

*Environmentality: UNESCO Biosphere Reserves, and
the globalisation of environmental governance*

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Thirty years ago, photographs of Earth taken from space by the Apollo missions indelibly impressed on all who saw them that the planet, while divided by political boundaries is united by ecological systems.

Hilary French (2000:176)

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Abbreviations

BRIM	Biosphere Reserve Integrated Monitoring
CCW	Countryside Council for Wales
DEIN	Department for Enterprise Innovation and Networks
MAB	Man and Biosphere programme
NGO	Non Governmental Organisation
UNCED	United Nations Conference on Environment and Development
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WAG	Welsh Assembly Government
WSP	Wales Spatial Plan
WNBR	World Network of Biosphere Reserves

The Earth is on the brink of "major biodiversity crisis" according to recent reports in the scientific press (Pearce 2006:10). Leading conservationists are calling for the urgent creation of an international body, modelled on the Intergovernmental Panel on Climate Change (IPCC), tasked with halting what threatens to be a potentially catastrophic loss of species. A body of this type would have the influence to introduce concerns for biodiversity preservation into governmental policy making. This recent move to create yet another international body whose focus is upon the management and conservation of the earth's biological resources reflects the increasing importance of environmental issues in political circles. Biodiversity loss represents yet another one of the inadvertent 'side effects' of modern life, the unforeseen yet potentially controllable consequences, described by Beck as the advent of the 'risk society' (1992). The identification and amelioration of these problems have become central functions of contemporary governance at local, state territorial and international scales.

The call for the creation of a new intergovernmental and interdisciplinary body echoes other moves towards new institutional arrangements which enable governments, international organisations and members of civil society to join forces to address global environmental problems. The creation of these new forms of environmental governance recognises that enviro-political spaces can no longer be reduced to issues of state territoriality and that the environment itself could now be considered to

constitute a global political space. Within this reconceptualisation of global space innovative reterritorialisations, with nature conservation being their *raison d'être*, are becoming more common, often occurring across traditional political boundaries.

Whilst political and technological developments have weakened the spatial barriers that define nation states, the 'borderless world' advocated by some writers on globalisation remains a distant possibility (Yeung 1998). Despite forecasts of its imminent demise, the state continues to be engaged in regulating political, economic and social processes within its borders. Although the end of the Cold War and European integration are considered by some to have ushered in a new era of intergovernmental co-operation, state boundaries remain relatively impermeable to flows of people or capital. Yet as the late Michel Batisse noted "biological diversity ignores political boundaries and should be managed accordingly (1997:15). As such efforts focussed upon biodiversity conservation require the co-operative efforts of multiple national and regional political actors and non-governmental agencies in the management and governance of nature.

The challenge of biodiversity conservation is not a new concern, almost forty years ago a seminal conference addressed these issues and began to implement policies and actions that would lead to the creation of a global network of protected areas, initially selected for their outstanding examples of biodiversity. Since then this network of protected areas, the UNESCO convened World Network of Biosphere Reserves (WNBR), has seen its initial concept evolve to encompass and manage the complex relationships that exist between humanity and its environment.

Taking the UNESCO World Network of Biosphere Reserves as its object of enquiry this project intends to investigate how environmental management and policy-making processes are beginning to transcend the domains of the local and national state and become enmeshed within decentralised global, transnational or multi-regional institutions and networks. This analysis is framed within the general approach of political ecology (Neumann 2005; Peet and Watts 2004; Robbins 2004). A key issue for political ecology is “the exploration of multi-level connections between global and local phenomena, not only in environmental functions but also in decision making and hierarchies of power” (Adger *et al.* 2001) and this is central to the objectives of this paper. Significantly for this project, there is an emergent body of work within the field of political ecology, which considers socio-environmental networks, and the role of conservation territories (Goldman 2004; Neumann 2004; Zimmerer 2000 and 2006). This approach is supported by the utilisation of the concepts of global governance and Foucauldian governmentality as frameworks for understanding these emergent enviro-political institutions, networks and processes.

The extant and potential future forms of global governance provide an important multidisciplinary research agenda for geographers, political scientists and sociologists at the outset of the twenty-first century (see for examples Corin *et al.* 2006; Davidson and Frickell 2004; Duffy 2006; Khagram 2006). This project therefore seeks to investigate the pursuit of a specific form of environmental designation. This designation is emerging as a key site for political and multi-agency co-operation in activities that whilst focusing upon the preservation of regionally specific biodiversity also

contribute to the production of networked forms and technologies of environmental governance that operate at global, national and regional scales.

Analysis of the UNESCO World Network of Biosphere Reserves provides a lens through which to examine the growing centrality of NGOs such as UNESCO in new forms of trans-national politics and global environmental governance. Protected areas are becoming important zones for the production of nature/state relations and also for relationships that bring together states and sub-state entities.

In this particular case study parallels will be drawn between the examples and experiences of UNESCO designated transboundary biosphere reserves and the formation of a coalition of political and non-governmental institutions, which is currently in the process of seeking the redesignation of the Dyfi Biosphere Reserve in mid-Wales. This process is timely given the spatial and political restructuring currently being undertaken by the Welsh Assembly Government.

In the broadest terms this project intends to examine contemporary environmental politics through the study of an emergent enviro-political institution operating at a local level but which transcends traditional notions of political space and is integrated into a global network. This analysis will consider how various technologies and practices are deployed within these spaces to produce scientific knowledge and environmentally conscious subjects.

In this respect, this project recognises that whilst quite an extensive body of work has been produced by natural scientists, which considers the

biodiversity aspects of biosphere reserves, the socio-economic and political aspects of this particular designation have to date received limited investigation, especially by geographers.

The paper proceeds as follows; firstly Chapter Two will examine the evolution of the biosphere reserve concept, contextualised within the emergence of the global environmental movement and consider how the designation is now serving to foster cross border governmental cooperation. Previous case studies will provide an overview of work undertaken to date on biosphere reserves and illustrate emergent themes of investigation. Chapter Three will present a discussion of the theoretical frameworks that underpin the case study laid out in Chapter Four. In the final chapter a brief overview will be provided and conclusions and topics considered for further investigation will be discussed.

Biosphere: that part of the world in which life can exist, including therefore certain parts of the lithosphere, hydrosphere and atmosphere.

(UNESCO 1970)

This section commences by explaining the concept of the biosphere reserve; its evolution is contextualised within the emergence of the international environmental movement and the growing need to foster intergovernmental and cross boundary co-operation in environmental conservation efforts. A review of previous case studies will provide an overview of work undertaken to date on biosphere reserves and illustrate themes of investigation relevant to the study of the Dyfi Biosphere Area contained in Chapter Four.

2.1 - The emergence of the biosphere reserve concept

The creation of an important global network of biosphere reserves committed to the conservation and utilisation of global natural resources emerged from a UNESCO sponsored meeting held in Paris in September 1968¹. The Intergovernmental Conference of Experts on the Scientific Basis for Rational Use and Conservation of the Resources of the Biosphere saw the introduction of the concept of the biosphere. In the context of charting the emergence of globalised forms of environmental governance it is important to recognise that this meeting predated and anticipated many of the themes of

¹ The WNBR currently consists of 482 sites in 102 countries - <http://www.unesco.org/mab/BRs/brlist.PDF> accessed 22/05/2006

the more widely recognised 1972 United Nations Conference on the Human Environment held in Stockholm. According to John McCormick the “initiatives credited to Stockholm were in some cases only expansions of themes raised in Paris” (1989:90). Thus the ‘Biosphere Conference’ as it came to be known represents “the first world wide scientific meeting at the intergovernmental level to adopt a series of recommendations concerning environmental problems and to highlight their growing importance and their global nature” (UNESCO 2002:18). However it was at the Stockholm Conference that wider political, economic and social questions were addressed, moving beyond the discussion in Paris that had centred upon the scientific aspects of environmental problems.

The UNESCO Man and Biosphere (MAB) programme, a product of the Paris Conference, was in effect a seminal force in setting an interdisciplinary research agenda and discussing and promoting at an intergovernmental level the ideas that were to become known as sustainable development. These ideas came to be advocated and implemented at the highest political levels in the wake of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro some twenty-four years later. The same conference also saw the ratification of the United Nations Convention on Biodiversity by more than 175 countries. Despite this large number of signatories, the Convention contains few concrete commitments, no effective enforcement mechanisms and has failed to have any major impact upon the burgeoning global extinction crisis mentioned at the outset of this paper.

In an overview of the biosphere reserve concept, Michel Batisse noted that the early biosphere reserves were not always fully understood to be

...tools for sustainable development, rather they were viewed as areas designated for the protection of valuable ecosystems and where various forms of ecological research could be conducted (1993:3).

In these early incarnations the designation 'biosphere reserve' was simply superimposed onto existing protected areas. This was the case in the UK for example, where thirteen sites were designated between 1976 and 1977, all being already existing National Nature Reserves and also having other national, European, or international conservation designations. (Price *et al.* 1999:1)

As the concept has evolved the importance of understanding the relationship between humans and the ecosystems that support them has been recognised, as such increased emphasis has been placed upon the role that local people should ideally play in the creation and subsequent management of protected areas. The inclusion of local peoples into the management strategies of protected areas contrasts with earlier governmentally defined exclusionary models such as that of the Yosemite National Park in the United States and the Tanzania's Selous Game Reserve described by Roderick Neumann (2004). In these examples protected areas were enclosed by the state, and access to land and traditional natural resources access denied to local peoples, yet in the case of Yosemite were preserved for the use of visitors.

Countering this exclusionary model, ideas regarding the integration of indigenous peoples were to become central to the concepts underlying

biosphere reserves and were soon to become embodied within an innovative vision of their future role (Price 1996).

In response to UNCED and the widespread endorsement of Agenda 21, and as part of an ongoing review process the second International Conference on Biosphere Reserves was held by UNESCO in the Spanish city of Seville in March 1995. The first conference had been held in Minsk, in the then USSR in 1983. Here the idea of biosphere reserves had begun to shift away from being conceptualised as being exclusively scientific sites to take into account the growing interest in linking biodiversity conservation with socio-economic development. It was in Minsk that the tripartite function of biosphere reserves was first acknowledged, as was the recognition that they should comprise three physical elements or zones where differing levels of protection and management strategies should be employed.

The Seville conference acted as both a stocktaking exercise in analysing results achieved up until that time and as a means of considering what purpose biosphere reserves should play in the twenty first century. The future of biosphere reserves was laid out and adopted in two products of the Seville conference; a common platform for action known as the *Seville Strategy for Biosphere Reserves* and the complementary *Statutory Framework for the World Network of Biosphere Reserves* (UNESCO 1996).

The *Seville Strategy* had a dramatic effect upon the criteria for biosphere reserve designation and the WNBR, as it is today also dates from this time. Advances in conservation thinking had led to the desire for biosphere reserves to go beyond simply protecting areas of important natural biodiversity to address an ambition for them to become exemplary living models of sustainable development. Modernised biosphere reserves have no statutory powers and in the wake of the *Seville Strategy* are designed to fulfil three complementary functions in facilitating and reconciling the conservation of biodiversity and biological resources with their sustainable use (Figure 1).

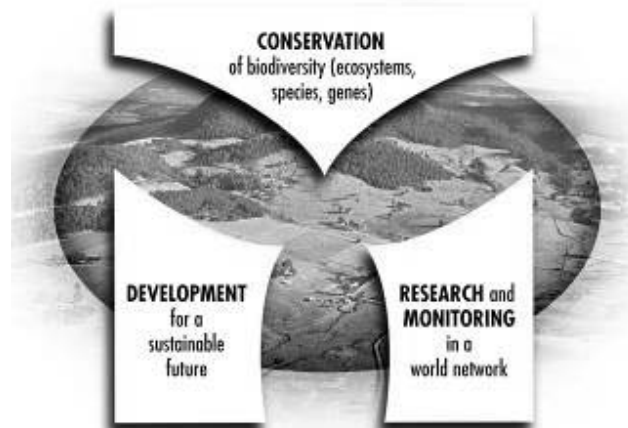


Figure 1: The three functions of biosphere reserves (UNESCO 2002:17)

The three functions of a biosphere reserve are;

- 1) a conservation function;
- 2) a development function;
- 3) a logistical support function. This is critical for capacity building and training and is designed to support demonstration projects, environmental education and training, and research and monitoring related to local, national and global issues of conservation and sustainable development.

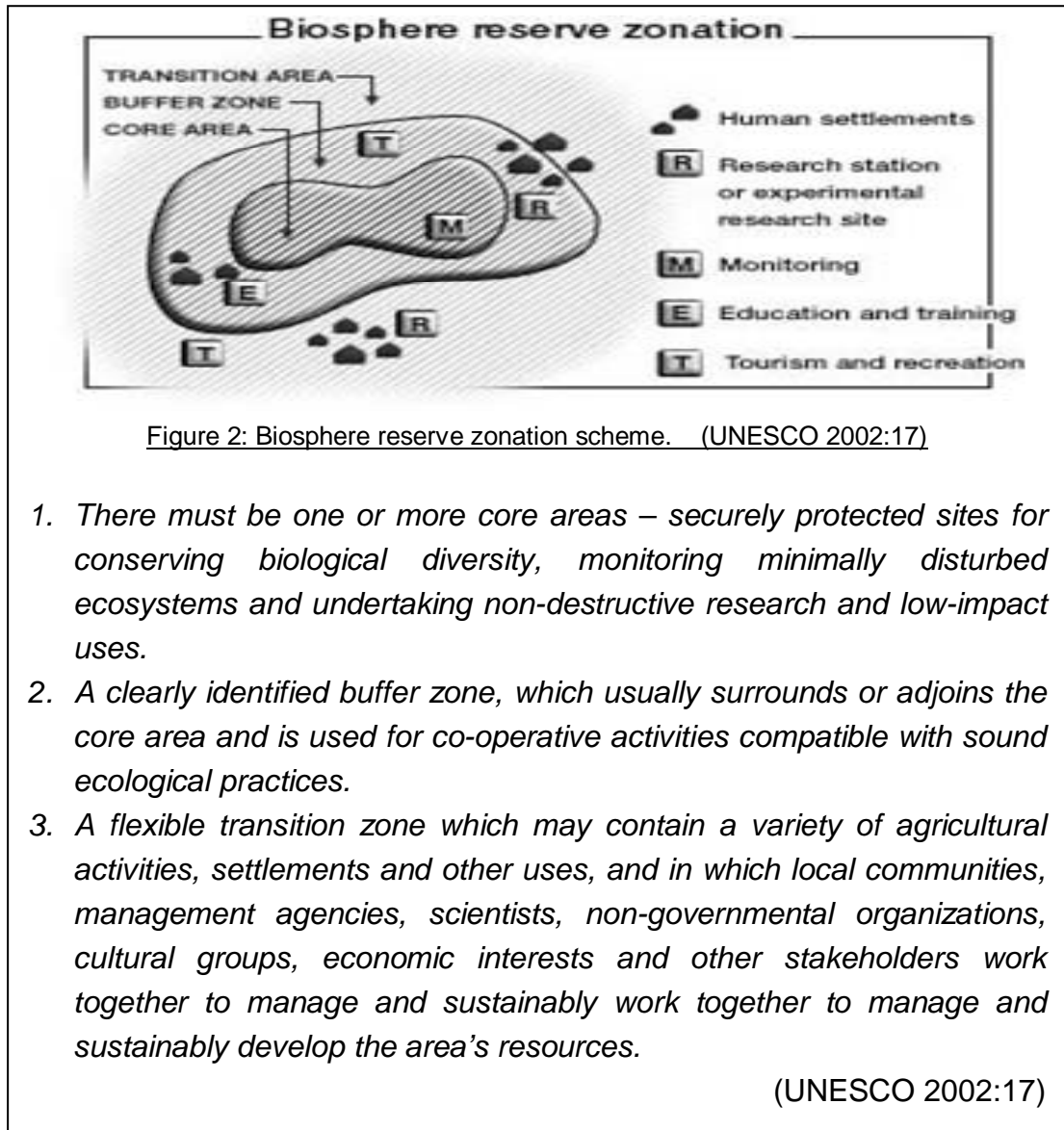
2.2 - What is a biosphere reserve?

Biosphere reserves are fundamentally concerned with processes that occur at a landscape scale and encompass both protected and unprotected areas. Intended to sustain biodiversity and facilitate sustainable usage, the concept of the biosphere reserve therefore draws protected areas into a broader landscape context and recognises that people are an essential part of the fabric of landscape. As such the designation of these areas is also intended to conserve their socio-economic and cultural values. A valuable characteristic of the biosphere reserve concept is its adaptability, there being no rigid blueprints for their establishment, allowing the idea to be interpreted and implemented to suit local conditions. Free of rigid regulatory requirements it has no legally binding status and states which choose to seek reserve status for areas within their jurisdiction do so voluntarily.

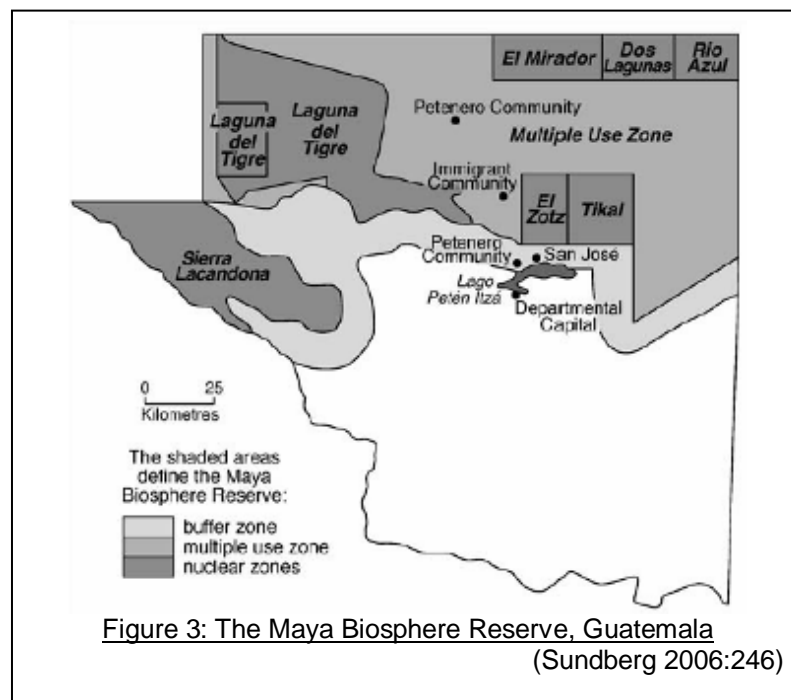
What designation can confer is legitimacy and credibility to projects which are attempting to work at a community level to conserve landscapes and cultural traditions. Used as an umbrella, designation can serve to bring together state and non-state agencies, the public, private and voluntary sectors as well as landowners and concerned individuals to act collectively to achieve common goals.

Biosphere reserves are organized into three interrelated zones, known as the core area, the buffer zone and the transition area and only the core area requires legal protection. This protection often comes under the jurisdiction of other systems (such as national parks or nature reserves) or other internationally recognised designations, such as World Heritage or Ramsar wetland sites which simultaneously encompass areas designated as

biosphere reserves. The function of these three elements is expanded upon in Figure 2 below.



As Figure 2 shows, zones are generally presented schematically as a set of concentric rings; in reality the three zones are implemented in more complex forms in order to meet local needs and geographic conditions as the example of the Maya Biosphere Reserve in Guatemala illustrated in Figure 3 demonstrates.



Given the role that biosphere reserves should play in promoting the sustainable management of the natural resources of the region in which they lie, the transition area is of great economic and social significance for regional development. The relatively unfixed or ‘fuzzy’ flexible outer boundary means that a biosphere reserve’s specific geographical area is not prescribed and often difficult to define and as such produces potential problems for those seeking biosphere reserve designation for an area. This problem faces those seeking designation for the Dyfi Biosphere Area and it is likely that much discussion of this issue has yet to be undertaken amongst both stakeholders and the public; more attention will be given to this point within the case study presented in Chapter Four.

2.3 - The World Network of Biosphere Reserves and international co-operation

Like the management structures of biosphere reserves themselves the World Network of Biosphere Reserves (WNBR) comprises the sorts of cross-sectoral networks and partnerships that are central to the United Nations' strategic organisation of which UNESCO is but one part (Reinicke 2003:1).

The WNBR serves, through the implementation of the *Seville Strategy*, as a tool to integrate and create solidarity between nations and peoples of the World. In co-ordinating broad based knowledge exchanges between biosphere reserves the WNBR serves as a convenor, bringing together governments, institutions and people, establishing in some cases as will be seen a 'safe space' for co-operation to be negotiated. Prior to the Seville Conference, although all biosphere reserves were considered to constitute an international network, cooperation between sites had never been formalised or systematically developed (Batisse 1997:31). Described as "unwieldy" and of being "incapable of addressing the major ecological issues of the time" the concept was considered by Dyer and Holland to be in need of a major overhaul. In their critique of the concept as it was they called for the formation of a functional scientific network, informed by an increased input from both the natural and social sciences (1991:324). The period since 1995 has seen the encouragement and implementation of twinning and transboundary cooperation. This has been complemented by the creation of thematic, regional and sub-regional groupings across the world in concordance with Objective IV. 2.4. of the *Seville Strategy* (UNESCO 1996:11). So networks such as IberoMAB link members within Latin American countries with their counterparts in Spain and Portugal, whilst the

East Asian Biosphere Reserve Network (EABRN) brings together representatives from China, Japan, the Democratic Peoples Republic of Korea, the Republic of Korea and Mongolia. On a broader scale, a programme of South-South co-operation promotes environmentally sound economic development, through collaboration and information exchanges between the three principle humid tropical regions of Africa, Asia and the Americas (UNESCO 2002).

Particular focuses of this study are aspects of the WNBR framework that promote cross border and interregional co-operation in the preservation of threatened landscapes and biodiversity. In bringing together these various jurisdictions to produce new protected areas the WNBR framework contributes to the production of new political forms and arenas where globalised forms of environmental governance can be performed. As Joachim Blatter has pointed out, many “border regions are changing their character, from ‘front lines’ of sovereign states to socio-economic contact zones” (2003:187) and as such present ideal locations for the identification and analysis of alternative or innovative political forms.

It is becoming increasingly apparent that many natural resources need to be considered at a landscape scale if they are to be protected or conserved. If these protected areas are to be of a sufficient size to work effectively it has been recognised that there is a need to encourage working at a scale that transcends political boundaries and promotes co-operation at a transnational or multi-jurisdictional scale. The desire for co-operation across boundaries in protected areas can be understood, according to Juliet

Fall, as “the convergence of at least four issues, three of which are ecological, and one political”, which are summarised below.

1. *The issue of scale - linking protected areas across political boundaries helps to achieve protected status for an area of sufficient size to ensure its ecological integrity.*
2. *The increasing importance of a network approach, physically linking protected areas across the landscape.*
3. *Ecologically valuable sites often happen to straddle the 220 000km of boundaries that separate the 190 or so sovereign states. These boundaries are often remote, undeveloped and peripheral to centres of administrative power (Westing 1998:91)*
4. *The opportunity for using environmental management for fostering good neighbourly relations, cementing and reinforcing confidence between states through the joint management of protected areas.*

(Fall, 1999:252)

As the third point highlights it is often their peripheral nature that has preserved these areas through time. However this peripherality can also be responsible for the production of localised cultural practices or an identity distinct from its surroundings which too is valuable and in need of protection itself. In the case of the Dyfi Valley, it is peripheral to the administrative centres of the three local authorities which serve it. Consequently the opinion is often voiced locally that the area gets overlooked whilst other areas get preferential treatment.

The last of Fall’s points regarding the improvement of interstate relations points up the potential for protected landscapes to provide sites for innovative forms of environment based diplomacy. Their oversight by external non-governmental organisations conferring a neutrality or perhaps a sense of technical dispassion which may facilitate the cultivation of amicable

inter state relationships, conflict resolution or the reunification of divided states (Westing 1998:92). This is not a new notion, Westing notes that use of transfrontier nature reserves to ease political tensions dates back to 1924 and efforts to resolve a boundary dispute between Czechoslovakia and Poland, a loose end arising from the First World War (*Ibid*: 91).

Whilst I would hesitate to suggest that the three local authorities which occupy the area that provides the material for the following case study have a less than amicable relationship. I would suggest that coming together to work on the Dyfi Biosphere Area presents an opportunity for co-operation and sub-regional working that parallels the efforts to create transboundary biosphere reserves. Similarly it epitomises the ambitions underpinning the Welsh Assembly Government's current institutional and politico-spatial restructuring, which will be discussed in more detail in Chapter Four. This spatial restructuring suggests the acceptance of a need to work across arbitrary political boundaries and to work at a larger scale in some instances. In proposing an administrative region whose boundary is defined by the watershed of the River Dyfi, the project follows the *Review of UK Biosphere Reserves* in adopting what is described as a "natural, distinct ecological unit" (Price *et al.* 1999:44). Extending the transition zone in this way represents an apparent move toward what is termed 'bioregionalism' in the process and thinking behind the proposed Dyfi Biosphere Area.

Bioregionalism is founded on a belief in *natural* as opposed to political or administrative regions as the organising units for human activity. In America the concept of the bioregion is well established (McGinnis 1999) and regions are often defined as areas of cultural and biological unity delineated

by their 'watershed' or 'catchment'. This privileging of the biophysical over the political unit is representative of bioregionalism's radical political agenda, favouring political autonomy and 'bottom up' development initiatives. More recently some of its ideas have entered into mainstream thought and are now expressed as a managerial scientific discourse that favours *ecoregional* scales, an idea rooted in conservation biology. This of course presents a 'top down' strategy in that it advocates centralised landscape planning, target setting and is thus implicitly engaged in the governance of both nature and populations.

Parsons regards bioregionalism as "a way of thinking about land and life within a regional framework...No surveyors' lines demark the bioregion. Rather it is defined by people's feelings about the area" (1985:4). This philosophy of living in and producing or performing place is borne out by one interviewee in discussing the geographical extent of the outer transition zone for the Dyfi Biosphere Area. Going beyond previously expressed ideas of 'fuzzy boundaries', they suggested that its location went beyond lines on maps, it was more about enabling action, "it is where people need it to be" (Interview 10, 25/9/2006).

Interest in developing transnational zones of environmental co-operation developed within MAB during the 1990s in the wake of borders between previously socialist countries and those of Western Europe breaking down. An early example of this is the planning process described by Nauber and Pokorny (1993) which was to lead to the designation of the Rhoen Biosphere Reserve in 1991. Here three *Laender* (states), which although united by biogeographic factors had straddled the border between West

Germany and the German Democratic Republic, were brought together despite differing historical and political pasts in an experiment in trilateral co-operation.

The changes in the political geography of Europe were formative influences in the *Seville Strategy* and the *Statutory Framework of the World Network* of 1995, which contain direct recommendations concerning international co-operation and the formation of transboundary biosphere reserves:

- **Objective I.2 (1)** *Encourage the establishment of transboundary biosphere reserves as a means of dealing with the organisms, ecosystems, and genetic resources that cross national boundaries.*
- **Objective IV.2** *Strengthen the World Network of Biosphere Reserves.*
- **(4)** *Lead the communication among biosphere reserves...and strengthen existing and planned regional or thematic networks.*
- **(6)** *Promote and facilitate twinning between biosphere reserve sites and foster transboundary reserves.*
- **(16)** *Seek opportunities for twinning between biosphere reserves and establish transboundary biosphere reserves, where appropriate.*

(UNESCO 1996: 7 – 11)

The resultant cross border collaborations led to the designation of five transboundary biosphere reserves within Europe during the 1990s, these being:

- Danube Delta Biosphere Reserve (Romania/Ukraine)
- Krkonoše/Karkonosze Biosphere Reserve (Czech Republic/Poland)
- Tatry/Tatras Biosphere Reserve (Poland /Slovakia)
- Vosges du Nord/Pfälzerwald Biosphere Reserve (France/Germany)
- East Carpathians Biosphere Reserve (Poland/Slovakia/Ukraine)

(UNESCO 2003:5)

The latter example, inaugurated in 1999, presents a significant achievement in that it represents a pioneering example of trilateral international co-operation in an area where a lack of confidence in neighbouring countries “is still very much part of the political climate” (Fall 1999:253). Early objectives have had to be scaled down and many obstacles conquered but the project has succeeded in raising the profile of the region and attracting funding specifically because it represented a groundbreaking example of tripartite international co-operation.

Although not designated by UNESCO as a transboundary biosphere reserve, Agrawal’s study of the Bialowieza National Park and Biosphere Reserve provides useful insights into the practicalities of transboundary co-operation between Poland and Belarus. The application of adaptive management techniques, particularly the employment of local residents in low cost data collection, even in the face of political tension at state level has aided cross border co-operation. He considers that it is necessary to “design institutional arrangements that have space for local residents and their representatives to contribute to management objectives, implementation and enforcement” (2000:331). In the use of adaptive management techniques Agrawal foresees the potential for greater collaboration between nation states working to conserve natural resources. Here we see an example of co-operation across an international border that is not regulated within the WNBR and the possible practices that can act in its place to foster collaboration.

Issues surrounding transboundary biosphere reserves received further attention as part of the Seville +5 assessment held in Pamplona (Spain) in

October 2000. The outcome of this assessment was the production of a methodology and recommended guidelines for use in extant and proposed transboundary biosphere reserves (UNESCO 2001).

Two further transboundary biosphere reserves have been added to the WNBR more recently. The first being the 'W' Region Biosphere Reserve, designated in 2002 it is the first transboundary biosphere reserve in Africa and takes its name from the double bend of the Niger River. Covering more than one million hectares, the reserve straddles the borders of Benin, Burkina Faso and Niger. The second is also in Africa and received its designation in 2005. The Delta du Fleuve, Sénégal is situated in the delta of the Sénégal River and includes the city of Saint Louis which is also a World Heritage Site. There is little information available about these sites at present, but their post Seville +5 designations implies that they embody lessons learned from the first tranche of European transboundary reserves.

Having defined the concepts underlying biosphere reserves, presented the scope and ambitions of the WNBR and illustrated how biosphere reserves are being mobilised in promoting international co-operation, I move now to present a brief review of academic work on biosphere reserves to date.

2.4 - Literature review

Part of the motivation in undertaking this project was the limited attention afforded to the WNBR within the geographical literature. An extensive desktop survey has revealed that those working in the natural sciences have produced a lot of work which lies beyond the remit of this

paper. However, much of the consideration paid to this designation has been undertaken in the pages of those academic journals devoted to issues of landscape and environmental management, natural resources and tourism development. This section brings together work from these fields with that of geographers to provide a short overview of the issues emanating from research into biosphere reserves around the world.

A starting point for this project was Rosaleen Duffy's recent paper on Transfrontier Conservation Areas in Southern Africa (2006). In highlighting the problems associated with the governance of environmental problems and the need to work at an ecosystem scale and involve local communities as stakeholders in conservation projects, parallels were immediately apparent with the work of the WNBR in establishing transboundary biosphere reserves. The utilisation of the concept of global governance in Duffy's analysis provided a vital insight into how the complex relations between localised practices in rural mid-Wales and state and non-state agencies acting at national and international scales could be analysed.

The limited number of case studies of biosphere reserves to have emerged in recent years reflects the relative newness of modernised biosphere reserves as a concept and the time needed to design and implement plans for modernisation and redesignation.

It becomes apparent in the following review of work on biosphere reserves that politics and power play crucial roles in both shaping protected areas and in the subsequent welfare of their natural resources and citizens. These processes cannot, from a political ecology viewpoint, be considered as purely localised issues to be studied in isolation but must be situated within

their regional socio-economic and historical contexts and their broader national and global relationships (Sundberg 1998:390).

The examples below drawn from the developing world reveal commonalities with those taken from industrialised societies, supporting Peter Walkers claim that “‘first-world’ political ecologies are not so very different from ‘third-world’ political ecologies” (2003:8). Recent moves have shifted political ecology away from its formative Marxist focus upon marginalised peasants and the developing world to take up a broader post-structuralist stance defined by a focus upon

...politics (and ‘micropolitics’)...examining the role of culture, discourse, moral economy, ‘community’ management and indigenous knowledge, social constructions of scientific knowledge, and issues of gender, race and ethnicity as they shape contests over resources (Ibid: 9).

The role of community management and engagement is central to modernised biosphere reserves and many other conservation programmes. Yet just as this ideology eschews ‘top down’ state driven processes in favour of a community led ‘bottom up’ approach, paradoxically many of these programmes are defined, implemented and funded by states acting in concert with international NGOs (Young 1999:375). The growing complex of international designations and institutions is in many cases shifting power away from the local communities and indigenous peoples who it should be argued must be at the very centre of conservation and sustainable development initiatives. It seems vital therefore that if these schemes are to succeed that local support and participation is necessary.

The rhetoric of community based conservation efforts is, according to Emily Young in her work on Mexico’s El Vizcaíno Biosphere Reserve, “highly

problematic in practice” (1999:382). She records attempts to redress cases of marginalisation and enhance levels of local participation in the sustainable management of natural resources. A second theme Young uncovers is the transitional cultural landscape of the area as it becomes exposed to global market forces and subject to both immigration and emigration. Neoliberal policies and internationally funded modernisation or development schemes often run counter to the sustainable intentions of projects and lead to a degradation of socio-economic conditions or unequal access to land and resources

Marginalisation in this case resulted from inadequate communications between distant conservation managers and locals without access to mail or telephones. The outcome of these failings being exclusion from meetings and public gatherings, denying locals the opportunity to voice concerns and opinions and in consequence leading to the development of unequal power relations between managers and locals. Similarly bureaucratic red tape, for which locals were unprepared, resulted in problems in maintaining established livelihoods. Scepticism about the biosphere reserve’s purpose and function surrounded the project, with locals feeling that their concerns about the economic and environmental future of their home region would not be addressed. It becomes apparent, Young concludes, that without adequate communication, community based conservation and sustainable development initiatives are near impossible.

Juanita Sundberg is perhaps the most prolific geographer contributing to the study of biosphere reserves. Her work is based upon extensive ethnographic research in the Maya Biosphere Reserve in Guatemala (1998,

2003, and 2006). As was the case with Young's case study this biosphere reserve received its designation prior to 1995 and as such conditions described may have changed if recent attempts have been made to bring the reserves into line with the *Seville Strategy*. This timelag is similarly exposed in Julia Fraga's recent paper describing Mexico's Ría Lagartos Biosphere Reserve. Despite having been designated as a conservation area twenty-two years ago, only in the last six years have efforts been made to integrate local communities into conservation activities (2006:293).

Analysing general themes surrounding environmental protection and democracy Sundberg's work reveals how international NGO's engaged in the production of protected areas utilise their technical expertise to produce discourses and practices that are often at odds with those indigenous to the region. The discourses of international conservation projects, which produce expert visions of human/land relations, are shown to be powerful instruments and their elitist nature is often considered to privilege certain actors whilst marginalising or excluding others.

The Maya Biosphere Reserve was produced through a non-inclusive process, where decisions were made behind closed doors, ostensibly to facilitate the rapid designation of the area to counter dramatic rates of rainforest deforestation caused by mass immigration. This designation from above without any substantive participation of local communities resulted in many being unaware that they lived in a protected area. The landscape became one where the state had taken on the power to regulate access to resources and particular areas and intended to assert this power. According to Sundberg:

...personnel went so far as to arrest local people for activities that were made illegal after the reserve was declared. Officials...even threatened to seize pets. Certain daily activities became infractions or crimes under the new laws. (1998:402)

In a move to define the boundaries of the reserve, gates and checkpoints were erected, symbolic of the state power being exercised within that area. These were to become targets for dissent and resistance, “angered by the lack of adequate information about new regulations dictating use of natural resources, local people burned several checkpoints in 1991 and 1993” (*Ibid*: 403).

The attitudes and processes outlined above reveal how development philosophies and techniques attempt to reshape both space and society in line with idealised master plans that do not always accommodate the complications of the real world.

Projects are driven by the desires of each NGO’s constituency, which comprises donors and members, not local people. As a result, projects are designed before they reach local communities, satisfying donor requirements and/or membership tastes...Rarely have community priorities coincided with NGO agendas (Ibid: 404).

Juanita Sundberg’s second paper drawing upon her experience of the Maya Biosphere Reserve concerns the linkages between processes of democratisation and nature conservation and offers a more positive message than the last extract suggests. Specifically she argues that some residents are considered by reserve managers to lack an ecological conscience and are therefore incapable of environmental decision making. This elitist belief system thus “authorises exclusionary practices in specific conservation projects” (2003:730).

Countering this she offers a description of an organisation, the Women Rescuing Indigenous Plants Group who through their alliances with international researchers and organisations were able to valorise their traditional knowledge and through participation in the group disrupt conventional gender roles. In building their personal capacity for action the women gained the confidence to take on responsibilities and become involved in other grassroots networks and activities and create a significant infrastructure for their project. This example is important in that it shows just how it is that disempowered individuals can, with the right sort of support, become environmentally aware and active subjects. For this group of indigenous women, access to external networks of political and financial support enabled them to “become decision makers and participants in civil society – a truly significant step in Guatemala” (2003:736).

The third paper by to stem from Sundberg’s work in Guatemala considers how local people engage with the discourses and practices employed by NGOs. She illustrates how technical expertise was utilised to naturalise the NGO vision of human/land relations as being ‘correct’ and justify the imposition of reserve status by authoritarian means whether or not those living there were in agreement (2006:246). This post-colonial shaping of nature is described as part of the legacy of United States’ imperialism within the region. Stating that “conservationist visions of nature and protected–area models invariably privilege certain actors while marginalising others” Sundberg suggests that a role for political ecology lies in revealing “the subtle ways in which the discourses and practices of international

conservation projects become instruments of power and exclusion” (*Ibid*:258-259).

Moving on from the experiences of biosphere reserves in Latin America to consider two papers that consider the Bookmark Biosphere Reserve in South Australia. David Brunckhorst focuses upon innovative models of multiple tenure land management and planning programmes operating at a bioregional scale, which are designed to promote social and ecological sustainability through the production of new institutional forms (2001:20). The Bookmark Biosphere Trust brings together community, government and private sector elements in an experimental effort to attain the long term sustainability of the natural environment, social values and living standards in a degraded low productivity landscape. Fitzsimons and Wescott (2005) describe the assembly of Bookmark’s various components between 1993 and 2002 and its transformation from being simply a core protected area to one encompassing forty-nine separate properties held under differing forms of tenure (2005:80). Interestingly for the case study to follow other conservation areas adjoin or are in close proximity to the Bookmark reserve but are in neighbouring states. Despite the fact that these areas would enhance and help meet the aims of the reserve Fitzsimons and Wescott surmise that

The non-inclusion of inter-jurisdictional conservation lands may suggest that while it may not be the policy of a network to restrict their operations within State boundaries, existing administration, co-ordination or financing arrangements by State nature conservation agencies could be placing administrative boundaries on the area of operation. (Ibid:89)

This networked form of multi-tenure conservation area appears to be an increasingly popular and successful method of implementing cross-tenure

ecosystem management in Australia and presents a useful model whose success in getting willing landowners to co-operate with one another in achieving shared aims shows great potential.

To close this brief review I now move to China to discuss two papers, the first by WenJun Li assesses the role of community participation in tourism development in the Jiuzhaigou Biosphere Reserve in Sichuan Province where the tourist industry has boomed since the reserve's designation in 1997.

According to western models where community participation focuses on decision making processes and the benefits of tourism development, it is thought that only when local communities are involved in decision making processes can they ensure that they will benefit from any developments. This ideal, according to Li, is rarely found in developing countries. In the Jiuzhaigou Biosphere Reserve

...community participation via employment as workers or as small business operators, rather than participation in the decision making process, has been recognised to help local people receive more than economic benefits ... the study showed that there was minimal involvement in the planning process and yet almost all of the residents within JBR had received economic benefits from ecotourism, suggesting that this development had substituted successfully for farming and hunting, the traditional means of indigenous subsistence. (2005:133).

The role of management is highlighted in Li's paper and the fact that one third of biosphere reserve managers come from local villages has perhaps resulted in the effective representation of the interests of local communities in management decisions (*Ibid*: 141). It is hard to equate modes of local decision making in China to those understood in the West, as they are dependent upon different cultural, institutional and ideological

arrangements. However it does seem that good managerial practice rooted in the local community can provide opportunities for achieving enhanced livelihoods based on the tourist economy. High levels of participation are hard to achieve at the outset of a project such as this, but many people soon come to recognise the opportunities that they present. As Li points out it is essential that controls are put in place to control the pace of tourist infrastructure development and preserve the natural environment that is the focus of biosphere reserve designation.

A second paper from China, Xu *et al*'s analysis of local people's knowledge, attitudes and perceptions of the Wolong Biosphere Reserve complements Li's analysis of levels of participation. Xu *et al.* state that local people's perceptions of reserves

...depend upon their perceived cost and benefit from protected areas, their dependence on local resources, and their knowledge about protected area management (2006:363).

They highlight the need for information and insights into the lives of the residents of protected areas, particularly relevant is knowledge regarding the diversity of individuals, households and their needs.

An extensive survey of the local residents of the Wolong Biosphere Reserve revealed a limited knowledge of its roles amongst them, which was taken to imply poor levels of participation and inadequate communication mechanisms being employed by reserve management. Problems identified in people/park relations centred on limited or late compensation being paid to landowners whose previously cultivated lands had been converted to forest, this issue was linked to more general concerns for the loss of croplands. The reforestation is intended to increase wildlife habitats, but for locals this was

considered problematic in that management was considered to care “only about the Giant Panda rather than local people’s development” (*Ibid*: 369). A project to convert locals to electricity use and prohibit firewood collection was another source of conflict. Rising prices acted as a disincentive for locals to support forest protection policies as they considered that in not being able to afford escalating energy costs they would have to return to using traditional resources. As has been illustrated previously conflict between local peoples and protected areas is driven by largely by access to resources and the lack of alternative options. Employment opportunities in protected areas are limited and access to the capital and experience necessary to set up businesses in eco-tourism, for example, often privilege those from outside the area. If local people are to be persuaded to alter their lifestyles then adequate support needs to be provided to facilitate the transition and thus reduce pressure upon threatened resources.

I would like to draw a few brief points from the above review. It is evident that pressure from expanding populations is placing an increasing burden upon protected areas. For many of these people a lack of awareness regarding the fragility or importance of the internationally significant areas in which they live contributes to the problems faced by managers. For local peoples the unexplained disruption of traditional or well established ways of life and loss of control over access to natural resources provides a focus for resistance and a serious challenge to conservation efforts. The importance of communication and consultation cannot therefore be overstated. Despite the growing recognition of the value of local or traditional knowledge, there still appears, according to Fraga, “to be an opposition between ‘modern

conservation' and 'traditional conservation'" (2006:293). This she ascribes to the western, socially constructed, discourses of nature, which underlie much of the ideology of conservation and which have a tendency to ignore local knowledge, practices, and needs.

In consulting and engaging with local populations, valuable access to lay or traditional knowledges may be acquired and in supporting local citizens they are provided with new opportunities and the ability to achieve unanticipated potential upon the stage of what is ostensibly a conservation area. The current focus upon human interactions with the environment was not formally in place within biosphere reserve thinking when the Maya and El Vizcaíno reserves were designated but the lessons we can take from them and the other reserves considered are important for all future reserves and protected areas.

Having defined biosphere reserves and considered examples how they have been deployed around the world, it is apparent that they present an exemplary tool for meeting the needs of both biodiversity and cultural conservation as well as facilitating sustainable development initiatives. In promoting intergovernmental and less formal forms of co-operation through a global network that encourages the standardised collection and exchange of scientific information and experience the WNBR promotes cultural linkages and presents a potentially powerful tool in enabling global environmental governance. The following chapter considers the theoretical approaches which underlie this research project.

3.1 - Introduction

Multiple changes have occurred upon the economic, political and territorial landscapes in the post Cold War era and environmental concerns have emerged as the key drivers of international co-operation. The success of the 1987 Montreal Protocol on the regulation and ultimate termination of CFC usage presenting perhaps the pinnacle of international cooperation on the environment rather than pointing the way forward for further intergovernmental agreements. Modern global eco-politics is however becoming strained, with industrial nations disagreeing amongst themselves; the European Union and the United States, for example, are at loggerheads over issues such as genetically modified organisms. When we consider the pressing issue of global environmental change, little tangible progress has been made as a result of the Kyoto Protocol (1997) and whilst discussions of operational details continue, developed countries continue to emit greenhouse gases.

The political changes impacting upon modern lives can be seen in the effects of globalisation, neo-liberal policies, devolution, innovative and multi-level forms of governance and the changing role of the nation state (Held and McGrew 2003; Jordan *et al.* 2005; Karkkainen 2004). In linking ideas of landscape scale environmental protection to emergent political forms and strategies the notion of global governance is adopted to aid the analysis of what Rosenau has represented as a “bifurcated system” one part of which is

...an interstate system of states and their national governments that has long dominated the course of events, and the other a multicentric

system of diverse types of other collectivities that has lately emerged as a rival source of authority with actors that sometimes cooperate with, often compete with, and endlessly intersect with the state centric system (2003:225).

Similarly in order to negotiate the practices employed in the control and management of global, state and regional natural resources Michel Foucault's concept of governmentality is taken up in an evolved form. Originally coined by Tim Luke (1999) and more recently defined by Arun Agrawal, *environmentality* represents "a specific optic for analysing environmental politics" (2005a: 226), where this relates to "the conduct of environmental conduct" (Whitehead *et al.* 2006:52)². In developing this project to move beyond the production of environmentally aware subjects, environmentality provides a critical insight into relations between the state and nature, drawing attention to the "various strategies, techniques and technologies deployed by state authorities to *governmentalize* nature" (*Ibid.*)

As has been discussed previously the transboundary or regional scale of many environmental problems and concerns has led to global or transnational institutions and networks becoming key sites where these problems are addressed and governed. The understanding being that they

² The coining of the term environmentality appears to precede the writings of Tim Luke. In 1990, the Disney Corporation introduced Environmentality™ as "a fundamental ethic that blends business growth with the conservation of natural resources" where "attention to the environment drives new business initiatives, demonstrating how environmental stewardship goes hand-in-hand with bottom line cost savings". Jiminy Cricket is identified as the mascot representing this initiative and "serves as the official conscience for Cast Members and Guests".

http://corporate.disney.go.com/environmentality/mission_history.html accessed 06/09/2006

are better suited to cope with such issues than individual nationalities, a point reinforced by Duffy who points out that “good environmental management has largely been defined in terms of supranational conventions, policies and agreements” (2003:155). However, as Hilary French points out, despite more than 230 international treaties on the environment being created since the 1972 Stockholm Conference “the condition of the biosphere continues to deteriorate” (2000:144).

The UNESCO World Network of Biosphere Reserves represents a fluid and deterritorialised network where local, national and global scales are not seen to be discrete and separable but rather inextricably interlinked. Although in principle the WNBR represents a compact between sovereign states, in this networked and multilevel form of governance, political practice comprises the complex interplay of multiple actors, state and non-state institutions and interest groups acting in both formal and non-hierarchical networks. The concepts of global governance and environmentality outlined above provide useful tools for examining the ways that multiple interest groups co-operate to both govern and regulate socio-economic spaces of conservation. These concepts, their evolution and relevance to this project are discussed in more detail below.

3.2 - *Global governance*

If we are to take global governance to be a new and substantially different form from that of state centric forms of government then how should it be defined? According to Jon Pierre, governance refers to “sustaining co-ordination and coherence among a wide variety of actors with different

purposes and objectives, such as political actors and institutions, corporate interests, civil society and transnational organisations” (2000: 3–4).

In a recent discussion of this issue in *Political Geography*, Rosaleen Duffy defines global governance as referring “to forms of control, regulation and management that are different to, or encompass more than bureaucratic forms of state government” (2006:93).

In the absence of an established definition of global environmental governance the following provides a working definition for use in this project. Thus global environmental governance could be defined as a hybrid group of regulating organisations, networks and technologies through which political and non-political actors and institutions influence environmental actions and particular outcomes are achieved.

In labelling biosphere reserves as “learning places” (UNESCO 2005) where lessons learnt can be applied elsewhere in support of policy makers, they are established as sites of knowledge production. As such they are implicitly involved in the “development of new administrative apparatuses, novel forms of knowledge and analysis (especially statistics)” (Braun 2000:27) that contribute to contemporary forms of globalised environmental governance. As Rosaleen Duffy has pointed out the ability to “frame and interpret scientific knowledge is a substantial source of political power” (2006:94). Therefore, it would seem that the use of “harmonized methodologies” (UNESCO 2005, Schröder *et al.* 2006) within the Biosphere Reserve Integrated Monitoring (BRIM) programme illustrates the ambition of the UNESCO network to produce and validate standardised environmental monitoring data from diverse spaces that encompass a broad spectrum of

biological, socio-economic and political aspects rendering them in some way uniform and therefore comparable.

In observing global biodiversity changes through the BRIM initiative, launched in 1991, UNESCO supports global and regional observation to measure abiotic, biodiversity, and social changes throughout the World Network of Biosphere Reserves. BRIM provides platforms for the integration of the resulting information/data via multiple databases and the means of networking and sharing of information, ideas on and solutions to sustainable development.

The standardisation of monitoring procedures for biodiversity and socio-economic indicators has political significance in that it should produce impartial data that when applied to natural areas that exist across national boundaries renders them homogeneous and as has been noted previously may serve to negate political difference.

The technologies employed in the production of biosphere reserves, especially those that cross or abut national borders can serve to reconfigure boundaries to produce and make legible new political spaces where innovative regulatory forms may emerge. Acting within the WNBR – a network that spans socio-economic, political, and cultural divides – the driving forces of globalisation; technological change, ecological issues and political liberalisation are co-opted to develop and promote new forms of international co-operation,

Decision makers acting for states are increasingly confronted by a range of issues that can only be addressed through co-ordinated cross-border actions, a fact long recognised by those working within political

geography. Here the necessity for transboundary co-operation with reference to shared water resources (see for recent examples Furlong 2006 and Sneddon and Fox, 2006) has provided useful material in this field. However little attention has been paid to the emergent geographies of environmental governance that relate to the role of nature conservation in fostering international cross border co-operation (but see Duffy 2006 and Wolmer 2003).

In transforming traditional, social or geo-political space transboundary biosphere reserves and similar areas may serve as catalysts for political change and UNESCO could be said to be playing a proactive role in the development of global governance through the work of the WNBR.

For regions that have endured conflict, or social and political turmoil, an engagement with environmental issues, facilitated by a third party such as UNESCO, as part of post conflict restructuring presents a relatively neutral, non-political field within which people, parties and organisations can reach consensual decisions. The process of reconciling disparate administrations about environmental concerns could serve to produce a 'spill over effect' (Bijlsma 2005:177) stimulating further successful co-operation on other, more sensitive policy areas.

Westing suggests three distinct sets of circumstances, and potential sites, where the joint administration of a transfrontier protected area could promote confidence building and conflict prevention:

1. To cement and further cultivate amicable relations between two contiguous states (The Indochinese Peninsula involving Cambodia, Laos and Vietnam or the Horn of Africa, involving Eritrea and Ethiopia)

2. To obviate conflict over a contested border region (The Ogaden, contested between Ethiopia and Somalia or the Spratly Islands contested amongst Brunei, China, Malaysia, the Philippines, Taiwan and Vietnam)
3. To serve to smooth the way for a pair of divided states to reunite (Korea)
(1998:92)

To conclude this section it remains to underline the fact that biosphere reserves offer the sort of conceptual and managerial flexibility that can be mobilised to reorder geographical space and which can be adapted to a multiplicity of environmental, social and political situations. The biosphere reserve is a concept which can be deployed at international and sub-regional levels to protect the environment, foster sustainable development initiatives and build inter-administrative confidence and co-operation.

3.3 - Political ecology

Introducing the role of political ecology and its role in framing this paper, a brief definition will precede its philosophical, ontological and methodological elements before contextualising it within the proposed research project.

Despite borrowing liberally from the humanities, social sciences and biophysical sciences, political ecology must, according to Neumann, be considered as “a field of human geography that explores the relationship between politics and ecology” (2005:2). Despite emerging as a separate sub-discipline during the 1980s, at its core it expresses geography’s historical interest in the relationships that exist between human society and nature. For Paul Robbins, political ecology is not just a body of knowledge it is also “something people do” (2004:xviii) revealing its engagement with resource based conflicts and social movements, which are generally located in the

'under developed world'. Although Robbins recognises that these regions represent political ecology's traditional territory he foresees a move to encompass concerns located in what is often defined as the 'first world'.

In locating political ecology epistemologically Roderick Neumann claims critical realism as

...the philosophical foundation for an approach to nature society relations that acknowledges the ontological independence of the biophysical world while at the same time recognising that our understanding of the natural world is partial, situated and contingent (2005: 10).

Revealing its roots in Marxist political economy, political ecology considers the relationship between nature and society as dialectical;

...the human transformation of natural ecosystems cannot be understood without consideration of the political and economic structures and institutions within which the transformations are embedded (Ibid: 9).

Virtually by definition political ecology includes historical and political analysis within its methodological portfolio but also draws upon other methods such as interviews, ethnography and participant observation. The deployment of discursive approaches is seen by Peet and Watts (2004) as being central to the analysis of environment and development and serves to excavate and provide critical insights into the perceptions and rationales of states, non-governmental organisations, politicians, land users, conservationists and scientists.

As has been noted previously political ecology proves its relevance to this topic of investigation in that it provides useful purchase upon socio-environmental networks and the role of conservation territories, the means by

which they are governed and the underlying economic and political motivations for their creation.

3.4 - Michel Foucault, governmentality and the environment

Given the complex and dynamic relationships that exist between society, the environment and policy-making institutions and networks it is recognised that several approaches could serve to provide a theoretical framework for the consideration of the many facets of these associations.

In an effort to understand the evolution and impact of the WNBR and its role in producing global forms of environmental governance, facilitating localised conservation and development measures it is intended, working within the framework of political ecology, to draw chiefly upon the theoretical background of Foucauldian governmentality.

In adopting a primary theoretical drive derived from the works of Michel Foucault particular reference will be made to the ways that his thesis of governmentality has been integrated into or adapted to consider ideas of the geographical analysis of environmental issues (see for examples Bulkley 2001; Dean 1999; Eden 1998).

3.4.1 - Governmentality

Governmentality derives from Foucault's ideas on state methods for the disciplining of the individual, which he advanced in the first volume of his '*History of Sexuality*' (1998, [1976]). The emergence of governmentality reflects new forms of government that Foucault identified as having their

origins in the sixteenth century and which were targeted upon wider objectives than had previously been attempted.

In the *'History of Sexuality'* he described how the body became integrated into systems of "efficient and economic controls" (1998:139). The subsequent explosion of techniques utilised in achieving the subjugation of both individuals and populations he termed the "beginning of an era of 'bio power'" (*Ibid:* 140), a term which designates

...what brought life and its mechanisms into the realm of explicit calculations and made knowledge-power an agent of transformation of human life (Ibid: 143).

Foucault introduced the concept of governmentality within a course of lectures given at the Collège de France in between 1978 and 1979 entitled *'Security, Territory and Population'*. However it was not until the publication of *The Foucault effect: studies in governmentality* in 1991 that Foucault's theories of governmentality reached wider, English speaking audience (Burchell *et al.*, 1991; Rose-Redwood 2006: 471-2) and began to have a significant impact within various disciplines.

The Collège de France lectures focussed upon the genealogy of the modern state and the linking of governing (*gouverner*) with modes of thought (*mentalité*), Foucault considering that it was not possible to study the technologies of political power without being able to understand the rationale which underpinned them (Lemke, 2001:191).

In deliberating on the establishment of the art of government and "the introduction of economy into political practice" (1991:92) Foucault describes a shift from politics being confined to the maintenance and reinforcement of state power over territory to a broader governmental role. This role

encompasses “a sort of complex composed of men and things” and the state’s almost paternal concern for the collective welfare and regulation of its population through the production of the “right disposition of things” (*Ibid*: 93). Therefore modern government, as defined by Foucault, extends from the individual and their personal conduct to the management of the population and territorial resources that underpin the state’s economy.

The often fragmentary nature and inconsistencies within the source materials that survive from the Collège de France lectures and from Foucault’s unexpectedly early death means that many of his ideas were never fully developed into book length projects (Lemke 2001). Instead it has fallen to others from a diverse series of disciplines to take up the baton and develop the ideas and practical applications for Foucault’s theories. As Mitchell Dean notes in his introduction to *Governmentality: Power and Rule in Modern Society* “[t]here is no one governmentality paradigm” (1999:4) and as such the concept has proved adaptable and useful in many intellectual domains. More specific to this study are Foucault’s influences upon political geography and particularly, as will be shown, the critical insights governmentality provides into the analysis of environmental problems and the efforts made by state and non-state actors and institutions to address their amelioration.

Several writers have noted that Foucault showed little interest in the environment and did not write explicitly about it, but they have drawn upon his description of the object of governance as being

...men in their relations, their links, their imbrication with those other things which are wealth, resources, means of subsistence, the territory with its specific qualities, climate, irrigation, fertility, etc.; men in their

relation to that other kind of things, customs, habits, ways of acting and thinking etc. (1991:93)

This often used phrase has served to extend Foucauldian thought into the consideration of the specific qualities of the environment and the discourses and technologies utilised in rendering it governable. For Foucault, writing of the historical period, threats to the state and its populace were no longer those of war or invasion but internally occurring problems such as poverty and ill health. More recently despite the generally stable condition of nation states, external threats derived from the degradation of the environment or transboundary pollution have returned to pose threats to both states and their populations and require bio-political interventions.

So for recent writers such as Tim Luke and Michael Goldman notions of a 'green' form of governmentality which incorporates the ideas of sustainable development and the technologies of environmental monitoring and management serve to establish and enforce "the right disposition of things' between humans and their environment" (Luke 1999:146).

3.4.2 - Towards environmentalism

Sustainability and environmentalised modes of operation have in recent years become essential tools of government and Foucault's ideas provide a critical perspective on contemporary environmental problems, politics and the methods states utilise to manage space, populations and resources in relation to their natural environments.

Referring back to the objectives of this research it can be seen that Foucauldian governmentality provides a means for unpacking how discursively produced geopolitical spaces such as biosphere reserves

become repositories for modern forms of power. They are thus implicated in the control of nature and the co-option of individuals and institutions into becoming sympathetic subjects and willing accomplices in the work of environmental governance and the broader ambitions of the state.

As previously noted Foucault himself never wrote explicitly on the subject of environmentalism, but others working within both geography and political ecology, such as Bruce Braun (2000), Éric Darier (1996), Michael Goldman (2004) and Tim Luke (1999) have attempted to introduce governmentality into analyses of environmental problems and policy making. This project follows Éric Darier's lead in considering contemporary forms of environmental governance as one of the latest forms of governmentality to appear within the long-term historical trend of governmentality identified by Foucault (Darier 1996:592). This project is particularly concerned with the emergence of environmental concerns and their entrance into the international policy making arena since the 1970s. The application of ideas of governmentality to the environment have been variously labelled as 'green governmentality', 'eco-governmentality' and suchlike but this paper adopts the term 'environmentality', introduced in its political form by Tim Luke in 1999 (See footnote 2). In following Luke (1999) and Goldman's (2004) examples it is intended to rescale the concept for use beyond state boundaries to encompass global or transnational institutions and networks. However, following its evolution from Foucault's governmentality, environmentality maintains and emphasises the importance of four interrelated phenomena: changes in knowledge, politics, institutions, and subject formation.

The parallels between Goldman's work on the World Bank and Luke's more recent work on the Worldwatch institute (2000) appear to bear more relevance to this study of the World Network of Biosphere Reserves than do Luke's earlier (1999) and now outdated description of Clinton/Gore era American environmental ambitions. More recently Arun Agrawal has also invoked the idea of environmentality in his book length study on Indian forestry and the production of environmentally aware and active subjects.

Here Agrawal defines environmentality as "a specific optic for analysing environmental politics..." (2005a:226). In a related paper the term environmentality denotes "a framework of understanding in which technologies of self and power are involved in the creation of new subjects concerned about the environment" (2005b:166). In Agrawal's case study, the governmental deployment of power crucial to the "construction of allied interests through persuasion, intrigue, calculation, or rhetoric" (Miller and Rose 1990:10) has a positive outcome. Those who participate in the new regulatory communities encouraged by the state are more likely to become environmental subjects, that is individuals who feel a personal need to protect the local environment (2005a:165). Agrawal's argument here is that there exists "a relationship between government and subject formation, between policy and subjectivity" (2005b:180). As such this relationship can be analysed by examining the technologies of power utilised in subject formation, which encourage people to define (or redefine) themselves and employ technologies of the self in order to transform their own lives and living conditions. In the context of this paper and given current efforts to institute similar processes of environmental government, that is joint action by both

local residents and state departments, it is according to Agrawal “imperative to attend more closely to the relationship between subjectivity and government” (2005b:178) particularly the issues and technologies which surround the instigation of participation and its subsequent practice.

In developing environmentality as a concept Agrawal has also successfully shown how it should be deployed as a method of investigation. In the case study of the forest dwellers of Kumaon, in India, method is represented by archival research supported by extensive anthropological fieldwork, a similar tactic to that taken by Juanita Sundberg in her Guatemalan researches. It would seem that if we are to excavate the micro-politics of environmentality and the production of an environmentally aware citizenship we must be prepared to move away from its theoretical groundings in Foucault’s abstract conceptual innovations and contextualise his ideas within a concrete social and political background.

Therefore, following Miller and Rose’s (1990) lead, it seems that if an analysis of emergent trends dubbed as environmentality is to be achieved then it is necessary to investigate the technologies deployed by states, their agencies and agents in meeting specific ends. This suggests the need for extensive ethnographic work in order to engage with those subject to these technologies and even for the researcher to become subject to them themselves. The subject of method will be expanded upon as a prelude to the case study of the Dyfi Valley provided in Chapter Four.

3.4.3 - Producing space and knowledge

The notion of governmentality assumes a certain spatial and even geopolitical stability in that the state's resources become directed towards its citizens rather than towards maintaining its territorial integrity. Foucault, when taken to task by the editors of the journal *Hérodote*, for privileging historical or archaeological approaches over those of geography, acknowledged that he had paid little attention to the production of the spaces inhabited by the populations that were to become the objects of governance. He is recorded as saying that "where geography was concerned, I either left the question hanging or established a series of arbitrary connections" (1980:77). In closing he admitted that "[g]eography must indeed necessarily lie at the heart of my concerns" (*Ibid.*), throwing up yet another element within his body of work that remained unexplored before his early demise.

One of the main topics of investigation for those engaged in studies of governance based on Foucault's writings is the study of the practices, technologies and discourses employed in constituting different domains as "governable and administrable" (Dean 1999:29). Here I turn initially to Scott's account of the invention of scientific forestry, which provides a useful model for understanding state (or NGO) driven methods for simplifying the complex realities of nature, rendering them

...more legible and hence more susceptible to careful measurement and calculation...making possible a high degree of schematic knowledge, control, and manipulation (1998:11).

In Scott's example long distance trade promoted the adoption of common standards of measurement (1998:30). In the case of the WNBR, an international network of protected areas, BRIM is promoted as its means of

producing and disseminating standardised scientific data via computer databases and international networks of information exchange.

Similarly, as Miller and Rose's analysis of the work of Callon and Latour shows, network formation can be instrumental in linking calculations made in one place with actions elsewhere, and disparate interests brought together through "*interessment*" - the construction of allied interests through persuasion, intrigue, calculation or rhetoric" (1990: 10). Thus networks can be formed

not because of legal or institutional ties or dependencies, but because they have come to construe their problems in allied ways and their fate as in some way bound up with one another. Hence persons, organisations, entities and locales which remain differentiated in space can be brought into a loose and approximate, and always indeterminate alignment (Ibid.)

Just as governments seek to render reality intelligible and thereby governable so certain technologies must be mobilised in order to construct, make visible and manage protected areas. Expert knowledge and the managerial language of conservation discourses are employed to promote the creation of biosphere reserves. But as Paul Robbins points out in "seeing like a state" (Scott 1998) environmental managers implement their own 'administrative optics' and so fail their constituencies" (2000:126) as has been demonstrated in case studies of biosphere reserves by both Sundberg (1998, 2003 and 2006) and Young (1999).

A second point for this discussion is how technologies are employed in order to facilitate the governance of a specific space. In the following chapter I will consider how the governance of a protected area is facilitated by rendering it visible, typically through the use of maps, "little machine[s] for producing conviction in others" (Rose 1999:37), supporting and reinforcing a

reterritorialisation of place so that in portraying a new reality, previous incarnations are overwritten and thus obliterated.

Within the engagement process discussed within the following case study there exists the opportunity for the expression of visions that go beyond official or expert constructions of natural reality. Whilst not directly privileging lay or peripheral knowledges any decision made regarding the progress of the project will attempt to consider equitably the views of those with different viewpoints derived from their livelihoods or cultural background for example and despite their levels of expertise. These inputs, garnered through a managerial process, may in turn contribute to the construction of a reterritorialised spatial and cultural identity. This in turn may open up a new political space where a coalition of institutions come together to project a specific notion of the Welsh state acting in harmony with nature in a strategic move to develop the region both economically and sustainably.

Drawing upon the theoretical underpinnings outlined above Chapter Four's case study will seek to analyse the processes and technologies being deployed in the move to redesignate the Dyfi Biosphere Reserve.

This chapter begins by briefly describing the methods and intentions of this research project. Following on from this I will go on to locate it within the contemporary political context of spatial and political restructuring in Wales and the forthcoming changes in the form and objectives of European Structural Funding. After outlining the underlying political ecology of the area a case study of the ongoing process to redesignate the Dyfi Biosphere Reserve in accordance with UNESCO's 1995 *Seville Strategy* will be presented.

4.1 - Research methods

This study was initiated by field research undertaken for an earlier project during 2004. I returned to the subject in 2006 to analyse how momentum which had begun at a conference held in the summer of 2004 had been harnessed to drive forward the aim of redesigning the existing Dyfi Biosphere Reserve in accordance with UNESCO's 1995 *Seville Strategy*.

Participant observation was combined with semi-structured interviews, two complimentary methods often deployed in field research (Bennett 2002). The core of the research derives from a series of ten semi-structured face to face and telephone interviews conducted with representatives of the principal stakeholders of the Dyfi Biosphere Partnership. As a participant observer I attended a public meeting and conference in 2004 and attended some of a series of nine public community engagement meetings conducted throughout the area, which commenced in October 2006.

Utilising a qualitative approach, the primary purpose of the interviews was to uncover the part of the engagement and designation process between 2004 and the summer of 2006 when it moved into a new phase. A standard set of questions was designed initially in order to gain a comprehensive viewpoint and to understand differences of ambition and opinion within the various stakeholder groups. These questions sought to understand levels of involvement; the likely benefits that designation could bring; the realities of inter-jurisdictional co-operation; potential pitfalls and the discursive production of proposed biosphere reserve zonations. At the end of each session interviewees were given the opportunity to raise issues they felt were either important or had been overlooked in my questions. Points from these sections of the interviews then served to rephrase or retarget questions in subsequent interviews. It was of course ethically necessary in using some of these viewpoints in later sessions to maintain interviewee's confidentiality.

Representatives of Ecodyfi, the Countryside Council for Wales, all four planning authorities involved, (these being the three local authorities and the Snowdonia National Park), and the newly reconfigured Department for Enterprise, Innovation and Networks (DEIN) were interviewed. In addition partnership members representing tourism development, agricultural and cultural issues were also interviewed. It must be emphasised here that this analysis is both selective and partial. It was not possible to speak to all partnership members; in fact the partnership is still in a formative state in that new interests are being added at the time of writing. Any quotations contained within the text are anonymised but are taken from transcripts of tape-recorded interviews or field notes.

These qualitative sources were utilised to access undocumented information and explore the often subjective meanings and understandings of the activities of stakeholders and their interaction. There is an anecdotal quality to this form of information gathering and as such it could be considered epistemologically unreliable and lacking in validity. However according to Winchester this approach is essential to a critical realist view of social science in that it serves to “elucidate the structures and causal mechanisms which underpin observable behaviour” (1996:119).

I have been personally involved with the Dyfi Biosphere Area since the summer of 2004, when as an undergraduate I undertook some voluntary work with Ecodyfi as part of another research project. After attending the Dyfi Biosphere Conference, held on 10th June of that year in Machynlleth, I went on to co-write the proceedings for publication (Hebden and Rowland 2004). In this respect I have been able to exploit my personal positionality in both gaining access and credibility during this project but have also become a subject of the technologies of engagement I describe below. It seems likely that findings from this report may help to inform those facilitating the ongoing engagement process. Following McDowell’s example I follow a policy of openness and honesty and am more than willing to participate in an open exchange of ideas and information (1998:2137), considering interviews to constitute “a dialogue rather than an interrogation” (Valentine 1997:111). It is often apparent that in posing questions to interviewees that the researcher exposes overlooked elements or questions, leading to a reappraisal of the interviewee’s stance. In participating in this two-way flow of ideas and

information I have subsequently become a peripheral part of the network and engagement process I am attempting to research (Parry 1998; Fuller 1999).

However in attending public meetings I have made a conscious effort to remain an impartial observer and not become involved in any debates that ensue. Despite having an extensive knowledge of this field it is not my intention to become directly involved in swaying public opinion as this complicates my observation of the deployment of technologies of engagement at public meetings. Failure to adequately negotiate my shifting positionality could in turn lead to questions regarding the integrity, validity and credibility of this project.

4.2 - The policy context

The Welsh Assembly Government has a statutory responsibility to follow sustainable principles embedded into its constitution through section 121 of the 1998 Government of Wales Act. Since this time sustainable development has been a central feature of all Welsh policy. In September 2003 the Welsh Assembly Government published its strategic agenda for Wales. This publication *Wales: A Better Country* highlighted the importance of the environment and the central role that it must play in building a sustainable future for Wales, as is illustrated in the following two extracts:

...action in our built and natural environment that enhances pride in the community, supports bio-diversity, promotes local employment and helps to minimise waste generation, energy and transport demands
(2003:8)

...we seek to value and improve the bio-diversity and quality of our environment not only for its own sake, but also as an essential part of delivering a sustainable future for local economies and communities
(2003:25)

Building upon this vision the Welsh Assembly Government intends that the Wales Spatial Plan (WSP), entitled *People, place, futures* (2004b), should be a major tool in their ambition to build a sustainable Wales. The WSP is designed to provide a framework based upon six trans-jurisdictional areas centred upon socio-economic hubs, that will facilitate collaborative action between the Welsh Assembly Government, its agencies, local authorities, the private and voluntary sectors to meet national and regional needs. The aim, contained within it, to encourage cross-boundary and interdisciplinary working is intended improve decision making within Wales and across its borders (2004b: 4). This national strategy is intended to aid the development and integration of policy, to provide a coherent and sustainable perspective from which to address the development of the Welsh economy, its environment and the landscape.

More recently the Welsh Assembly Government's publication of its strategic framework for economic development entitled *Wales: A Vibrant Economy* reiterated the centrality of sustainable development within all Welsh programmes and policies. This aim is intended to be achieved by

...integrating consideration of the social and environmental impacts of policies with traditional economic analysis, and pursuing approaches that play to the strengths of the environment, culture, language and people of Wales.

(2005:9 -10)

This approach to economic development reflects the importance of the two-way connection between the environment and the economy and reproduces the vision laid out in the WSP. Minimising the impact of development on the environment serves to produce "a stunning natural environment; and an exceptional quality of life" (*Ibid*: 17) providing an

attractive business environment and a competitive edge for a small country competing for increasingly footloose inward capital investment on a global stage.

The recently published Beecham Review (WAG 2006a) into the delivery and reform of public services in Wales builds upon the collaborative model established in the earlier Welsh Assembly documents like *Making the Connections* (WAG 2004a) and those outlined above. Two of the Beecham review's recommendations seem to exemplify the ambitions of transboundary biosphere reserves, but working at an intra-state level rather than across state boundaries.

- *working more effectively across organisational boundaries to deliver the outcomes that matter most to citizens*
- *developing the culture and organisational capacity to work beyond internal, external, geographical and sectoral boundaries in order to meet the needs of citizens*

(2006:71)

Similarly the review recommends increased levels of joint working, across organisations and to incorporate the third and private sectors as a means of producing joint resources to meet shared goals, such as improved levels of employment and environmental improvement. (*Ibid*; 33)

Given that the criteria underlying UNESCO biosphere reserves echo those of the Welsh state the move to redesignate the Dyfi Biosphere Reserve, as noted earlier, appears timely in the light of the spatial and organisational restructuring currently being undertaken by the Welsh Assembly Government. It would appear that the project envisaged for the Dyfi Valley provides the potential to produce an exemplary showcase for the

achievement of the previously stated ambitions of the Welsh Assembly Government whilst incorporating more recent innovations.

Despite these quite positive parallels between the future vision of the Welsh state and that of the Dyfi Valley, uncertainties arising from imminent changes to European structural funding, which at present represent a significant support to the Welsh economy, pose a potential threat to the project.

4.3 - The role and future of European Structural Funds

European Structural Funds represent an important part of the overall support available to the Welsh economy, and contribute significantly to the aim of achieving strong and sustainable economic growth. The Welsh economy has benefited from around £1.5bn from the European Unions Structural Funds Programmes over the period 2000-2006 (WAG 2005:63). However reforms needed to bring funding into compliance with the Lisbon and Gothenburg economic reform agendas means that Wales, and more specifically in this context Ceredigion and Gwynedd councils, will no longer receive monies from the Objective One programme

Uncertainty regarding the future size, shape and focus of the EU budget and the Structural Funds Programmes from 2007 onwards means that the precise nature and size of any future Structural Funds support to Wales cannot yet be anticipated. However Wales may still be eligible for funding similar in scope to the current Objective One Programme. This funding is available for the regions with average GDP per capita below 75 per

cent of the EU as a whole and the amount will depend on the precise position of the region relative to other EU regions.

It may be that that Wales may be able to draw upon Convergence Programmes, similar in scope to the current Objective One Programme, but which are to be introduced for the 2007-2013 funding proposals. This programme prioritises skills, innovation and building economic infrastructure, primarily information technology, transport networks and services with a view to producing sustainable long term economic growth. According to the *Wales: A Vibrant Economy* document

...one result of this approach is that future resources are likely to be channelled towards more strategic projects with greater critical mass and stronger lasting benefits. There is also a need to encourage innovative projects with the potential to be rolled out more widely across Wales.

(WAG 2005:64)

Given the ambitions for the Dyfi Biosphere Project it would seem that if it were to meet the criteria for Convergence Programmes there is potential for support from structural funds in years to come. However these changes to a funding stream which local authorities have come to depend upon may impact upon the project before it achieves a critical momentum in that they are hesitant to become too involved in new ventures at present, when even core services are threatened by budgetary restraints. Current uncertainty over future funding raises issues, such as job security for local authority officers and the subsequent continuity of the project (Interview 10, 12/09/2006).

4.4 - Case study: The Dyfi Biosphere Area

In this case study which considers the coming together of the various stakeholders of the Dyfi Biosphere Area project it must be remembered that this is an ongoing process and that at the time that this project was first considered the target date for the completion of the process described was to be April 2007. Unfortunately, and quite recently, the project's team discovered from a senior UNESCO representative that they were not tied into a rigid submission schedule and as such have decided to set back their target for submitting their application to UNESCO until 2008 (Interview 1, 23/08/2006). Consequently the stakeholder and public engagement process is only just beginning at the time of writing and therefore the process which will decide the form, geographical scale and location of the project and the potential management strategies to be employed remains unfinished.

In 1999 as part of the ongoing review process required by Article 9 of the *Statutory Framework* (UNESCO 1996) a review of the biosphere reserves created in the UK in the 1970s was undertaken by the Environmental Change Unit at Oxford University (Price *et al.* 1999). Prior to the review the UK reserves appeared doomed, having received little attention due to the practical advantages of them being unapparent. Fraser MacDonald suggested, in 1996, that in their moribund state they represented a well kept secret and that there was a lack of political will to do anything about the situation (1996:25-26). This attitude appears to have become institutionalised within UK thinking. The early focus upon nature protection and the lapsing of the UK's membership of UNESCO for several years fossilised attitudes towards biosphere reserves at governmental levels.

Consequently a sense of reticence was apparent towards becoming involved in moves to expand the role of biosphere reserves in order to comply with the modernised criteria of the Seville recommendations.

Awareness of the potential benefits of modernised biosphere reserves was raised during the information gathering process which resulted in the 1999, *Review of UK Biosphere Reserves* (Price *et al.* 1999). Although the final report helped to preserve the 'nature protection only' mindset the review produced the initial impetus needed to kickstart the process of seeking redesignation for the Dyfi Biosphere Reserve. There was a certain period of hiatus as the impacts of the review were disseminated and officers of Ecodyfi (a local third sector regeneration body) and the Countryside Council for Wales (CCW)³ began to explore the potential of modernisation and raise awareness and support within higher levels of the Welsh Assembly Government.

The process to gain modernised biosphere reserve status for the Dyfi Valley which would be centred upon the existing designated area but conforming to the revised criteria deriving from the 1995 *Seville Strategy* began to gain momentum with a well attended public meeting and an equally successful conference held in Machynlleth in 2004 (Hebden and Rowland 2004). Here the case for modernisation and seeking redesignation was put and speakers from other UK and European biosphere reserves demonstrated the potential benefits that could be derived from meeting the new UNESCO criteria. The positive responses gained from the conference, and enhanced

³ The CCW are the Welsh Assembly Government's independent advisers on countryside and wildlife issues in Wales and have statutory responsibilities for wildlife conservation on land and at sea, for landscape conservation, for promoting enjoyment of the countryside and for encouraging public understanding.

levels of awareness and knowledge at higher levels within the Welsh state, encouraged representatives of Ecodyfi and the CCW to go forward with the project. The initial stages appear to have been quite time consuming, especially sourcing a funding package with which to employ an officer to undertake the engagement process. In authorising CCW to provide 100% of these funds, rather than a proportion as is more common, one interviewee considered that there exists high level support for the project within the Welsh Assembly Government (Interview 4, 1/9/2006). Following an analysis of potential stakeholders a steering group was formed which eventually brought together representatives of the three local authorities and the Snowdonia National Park Authority alongside those representing other key interests such as tourism development, culture and agriculture. More recently the Welsh Language Board has been invited to join the project as has the Environment Agency in the light of the introduction of a major piece of European legislation, the Water Framework Directive. This new example of natural resource management at a landscape scale would appear to complement the political and spatial reordering currently being undertaken by the Welsh Assembly Government and underlines the thinking embodied within the concept of biosphere reserves.

4.5 - Towards a political ecology of rural mid-Wales

The political and cultural ecologies of the people of rural mid-Wales, as with just about any other group of human beings in the world today, are produced not just by historical practices, local culture, political structures or

the landscape they inhabit. A homogenising global culture and their complex interconnections with global markets increasingly influences them and their lifestyles. A local recently provided an anecdote illustrating this point, they suggested that a poor year for trade and tourist numbers in mid-Wales during 2005 could be directly attributed to the restructuring of the motor manufacturing industries of the West Midlands, and thus to shifts in the global economy.

Peter Walkers case study outlining a 'regional' political ecology for the rural American West sets out three different expressions for modern capitalism at work there (2003:15):

1. An older resource based economy
2. A development industry
3. A newer rural-residential, amenity based economy

These expressions are equally present within the Dyfi Valley, and across much of rural Wales. Agriculture and forestry are the key established resource based industries, whilst state forces are largely responsible for driving the economic development of the area. Until recently the preserve of the Welsh Development Agency, this task now falls to the reconfigured Department for Enterprise, Innovation and Networks (DEIN), currently engaged in developing a regeneration strategy for the Dyfi Valley (Interview 6, 07/09/2006). Similarly Tourism Partnership Mid-Wales, acting across all three local authorities is engaged in developing a sustainable tourism strategy for the region, the local expression of a nation-wide development strategy (Interview 5, 01/09/2006; WAG 2006b). In the Dyfi Valley state agencies efforts are deployed to capitalise upon the environment and quality of life in order to affect regeneration by attracting new businesses into the

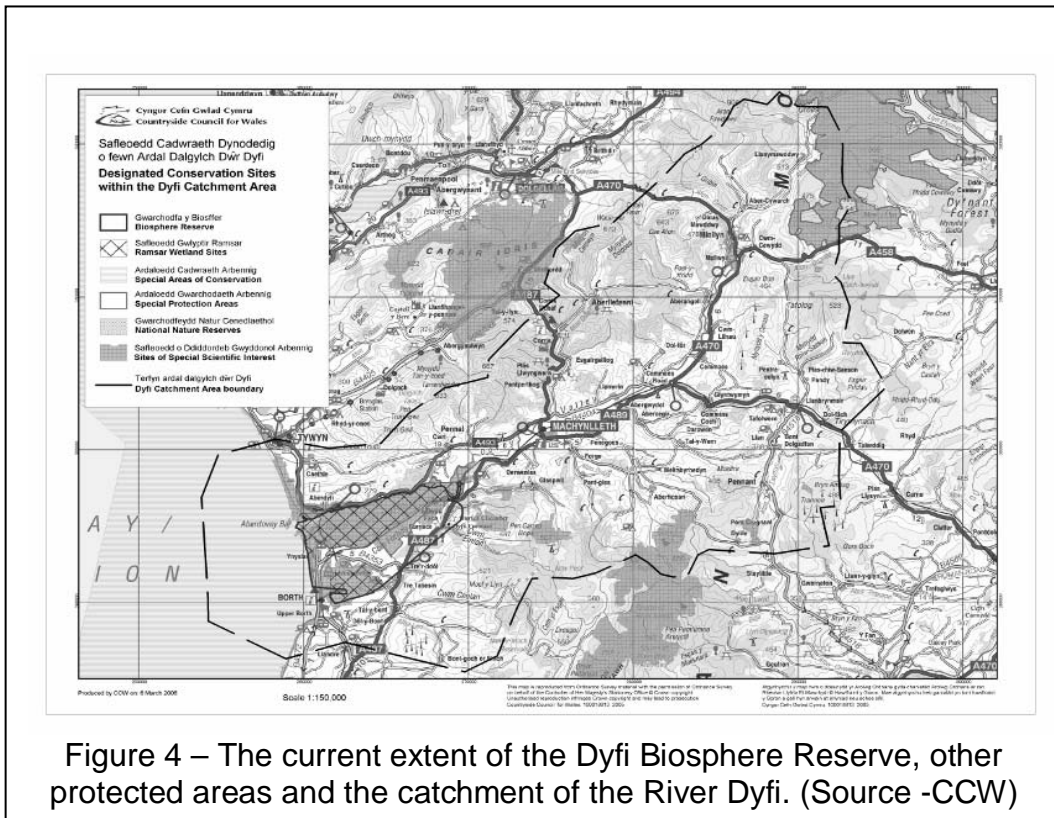
area which it is hoped will complement existing pools of expertise in addressing environmental issues and renewable energy technologies. The third sector agency Ecodefy which is supporting the redesignation process is itself a product of the specific geography of talent (Florida 2002) which exists in the Dyfi Valley.

Thirdly the area is popular with urban retirees, downshiffters, tourists and outdoor recreation enthusiasts. Within these expressions of old and new capitalist enterprise is a cultural divide. For practical reasons this can be overly simplified to suggest that indigenous Welsh speakers are concentrated within resource based industries and older established concerns whilst recent English incomers are largely employed in the new environmental technologies, recreation and tourism sectors.

This divide is representative of significant changes occurring across rural landscapes worldwide, the shift from primary extractive industries and resource production to one of service industries and aesthetic consumption. The recommodification of nature manifested within these processes can often lead to affluent or professional incomers opposing long established rural practices or seeking to resist industrial exploitation or development in the hope of preserving a 'pristine' nature (Marsden *et al.* 1993; Murdoch and Marsden 1994). The results of these socio-economic changes are exemplified in the sort of tensions and discursive battles illustrated in Patano and Sandberg's analysis of quarrying within the Niagara Escarpment Biosphere Reserve (2005). Issues relating to the changing nature of the rural landscape as they affect the Dyfi Biosphere Area are discussed below within the context of the public engagement process.

4.6 Mapping the Dyfi Valley

At present there does not appear to be any consensus on the boundaries and zonation of the proposed Dyfi Biosphere Area, the size and locations of the buffer and transition zones are intended to be one of the outcomes of the current engagement process. It appears that the core area is anticipated follow the boundaries of the extant unmodernised biosphere reserve (Figure 4).



As the proposed Dyfi Biosphere Area is as yet unmapped and remains a relatively abstract concept especially where the transition zone is concerned there may be problems for those who become involved in the engagement process visualising its location. Whilst many could imagine the location of the present reserve it becomes more difficult to visualise the

discourses of sustainable development and ecoregionalism and overlay more traditional organisational structures. This redefinition of the Dyfi Valley is underwritten by social and technical discourses and processes (Lefebvre 1991; Harvey 1990). Thus according to Ray the “construction and projection of a (new) territorial identity to the ‘outside’ ...in order to promote the territory” (1998:7) is achieved. He continues,

...a local development group may portray itself as being founded upon a territory that is coherent and distinctive, and which would be more effective in the pursuit of local needs than existing politico-administrative/policy areas (Ibid).

The second map (Figure 6) reflects this thinking. Produced as part of a tourism promotion some years ago it inscribes a reterritorialised and rescaled identity. Political boundaries are transcended here by a supra-regional alliance of tourism concerns. This revisioning and rescaling serves to create a discourse that naturalises the concept of a coherent Dyfi Valley, where individual elements have been brought together to transmit an integrated yet individual sense of place that sets it apart within the global marketplace. This idea presents a potential way of defining the outer, transition zone in that it could comprise a cluster of entities which buy into the biosphere reserve concept and share in its values yet lie within an area that remains tangible as the Dyfi Biosphere Area (Interview 5, 01/09/2006)

It is possible that the conceptualisation of a coherent identity for the Dyfi Valley and for the proposed Dyfi Biosphere Area may be disrupted and will need to be reworked yet again. As the actual protected area lies within the jurisdiction of Ceredigion Council it is felt that the transition area should be extended to encompass nearby Aberystwyth (Interview 9, 12/9/2006).

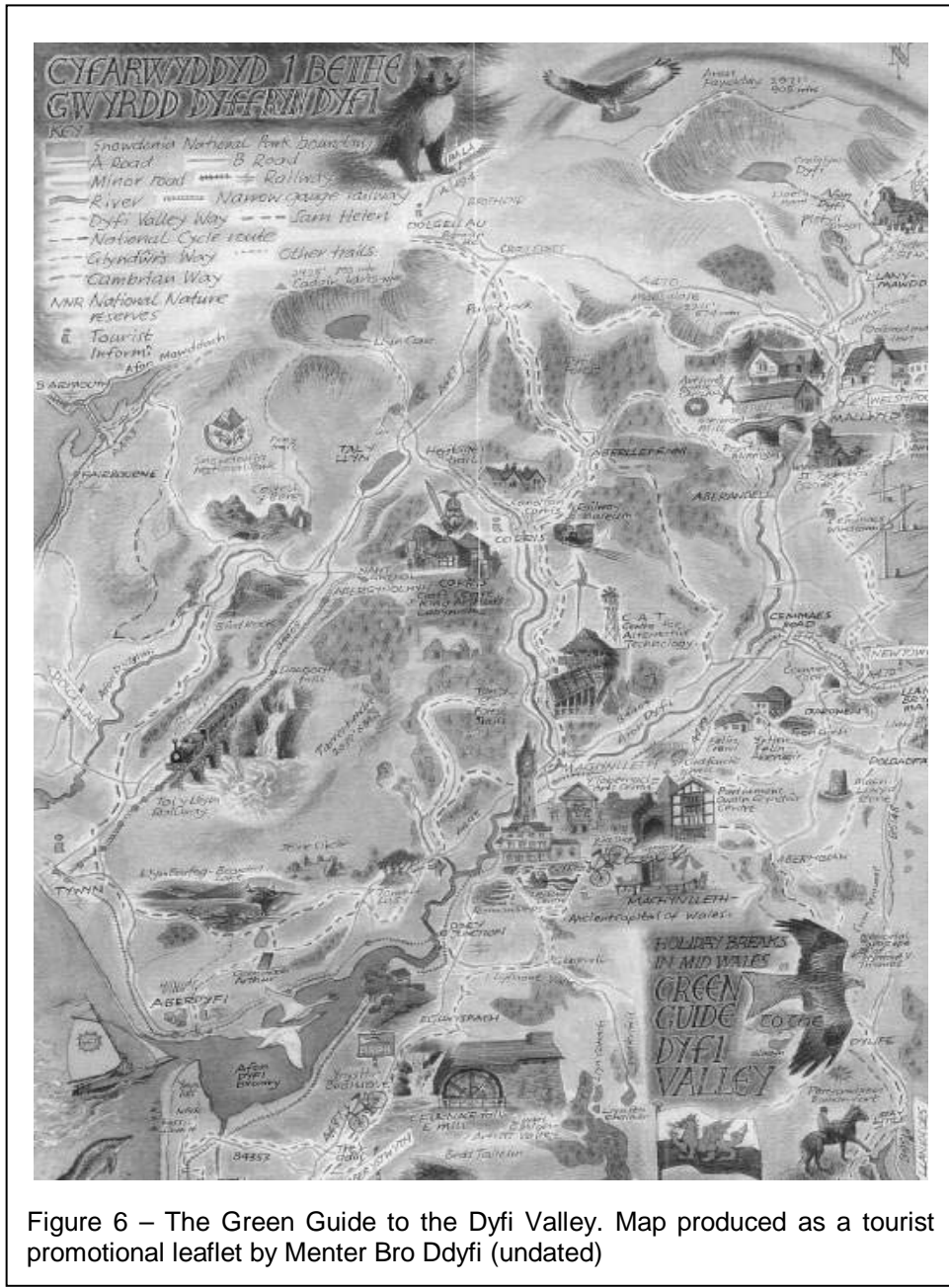


Figure 6 – The Green Guide to the Dyfi Valley. Map produced as a tourist promotional leaflet by Menter Bro Ddyfi (undated)

Whilst separate from the discrete ecological region that is the Dyfi catchment, Aberystwyth plays a major role in the economic landscape of the area and is marked out within the Wales Spatial Plan as an “area hub” and thus represents a key economic driver for the region (WAG 2004:21). It seems that given the flexibility and adaptability of the so-called ‘fuzzy’

boundaries of the transition zone that this should not be too much of bad proposition, there are many influential bodies within the town which could ensure the success of the project. However, local opinion suggests that some people from the upper Dyfi Valley consider Aberystwyth to have little to do with where they live. In the wake of recent job losses, it is thought that benefits that could come to a relatively poor area, not in receipt of European Strategic Funding to the extent that Ceredigion is will be siphoned off. It will therefore be necessary to negotiate the tensions that exist between the differing territorial imaginations within the region in the process of seeking biosphere reserve modernisation.

This project offers the chance to bring together local authorities in the sort of projects envisioned by the Welsh Assembly that are intended to optimise resource use and increase inter administrative co-operation. Whilst breaking down parochial and administrative barriers is a very worthwhile project it remains potentially difficult for local authorities, in these straightened times, to justify spending on projects which could appear to benefit the ratepayers of other areas. This presents the potential to work on producing innovative funding packages, which could, in only part funding a project, produce cost effective benefits for all involved.

If people are to take up the scheme, it needs a format that people can identify with, support and take ownership of and in producing a proposal that encompasses the diversity of lives and communities within the region the engagement process will need to tackle this potentially divisive issue.

4.7 - Engaging the public

According to Miller and Rose's argument, in advanced liberal democracies "technologies increasingly seek to act upon and instrumentalise the self regulating propensities of individuals in order to ally them with socio-political objectives" (1990:28).

The process being undertaken to produce an informed engagement between the residents of the Dyfi Valley and the Dyfi Valley Biosphere Area which may lead to either the redesignation or delisting of the current Biosphere Reserve is, I would argue, an example a technology of government in itself. Beyond the objectives of Dyfi Valley project is a broader, key objective. This is an attempt to pioneer the techniques of public engagement in relation to biosphere reserve designations. Already lessons learned in the earlier phases of the Dyfi Valley process have been disseminated through the UK Man and Biosphere Committee and implemented in other potential UK schemes. It is intended that these techniques of engagement, if proven to be successful in rural Wales, may then be scaled up to be deployed in similar processes that are anticipated to be undertaken in metropolitan areas in future years (Interview 10, 25/09/2006).

Results drawn from the process to date are included in a paper which is soon to be presented by Peter Frost of CCW to UNESCO in Paris. This paper represents part of the ongoing review process being undertaken by UNESCO, which recognises that the *Seville Strategy* must be upgraded if it is to meet the demands of the twenty first century. The encroachment of urban areas into extant biosphere reserves presents an urgent need for techniques

of public engagement with the capacity to encourage thought about how modern urban lives can successfully co-exist alongside sites of often unique biodiversity.

Conflicting timeframes mean that it is not possible to provide a comprehensive overview of the public engagement process, relating to the Dyfi Biosphere Area which began in early October 2006. However I will draw upon experiences based on attendance at three of a series of public meetings to consider the technologies of engagement employed and themes and issues which arise at them.

4.8 - Technologies of engagement

In this section I will endeavour to provide an analysis of the public engagement process. This will comprise information collected through attendance at three of a series of public meetings held in October 2006 throughout the area.

The decision to either seek redesignation for the Dyfi Valley by UNESCO or to delist the area from the WNBR is completely voluntary and rests upon the will of local stakeholders and the public. However the important point to draw from the production of environmental territories is that their construction revolves about the deployment and distribution of power. Complex dynamics are played out in the production of biosphere reserves as state and non-state agencies, interest groups and actors produce conflicting visions and discourses, which define a variety of socio-economic and political spaces mapped onto the same geographical area. These visions and discourses encompass competing viewpoints on environmental conservation,

the future of communities and even the landscape itself. As such they represent a diversity of cultural backgrounds, livelihoods, generations and social class. The representations of place and relationships ascribed to place are in some ways almost biographical in that they are constructed from individual perspectives that draw upon personal, cultural and historical elements (Matless 1992) and are linked within informal networks. Conflict arises from these differences and for the researcher attempting to uncover the motivations that lie within the hidden loyalties and micropolitics of public engagement processes it would be necessary to employ detailed, in depth, ethnographic methods. In this way the internal differences within competing interest groups and the processes through which social, cultural and political boundaries are formed and reworked over time could be excavated.

Embarking upon this project it soon became apparent that the timescale of this exercise would preclude engaging in such a manner with the public engagement process described below. It would have been invaluable to conduct short interviews with the members of the public who attended meetings to understand in more detail their personal perspectives. Subsequently this account can only present a partial and quite limited review of the process as observed up until the time of writing.

A key element of the public engagement process is to be a series of public meetings held across the region intended to both inform and provide a forum for further debate. Beginning with a buffet and drinks these meetings generate a relaxed and convivial atmosphere before a short presentation outlining the biosphere concept and the potential benefits designation could

bring to the community. The sense of this being a global accolade is emphasised, with parallels being made to UNESCO World Heritage Site designations, including local examples such as Blaenavon and the Ironbridge Gorge, which are likely to be familiar to participants and which carry a similar level of prestige to biosphere reserve designation. The calibre of other members of the WNBR, such as Australia's Great Barrier Reef, is used to convey a sense the special and unique nature and international significance of the proposed Dyfi Biosphere Area (a tactic also present in media coverage, see Williams 2006). Moving on from these themes, examples from other European biosphere reserves are utilised to provide evidence of the practicalities and positive outcomes that can be derived from attaining such a designation.

Whilst resort is made to the broadly understood meta-narratives of environmentalism, conservation and sustainability, in order not to alienate a lay audience in has been necessary to temper the use of technical vocabularies, rendering the experience accessible, understandable and practicable. These concessions thus provide the opportunity to bring transparency to what can for many often appear to be rather abstract and opaque processes.

At these public meetings participants can question those employed to facilitate the engagement process and challenge the purpose and validity of the project. The attention to discourse, especially specificity of terminology appears very important within this process. Interviewees working within the partnership have commented upon the attention paid to language within the process. In particular the use of the word 'reserve' has been played down

because of the connotations it throws up of high fences and restrictive management practices, instead reference is specifically made to the Dyfi Biosphere Area. Similarly the term biosphere is simply defined, again to counter visions of the sort geodesic greenhouses employed by Cornwall's Eden Project.

This attention to language is similarly apparent in the *Review of UK Biosphere Reserves*, which advised against using the word 'designation' within any consultation process. It was suggested rather that it would be more "appropriate to publicise the fact that the area has been, or could be, recognised by UNESCO as a member of the World Network of Biosphere Reserves" (Price *et al.* 1999:75. Emphasis in original)

The cultural dimensions of language are also extremely important to the engagement process; meetings are predominantly conducted in Welsh, with simultaneous translation for non-Welsh speakers. It would not be possible to conduct this process solely in English; it would be considered insensitive and run counter to the cultural aims of the project itself. It is intended to draw upon those elements of the UNESCO designation which focus upon preserving cultural diversity and use them as "a mechanism to bring together cultures" (Interview 1, 22/08/2006). Seminars are being held as part of the engagement process with the aim of facilitating a greater understanding between the indigenous Welsh speaking community and the more recent English speaking community (Public Meeting 06/10/2006). It is hoped that in dispelling commonly repeated stereotypes with often negative connotations that a positive image of a hybrid modern local culture, rooted in the past yet adaptive and forward looking can be promoted (Interviews 5 & 9,

01/09/2006 and 12/09/2006). Utilising this element of the designation in explicitly linking language with both culture and economic development presents what seems to be a unique set of practices within the WNBR.

A particular ambition being mobilised is to acknowledge the importance and distinctiveness of the local dialect, which sets the Dyfi Valley apart from its Northern & Southern neighbours (Public meeting, 6/10/2006). The preservation of this dialect underscores the broader aim to protect the singular cultural characteristics of the Dyfi Valley and their potential role in tourism marketing strategies (Interview 5, 01/09/2006). Extrapolating from the Welsh context it is not difficult to see how language use (or misuse) could easily alienate and thus eliminate people from participating in similar projects. The wrong choice of language or failure to make provision for minority languages could be equated with imposition from above and breed resentment and resistance, echoing the failures to communicate effectively recorded by Sundberg in Guatemala.

From the limited numbers of public meetings attended it is difficult and too early to comment on the competing visions of the countryside being mobilised within this process. For some fears of material hardship are raised, with conservationist and protectionist measures limiting people's abilities to make a living off the land for instance. For others it is the fear of rocketing property prices forcing their children to seek opportunities elsewhere as the appeal of a prestigious environmental designation attracts affluent incomers and second home owners. The subsequent processes of gentrification are considered to price young people out of the housing market and produce both an exclusive landscape and cultural dilution.

Within the engagement process it is obvious that the paradox identified by Emily Young (1999:375) must be negotiated. In many ways this project is representative of a 'top down' state driven process, yet people are being encouraged to define the parameters of the project within a community led 'bottom up' approach. This presents problems given that people are unaccustomed to this form of process, being more used to sermonising and imposition, the lack of concrete proposals and hard facts results in them being asked to operate in "a bit of a fog" (Public meeting 18/10/2006).

For those with experience of previous community consultation exercises a certain degree of apprehension is apparent. This is especially so amongst those from the agricultural sector who fear the creation of an expensive and restrictive "new beast" (*Ibid.*) or those who have seen previous proposals and consultations come and go with no discernible benefit accruing to anyone other than those doing the consulting.

Within the engagement process it is hoped that local people, like the forest communities of Kumaon, in India (Agrawal 2005a and 2005b) will be co-opted into becoming willing participants of a local state power formation, redefining their needs as being consistent with the interests of the state. Whilst this suggests the exertion of political power from above it also provides a potentially positive benefit in that it provides the individual with powers to act for their own good. It seems likely that residents and businesses that participate in new regulatory communities are more likely to become environmentally aware subjects, that is individuals who feel a personal need to protect the local environment. For many it may be because their livelihood depends upon it, so hoteliers and caravan park owners for

example, in adopting more sustainable working practices may come to emulate Agrawal's forest dwellers. The knock on effect of influencing the behaviour of tourists themselves provides yet another avenue for disseminating the message that biosphere reserves are striving to impart.

Perhaps the biggest challenge for this process is to communicate to people is that modernised biosphere reserves are about self determination and action, in that they constitute "10% place and 90% process" (Interview 10, 25/9/2006). Rather than providing an instant fix, a cash bonanza, or yet another means of drawing down grants and external funding, biosphere reserves are described as an opportunity, "a stage" (*Ibid.*) upon which people can act out their ambitions and the area itself can move towards becoming self sustaining. Breaking the dependency culture and cycles of boom and bust that surround many other grant driven conservation and sustainability projects is a key driver of this project (*Ibid.*). Financial dependency often results, as examples from Latin America showed, in short termist projects whose agendas are set by funders and as such are not cost effective and fail to meet the needs of the communities they are intended to serve. In experimenting with this project are we seeing the Welsh state attempting to set up a space within which to innovate and anticipate the reductions in centralised funding that seem to be a constant feature of the contemporary political landscape?

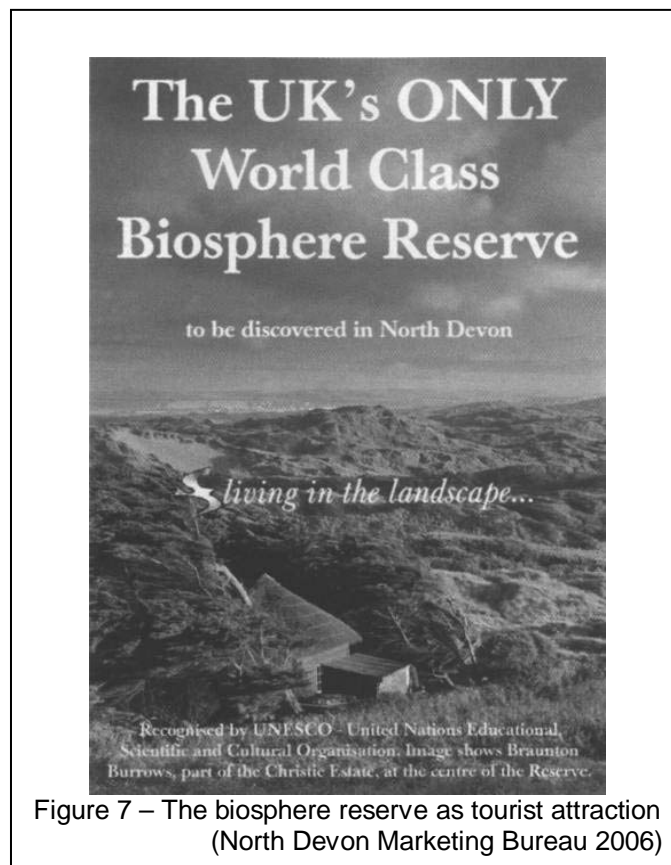
Considered in this way, the drive to redesignate the Dyfi Biosphere Reserve presents a political strategy, that of state driven regeneration, albeit apparently acting at armslength. In 'outsourcing' responsibility for the process to CCW and the 'third sector', the Welsh State has deployed what appear to

be neutral arbiters to advance its political aims. Thus ecological concern and natural resource management issues are corralled into political and economic strategies which support continued capitalist expansion.

Working in partnership with local institutions, a designation initially focussed upon biodiversity conservation is being mobilised as a low cost tool to revitalise civic culture and drive community renewal through the enlistment and harnessing of local initiative. In seeking to instigate the reflexive creation of a self determining local identity built upon natural resources, cultural distinctiveness and people's aspirations, the ideals of active citizenship (Giddens 1998) are deployed to link community, and hence people to place. Here managing or promoting good environmental conduct equates to producing good, economically productive citizens.

The voluntary nature of the whole process and its lack of rigid regulations are stressed repeatedly within public meetings. Despite this it is hard not to see redesignation as being somewhat inevitable, given the time, effort and funds which various parties have expended to date. It would seem that in gaining biosphere reserve designation for the Dyfi Valley a relatively cost effective regeneration tool would be acquired. Not only would this support the area's regeneration, but would act as a beacon for integrated rural development and a flagship for the new co-operative working practices being encouraged by the Welsh state, which could then be rolled out into other areas. It remains to be seen whether the enthusiasms of the public and private enterprise can be aroused to achieve the ambitions of the project. This can only derive from wider knowledge and communication both with the public, private enterprise and with the upper sectors of planning authorities.

This may present a bigger challenge than achieving the designation itself. In North Devon, currently the site of the UK's only modernised biosphere reserve, public awareness of its existence and the roles it plays beyond that of nature protection are apparently poorly understood despite having received its designation some years ago (Interview 7, 08/09/06). Although public perception is low, the private sector, particularly tourism concerns have taken it up and it now represents a central plank of the region's marketing strategy (Figure 7). It is possible that it is necessary to actually have a concrete entity with which to work rather than an abstract concept. So for strategic planners ideas and tactics deriving from biosphere reserves are likely to have a long gestation process and it may be some time before the effects of this form of thinking are seen in the sort of strategies that are instrumental in defining future plans and allocating budgets.



For millennia, man remained what he was for Aristotle: a living animal with the additional capacity for a political existence; modern man is an animal whose politics places his existence as a living being in question.

(Michel Foucault 1998 [1976]:143)

In adopting the notion of global environmental governance it has been possible within this study to consider the changing geopolitics of environmental conservation. In particular it is evident that in analysing local efforts employing an internationally recognised designation targeted at biodiversity conservation and the development of more sustainable communities, the role of national and international entities cannot be ignored. In an increasingly interconnected world these scales of operation are inextricably linked in many complex relationships that are beginning to utilise the very things which drive the processes of globalisation to counter them. Access to information technologies has facilitated the creation of formal and informal networks whereby disparate communities across the globe can share experiences and information and where marginalised voices can be heard and their concerns addressed. The World Network of Biosphere Reserves presents a model for action in addressing the pressing issues that threaten the prospects of future generations and creating a global society fit for the twenty-first century.

Just as the global environment can be considered a concrete entity, a shared object of concern, then the forms of its governance should also reflect a shift towards the global. It seems vital that we must endeavour to create a

coherent international environmental infrastructure to counter the currently dominant integrated economic practices and institutions of globalisation that continue to threaten our collective futures through the profligate use and destruction of the natural fabric which underpins our very existence. This infrastructure would provide the potential for what Maria Ivanova terms “governance without world government”, that is not to say without governments, but accepting that the idea of a world government is, for Jean-Francois Rischard, extrapolating from the complexity of the European experience, “a non-starter” (2001:507).

UNESCO as part of the United Nations system is deeply rooted within a culture of statism, where sovereignty is central to both membership and participation. In the WNBR the ambition for increased intergovernmental co-operation allied to conservation issues is self-evident, however its role is not to replace those of governments, it is merely to provide a framework to facilitate and complement their actions. This point is highlighted by Ivanova who states that “governments will remain key actors in international affairs. Partnerships and networks cannot supplant the role that governments play and do not seek to do so” (2003:24).

The role of global networks that address issues that cross cut traditional disciplines and jurisdictions is one, which has expanded, in recent years. According to Wolfgang Reinicke, a World Bank survey in 1999 identified some 50 different policy networks operating at a global scale and focussing upon disparate interests. These networks

...thrive in a borderless environment and capitalise on technical innovation – the very conditions that hamper policy makers in traditional institutions (2000:45).

According to Rischard these networks have the capacity and expertise to tackle pressing issues in shorter time frames than it takes to convene showpiece international conferences and then negotiate and ratify treaties. Although I would hesitate to call the WNBR a global policy network, it has very similar attributes in that it is inclusive and non-hierarchical in nature and connects groups across the globe that would not otherwise deal with one another to promote the free exchange of information and collaboration.

In considering the nature of transboundary biosphere reserves and other protected areas, useful insights have been gained into the changing nature of political boundaries and thus notions of state defined space. In acknowledging their arbitrariness when confronted by natural as opposed to political forces, it has been shown that it is possible to bring about co-operative efforts between historically or ideologically different entities to address environmental concerns.

The transboundary or in this case study of the Dyfi Valley, multi-agency model that requires a harmonisation of ambitions and objectives suffers from an innate structural weakness. Decision making which must be consensual has a tendency to be slow and cumbersome in attaining compromise between the often divergent aspirations and the different working procedures that exist within local authorities and other stakeholders.

Therefore it appears that the key to promoting change within institutional cultures is to encourage partnerships or networked forms of co-operation. Networked forms of governance provide equitable representation and the participation of diverse and often unheard interests. Not only will these approaches serve to produce innovative and more effective forms of

environmental governance but may act as catalysts for progress in other fields. I would suggest that partnerships and networks potentially represent the best format for future frameworks of environmental and other forms of governance. Initiating these networked frameworks now anticipates a time envisaged by Oran Young when co-operation becomes increasingly elusive given that “growing human populations, enhanced capabilities and rising expectations generate more severe conflicts of interest as well as greater demands on the earth’s natural systems” (1989:4).

We appear to be seeing, in the desire to achieve the redesignation of the Dyfi Biosphere Reserve, the spatial embodiment of an emergent systematic engagement between the Welsh State, its populace and nature. This project has begun to uncover the causal mechanisms which serve to create new spaces of environmental governance and the rationalities of the state which underpin them. It is increasingly apparent that the natural environment is employed within state strategies to meet national objectives. The environment and the mobilisation of environmental sensibilities presents a significant set of resources that have the potential to support and revitalise rural economies, reducing current reliance on external strategic funding that is itself finite.

In opening up the debate to the wider community and instead of implementing an overt top-down procedure as we have seen in other examples of biosphere reserves around the world, we see an example of the state acknowledging the utility of local knowledge and transforming it to its own ends. As Paul Robbins argues

...the state does not produce knowledge to the exclusion of local accounts, but that it instead seizes and reproduces locally powerful knowledges and enforces management through locally powerful groups (2000:127).

This Robbins concludes is because the state according to Michel Foucault does not “occupy the whole field of actual power relations, and further because the state can only operate on the basis of other, already existing power relations” (1980:122).

It is interesting to consider what would happen if, for example, a particular stakeholder or interest group were to veto the project because they considered that it would be too expensive, increase bureaucracy or introduce restrictive practices, directly affecting livelihoods and the local economy. Would state agencies step in to assuage this lobby in order to meet higher level objectives? Is it possible that the ‘if people disagree that’s as far as it will go’ rhetoric, will fall by the wayside if problems that prevent the project progressing come up?

I feel that the Welsh Assembly and local authorities having invested time, money & effort in the scheme will endeavour to push it through, as failure could be politically damaging and suggest public rejection of state policies. The cost of the current process and even the support required to run the project for long enough to establish it represents a drop in a budgetary ocean to the Welsh Assembly that would be far outweighed by the potential benefits. To achieve designation would be a tremendous boost for the area and would exemplify and underline the ambitious sustainable development objectives that underpin Welsh policy making and the area could act as a test bed for the kind of co-operative governance strategies outlined in recent policy documents.

It has already been described how in designing a process of public engagement it is intended to develop a model that can be scaled up and adjusted to suit different conditions elsewhere within the WNBR. Whether the designation process is successful or not in the Dyfi Valley, valuable lessons will have been learned, which through the auspices of the UK MAB Committee and the WNBR may drive future, positive outcomes both in the UK and across the globe.

Ongoing analysis of the processes identified in this paper presents a research agenda, which in the light of burgeoning environmental problems demands further attention. Frazier (2006) points up the vital role of social scientists and cross disciplinary work in the conservation of biological diversity and in producing frameworks that can integrate localised forms of environmental action with the processes of public policy making and those of globalisation. It is only through adopting this broad approach can we understand and act upon the diverse experiences of communities and individuals. This knowledge should be put to better effect through its dissemination through international, multidisciplinary networks fully engaged in the manifold aspects of these processes and activities, networks such as the World Network of Biosphere Reserves.

Chronology of Meetings and Interviews

- 09/06/2004** – Public Meeting held at the Tabernacl, Machynlleth
- 10/06/2004** – One day conference held at Celtica, Machynlleth
- 22/08/2006** – Interview 1
- 23/08/2006** – Interview 2
- 23/08/2006** – Interview 3
- 01/09/2006** – Interview 4
- 01/09/2006** – Interview 5
- 07/09/2006** – Interview 6
- 08/09/2006** – Interview 7
- 11/09/2006** – Interview 8
- 12/09/2006** – Interview 9
- 25/09/2006** – Interview 10
- 05/10/2006** – Public meeting held at Llanbrynmair Community Centre
- 06/10/2006** – Public meeting held at Glantwymyn Community Hall
- 18/10/2006** – Public meeting held at Neuadd Goffa, Talybont

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