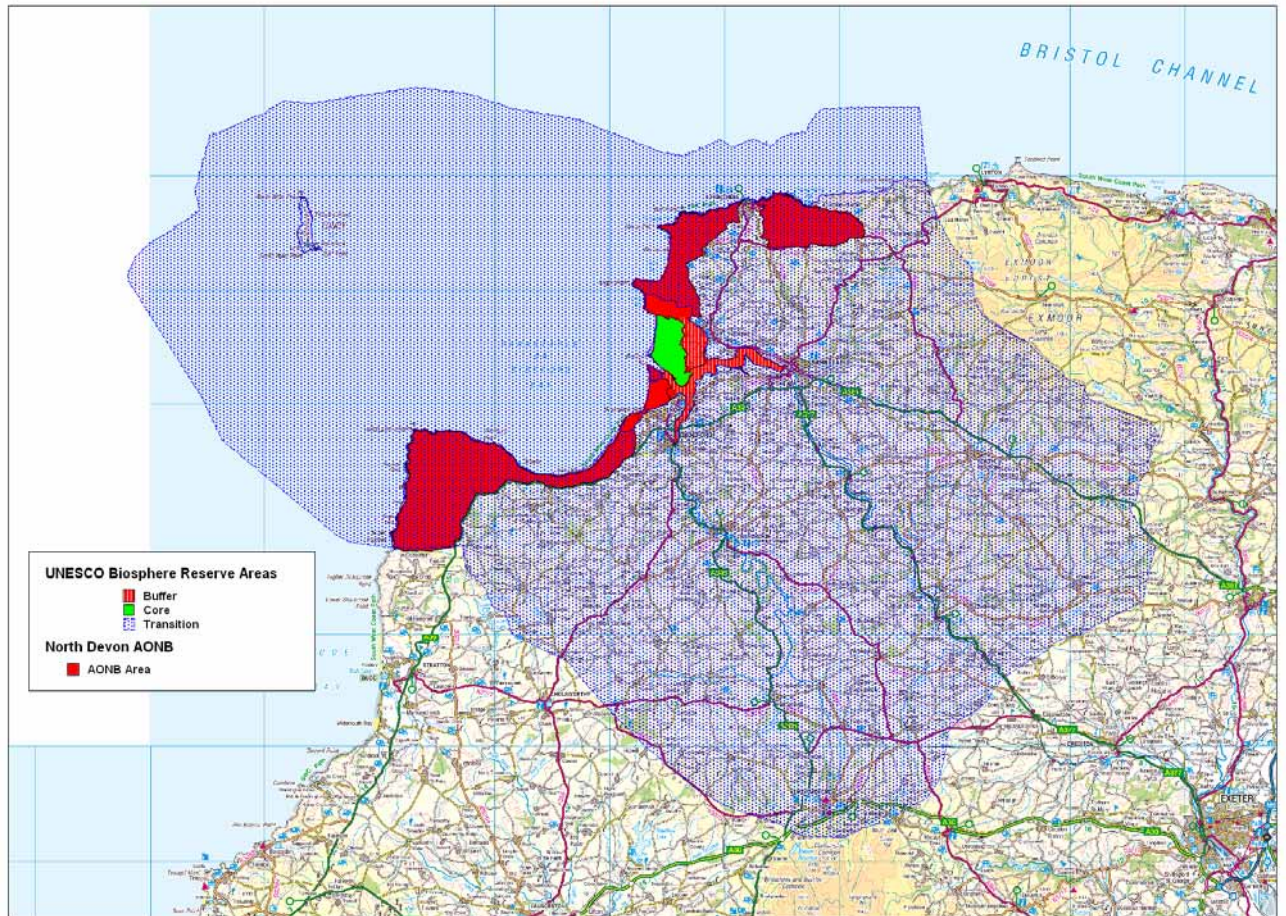
Where BR staff themselves carry out direct management interventions, using cost-effective, targeted initiatives the environmental value added can only be assessed subjectively but is clearly very high. Where they are directly involved in volunteer programmes social value added is likewise considerable. They are adept at local initiatives, as shown by their success in assisting the inhabitants of Fremlington to designate their own local nature reserve. This argument can equally be turned on its head to say that the NDCCS would do such things just as well if it were not attached to a Biosphere Reserve. As long as it still existed. However the major funder only gives money because of the Biosphere Reserve. It is the Biosphere Reserve that sustained the investment.

Judging purely on the experience of the North Devon Biosphere Reserve, there is not enough experience of running these reserves in the UK to roll out the concept across more sites than North Devon, Galloway and Dyfi. A combination of a complex, multi-layered local governance structure, a lack of direct funding and no initial buy-in from either the key landowner or, possibly, the wider community, has delayed effective implementation in North Devon. The North Devon Coast and Countryside Service has provided practical services with real economic and social benefits, but these are not, in general, linked specifically to the Biosphere Reserve concept. Galloway and Dyfi will need to build on this slightly bitter experience and demonstrate clear benefits before more such reserves could be recommended.

We can learn a great deal from North Devon BR, but need time for the reserve to develop in order to do so. They have only just got going after a slightly false start, probably inevitable given that there were pre-existing issues with the management of the core area. The issues raised by our interviewees point to a major problem with governance and funding in the widest sense, indirectly leading to low public awareness. **The BR should be able to cut through layers of governance; currently it is ensnared in them through lack of direct funding.** The massive potential remains intact, as indeed do the current social and economic problems of the area, which in an ideal world the BR concept could probably address. Current “traditional” site designations can largely deal with the kind of environmental issues that lend themselves to site-specific remedies, but perhaps only the BR concept could address entire shifting ecosystems over a long time and link them to people. In terms of the UK MAB Committee, the lessons from Devon are stark. Unless it is acceptable to run a BR as an influential but indirect talking shop, the BR concept is almost too big to be run by anyone except the local authority, or a body granted the same powers. This brings into question whether or not it is appropriate that the UK Committee is administered by DEFRA.

There is also the question of funding. Cash-strapped local and county councils may legitimately start to ask why national or international funding is not available for an international designation.

Appendix 1 – Map of the North Devon Biosphere Reserve



Appendix 2 – Governance structure

North Devon Biosphere Reserve – Relationship with other organisations

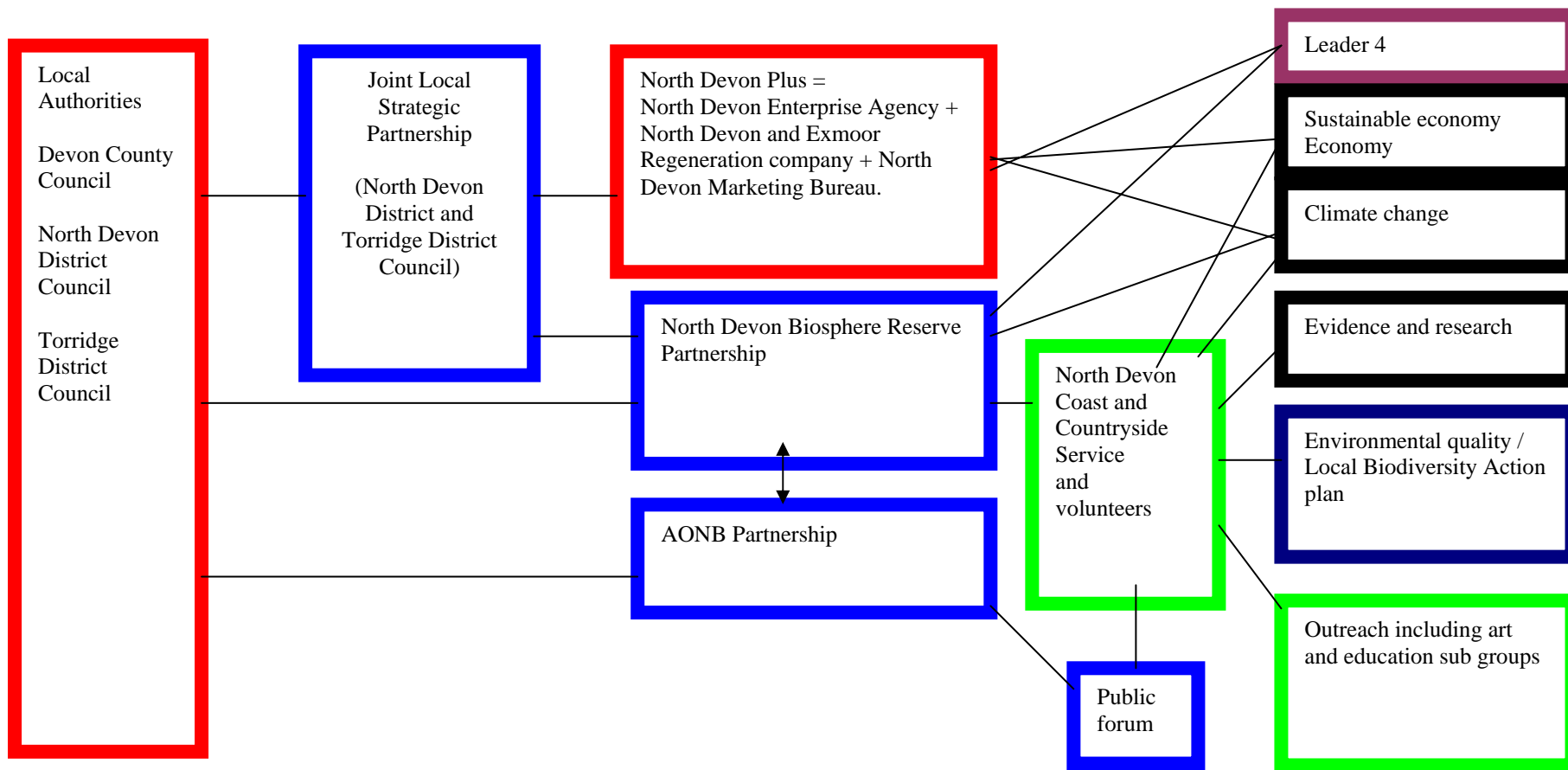
Elected authority

Local Strategic Partnerships

Partnerships

Service Delivery

Working Groups.



Appendix 3-North Devon BR/NDCCS projects

Biosphere Reserve/NDCCS projects and actions, in approximate reverse chronological order.

Project	Description	Delivery	Funding	Publicly obvious link to BR?	Contribution to which BR objectives	Effective?	Depends on BR?
Explore Braunton Project	Guiding/Info/Interpretation/ website/GPS - With AONB.	Dedicated Project Officer	£93k. Of which £50k from lottery.	? Unsure, but a well-publicised scheme.	UN Soc Econ Environment	Too early to say	Yes in that most of this is outside the AONB, and the BR was the stimulus.
North Devon Orchards Grant Scheme	50% grants for restoring existing orchards and planting new ones. Approx 45 participating holdings.	In-house NDCCS	Leader plus. Approx £10k total.	No. Brief mention in Orchards Grant leaflet.	UN Soc Econ Environment	Very	Yes, in that NDCCS are only here because of the BR and, there is no other agency here to deliver this.
Events 2007 – BR.leaflet	Programme of guided walks and family activities in and around the core and buffer zones.	In-house NDCCS	In house NDCCS	Yes. Good leaflet.	UN Soc Econ Environment	Around 200 participants on guided walks. Probably effective.	A good part. You don't have a Biosphere Reserve events leaflet without a Biosphere Reserve
Volunteer programme	Various conservation projects across North Devon, midweek and week end, latest programme is January -	In-house NDCCS	In house NDCCS	No, BR not mentioned on leaflet.	UN Soc Econ Environment	Very	Yes, if the BR (and NDCCS) did not exist then neither would this programme.
Dormice project	Providing dormouse tubes and dormouse expertise	In-house NDCCS	In house NDCCS and SDF fund from AONB. £2K	Yes	UN Soc Environment	Very	Yes, in that it depends on NDCCS. Who else is there to deliver such projects?

Project	Description	Delivery	Funding	Publicly obvious link to BR?	Contribution to which BR objectives	Effective?	Depends on BR?
Fremington Local Nature Reserve	So designated by local people with imaginative assistance from NDCCS. Two more potential LNRs under investigation.	In-house NDCCS	In house Northern Devon Coast and Countryside Service plus some project fund from NDC	No	UN Soc Environment	Very	Yes, in that it depends on NDCCS, whose existence is due to the BR.
Youth work	NDCCS working with youth charity WINGS on a range of heritage skills. The young people made a traditional cob shelter on the Tarka trail.	Wings/NDCCS	Wings and LEADER and NDCCS	No	UN Soc Environment	Very	Not entirely but they needed NDCCS support.
Wildflowers	NDCCS sowed wildflowers. Village in Bloom project with NDCCS	NDCCS and Instow in Bloom	Instow in Bloom	yes	UN Soc Environment	Very	probably
Sculptures	A range of sculptures and artworks to improve access and interpretation	NDCCS	LEADER and Regional Arts Lottery	yes	UN Soc Econ Environment	yes	Yes, in that it depends on NDCCS, whose existence is due to the BR.
Coastal Processes/climate change study	Geomorphological study, two public seminars	NDCCS commissioning and supporting work with Prof Pethick	£45k From Environment Agency and Natural England, DCC	Yes	UN Soc Environment	very	Yes, no other agency could be the honest broker.
Twinning with Kenyan BR	Reciprocal visits.	NDCCS	46K from UNESCO	Yes	UN	Early days	Yes

Project	Description	Delivery	Funding	Publicly obvious link to BR?	Contribution to which BR objectives	Effective?	Depends on BR?
Marine Litter project	Ongoing trans-national project organising volunteers to carry out surveys of marine litter.	In-house NDCCS	In house NDCCS and LEADER	yes	UN Soc Environment	Yes See guardian, independent and times on 25 th feb	Yes. This was stimulated by our marine objectives
Exhibits	Representation at North Devon festival and Oceanfest	NDCCS	£350 for eco-surf board	Yes	UN Soc Econ Environment	1500 people signed into our work	Yes, this was our selling point for getting on the Festival
Governance and strategy, since April 2007	Preparation of strategy and action plan, through participatory workshops BR embedded in Leader Plus bid (£7m) BR embedded in LSP Core Strategy Partnership established four meetings. Three working groups established	NDCCS and local government bodies. Driven by Andrew Bell as director, since April 2007, Mike Moser as chairman	In house NDCCS	Yes	Soc Econ Environment	yes	Yes
Governance and strategy prior to April 2007.	BR embedded in North West Devon Economic Partnership strategy BR support for the Bideford Regeneration Initiative and master plan. BR support for the Barnstaple Town Community Strategy	NDCCS and NDEP NDCCS NDCCS and DCC	NWDEP RDA DCC	Yes	Soc Econ Environment	Yes, understanding of USP of Biosphere Reserve taken on.	Yes

Project	Description	Delivery	Funding	Publicly obvious link to BR?	Contribution to which BR objectives	Effective?	Depends on BR?
	North Devon local BAP chaired and driven by NDCCS.	NDCS and NDC	Northern Devon Coast and Countryside Service in house	yes	Environment	Yes, getting better ecosystem wide approach	yes
	BR influence on HLS scheme in that extra points are awarded for those delivering specific actions towards conservation in the buffer areas	NDCS and DEFRA RDS		Yes in target statements		Could be better. Targets are too narrow	In part
Biosphere Schools Project	Works with 6 schools in the BR. Environmental approach to running the school and lesson delivery. Links with other BR schools worldwide, and between private and state sector locally. Tied with geography education.	In-house NDCCS	£150k from DfES in 2007.	Yes	UN Soc Econ Environment Education	yes	Yes
Tarka trail	Maintenance and interpretation - ongoing	In-house NDCCS	DCC	No	UN Soc Econ Environment	Very	No, or in part
South West Coast path	Maintenance and interpretation-ongoing	In-house NDCCS	Natural England and DCC	No	UN Soc Econ Environment	Very	No
Bideford College	Science status assisted by BR. NDCCS on the design team for the new college.	Bideford College	DfES	Yes	UN Soc Econ Environment	Have helped in the success of getting £47M	Small Part

Project	Description	Delivery	Funding	Publicly obvious link to BR?	Contribution to which BR objectives	Effective?	Depends on BR?
North Devon College	BR assistance in the provision of foundation degrees relating to the environment and sustainable development.	North Devon College and NDCCS	College	Yes	UN Soc Econ Environment	Fifteen students have progressed through this course.	Yes
Business Education for sustainable economies	Day seminar	NDCCS	Northern Devon Coast and Countryside Service and Chamber of commerce	Yes	UN Soc Econ Environment	40 business attended. Follow up advice for Behaviour change	Yes
Promoting North Devon	Marketing and branding project for the area based on the BR	NDex Regen Co and NDCCS	Valued at £130k, funding?	Yes	UN Soc Econ Environment	Just being launched. Showing promise	Yes
North Devon Food Group, centred on the BR	Rural food initiative. Has drawn together the potential of a local food distribution network. Builds on Biosphere Reserve accreditation scheme	ND Ex regen Co and NDCCS	"Funded through "Discover Devon naturally" who are Devon County Council led tourism initiative	Yes	UN Soc Econ Environment	As above	Partly
North Devon Festival	BR has assisted the festival to increase the number of environmental events	North Devon theatres with NDCCS	Local funding and EU initially	Yes	UN Soc Econ Environment	yes	Better synergy developing

Project	Description	Delivery	Funding	Publicly obvious link to BR?	Contribution to which BR objectives	Effective?	Depends on BR?
Local Community Alliances	NDCCS officers are available to assist each local alliance with BR projects.	In-house NDCCS	In house NDCCS	no	UN Soc Econ Environment	The partnerships themselves are weak. We have injected energy every now and then	No
Industrial symbiosis project	Reducing waste to landfill.	ENVision for the BR	EA	Yes	UN Soc Econ Environment	Early days	No but there is a good synergy
Interpretation strategy for North Devon	Self-explanatory. Uses the BR as a focus.	Northern Devon Coast and Countryside Service	£5k from NDCCS, £21k from LEADER+.	Yes	UN Soc Econ Environment	Is a live document on the web and is guiding interpretation delivery in N Devon	Yes
River UMBER catchment pollution reduction scheme.	Advice to landowners	NDCCS	AONB SDF grant and the Environment Agency + Combe Martin PC and NDCCS	No, should have.	UN Soc Econ Environment	Yes. 26 landowners working to reduce pollution. We suspect they are not the culprits	Yes

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March 2008

Rhön Biosphere Reserve, Germany



Case study

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Introduction

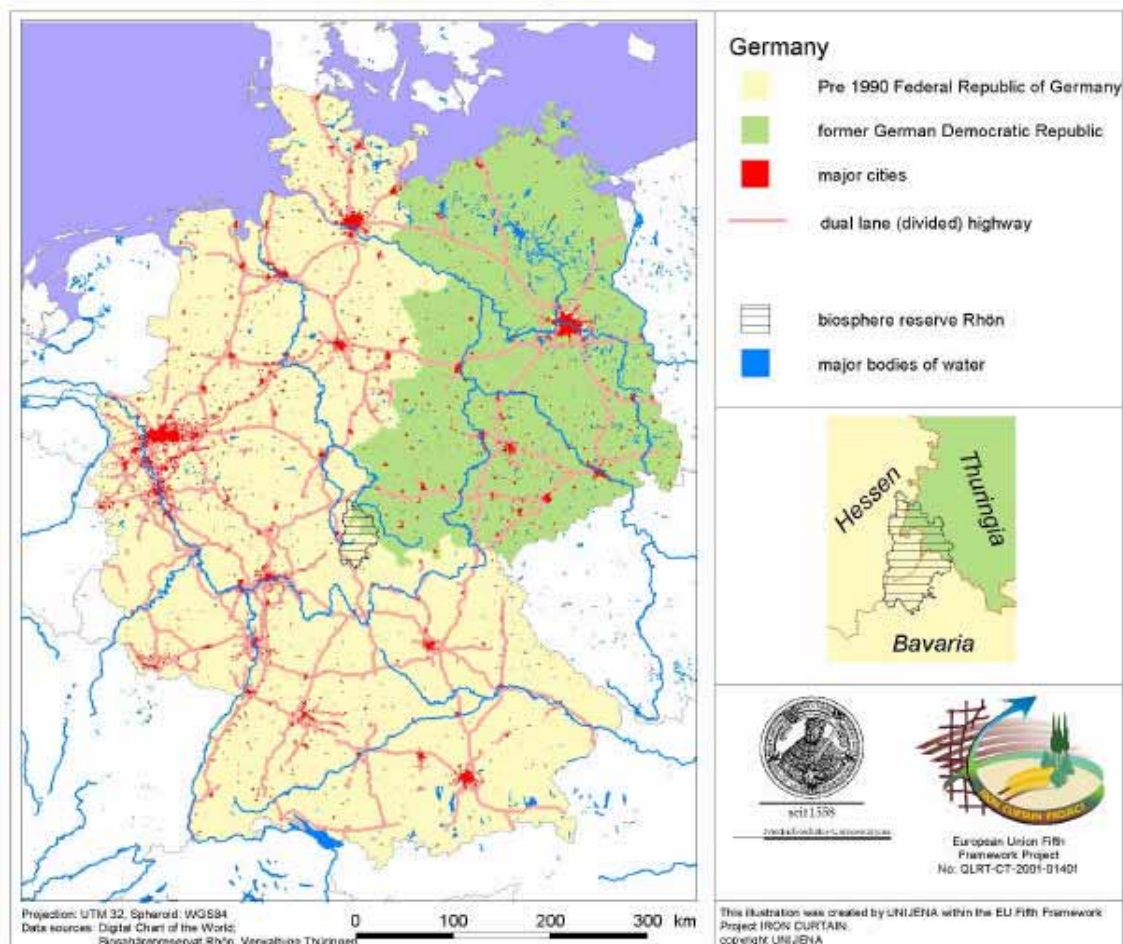
Purpose of this case study

To investigate the social, economic and environmental value, actual and potential, added by Rhön Biosphere Reserve. This case study builds on the short, descriptive study we carried out in early 2007 for Scottish Natural Heritage, going into considerably more detail on the governance and achievements of the reserve, and of the relevance of the lessons of Rhön to the UK situation, making use of discussions with reserve staff and recent research papers.

A brief description of the Rhön Biosphere Reserve

Rhön Biosphere reserve was so designated in 1991, immediately after the reunification of Germany. It is in the centre of unified Germany at the border triangle of three Federal States, Bavaria, Hesse and Thuringia, which was previously in the GDR. It is a symbol of German unification as much as of economic recovery. It is also a bold attempt at planning a large area from three different federal states (Länder), for although Bavaria, Hesse and Thuringia speak roughly the same language, they are thoroughly independent.

Figure 1. Geographical situation of the Rhön BR.



Source, Iron Curtain, Project Reference No. QLK5-2001-01401

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Covering some 185,000 hectares, and with a population of 136,000, it has a population density far below the national average and is traditionally a poor area, remote from large conurbations and a source of emigration. Settlement is mainly in small villages. The economy is centred around small businesses, based on agriculture, tourism, light industry, construction and forestry. Thuringia used to be in East Germany and carries the legacy of large collective farms, now owned by private consortia. By contrast, in Bavaria over half the farms are less than ten hectares. Farming is fairly extensive but there is a dairy industry, and there are orchards.

Summary of Rhön economic situation, (Bavarian section only)*

Agriculture: Poor growing conditions, agriculture not competitive even at a regional level. Number of farms decreasing, and they are getting larger. Some of the younger and more professional farmers are working in BR administration. Property fragmentation is a major obstacle for economic growth.

Tourism: A traditional hiking area whose cultural landscape is linked to farming. Many small hotels up to 15 beds, of low to medium standard. A few better hotels. Bed and breakfast not very developed.

Food production: many high quality small breweries, small distilleries and butchers.

Forestry: 40% of the area is forested, and most of this natural broadleaved forest and is state or municipal property. It is in excellent condition.

Wood processing: Medium-sized saw mills are finding it hard to compete with larger mills outwith the area, and co-operation is not happening. Very hard to establish a forest to consumer local processing chain.

Quarries: Basalt quarries used to be an important source of employment but there are only two left.

Mechanical engineering: A few medium-sized companies operating in niche markets.

Building contractors: Formerly a major source of employment, decreasing.

* Adapted from answers to the Questionnaire for BR Managers and Co-ordinators, Feb 2003, Michael Geier for Rhön BR.

The landscape is largely pasture and meadow with low hills and about one-third woodland, remnants of the ancient beech forests that used to cover the area (see map Appendix 1). There are some steeper, almost mountainous areas with interesting plant communities. The old border area is environmentally interesting because most people were thoroughly excluded from it for some time, allowing the development of habitats less influenced by farming practice. The twenty-nine core areas are valued remnants of wilderness in a varied but largely man-made landscape.

The map at appendix one shows details of the various zones.

Existing governance and management structures.

This BR has a non-statutory framework management plan dating from 1995¹⁸. This was originally prepared by an external private consultant, and further developed through public consultation. The plan defines various goals for nature conservation, economy, agriculture and forestry, tourism, mining, industrial and housing development, hunting and sport fishing. These goals and the resulting zonation scheme were developed through intensive discussions and agreements with all relevant social groups, municipalities, districts and institutions¹⁹.

None may govern in another Lander, so there are three Biosphere Reserve Departments, one in each state, with a co-ordinating central office. A small state department has been established in each Lander just to run the BR area, and has taken responsibility for regional development, research, monitoring, education and international co-operation. Thuringian Lander (ex GDR) also has some planning control.

The directors of each of these three BR administrative units meet every month, and twice yearly join with the Lander Ministries of the Environment. They can call on expert advice from the Trilateral Advisory Committee, which consists of various professional specialists. Each BR administrative unit is supported by a BR association, which represents the local councils, agencies, NGO's and stakeholder groups.

Since 1997 the five district councils (political representatives of the local people) have been more involved through the agency ARGE Rhön. This is made up from representatives from the district councils and from the three BR associations, and runs three thematic working groups which represent more than 30 regional institutions and agencies. Biosphere co-ordinators working in each of the three regional offices are responsible for :

- Integrating goals for regional conservation and development concepts.
- Motivating and bringing partners together
- Moderation and mediation
- Setting themes and spatial priorities for projects
- Assisting to search for funding
- Co-ordinating projects and assisting with applied research.

Appendix 2 includes a diagram of the reserve governance structure. Generally, the organisation appears to work. There are minor frustrations, as could be expected, but the three areas together set a vision, and independently do as they see fit within that, joining projects together across Lander boundaries when there is an obvious communality. There is no detailed *masterplan* but a supportive and flexible administration.

¹⁸ ¹⁸ Framework Management Plan for the Rhön Biosphere Reserve. (English Language Summary). Editors: State Ministry of Development and Environmental affairs of Bavaria, the Ministry of Development, Settlement, Agriculture, forestry and nature Conservation of Hesse and the Ministry of Agriculture, Nature Conservation and Environmental Affairs of Thuringia. 1995. http://www.biosphaerenreservat-rhoen.de/dokumente/rahmenkonzept_englisch.pdf

¹⁹ Dr Doris Pokorny. Biosphere Reserve and Local Economies. Case Study for Dyfi proposed BR. Date unknown. <http://www.ecodyfi.org.uk/biosphereproject/downloads/doris.doc>

Achievements of the Rhön Biosphere Reserve

Projects.

The reserve aim is to maintain a multi-faceted local economy based on linking agriculture, crafts and tourism. Various training initiatives encourage small businesses and there is a quality-controlled business partners scheme allowing use of the trademark "die Rhön einfach erhehend" sign, which (very) roughly translates as "*Rhön is simply getting better*". Local fairs showcase products, and there is a published guide to local events. The reserve is particularly strong on marketing local produce, and supports local shops selling regional produce. The Business Partners BR label is available to businesses (but not to farmers), which adhere to a certain set of values regarding the BR. Farmers are not allowed to receive this kind of assistance under EU rules, but the BR quality label given to restaurants using a certain percentage of food originating from the BR is designed to help farm sales of local produce. The Rhön sheep, a delicious and hardy breed but once nearly extinct, have been given a new gastronomic lease of life, and a great variety of apple products have also been successfully promoted. The Reserve is strong on research and monitoring, having supported a great number of research projects and a permanent grid habitat monitoring system. Tourist initiatives have concerned the supply of suitable accommodation, training for hospitality provision and the linking of regional marketing to tourism and environmental education²⁰. Over 300 projects have been associated with this Biosphere, but there is some concern that maybe the impetus is now fading.

Major projects in the Rhön BR

- BR business quality mark.
- Rhön cattle
- Rhön apples
- Rhön sheep
- Rhön brown trout
- Regional (general) label for use by public institutions and communities.
- Hunting project
- Wood processing project
- Small business training
- Local fairs
- Nature Guide Training
- Carriage driver training
- Cycle route promotion
- Linkage of regional marketing to tourism and environmental education
- Promotion of regional, ecologically sensitive building styles.

Social Impact

The social upheaval of re-unification will have had a major effect on families and communities in the area. It is likely that the direct effects of the reserve will have been minor in comparison, but perhaps the various educational projects, grants schemes and general community involvement will have been all the more welcome for coming at such a time. Some commentators feel that "the combination of innovative concepts based on the ecological and economic values of the region have remarkably improved the socio-economic conditions of the entire region"²¹. As a recent study of the economic impact discovered, (see section 3.3) the situation is perhaps not so straightforward, and improvements may not be directly attributable (or at least publicly attributed) to the Biosphere Reserve.

²⁰ Dr Doris Pokorny. Biosphere Reserve and Local Economies. Case Study for Dyfi proposed BR. Date unknown. <http://www.ecodyfi.org.uk/biosphereproject/downloads/doris.doc>

²¹ Fremuth, W, 2002. The Rhoen Region, a model for sustainable development at the former border between East and West Germany. NATO advanced research workshop on the role of biodiversity conservation in the transition to rural sustainability.

Although beginning life as a “top-down” designation, it seems that the strategy of presenting the reserve as a basket of opportunities has led to general approval. It has fostered a common sense of belonging, a sense of place.

Economic Impact

The actual economic impact of the Rhön Biosphere Reserve has been examined in a study²² which investigated the attitude to, and perceived impact of, sustainable economic strategies. This work looked at the role the BR may play in these enterprises and asked three major questions:

1. Are sustainable economies in the Rhön Biosphere Reserve profitable?
2. So sustainable economic strategies have an advantage for the enterprises?
3. What role does the recognition of the BR play for the enterprise?

Following interviews with fifty-eight local businesses, using turnover and jobs as indicators, the work concluded that sustainable economic strategies, (but not necessarily the BR), had led to:

- An improvement in the economic situation of the enterprises.
- Job creation
- A strengthened regional economy
- A positive economic impetus for the rural area.

Nearly half of those interviewed saw some positive effect of a sustainable economic strategy on their profit, but the Biosphere Reserve was not a major reason for their commitment to such a strategy. The top motives were a feeling of belonging to the region, increase in turnover, personal commitment and the environment. The BR was well down the list.

The Rhön sheep project²³ well illustrates how one project can have a variety of positive impacts, but how difficult it is to have a significant economic effect, for example in the provision of jobs. Certainly the project has been a success in terms of securing the future of the breed by marketing to local restaurants, selling through a farm shop and having an annual sheep festival. Genetic resources have been conserved and wildlife habitats (the meadows) protected. Even so, the impact on securing jobs and creating new ones is thought to be on a small scale.

Recommendations from Rhön – Maximising economic benefits:

- Improve communication and marketing of the idea AND of the Biosphere Reserve label.
- Include more economic issues (and economic experts) in BR co-ordination and management.
- Be useful to the private sector
- Build capacity in sustainable economics through external coaching and consultancy enterprises.
- Raise more public interest (media), publish success stories, increase visibility through media.

In general, the study found that the BR was not seen as a driver of sustainable development, but rather as a framework or a catalyst. It was seen as having an organising, supporting, publicising role, limited to niche markets. In common with our findings in North Devon, it was thought that the influence of the BR was often not recognised, perhaps because of an indirect approach through multiple institutions.

²² Dr Doris Pokorny and Sabine Natterman. Jobs and the Biosphere; Socio-economic benefit of sustainable economies in the Rhön Biosphere Reserve, Germany. Presentation to Euro-MAB conference. 2007. Based on masters thesis by Sabine Natterman, 2006.

²³ Reprinted on the UN/MAB website at <http://www.unesco.org/mab/BRs/1.pdf>

The importance of dealing competently with economic issues has been explicitly recognised by the management of the Rhön BR, with the recognition that more economic issues need to be included in co-ordination and management.

The problems of assessing the benefit of the BR were thought to be as follows²⁴. We include comment on the compatibility of these findings with the UK (North Devon) situation :

Rhön	North Devon
<p>Statistics not available for the right area.</p> <p>Sustainable economies are related to a micro-sector and are this not covered by statistics.</p> <p>Cause-effect studies cannot be based on statistical material only.</p> <p>Socio-economic benefits need not be entirely monetary.</p>	<p>Statistics are available at District Council level, which accords with the BR area.</p> <p>UK business survey statistics are detailed, but also will not single out “sustainable” businesses.</p> <p>Cause-effect relationship would not be provable without detailed, tailored study. Costly.</p> <p>Several interviewees mentioned that benefits were not necessarily measurable in financial terms.</p>

Environmental Impact

The immediate environmental benefit of Biosphere Reserve status in 1991 was the protection of biodiversity and habitat in 29 core areas, which together form some 3% of the reserve. Unlike the UK, this reserve was not established on top of existing protected areas, so there was an immediate benefit in terms of habitat protection. Some 8% of the buffer zone is also designated sensitive, low disturbance habitat, and indeed the remainder of the buffer zone is not intended for settlement or commercial development. The remaining 60% of the area, the transition zone, is earmarked for environmentally compatible, sustainable development.

Perhaps the biggest threat to the historic cultural landscape was from agricultural structural change. Various Natura 2000 schemes in the wider countryside attempt to address this, partly by land purchase. Biosphere grants for conservation and landscape maintenance attempt to maintain upland grassland, which has existed since the clearing and cultivation of some of the original forests. These extensively farmed mountain pastures may otherwise have been turned over to commercial forestry. Areas of the original beautiful old beech forest are also protected and much studied. There are fifty environmental monitoring programmes in place with over 800 sites. Much of this is part of a systematic national monitoring scheme using a fixed grid system.

Common sense dictates that there has been an environmental benefit associated with this reserve, particularly as the re-unification of Germany, with all the attendant potential social turmoil, coincided with a time of financial difficulty for farmers. Such a period of agricultural structural change could, if un-buffered by the BR initiatives, have led to an unfortunate but predictable outcome for the high mountain pastures, and those who lived there.

Summary of potential social, economic and environmental benefits associated with Rhön Biosphere Reserve.

²⁴ Summarised in our words

A summary of the perceived benefits and their contribution to sustainable development is presented in our standard evaluation framework below (table 1)

Table 1: Summary of contribution to sustainable development

<i>Dimensions</i>	<i>Criteria</i>	<i>Contributing activities BR Rhön</i>
A healthy environment		
Biodiversity	species diversity, range and abundance	Premium price for Rhön sheep has encouraged retention of alpine meadows.
	habitat extent and condition	Premium price for Rhön sheep has encouraged retention of alpine meadows.
	structural diversity	Premium price for Rhön sheep has encouraged retention of alpine meadows.
Landscape	character, condition and qualities	Retention of alpine meadows (Rhön sheep) and encouragement for orchard products.
Ecosystem services	quality and productivity of soil, water, air	Encouragement for organic farming. Protection of broadleaved woodland.
	efficient drainage	Encouragement for organic farming. Protection of broadleaved woodland.
	erosion resistance	Encouragement for organic farming. Protection of broadleaved woodland.
	carbon sinks	Encouragement for organic farming. Protection of broadleaved woodland.
	other ecosystem services	Encouragement for organic farming. Protection of broadleaved woodland. Encouragement of eco-friendly building styles.
A healthy society		
Recreation and access	active recreation	Cycle trails, visitor centres, farm accommodation, school visits.
	access	Cycle trails, visitor centres, farm accommodation, school visits, nature guides scheme..
	passive recreation and inspiration	BR literature, visitor centres, political stability resulting from cross-border co-operation.
Understanding and awareness	understanding and awareness	Cross-border BR has fostered co-operation and awareness. Nature guides scheme.,

Community	engagement of BR <i>with</i> community	Initial top-down development has been well-communicated
	involvement <i>of</i> community with BR	And community has become involved with BR, mainly through economic schemes.
	vitality and cohesion	Sense of pride in place and shared value; agreed vision and “way of doing things”
The quality of places to live	near environment (greenspace)	Encouragement for appropriate buildings.
	houses and gardens	Encouragement for appropriate buildings.
Environmental justice	equitable access to, and utilisation of, environmental benefits	School visits, business training.
A healthy economy		
Employment and income	direct employment and income	Maintenance of farm employment and income through Rhön sheep and Rhön apples schemes, and through improved direct sales to restaurants.
	indirect employment and income	Employment and income associated with increased tourism and economic growth associated with enhanced image.
	job quality	Quality environment associated with new high quality jobs?
	income and jobs foregone	Probably none.
Business	business opportunities and constraints	Business partner scheme has legally sidestepped EU complications to provide a “value certification” on businesses. Good opportunities for quality restaurants.
	short term investment	In quality local food processing businesses.
	long term investment	Anticipated as a result of enhanced profile
	human resources	More likely to attract educated and skilled workers and entrepreneurs
Resource use	conservation of resources with an economic value	Appropriate management of high meadows.
	conservation of resources with <i>potential</i> economic value	Appropriate management of the natural forest.

Implications for new site selection and evaluation criteria

The situation in the Rhön is unusual in that one of the drivers for the reserve was the need for the unification of Germany to work, and the creation of this reserve perhaps became a subtle symbol for the area of the hope and determination surrounding this historical event. This may have been the big social driver, the impetus needed. In terms of new site selection, thankfully we cannot arrange such historical imperatives at will. What this does tell us is that to start a reserve needs a good reason, a kick, a fear that without such an effort being made things will in some sense not turn out well. The initial effort having been made, the challenge is now to build on the difficult initial lessons learned while somehow keeping the original commitment. In terms of site selection, the capacity and needs of the community and the flexibility of the associated governance structure will be crucial for the long-term success of a Biosphere Reserve.

In terms of evaluation criteria, the story is akin to North Devon, and informative. Again, the usual statistics fail us, not because they are not there (they are), or even because the areas they cover may be inappropriate (as in Rhön), but because the real reason for any change in most indicators, particularly social and economic ones, is confounded by factors other, and stronger, than the effect of a Biosphere Reserve. It is possible perhaps to examine the direct effect of individual projects, if only in terms of the number of individuals involved, but to extrapolate this is an uncertain science, and risks misleading. Sensible qualitative judgement and good feedback may be the best that can be done.

Appendix 1 - Map of Rhön Biosphere Reserve

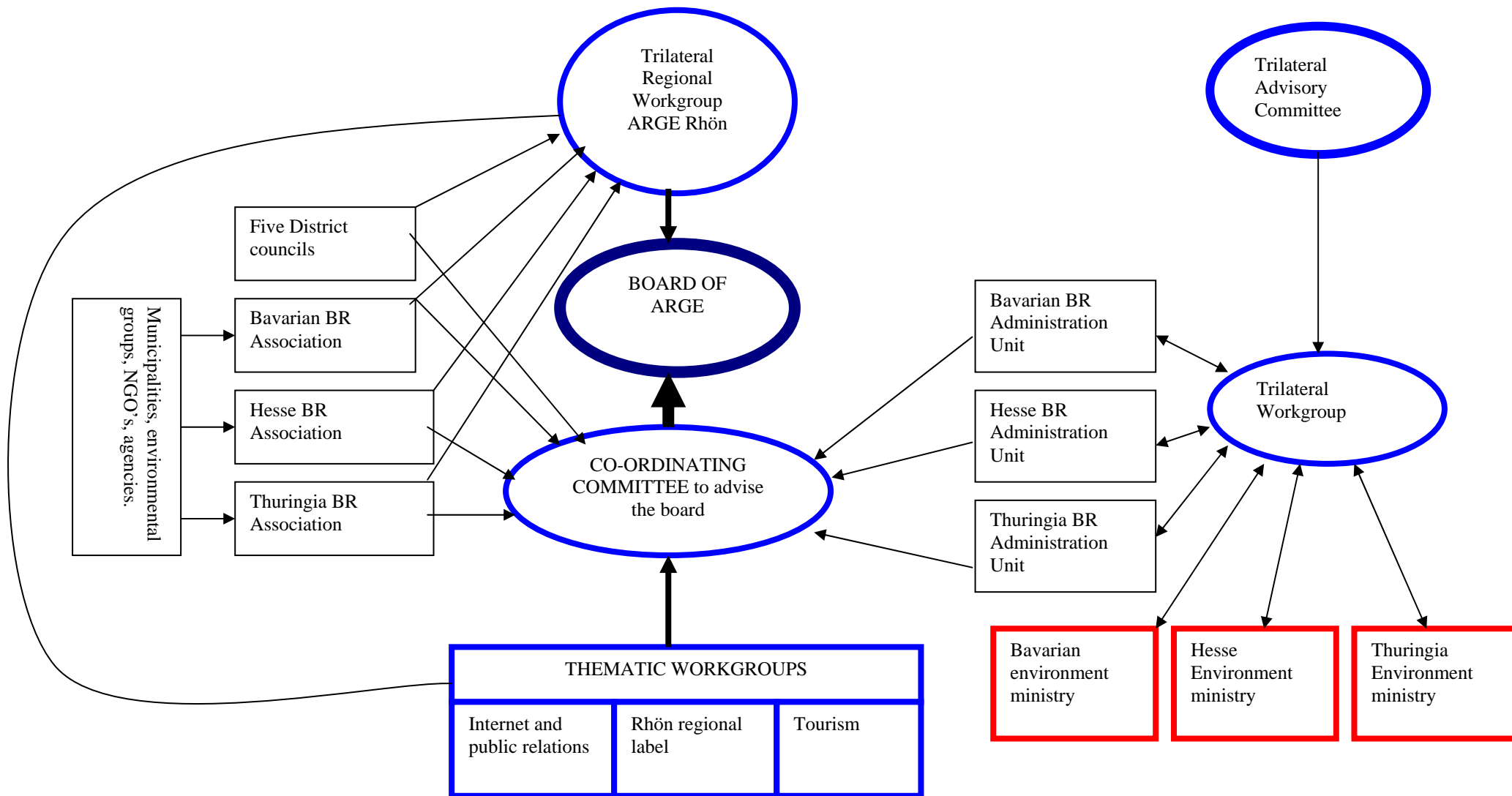


Forest:	40%
Moor and Pasture:	30%
Arable:	20%
Other:	10%
(all approximate)	

Core:	4,199 ha	3%
Buffer:	67,483 ha	37%
Transition:	107,557 ha	60%

Source: Iron Curtain project Ref: QLK5-2001-01401 Reference Area 2
 Germany – Biosphere Reserve Rhön – Institute for Geography –
 Geoinformatics Friedrich-Schiller-Universität Jena (UNI JENA) 25 Feb 2004

Appendix 2. Rhön Biosphere Reserve governance structure.



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March 2008

Entlebuch Biosphere Reserve, Switzerland



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Acknowledgements

Theo Schnider, Director, Entlebuch Biosphere Reserve.

Introduction

Purpose of this case study

To investigate the social, economic and environmental value, actual and potential, added by Entlebuch Biosphere Reserve. This case study build on the short, descriptive study we carried out in early 2007 for Scottish Natural Heritage, going into considerably more detail on the governance and achievements of the reserve, and of the relevance of the lessons of Entlebuch to the UK situation, making use of conversations with reserve staff and recent research papers.

A brief description of the Entlebuch Biosphere Reserve

The Entlebuch Biosphere Reserve is a scenic mix of mountain, moorland, peat bog, forest and alpine pasture at the foot of the Alps in the central part of Switzerland. There is much ecologically valuable marshland, which is essentially the main reason the reserve idea started (see section 2). There are wild, inaccessible forested gorges with rare species such as the lynx and the eagle owl, and there is a big cave system. The reserve covers some 39,000 hectares and reaches an altitude of 2,350 metres (over 7,700 feet) above sea level. More than half the entire reserve is covered by some kind of protective land designation. The core mountain area is covered by three protective designations; a cantonal Bog Conservation Decree, a Nature Protection Area and a hunting ban above 1700m. The buffer zone is mainly moor and forest and is partly covered by a protected landscape designation. The map in appendix 1 shows the designation boundaries.

There are some 17,000 people living in the area, of whom roughly 8000 are in work, about one third in agriculture and forestry and one-third in tourism. There are eight main settlements, Doppleschwand, Entlebuch, Escholzmatt, Fluehli, Hasle, Marbach, Romoos and Schuepfheim. The biggest employers are the two mountain railways at Sorenberg and Marbach, and five large businesses ²⁵.



²⁵ Engelbert Ruoss. Quality Economies in Biosphere Reserves. Presentation to MAB Conference Austria 2005.

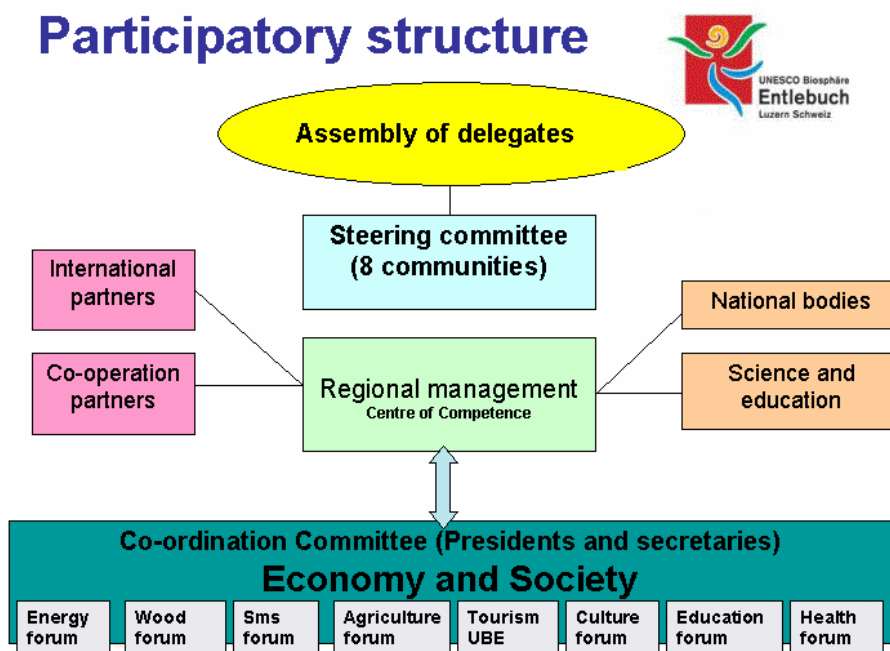
Existing governance and management structures.

This Biosphere Reserve idea in Entlebuch developed as a reaction to the passing in 1996 (by national referendum) of a law on the protection all moors and marshes of special beauty and national importance. This law was a direct result of the Rothenthurm initiative on the protection of marsh land ²⁶, and illustrates the paradox of the Swiss system whereby national laws are carried, or not, by national referendum. At the time of voting, people had no idea how much of their area would be covered by this legislation, and the residents of Entlebuch found that it was a significant percentage (26%) of their locality.

The communes assumed that their already somewhat precarious economic situation would get even worse due to the protection measures now in place and started to look for ways of turning all this protected land to their advantage ²⁷. The municipal councils of the communes (or some one person in that system) realised that a biosphere reserve might be possible. Initially, and understandably given that the bog protection legislation had been enforced upon an unwilling Entlebuch by more numerous urban voters, there was distrust of the regional and national control that this type of designation seemed to imply, and a fear that it would limit the economic development that the region had historically needed. A serious communication effort overcame these fears, and public meetings were held with the eight communities concerned, who approved the proposed reserve in 2000 with a 94% majority. It was approved and designated the very next year.

Governance is now through a system of regional management with public participation. Representatives of the different towns, and of various organisations, are elected to a steering committee by an assembly of delegates. There is also a co-ordination committee with various sub-groups to tackle particular issues.

The participatory structure is shown in the following diagram.



²⁶ The Rothenthurm initiative was a nationwide referendum intended to prevent the construction of a military training ground in the moorlands of Rothenthurm. To the surprise of many, the Swiss voted in favour of the protection, with somewhat unforeseen consequences.

²⁷ Astrid Wallner, Nicole Bauer and Marcel Hunziker. Perceptions and evaluations of biosphere reserves by local residents in Switzerland and the Ukraine. *Landscape and Urban Planning* 83 (2007) 104-114.

Source; Presentation given by Engelbert Ruoss, Regional Management, Entlebuch, at a meeting to discuss the UN "Quality Economies" initiative, held at North Devon Coast and Countryside Centre, May 2006.

The Regional Management does the day-to-day organisation and runs a Biosphere Centre (see photograph) in conjunction with the Office of Forestry and the Agricultural Education and Advice Centre. They also run training and work experience courses from this and other, smaller regional offices, and work closely with other, similarly oriented institutions and regions inside and outside Switzerlandⁱ

There is a Supporters club of businesses who raise money for the reserve and do inventive publicity.

Achievements of the Entlebuch Biosphere Reserve

Projects.

Rather than a long list of projects, Entlebuch BR appears to concentrate on a few powerful ideas and let the local community take them on. The "Echt Entlebuch" brand is a good example.

Major projects in the Entlebuch BR

Wood forum. To encourage the sustainable use of wood and the production of wood products from the region.

"Echt Entlebuch" brand – strictly controlled standards – to raise the profile of local products and services.

Co-ordinated marketing of regional products e.g. meat, milk, cheese and wood.

Certification of partner enterprises

The criteria are connected to the products and to the service for the guests.

Criteria concerning the *products* include the following:

- From products available from the area, 75% have to be certified or from organic production, such as meat products (pork, beef, horse, sheep), milk products (milk, cream, fresh cheese, cheese), eggs, fruits, soft drinks, fruit juice, alcoholic drinks, sweets, cakes, wine.
- On the menu card origin and the producer has to be declared and the meals have to contain seasonal food.
- 50% of the products used in the restaurant have to origin from Biosphere Reserves, including foreign sites

Criteria concerning the *services*:

- Typical meals have to be offered daily
- The collaborators must be able to inform the guests about the Biosphere Reserve
- The promotion material must be available and well presented
- Information material have to be included in the menu cards and placed in the hotel rooms

There is a small annual charge for inclusion in the scheme, which varies with the income of the business.

There are strict criteria associated with the use of the brand, but the concept is simple.

The number of producers using this brand has increased from five at the start of the reserve in 2001 to 38 in 2005. The biggest uptake was at the start; twenty three producers joined in the first year. This may be indicative of the problem of maintaining the impetus of the BR after a good start. There is also a certification of partner enterprises scheme aimed at restaurants, bakeries and butchers.

Social Impact

Entlebuch is one of the poorest regions of Switzerland. Over 30% of the economically active population are employed in agriculture and forestry, traditionally not well-paid occupations. The population is at more or less the same level as in 1850, an indicator of stagnating development²⁸. The outsiders view of Entlebuch was as a very

²⁸ U Muller and N Backhaus. The Entlebuchers; people from the back of beyond? Social Geography 2, 11-28, 2007

traditional, backward, poor region. For residents, the Biosphere reserve has emphasised the economic development side of sustainable development, partially to avoid the restrictive view of environmental protection (see section 3.4). It is impossible to say for certain what the social impact of the reserve has been, but reasonable to propose that social cohesion will have been improved to some extent by the level of communication needed.

Economic Impact

Visits to the Biosphere Entlebuch have increased four-fold since 2002. Common sense dictates that BR initiatives have at least been partially responsible, directly and indirectly, for this fortunate state of affairs. A fourfold increase in visitors has to be a major effect in an area where 30% or so of the employed work in the tourist industry, and it bucks the national trend. Across Switzerland, the revenue from domestic tourists increased slightly from 8.5 billion CHF in 1992 to 9.6 billion CHF in 2003, while overnight stays by these same tourists actually declined slightly²⁹. So Entlebuch has done well.

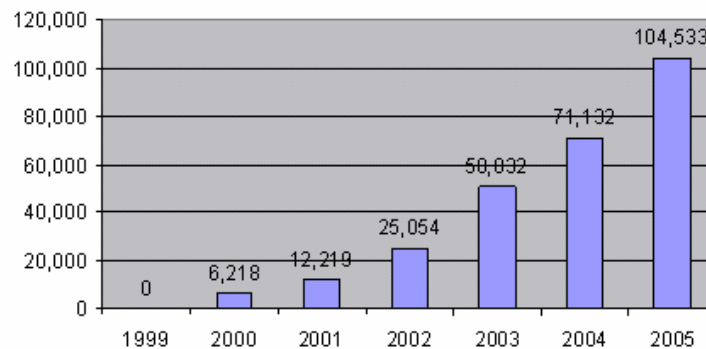
It is possible that these tourist statistics are a perfectly valid measure of the economic impact, which is just as well because, as with other reserves, there appears to be no other. In economic terms, it may be valid to take a leap of faith and say that this Biosphere Reserve is working.

Echt (“genuine”) Entlebuch certification

- The resources have to be from the area to up to 90%. In the sectors wood, milk, meat up to 100%.
- 75% of added value should be created to within the Biosphere Reserve
- The enterprise has to be located within the area
- The agricultural products have to be from organic or ecological production
- There should be accountability and transparency with regard to the origin of the resources
- The production cycles have to be closed in order to avoid contamination
- The origin of resources must be documented; no genetically manipulated products are allowed.
- The legal rules must be implemented and external assessment has to be accepted
- The producers and partners have to follow the capacity building program and cooperate within the network of “Echt Entlebuch”

There is a small annual fee for membership.

Visits www.biosphaere.ch



Predominantly rural areas of Switzerland, such as Entlebuch, are characterised by being of high dependency, low vitality and low income as compared with other areas³⁰. Looking at a baseline figure for anything before the BR started is probably pointless as the area may well have become even more dependent, less vital and poorer without it, but thankfully for the people of Entlebuch we will never know. Speaking of rural development in Switzerland, the

²⁹ Swiss Tourism in figures 2004. Federal Statistical Office.
http://www.swisstourfed.ch/art/dokumente/vademekum/2004/en/Vade_2004_engl.pdf

³⁰ OECD Reviews of Rural Policy. Switzerland. OCED/GD (95) 103.

same OECD report that characterised such areas spoke of the need for development initiatives to come from the “bottom up”, and from the concerted efforts of public and private players, but emphasised that initiatives are best put in a well-ordered context of local and regional initiatives. Entlebuch has attempted just this, turning the communications disaster of the bog protection programme into a genuine community initiative.

Environmental Impact

The Biosphere reserve does not bring with it any further resource use limitations, rather it came about because of them. If presented as a conservation project it would almost certainly have been rejected. It was presented as an economic regeneration project designed to ameliorate the effects of the already enforced environmental protection. If it has an environmental impact it will be largely on thoughts, lifestyle values and education, and maybe on the forest. Not quantifiable, but real nevertheless.

Summary of potential social, economic and environmental benefits associated with Entlebuch Biosphere Reserve

Dimensions	Criteria	Contributing activities BR Entlebuch
A healthy environment		
Biodiversity	species diversity, range and abundance	Bog protection legislation and hunting controls: pre-date Biosphere Reserve. Wood forum to encourage sustainable use of forest products.
	habitat extent and condition	
	structural diversity	
Landscape	character, condition and qualities	Bog protection legislation and hunting controls: pre-date Biosphere Reserve. Wood forum to encourage sustainable use of forest products. Local producer brand encourages diverse grazing landscape through improved marketing of products.
Ecosystem services	quality and productivity of soil, water, air	Bog protection legislation and hunting controls: pre-date Biosphere Reserve. Wood forum to encourage sustainable use of forest products.
	efficient drainage	
	erosion resistance	
	carbon sinks	
	other ecosystem services	
A healthy society		
Recreation and access	active recreation	Walking and cycling trails
	access	
	passive recreation and inspiration	Website, publicity in tourist literature. Portrayed as a scenic, natural area, perfect for hiking.
Understanding and awareness	understanding and awareness	Greater understanding through the values charter used by producers carrying the Entlebuch brand. General publicity for sustainable development through the BR concept.

Community	engagement of BR <i>with</i> community	Two-way process through assembly of delegates and various forums.
	involvement <i>of</i> community with BR	
	vitality and cohesion	
The quality of places to live	near environment (greenspace)	Walking and cycling paths.
	houses and gardens	Nothing specific, but tourist accommodation providers are likely to encourage a pleasant façade to villages.
Environmental justice	equitable access to, and utilisation of, environmental benefits	?
A healthy economy		
Employment and income	direct employment and income	Maintenance of farm employment and income through local produce sales, encouragement for tourism.
	indirect employment and income	Employment and income associated with increased tourism and economic growth associated with enhanced image.
	job quality	Quality environment associated with new high quality jobs?
	income and jobs foregone	Probably none forgone as a result of the BR designation, possibly some lost as a result of previous designations.
Business	business opportunities and constraints	Internationally approved “quality brand” and enhanced profile for Entlebuch. Increased visitor numbers, higher quality food and accommodation provision.
	short term investment	In tourist provision.
	long term investment	Anticipated as a result of enhanced profile
	human resources	Could now attract educated and skilled workers and entrepreneurs
Resource use	conservation of resources with an economic value	Possibly less difficulty with adherence to previous environmental restrictions due to perception of their value to the economy.
	conservation of resources with <i>potential</i> economic value	Wood forum members likely to be more aware of potential value of sustainably managed forest.

Implications for new site selection and evaluation criteria

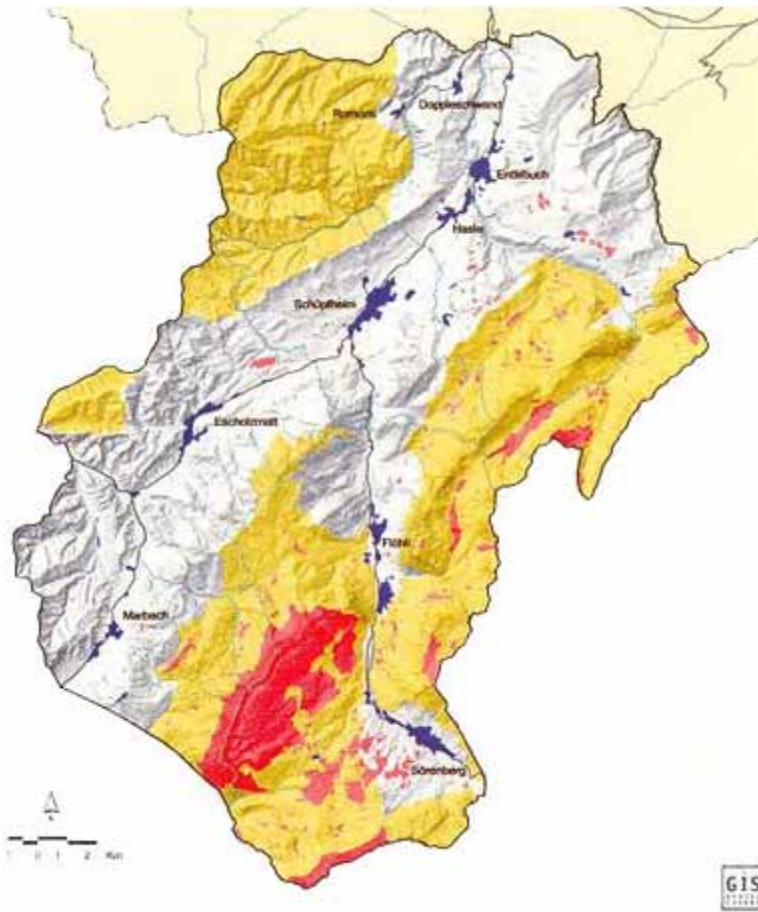
A recent study ³¹ reported on Entlebuch and Grosses Walsertal (Austrian BR) based on challenges reported in various African community based natural resource management (CBNRM) areas. It was found that, no matter how well developed the democratic process or how obvious the economic opportunities, people tend to generate conflict based on resource allocation wherever they are. Communication was found to be the most important factor for successful implementation of CBNRM. Local people need to be sufficiently involved as to want to take personal initiative, which does seem to happen to some extent in Entlebuch. The UN Biosphere Reserve Integrated Monitoring (BRIM) system was seen rather as a tool for NGOs and donors to monitor their own progress rather than being of direct use to stakeholders.

The bigger picture

Entlebuch Biosphere Reserve is high-profile and has almost certainly had positive economic and social effects. Most of the projects are geared firmly at the business community, and involve high-standard quality labels, building on the traditional food products produced in the area. The key here is local food processing, and a tourist industry that can and does use the products. Governance and national committees are almost an irrelevance here. As long as the quality label works and the publicity is good it will fly.

³¹ Daniel Todt. Is community based natural resource management in Europe different to Africa? Tropical Ecology and Management. Department of Ecology and Natural Resource Management, Norwegian University of Life Sciences. NATF350 2006.

Appendix 1 - Map of Entlebuch Biosphere Reserve



■ Core zone	3,301ha
■ Buffer zone	16,358ha
■ Transition zone	20,000ha
■ Settlement area	total 39,659ha

Source; Presentation given by Engelbert Ruoss, Regional Management, Entlebuch, at a meeting to discuss the UN "Quality Economies" initiative, held at North Devon Coast and Countryside Centre, May 2006.

Weblinks

UN <http://www.unesco.org/mabdb/br/brdir/directory/biores.asp?mode=all&code=SWI+02>

BR website

<http://www.biosphaere.ch/english/index.html>

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