

PROTECTED AREAS AND REGIONAL DEVELOPMENT: CONFLICTS AND OPPORTUNITIES – PRESENTED ON THE EXAMPLE OF THE UNESCO BIOSPHERE RESERVE BLIESGAU

Wioletta Frys¹, Birte Nienaber²

Received 17 December 2010; Accepted 23 September 2011

Abstract: All over the world, UNESCO biosphere reserves are designated in order to protect regionally distinctive landscapes. This designation represents a significant up-valuation of nature reserves and landscape conservation areas, forests and other mostly rural landscapes. In cases where biosphere reserves include urban areas, additional objectives are established such as the development of urban-rural-relationships. The Biosphere Reserve Bliesgau which is a sustainable model region responds to this challenge. Located in a rural part of Saarland, the biosphere Bliesgau is still facing further challenges which are connected to the designation as a UNESCO biosphere reserve. This designation entails many obligations that are conditions and restrictions for the actors on the one hand and that provide opportunities for key personalities to make progress in achieving their aims concerning nature conservation on the other. Hence, not only prospects but potential for conflict emerged which complicates regional development in rural Saarland. A primary survey in the biosphere reserve allowed for the identification of the presented conflicts.

Keywords: UNESCO biosphere reserve, Biosphere Reserve Bliesgau, environmental capital, sustainable regional development, environmental resources, nature conservation

Kurzfassung: Weltweit werden UNESCO- Biosphärenreservate zum Schutz typischer Landschaften ausgewiesen. Diese Auszeichnung stellt eine enorme Aufwertung für Naturschutz- und Landschaftsschutzgebiete, Wälder und andere zumeist ländliche Landschaften dar. Schließen Biosphärenreservate urbane Gebiete ein, so werden ihnen zusätzliche Ziele, wie Entwicklung von Land-Stadt-Beziehungen gesetzt. Dieser Aufgabe stellt sich das Biosphärenreservat Bliesgau, das eine Modellregion nachhaltigen Wirtschaftens ist. Die im ländlichen Saarland gelegene Biosphäre Bliesgau steht dennoch ebenfalls vor weiteren Herausforderungen, die mit der Anerkennung als UNESCO- Biosphärenreservat zusammenhängen. Diese Anerkennung ist mit vielen Verpflichtungen verbunden, die einerseits Auflagen und Einschränkungen für einige Akteure bedeuten und andererseits Möglichkeiten für andere Schlüsselpersonen bieten, ihren Zielen im Bezug auf den Naturschutz näher

¹ Dr. Wioletta Frys, e-mail: w.frys@mx.uni-saarland.de

² Ass. Prof. Dr. Birte Nienaber, Saarland University, Department of Geography, European Regional Studies, Postfach 151150, D-66041 Saarbrücken, Germany; e-mail: b.nienaber@mx.uni-saarland.de

zu kommen. Somit entstanden nicht nur Chancen für die Naturschutzgebiete, sondern auch Konfliktpotential, das die regionale Entwicklung im ländlichen Saarland erschwert. Eine primäre Erhebung im Biosphärenreservat ermöglichte die Ermittlung der präsentierten Konflikte.

Schlagworte: UNESCO- Biosphärenreservat, Biosphärenreservat Bliesgau, Umweltkapital, nachhaltige Regionalentwicklung, Umweltressourcen, Naturschutz

1. Introduction

Rural environmental resources are being redefined in an ever-changing global context and as part of international networks of diverse actors. Exploiting 'environmental capital' in order to promote economic development is an important pillar of sustainable rural development, but rural environmental resources are also the focus of international initiatives for nature protection, including global environmental designations such as UNESCO Biosphere Reserves.

The interaction of exogenous and endogenous actors responsible for designating and managing protected landscapes and the possibilities of exploiting these areas in order to promote sustainable tourism and 'eco-economy' initiatives are the subject-matters of this article. The focus is on the conflicts and opportunities for regional development that arise from the designation of protected areas. To explore the complexity of problems within this theme the example of the UNESCO Biosphere Reserve Bliesgau will be used.

The concept of 'sustainability' has been variously used as a legitimation for unbridled economic growth, industrial expansion, globalisation, the protection of biodiversity, maintenance of ecosystems, social justice, peace and the elimination of poverty (Bowler et al. 2002). At the very least, this suggests a paradox since sustainable development is considered to support both the maintenance of the status quo and radical change (Robinson 2008).

Against this background, Brown (2001) promotes a discourse of radical change and suggests the idea of an eco-economy. An eco-economy is defined as an environmentally sustainable economy characterized by the framework for the formulation of economic policy established by the principles of ecology as well as by economists and ecologists working together in order to shape it (Brown 2001). According to Brown, ecologists and economists working together are able to establish and form an eco-economy sustaining progress (Kriszan et al. 2010).

2. The transferability of the academic understanding of conflicts into the practical conflict management

"The academic conflict research is primarily part of the Political Geography for which different conceptual approaches exist. [...] Public goods are shapes of common properties and include public infrastructure, the supply and disposal infrastructure [...], the residential and environmental quality [...] as well as the nature protection and protection of species. Between individual interests and the sustainable usage of public goods latent conflicts persists" (Oßenbrügge 2002).

Conflicts have been mainly researched globally in the context of developing countries (e.g. Benjaminsen/Ba 2009), the conflict between the Global North and the Global South (e.g. Nuscheler 1996) or conflicts over resources (e.g. water conflicts cf. Venot et al. 2011). There are also conflicts between nature protection and tourism indicated in the literature (e.g. Pröbstl et al. 2010, Pechlaner/Abfalter 2005 or Schneider 2005). In Europe, a focus of research has been on land use conflicts, for example Von der Dunk et al. (2011) establish a categorization of different land use conflicts in Switzerland including, 'Noise pollution', 'Visual blight', 'Health hazards', 'Nature conservation', 'Preservation of the past' and 'Changes to the neighborhood'. Such land-use conflicts can be present in protected areas such as biosphere reserves, as Stoll-Kleemann et al. (2010) have researched in a global comparative study.

In biosphere reserves, tensions can develop between the competing demands of agriculture and nature protection, and pressures for economic development can come into conflict with the conditions of international guidelines set by UNESCO, which mean restrictions in the use of

large parts of the protected area. In such a nature protection area the current ecological condition cannot be allowed to deteriorate and the environmental quality should be conserved.

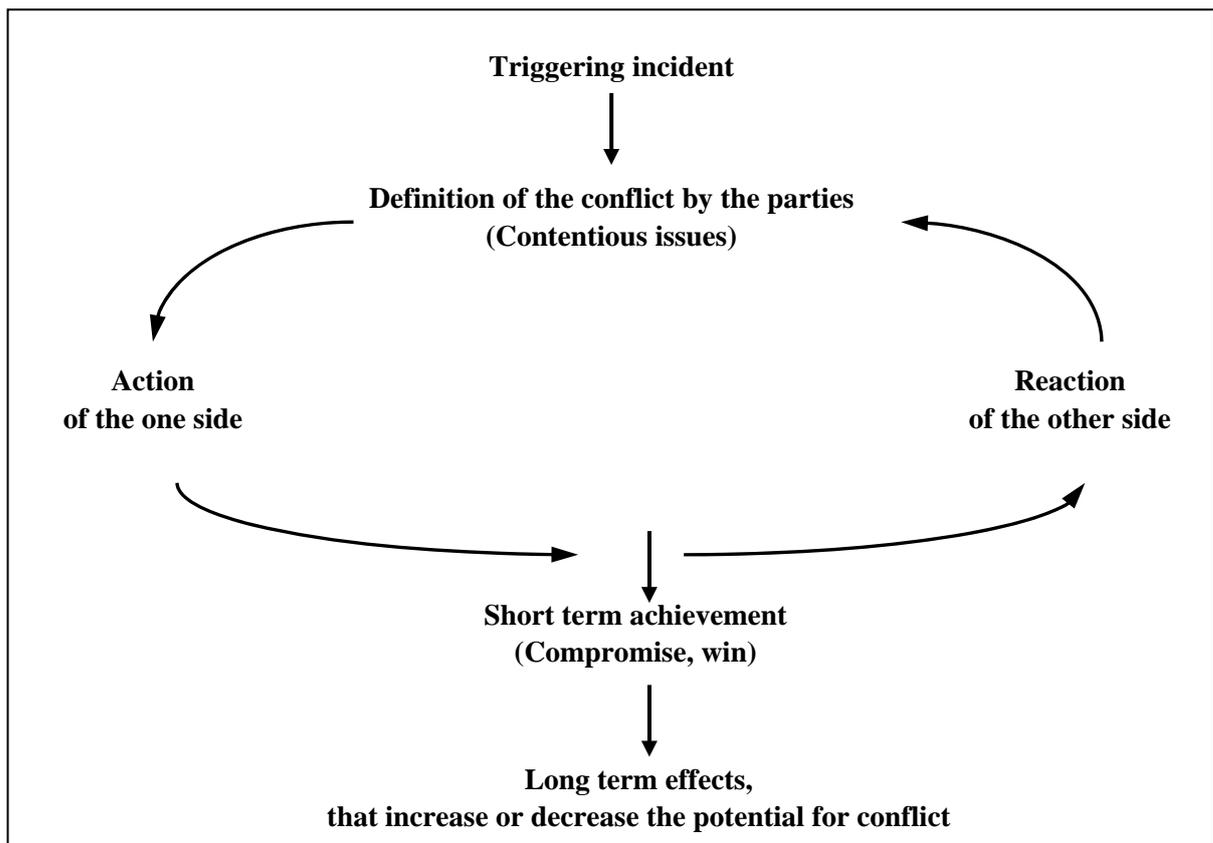


Fig 1. Conflict as a process. Source: translated according to Berkel 1997 and Ziener/Brandenburg 2007.

Use restrictions on the forestry and agriculture affect these economic sectors. Generally they mean both a quantitative reduction of production space and constraint of agriculture products as well as qualitative reduction of the production basis (Klein 1996). These restrictions lead to a conflict that must be recognized early in order to offer appropriate conflict resolutions. A conflict in regard to nature protection is understood as an interaction process that begins with a triggering incident, ends in temporary or permanent results and in addition, has long-term effects (cf. Figure 1). This understanding of conflict gives important insights into the conflict management in practice. The analysis of mutual activities makes it possible to explain the development process of a conflict and the reasons for its escalation. Conflict management from this perspective is an integral part of conflict resolution, beginning with the emergence of the conflict. Conflict resolution stands therefore as a range of intervention measures that is being used for the reduction of conflicts, conflict management and control as well as conflict prevention (Glasl 1999).

The concept of a 'Biosphere Reserve' is a tool that has to be located between conservation and economic development, as it promotes a sustainable regional endogenous development and takes the holistic economical, socio-cultural, political, environmental and democratic rights into account. It is an environmental and economic conversion of a region in keeping with the continued development and adaptation to modern realities rather than a traditional conservation of economic systems (Brodda 2002, see also Erdmann et al. 1998).

The use of protected areas as tools for regional development requires not only the acceptance of the affected population and stakeholders but depends on knowledge of attitudes and expectations in a protected area (Mose 2009). Accordingly, the following identification of conflicts in the biosphere reserve Bliesgau is very important for further development of UNESCO Biosphere Reserve Bliesgau in Saarland, Germany, but also for the establishment and development of other new biosphere reserves.

3. The UNESCO designation of biosphere reserves

The United Nations Educational, Scientific and Cultural Organization (UNESCO) designates biosphere reserves worldwide in line with the 'Man and Biosphere' (MAB) program to preserve environmentally and culturally significant landscapes. The program was initiated by UNESCO in 1970 as an international and interdisciplinary scientific initiative. It is the task of the MAB program to develop a basis for the sustainable use and effective conservation of the Biosphere's natural resources, coordinated internationally and at a national level, and to implement management in an exemplary way (UNESCO 1972). In 1995, the Sevilla-Strategy for biosphere reserves was passed and published in 1996. Since then, the areas acknowledged by UNESCO have been regarded as an important instrument worldwide in order to exemplarily develop, test and implement a sustainable use in an international network (Sahler/Schreiber n.d.). In Sevilla, the UNESCO general assembly established the 'Statutory Framework of the World Network of Biosphere Reserves' and defined the biosphere reserve as follows:

'Biosphere reserves are areas of terrestrial and coastal/marine ecosystems or a combination thereof, which are internationally recognized within the framework of UNESCO's programme on Man and the Biosphere (MAB), in accordance with the present Statutory Framework'³ (UNESCO 1996).

As of June 2010, the UNESCO list of biosphere reserves includes 564 model landscapes in 109 countries (UNESCO 2010a). In Germany, there are 15 territories secured as biosphere reserves, which collectively cover about 3 percent of the total land area of Germany. These 15 areas represent important German landscape types and the variety of habitats of biota in Germany. Most of the biosphere reserves are used for agriculture as cultural landscape. Nearly all of them are in rural areas and need strategies for the future concerning demographic change (UNESCO 2010b). In 1979, the first two German biosphere reserves were designated at Flusslandschaft Elbe and Vessertal-Thüringer Wald. The latest German reserves are Bliesgau and Schwäbische Alb declared as UNESCO biosphere reserves in 2009 (UNESCO 2010a).

4. Significance of biosphere reserves

The significance of biosphere reserves is reflected in their duties and responsibilities. According to the Sevilla-Strategy, biosphere reserves are not supposed to become closed systems of sustainability:

'Rather than forming islands in a world increasingly affected by severe human impacts, they can become theatres for reconciling people and nature, they can bring knowledge of the past to the needs of the future, they can demonstrate how to overcome the problems of the sectoral nature of our institutions. In short, biosphere reserves are much more than just protected areas' (UNESCO 1996).

Compared to other large protected areas such as National Parks and natural reserves, the functions of biosphere reserves are more sophisticated and complex. While the concept of National Parks is focussed on a classic local or regional sustainable conservation, biosphere reserves should develop integrated holistic sustainability concepts, which include protection of the ecosystem and genetic resources, sustainable land use and even integration of settlements. In addition, environmental research, observation and education should be launched in order to achieve higher relevance of the cultural landscape protection according to the principles of social, economic and environmental sustainability (Kühne 2010, Kühne 2003 and Klein 1996) as well as integrating participatory activities.

Biosphere reserves become an instrument of regional development by using bottom-up processes and promoting advancement of economic and social development potentials of the region.

³ All text passages or interviews were originally in German and are translated by the authors into English to make the text more reader-friendly. Whereas citations of scientific sources come with indications of sources, the cited statements of interviewees have numbers of the informants' names, which were coded.

In conclusion, conformity with the Seville-Strategy is reflected in specific tasks, such as cooperation with the local population, observation of human-environment-relations as well as generation and implementation of policies for the protection, care and development of nature and landscape. All of the latter highlight the significance of biosphere reserves, which are generally classified into three zones. In the process, specific tasks fall to these individual zones:

1. The **core zones** should develop with substantial exclusion of human impact. They serve as comparison space to scientific research concerning the relationship between people and environment. An entry as nature reserve is required.
2. The **buffer zones** serve as areas of environment-friendly use of conservation and cultivation of ecosystems that originated from or were affected by human utilization. Placing them under protection as a nature or landscape reserve is recommended.
3. The **transition zones** represent the habitat of the population with its various functions such as working, living and recovering. Sustainable economic activity should unfold in these zones of sustainable use and development (Kühne 2010).

With the Madrid Action Plan 2008, the concept of biosphere reserves was further developed. According to this, biosphere reserves are not conventional sanctuaries, such as national parks, but rather follow an integrated approach which involves and focuses on a person and does not only allow but promote sustainable use of resources (Stoll-Kleemann 2010).

5. The Biosphere Reserve Bliesgau

Located in the southwest of Saarland (for case study region Saarland cf. Figure 2), the Biosphere Reserve Bliesgau borders on Rhineland-Palatinate in the east and on Lorraine in the south and southwest. It includes 36.152 ha with currently 111.000 inhabitants. Six communities of the Saarpfalz district (one of them only in part) and the community of Kleinblittersdorf of the regional district Saarbrücken belong to the reserve.

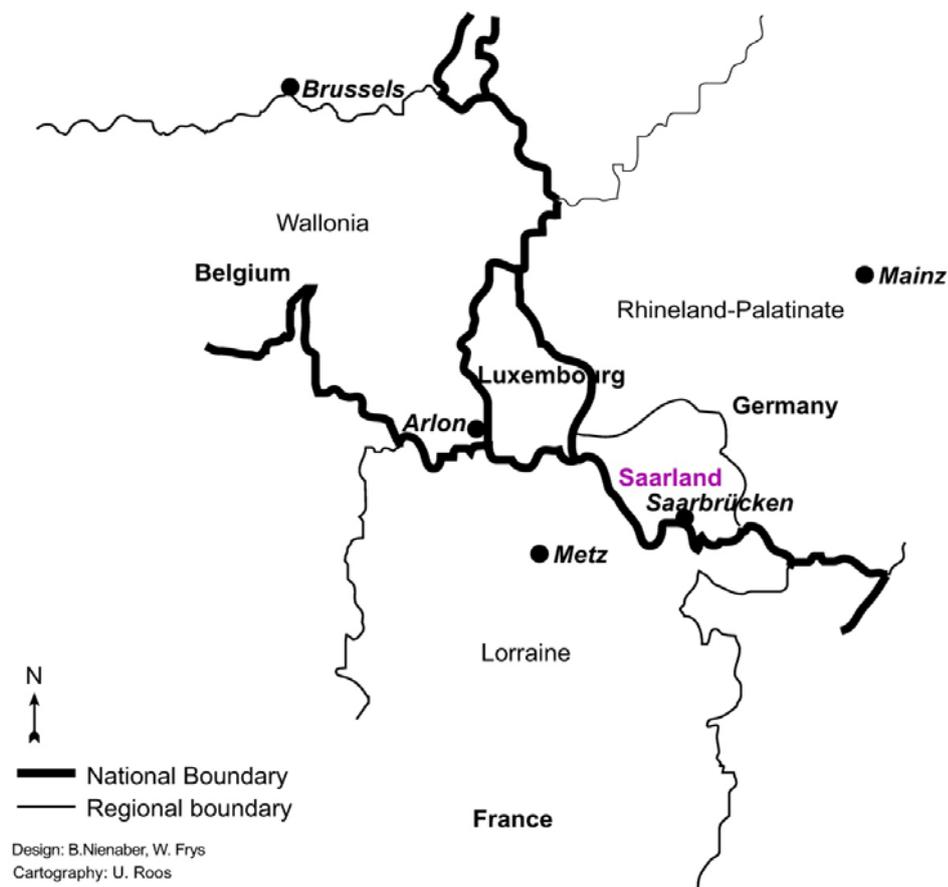


Fig 2. The case study region Saarland and its neighbour regions. Source: own graphic.

The Biosphere Reserve Bliesgau is characterised by its distinctive landscape including rolling hills, large fruit meadows and shell-lime stone grounds in the south and new red sandstone in the north. The northern part of the reserve is more densely wooded than the pedologically and climatically advantaged south. The less industrialised south is more sparsely populated while the two northern regional centres St. Ingbert and Homburg (partly included in the reserve) form an urban area with up to 746 inhabitants per square kilometre (in the city of St. Ingbert). The southern part of the biosphere reserve, which is core area due to natural geographical conditions, is characterized by low population density and is agriculturally dominated: 120 inhabitants per square kilometre in the municipality of Gersheim; 197 inhabitants per square kilometre in Mandelbachtal; and 203 inhabitants per square kilometre in Blieskastel (Kühne 2010 and Statistisches Amt Saarland 2010).

In addition to the northern part, the more sparsely populated southeastern part was also categorised as a rural area in the regional development plan of the Saarland (Saarland – Der Chef der Staatskanzlei des Saarlandes 2006). Furthermore, the biosphere reserve (excluding the urban quarter of St. Ingbert Mitte) is basically congruent with the LEADER-region Biosphere Reserve Bliesgau (LAG Biosphärenreservat Bliesgau 2007). Nevertheless, the biosphere reserve with its average population density of over 300 inhabitants per square kilometre is among the most densely populated biosphere reserves in the world (Saarland – Ministerium für Umwelt, Energie und Verkehr 2009) and the only one in Germany to include an old industrialised district (in the city of St. Ingbert).

Including densely populated urban quarters in the biosphere reserve is an exceptional feature of Bliesgau, and as such the focus of the biosphere reserve is on exemplary development of the urban-rural-relationships. According to the general purposes of biosphere reserves its goal is to develop a worldwide model region of sustainable economy including sustainable settlement development adapted to the objectives of regional planning (Taurus-Institut/Kernplan GmbH 2007 and Saarland – Ministerium für Umwelt 2004).

The core zone of biosphere reserve which is a conservation area includes 10 subareas with an area of approx. 1.109 ha that is ca. 3.1 percent of the total area of the biosphere reserve. Unlike other biosphere reserves, there is no coherent core zone in the biosphere reserve Bliesgau, with the core fragmented between 9 separate sites. The buffer zone contains approx. 7.033 ha, ca. 19 percent of the total area, mostly existing nature reserves and conservation areas, documented FFH areas and forests. The transition zone contains about 28.009 ha (Biosphärenverein Bliesgau e.V. n.d. and Saarland - Ministerium für Umwelt, Energie und Verkehr n.d.) (cf. Figure 3).

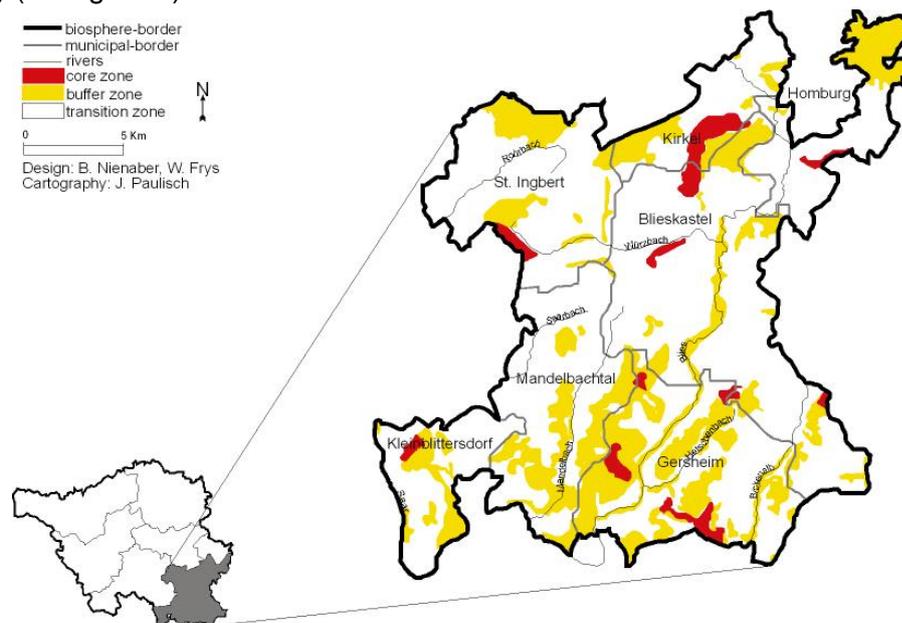


Fig 3. The case study region Saarland (small picture) and the case study area the Biosphere Reserve Bliesgau and its zones. Source: own graphic.

The development of the region from the initial conceptual considerations regarding the establishment of a biosphere reserve to the inauguration by UNESCO and the associated development can be categorized into four stages. Beginning in the late 1980s and continuing until the change of government in 1999, the initial stage was characterized by geo-ecological preliminary examinations. During the second stage between 1999 and 2004, the first steps of a top-down shaped communication strategy were developed. Furthermore, considerations regarding zonation were substantiated and an expert opinion regarding social and economic development was obtained. Additionally, an association dedicated to the promotion of the Biosphere was founded under the name 'Freunde der Biosphärenregion' (*friends of the Biosphere region*). During the third stage, between 2004 and 2009, voting within the MAB National Committee and a broadly based procedure of participation took place in order to receive UNESCO designation as a biosphere reserve. The fourth stage of development started with the inauguration of the Biosphere Reserve Bliesgau by UNESCO. Regional protagonists obtained extensive authority for the management of the reserve and implemented a strategy of participation that aimed to overcome pre-conceived notions against the project. However, whilst there was extensive engagement by individuals at all levels with the Ministry of Environment, and participation by clubs, organisations, parties and local councils, public involvement was limited. Those citizens who did participate in the process were largely motivated by opposition to a perceived restriction on their rights of land ownership (Hussong 2006 and Kühne 2010).



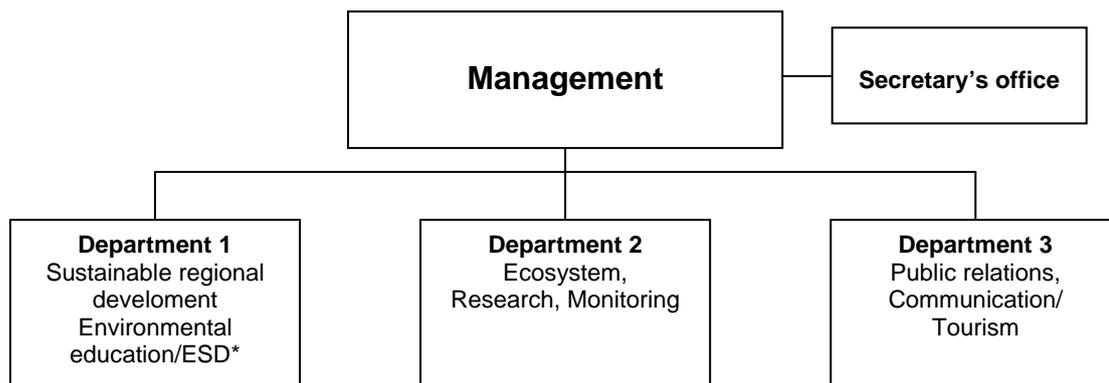
Fig 4. Scenery of the Biosphere Reserve Bliesgau. Photo: W. Frys.

Since the year of the UNESCO designation, the management of the biosphere reserve has been changed. The current organization (since 01/11/2009) and the departments of the administrative body of the biosphere are shown in the figure 5.

Local communes were pleased to support the Biosphere Reserve Bliesgau which is organized as an administrative body. However, difficulties manifested in the further development of the project:

'Officially and verbally, the communes and the administrative district support the project Biosphere in their administrative body, appearing to the assemblies, attending press conferences, organizing the annual Biosphere festival. But hardly any of the municipal actors can truly relate to the project' (Lattwein 2009).

Furthermore, there are not only advocates but objectors to the enhancement of the Biosphere Reserve Bliesgau within the local area. The views of both sides are discussed in section 7.



* Education for Sustainable Development

Fig 5. Organigram of the office of the administrative body of the biosphere. Source: translated according to Biosphärenzweckverband 2009.

6. Approach of the research and methodology

This article presents results of research in the UNESCO Biosphere Reserve Bliesgau, which were achieved within the work package 'Environmental capital and sustainable rural development' of the project DERREG (Developing Europe's Rural Regions in the Era of Globalization) in the EU Seventh Framework Programme (FP7). This work package examined how rural environmental resources have to be rescheduled in an ever-changing global context and in international networks. Thereby potential conflicts have to be considered. The research throws light on the effects of exploiting 'environmental capital' in order to advocate an economic development, in terms of an 'eco-economy', being a pillar of sustainable rural development (DERREG Consortium 2008).

The following research results are based on the expert interviews with key actors, which were directly or indirectly involved in the process of the development of the Biosphere Reserve Bliesgau. In order to answer the research questions briefly introduced above, the guidelines for interviews contained two parts. In the first part of each expert interview general questions were posed concerning the environmental situation, problems and conflicts, as well as regional capital and development in Saarland. The second part responded to topic-related questions concerning the designation of the Bliesgau area as a biosphere reserve by the UNESCO. In connection with the Biosphere Reserve Bliesgau the following Topics were analysed:

- Improvement of the ecological situation in Saarland,
- Development of sustainable tourism,
- Development of sustainable agriculture and forestry, as well as the regional marketing of agricultural products,
- Contribution of the Biosphere Reserve Bliesgau to the promotion of environmental protection,
- Contribution of the Biosphere Reserve Bliesgau to emphasise the topics of climate change or biodiversity,
- Management in the Biosphere Reserve Bliesgau,
- Networking of actors in the Biosphere Reserve Bliesgau,
- Measures in the fields of public relations in the Biosphere Reserve Bliesgau,
- Contribution to environmental education of the Biosphere Reserve Bliesgau.

Within the framework of the research, expert interviews were carried out with twelve representatives of different institutions in Saarland in the period from November 26, 2009 to December 15, 2009. Due to the targeted diversity of the experts, both governmental and non-governmental institutions were included. Furthermore, several organizations were specifically contacted because of their publicly recorded opinions concerning the Biosphere Reserve Bliesgau.

The interviewees held leading positions in the institutions included and therefore represented important sources for the acquisition of information within the context of the research. According to the guidelines, all interviews were recorded with the respondents' consent, and the semi-structured expert interviews lasted one to two hours on average. In order to protect the identity of the informants, statements from the interview transcripts have been anonymised and are identified in this article by a code assigned by the researchers.

In order to understand the individual statements better in connection to the involved institutions, the interviewees are divided into three groups, such that it is possible to assign the opinions to the concrete types of institutions without infringing personal data protection. The following groups of respondents result from this approach (with the code numbers of the interviewees in the group):

1. Administrative level (3, 6, 7, 11, 12)
2. Representatives of agriculture (4, 9, 10)
3. Companies and other institutions (1, 2, 5, 8)

Besides this research framework, a workshop with local and regional stakeholders was organised on January 13th, 2011, in which 12 people from all three sectors participated. During this workshop the key questions of the impact of the UNESCO designation compared to the research results were discussed. The remarks regarding the findings of the research are also considered in this article.

7. Results of the expert interviews related to conflicts for regional development

The following explanations will initially present different points of view of the interview partners concerning the general environmental situation in the Biosphere Reserve Bliesgau. The change of environmental conditions, environmental capital and regional development in regard to conservation and exploitation in the Bliesgau biosphere in the recent years will be examined more precisely. Then, opinions of the key actors in regard to the effects of the UNESCO designation will follow, including both positive and critical views. A discussion about the organization and activities of the Biosphere Reserve Bliesgau concludes the article.

7.1 Environmental situation and environmental problems

The general environmental situation in the Biosphere Reserve Bliesgau is interpreted differently by the interview partners. Thus, one of the experts thinks that the Bliesgau does not occupy a special position regarding the environmental situation and environmental potentials but is rather subject to general problems or advantages. They acknowledged that the small-scale structure, abundance of species and diversity of the landscape represent special characteristics, but argued that high population density, as well as a strong fragmentation through traffic routes and lots of individual traffic in the area of the southern Bliesgau are the major threats to the environment in the case study region (1).

Furthermore, the infrastructure of public transport in the case study region, as well as the high level of building development, which has to do with the high population density, is criticised. The rural character of the region and the lack of manufacturing industry that goes along with it, causing job shortage and consequently a high amount of commuter traffic, was also identified as damaging for the environment.

In contrast, other experts evaluate the environmental situation of the Bliesgau biosphere as good or very good, especially with regard to air quality, landscape and abundance of species in the case study region (3, 8).

In comparison to both other German and international regions, the biosphere Bliesgau is evaluated very positively, in particular with regard to comparable agglomeration areas which are situated in border regions (3).

However, the tendency of the population to commute using motorised private traffic is considered to be an essential environmental problem of the case study region. Altogether, it can be stated that this circumstance, which – on the one hand – is caused by the structure of the Bliesgau and its orientation towards the surrounding agglomeration areas and which – on the other hand – is favoured by a dense road network, represents the major threat to the environment. This is seen as a problem against the background of the ozone concentrations in summer. Other factors of environmental pollution in the Bliesgau have been criticised, such as the biological contamination of streams and rivers, and the lack of connections to sewage water treatment plants (3). Some problems are seen as challenges, for example, connecting urban and rural areas on a sustainable basis:

'We have to try (...) to integrate these urban areas surrounding the natural space of the Bliesgau in a way that a sustainable urban-rural-relationship can develop, so that the environmental problems of the urban areas can be balanced with the positive aspects of the rural regions. Apart from that, I don't see any urgent problems at the moment. We don't have intensive agriculture in this area, at the moment; we don't have any industries, which would be truly alarming. Insofar, I currently don't see any major challenges there.' (2)

Other subject areas as well are not considered to be environmental problems at all:

'In many places, landscape conservation is named: one has to cut back the shrub invasion on the hillsides. But that is what I don't really consider to be a veritable environmental problem (...) on the level of biotic environmental protection or the metabolism of human beings; it's an aesthetical question which I wouldn't rate to be an environmental problem.' (3)

Even more optimistic are the evaluations which are made by the organisations that represent agriculture in Saarland. They do not see any environmental problems in the biosphere (4, 9 and 10), and contend that environmentally compatible agriculture close to nature has been carried out in the region for decades.

Agricultural activities are structured in part by the topography, and organizations also argue that farmers operate in a very sustainable way because their agricultural businesses are organised to be passed on to the next generation. Indeed, the agricultural organisations claim that no intensive agriculture is carried out in the region, and that farming is too extensive, with the full potential of the area not realised (4). Two of the experts even argued that a larger area should be dedicated to agriculture in order to be able to use it for food production and the cultivation of energy crops (9, 10).

Overall, the maintenance of potentials seems to be a good solution not to make the environmental situation any worse:

'Especially for the region, it is important to maintain this richly structured landscape. With the extensive use of grasslands, with the many interspersed hedges, the bushes and the forest islands which still exist there. If agriculture was intensified, that would surely be the greatest danger. If, for example, mono-cultures could spread there, that would be a problem. Then, I think, concerning tourism, the region is still not intensively visited as this could produce larger problems at the moment.' (8)

Therefore, it can be summarised that the opinions concerning the general environmental situation and the essential environmental problems in Saarland and in the Bliesgau, as well as the things which are worthy of improvement, depend very much on the respective actor. This

can be also assessed due to the workshop with local and regional stakeholders. The following parts of the report are meant to investigate this differentiation.

7.2 Change of environmental conditions

The opinions concerning the regional environmental situation of the Biosphere Reserve Bliesgau in the last decade differ very much from each other and they are not significant, neither for the supporters, nor for the opponents of the designation of the Bliesgau as a UNESCO biosphere reserve. Thus, both groups refer to deterioration as well as to an improvement of the ecological situation in the case study region.

Even more optimistic are the evaluations which are made by the organisations that represent agriculture in Saarland. They do not see any environmental problems in the biosphere (4, 9 and 10), and contend that environmentally compatible agriculture close to nature has been carried out in the region for decades.

Agricultural activities are structured in part by the topography, and organizations also argue that farmers operate in a very sustainable way because their agricultural businesses are organised to be passed on to the next generation. Indeed, the agricultural organisations claim that no intensive agriculture is carried out in the region, and that farming is too extensive, with the full potential of the area not realised (4). Two of the experts even argued that a larger area should be dedicated to agriculture in order to be able to use it for food production and the cultivation of energy crops (9, 10).

Overall, the maintenance of potentials seems to be a good solution not to make the environmental situation any worse:

7.3 Environmental capital and regional development

Environment and nature protection as well as a sustainable treatment of resources represent central topics in discussions about the regional development of the Bliesgau. This can be seen in the denotation of the case study region as Biosphere Bliesgau and in its international designation as a UNESCO biosphere reserve on Mai 26, 2009 (1, 3, 4, 11). Moreover, some of the experts demand an overall concept which takes every pillar of sustainability (ecology, economy and social issues) into consideration (1, 2, 3, 11).

From the agricultural point of view, these topics are – on the one hand - considered to be beneficial for a positive development of the region because they persuade the population to deal with and to identify themselves more closely with the region. On the other hand, these topics are seen to be obstructive *'because they signify additional tasks and increase production costs'* (9).

The representatives of agriculture associate environment and nature protection as well as a sustainable treatment of resources with more regulations and additional laws which in turn increase production costs (9). Likewise, there are also negative comments among the population (1), whereas the political decision makers have a very positive attitude towards these topics (8, 11).

Altogether, a conflict of interests is not seen between a balanced economic development and an adequate ecological evolvement (2, 3):

'It is necessary to capitalise ecologically on the natural potentials (...) and insofar, I don't see any of the much-invoked antagonisms of ecology and economy, especially not in the Bliesgau region.' (3)

In fact, biosphere reserves particularly have the function and the task to connect nature conservation with economic effects (12).

Opinions on the role of agriculture, however, are divided. Agricultural representatives argue that agriculture should be supported to become more intensive (4), but other stakeholders contend that the sustainable use of environmental resources in farming has not been sufficiently

considered at the regional level (9,10). Programmes to promote regional products are seen to be missing (9, 10).

However, there are critical voices which state that too much is invested in the promotion of traditional agriculture and less in organic farming. Thereby, some projects and also specific areas should be scrutinized critically as to whether they really promote sustainable use (1). The statement of another expert clearly defines this criticism and complains about the short life of promoted projects, which are not able to keep on financing themselves after the support stops:

'Personally, I'm critical indeed for some parts, because many projects run as long as they're promoted and the sustainability of many state-sponsored model projects is often very little. (...) I worked for a relatively long time in the topic field of LEADER. There is definitely a lot being promoted which is of limited sustainability.' (3)

Nevertheless, some experts think that financial support for the sustainable use of environmental resources is not sufficient. Therefore, the sustainable use of resources in the sense of a holistic approach across different areas and sectors would have to be improved and the funding programmes would have to be adjusted accordingly. Likewise, the networking of the individual funding programmes should be improved and the support for renewable energy in the region would have to be extended so that the funding would be connected with a regional concept (11). Finally, the experts wish for a clear representation of the existing funding structures for private as well as for the public sector.

Except for the representatives of agriculture, the experts concur that a stronger economic orientation towards sustainable forms of economy should be advanced in the case study region. From the agricultural point of view, organic farming should not get a greater economic significance because the current production is considered to be as high as the market is able to support. Of environment policies, only the expansion of renewable energy is regarded as an exception and was supported by the agricultural representatives.

7.4 Bliesgau biosphere and its designation as a UNESCO biosphere reserve

The designation of the Bliesgau biosphere as a UNESCO biosphere reserve on 26 May 2009 represented a re-evaluation of the case study region which is at the same time connected to further conditions regarding nature protection. The additional regulations introduced have created constraints in agricultural activities which has led to conflicts. After several conflicts and opportunities concerning the general environmental situation have been presented above, and the emphasis now turns to the effects of the Biosphere Reserve Bliesgau and the UNESCO designation on nature protection in the case study region and in Saarland generally.

At first, the general potentials are presented which are offered to the Bliesgau by its status of a UNESCO biosphere reserve.

According to the experts interviewed, landscape and nature protection opportunities derive from the criteria defined by UNESCO. These will help to protect, enhance and sustainably exploit the distinctive resources of the biosphere region, which include the beech forests on variegated sandstone soil with weathered rock formations, the river Blies with its pasture landscapes, as well as the dry grasslands with orchids and numerous insects. Economic opportunities include, particularly, the development of nature tourism, benefiting from the current fashion for short trips, as well as the marketing of regionally distinctive products (2, 5, 8, 9, 10, 11, 12). House-building in the traditional regional vernacular could also benefit (3).

Whereas all three groups of experts demand the development of a stringent concept (2, 3, 5, 8, 9, 10) because the potentials are yet not being used to a great extent and will be fully available after fulfilling the guidelines (1), the representatives of agriculture affirm their opinion as follows:

'This attribute UNESCO will surely have an advertising effect, but I don't see any other potential – especially for the agricultural sector - deriving from that. Until now, we have been told that this designation as a biosphere reserve, the UNESCO designation so to say, doesn't entail any financial advantages.' (4)

Moreover, the majority of the experts consider an improvement of the ecological situation in Saarland in connection with the Biosphere Reserve Bliesgau to be possible. However, whether this will really happen, they cannot assess. By developing strategies and projects eligible for funding, but also by raising awareness for the need of protection of the region's natural attractiveness, the biosphere reserve can have a positive effect on the ecological situation in Saarland (1, 5, 8, 11, 12), although some interviewees identify negative impacts (see table 1). For the agricultural representatives, in particular, the biosphere does not represent anything distinctive from the rest of Saarland (4, 9, 10).

'I think that almost all the other parts of Saarland could have been used to designate areas (...) as a biosphere reserve.' (4)

<p><i>Positive impacts:</i></p> <ul style="list-style-type: none"> - Strict designation of core and buffer zones, as well as exertion of influence in transition zones (1, 2, 3), - Landscape protection measures in general (5, 6, 7), - Considered guidance of visitors (6, 7), - Protection of species (Marsh Fritillary (<i>Euphydryas aurinia</i>), orchid meadows) (8), - 'Umwelt- und Friedenstag' (<i>Environment and Peace Day</i>) (8), - The project 'Auf der Lohe' (4).
<p><i>Negative impacts:</i></p> <ul style="list-style-type: none"> - Restrictions for farmers and hunters (6, 7), - Natura 2000 areas (9, 10), - New access roads in Blieskastel (bridge and roundabout) (1), - The former customs train station in Limbach-Altstadt (3).

Tab 1. Positive and negative impacts of the Biosphere for nature protection, identified by expert interviewees.

Furthermore, one expert stated that the biosphere reserve does not have a positive influence yet because nature protection had a negative image in the region so far, but the respondent welcomed the UNESCO designation because it demands nature protection (11). Another respondent shared this opinion and additionally argued that until now, nature protection has played a minor role in the management of the biosphere. According to him, the reasons for this are the lack of appropriately trained staff and insufficient competence because this field is in the responsibility of the Ministry of Environment. Therefore, the biosphere's administrative body has been involved in a relatively low number of projects which has to be changed (12).

The development of gentle tourism, sustainable agriculture and forestry, as well as regional commercialization of agricultural production in connection with the Biosphere Reserve Bliesgau is represented more positively. Initiatives for regional products, such as 'Lebensadern Wege' (*Ways as life veins*), Bliesgau-Molkerei (*Bliesgau dairy*), Bliesgau.-Regal (*Bliesgau shelf*), Bliesgau Genuss e.V. (*Bliesgau indulgence, registered association*), Bliesgau Kiste (*Bliesgau box*), Bliesgau apple juice, Bliesgau bread, were named as positive examples. Even though not all of the possibilities have been exploited yet (because of the restrictive funding environment amongst other things), the interviewees support these initiatives. However, agricultural representatives dismissed these ideas, even with regard to regional commercialization of agricultural products:

'This dairy could be located in any other part of our small state. (...) We have a production of apple juice in Merzig which enjoys great renown nationwide (...) and even beyond the German borders and because of this apple juice from Merzig will always be more popular than apple juice from the Bliesgau. And for our potential, which we have directly here, by one million inhabitants, in my opinion, it doesn't make sense to build up

additional rival products. Hence, these possibilities of regional marketing of agricultural products will not differ from the other regions here in Saarland' (4).

In fact, these developments are considered to be threats to agriculture, especially tourism, which it is feared could claim areas that are used by farmers and hunters (9, 10).

7.5 The organization and activities of the Biosphere Reserve Bliesgau as a conflict potential

In section 5, the new organization of the Biosphere Reserve Bliesgau was presented and the departments of the biosphere's administrative body are introduced (cf. Figure 5). In the following, the general organization and the activities of the Biosphere Reserve Bliesgau from the experts' point of view is presented.

The opinions of the experts about the management of the biosphere's administrative body are divided. One of the experts thinks that responsibility should be handed to the Ministry of Environment in order to control the decision processes from there because at the moment: *'decisions are subject to political dictation and to the purpose. This is blatant.'* (1)

Other experts suggest that the management of the biosphere will work better now that there is an experienced leader⁴ of the biosphere's administrative body in place. However, in their opinion, the administrative body has problems concerning its self-discovery with regard to the regional actors, as well as with regard to its political orientation (3, 4, 9, 10, 11). The situation could be improved if the people involved put personal and political issues aside. Interviewees also argued that the administrative body needed more staff (3, 5, 6, 7), because, even though the efforts and the commitment are great, implementation is too dependent on volunteers (5).

The quality of the management is also assessed with regard to networking with the actors in the biosphere reserve, which is regarded as very important (2). This was also the opinion of local and regional stakeholders in the expert workshop. In particular, agricultural representatives are critical that they have not been sufficiently involved in networking. Communication is described as taking place on district level where organisations have contact with the district mayor, but networking on the state level is seen to have deficits with regard to planning future projects and LEADER measures (4). Moreover, agricultural representatives complain about the large number of actors involved in networking in the biosphere reserve (9, 10):

'There are too many actors who have to schedule too many appointments and they want to be in on everything, too. It doesn't work out like this.' (9)

In contrast, another expert liked the fact that there are so many actors from different fields in the Bliesgau, but at the same time he opined that it has not been possible to build up a network connected to the biosphere yet (1). Other respondents also believe, that the networking is not sufficient and they demand more involved actors, a targeted distribution of tasks and improved internal communication, both among the LEADER regions and with the population in the Bliesgau (3, 5, 6, 7, 11).

Publicity and promotion is regarded as an important activity of the biosphere's administrative body, and is generally described positively by the experts, especially the brochures and flyers, events in the biosphere reserve, the presence at trade fairs and the press work (1, 2). However, interviewees were more critical about perceived shortcomings in the content of information about the biosphere reserve (2), the use of the term 'sustainable development' (8), equipment of staff (3) and the design of the webpage (5). In these areas, the experts see the possibilities for improvement, such as publishing a magazine on the biosphere (5) or the production of a film about it (6, 7).

The agricultural representatives consider the public relations of the biosphere's administrative body to be less praiseworthy because it does not supply enough information to the population (9, 10; here also 5). They point out that no PR is done for the biosphere reserve on the part of

⁴ Walter Kemkes is leader of the biosphere's administrative body since July 2010.

agriculture (4, 9, 10) and that PR for farmers is only provided in the form of information about restrictions on land use, regional marketing or funding possibilities (9, 10).

Concerning the contribution of the Biosphere Reserve Bliesgau to environmental education, the cooperation with the Ecological Schullandheim Gersheim 'Spohns Haus' (*state-run kind of youth hostel in the country used for* [http://de.pons.eu/englisch-deutsch/ school trips](http://de.pons.eu/englisch-deutsch/school_trips)) (1, 2, 3, 4, 5, 6, 7, 9, 10, 11) within the framework of the Education for Sustainable Development concept, as well as with kindergartens and primary schools (1, 12) has been praised.

Furthermore, whilst environmental education is expected to be an important aspect of the UNESCO obligations (3, 6, 7), experts identified deficits in current provision. In particular, the limited extent of environmental education in regional schools and in local adult education was criticised (3, 5, 8, 9, 10), and a stronger scientific involvement in the biosphere regions was demanded, including the involvement of Saarland University (3).

7.6 Summary of the environmental conflicts in the Biosphere Reserve Bliesgau

In the following section the existing regional potentials for conflicts between environment and nature protection on the one side and the utilization of natural resources on the other will be summarised. As can be seen in the earlier discussion, there is a difference of opinion between experts about conflicts in the biosphere, and not every expert identified conflicts. However, the following threats, which trigger conflicts, have been named by the regional actors:

- Regulations for agricultural cultivation (4, 9, 10);
- the designation of Fauna Flora Habitat (FFH) and Natura 2000 areas, as well as other nature protection areas (4, 9, 10);
- wind power generation (6, 7, 12);
- farming, which is too intensive or geared towards monocultures (5, 8);
- genetically modified products (6, 7);
- the photovoltaic plant in Bliesransbach (6, 7);
- overuse of regenerative energies (3);
- a too high amount of uncontrolled settlement (2);
- tourism (8);
- the project of a biogas plant (2);
- pollutant emissions in the community of Kirkel (12);
- effects of the natural gas power station in Hambach (Lorraine, France) (12).

Different actors are involved in these different issues, but generally conflicts engage local actors and there is no involvement by globally active, international groups (except for the implicit involvement of UNESCO). According to the experts, international actors often do not play a role because they try to solve conflicts on a regional level (1, 4, 5, 11, 12). Except for the representatives of agriculture, who describe the necessity of applying EU regulations as a kind of pretext (9, 10), the other experts do not know about concrete situations of conflict in which regional actors turn to higher organisations or institutions. Altogether, notable actors in nature and administrative affairs on national and international level as well as actors on federal level and local actors and small clubs are involved in the conflicts.

Finally the position of agriculture becomes clear in the following statements:

'Well, this regional potential of conflict evolves from the fact that additional regulations are made for cultivation. (...) If, for example, there are additional conditions for the Flora Fauna Habitats in the biosphere reserve in the future, for example a ban of ploughing up of grassland, for example a restriction of corn cultivation, this will have consequences and this will create a conflict.' (4)

'Conflicts are caused by protected areas and partly also by nature protection areas, which we (...) already mark as lost areas, from an agricultural point of view. (...) What is primarily disturbing us at the moment, are the FFH and Natura 2000 areas, which, on the one hand, cover larger agricultural areas and which, on the other hand, are owned by private individuals. And in my opinion, what is presented there, these are elements of an offence, which is equals compulsory purchase. This is a relatively big conflict, which needs to be fought.' (9)

8. Conclusions

In conclusion, it can be stated that in general two different perspectives predominate concerning the environmental situation and environmental potentials, as well as environment protection and the sustainable use of resources in the case study region. On the one hand, the experts representing agriculture think that the environmental situation is very stable and they see threats only in restrictions concerning land use. On the other hand, other experts (representatives of administrative level as well as of companies and other institutions) believe that intensive farming or agriculture that is geared towards monoculture would affect the environment negatively. These respondents instead argue that for a stronger economic orientation towards sustainable forms of economic activity, such as organic farming, gentle tourism, sustainable forest management, renewable energy. Furthermore, ecological interests and thus the idea of an eco-economy have been highlighted explicitly in Saarland: *'For the interest of environmental protection (...) the share of areas for organic farming has to be stepwise increased. The use of fertilisers and pesticides has to be reduced to a reasonable extent'* (Saarland – Ministerium für Umwelt 2004).

The designation of the Bliesgau as a UNESCO biosphere reserve represents an enormous re-evaluation of the case study region. However, this designation is connected to many obligations, which represent, on the one hand, conditions and restrictions for certain actors and which, on the other hand, offer possibilities to other key personalities to come closer to their objectives concerning nature protection. Thus, the biosphere's administrative body has been affirmed in its activities and encouraged to further actions in terms of sustainability. The general public doubtlessly have great expectations of the biosphere's administrative body, which range from educational work for the population, a faultlessly working management to successful networking and tasks of environmental education.

The perceived problems arising from the UNESCO designation of the Biosphere Reserve Bliesgau follow largely from a lack of information within the region. Local people should be informed and counselled, especially because there is potential for conflict in the Bliesgau biosphere. For example, wind energy is a contentious issue because its perceived negative impact on the natural landscape, which depends on the subjective perception of the landscape. There is a contradiction, because on the one hand the population wants renewable energy, but on the other it objects to the concrete construction of these facilities. This point was especially emphasised by the local and regional stakeholders in the expert workshop. The stakeholders in the workshop also mentioned a problem with the biogas plants, illustrating yet another example of the lack of information available by the regional population. That is why the most important way to understate the conflicts is informing the locals, for example through information meetings, where fears of the population concerning protected areas are taken very seriously and new concepts for this issue are presented.

The results from the implementation of the biosphere reserve Bliesgau can be used for future implementations of biosphere reserves to avoid conflict potential and to be responsive for the fears of special (interest) groups.

- [1] Benjaminsen, T. A. & Ba, B. (2009). Farmer–herder conflicts, pastoral marginalisation and corruption: a case study from the inland Niger delta of Mali. *Geographical Journal*, 175(1), 71-81. DOI: 10.1111/j.1475-4959.2008.00312.x.
- [2] Berkel, K. (1997). *Konflikttraining. Konflikte verstehen, analysieren, bewältigen*, Heidelberg. Arbeitshefte für Führungspsychologie, Band 15.
- [3] Biosphärenverein Bliesgau e. V. (Ed.) (n.d.): *Karte, Verordnung, Naturschutzgebiete*. <http://www.biosphaere-bliesgau.eu/index.php/de/das-biosphaerenreservat/karte-verordnung-natsg> (15.11.2010).
- [4] Biosphärenzweckverband (2009, Ed.): *Organigramm der Geschäftsstelle des Biosphärenzweckverbandes* (gültig ab 10.11.2009), Blieskastel.
- [5] Bowler, I. R., Bryant, C. R. & Cocklin, C. (Eds.) (2002). *The sustainability of rural systems: geographical interpretations*. Dordrecht: Kluwer.
- [6] Brodda, Y. (2002). Biosphärenreservat im Südharz – eine Chance für die Region? In: Mose, I. & Weixlbaumer, N. (Eds.), *Naturschutz: Großschutzgebiete und Regionalentwicklung* (Naturschutz und Freizeitgesellschaft, Bd. 5), Sankt Augustin: Academia-Verlag.
- [7] Brown, L. R. (2001): *Eco-Economy: Building an Economy for the Earth*, London: Earthscan Publications.
- [8] DERREG Consortium (2008): *Developing Europe's Rural Regions in the Era of Globalization: An Interpretative Model for Better Anticipating and Responding to Challenges for Regional Development in an Evolving International Context* (Annex I – 'Description of Work'), Aberystwyth: University of Wales.
- [9] Erdmann, K.-H., Bork, H.-R. & Grunewald K. (Eds.) (1998): *Geographie und Naturschutz, Beiträge zu einer naturverträglichen Entwicklung*, MAB-Mitteilungen 45, Bonn: Bundesamt für Naturschutz.
- [10] Glasl, F. (1999): *Konfliktmanagement: Ein Handbuch für Führungskräfte, Beraterinnen und Berater*. Stuttgart: Verlag Freies Geistesleben.
- [11] Hussong, H. (2006). *Auf dem Weg zur Biosphäre Bliesgau. Der Einfluss regionaler Akteure auf den Prozess der Implementierung eines Biosphärenreservates im Bliesgau*. http://www.iflis.de/resources/Bd1_Bliesgau.pdf (22.11.2010).
- [12] Klein, T. (1996). *Großschutzgebiete und regionalwirtschaftliche Entwicklung. Ansatzpunkte zur Minimierung regionalpolitischer Konflikte*. Hannover Niedersächsisches Institut für Wirtschaftsforschung e. V.
- [13] Kriszan et al. (2010). *Literature and statistical overview of case study regions. Subtask: Environmental capital and sustainable rural development*. Unpublished report. Leipzig: Institut für Länderkunde.
- [14] Kühne, O. (2003). Biosphärenreservate – zwischen Konstruktion und Restriktion. *Geoid* 8(1), 25–32.
- [15] Lattwein, R. (2009): Rettet die Biosphäre. *Umweltmagazin Saar* 3, 26–29.
- [16] Lokale Aktionsgruppe (LAG) Biosphärenreservat Bliesgau (Ed.) (2007). *Regionales Entwicklungskonzept. Plan zur Entwicklung des ländlichen Raums im Saarland 2007–2013*, Blieskastel.
- [17] Mose, I. (2009). Akzeptanz, Einstellung und Image als Einflussgrößen von Großschutzgebieten. Einige theoretische und methodische Vorüberlegungen. In: Mose, I. (Ed.), *Wahrnehmung und Akzeptanz von Großschutzgebieten*. Oldenburg: Verlag der Carl von Ossietzky Universität.

- [18] Nuscheler, F. (1996): *Lern- und Arbeitsbuch Entwicklungspolitik*. Bonn: Dietz Verlag.
- [19] Oßenbrügge, J. (2002). Konflikt. In: Brunotte, E., Gebhardt, H, Meurer, M., Meusburger, P. & Nipper, J. (eds.): *Lexikon der Geographie in vier Bänden, Vol. 2* (p. 253). Heidelberg/Berlin: Spektrum Akademischer Verlag.
- [20] Pechlaner, H. & Abfalter, D (Eds.) (2005): *Risiko und Gefahr im Tourismus: erfolgreicher Umgang mit Krisen und Strukturbrüchen*. (Schriften zu Tourismus und Freizeit, vol. 4), Berlin: Schmidt.
- [21] Pröbstl, U., Wirth, V., Elands, B. & Bell, S. (Eds) (2010): *Management of Recreation and Nature Based Tourism in European Forests*. Heidelberg, Dordrecht, London, New York: Springer.
- [22] Robinson, G. M. (Ed.) (2008): *Sustainable Rural Systems. Sustainable Agriculture and Rural Communities*. Aldershot and Burlington: Ashgate.
- [23] UNESCO (Ed.) (1972): *International Co-ordinating Council of the Programme on Man and the Biosphere (MAB)*. First Session. – MAB Report Series 15.
- [24] Saarland – Der Chef der Staatskanzlei des Saarlandes (Ed.) (2006): Landesentwicklungsplan, Teilabschnitt „Siedlung“. *Amtsblatt des Saarlandes* (29) vom 14. Juli 2006: 963–1008.
- [25] Saarland – Ministerium für Umwelt (Ed.) (2004): *Landesentwicklungsplan, Teilabschnitt Teilabschnitt „Umwelt (Vorsorge für Flächennutzung, Umweltschutz und Infrastruktur)“ Teil A: Textliche Festlegungen vom 13. Juli 2004*, Saarbrücken.
- [26] Saarland – Ministerium für Umwelt, Energie und Verkehr (Ed.) (2009): *Biosphäre Bliesgau wurde UNESCO-Biosphärenreservat*. <http://www.saarland.de/SID-3E724395-25BF4C22/53491.htm> (28.05.2009)
- [27] Saarland – Ministerium für Umwelt, Energie und Verkehr (Ed.) (n.d.): *Biosphärenregion Bliesgau. Außengrenze und Zonierung*. <http://www.saarland.de/15826.htm>.
- [28] Sahler, G. & Schreiber, H.-J. (n.d.): Einführung. In: Deutsches Nationalkomitee für das UNESCO Programm „Der Mensch und die Biosphäre“ (MAB) (Ed.): *Kriterien für die Anerkennung und Überprüfung von Biosphärenreservaten der UNESCO in Deutschland*.
- [29] Schneider, T. (2009): *Mallorca- Massentourismus und Umwelt- und Naturschutz im Konflikt*, Norderstedt: Grin Verlag.
- [30] Statistisches Amt Saarland (Ed.) (2010): *Fläche, Bevölkerung in den Gemeinden am 30.06.2010 nach Geschlecht, Einwohner je km² und Anteil an der Gesamtbevölkerung* http://www.saarland.de/dokumente/thema_statistik/staa_FB300610.pdf (08.11.2010).
- [31] Stoll-Kleemann, S. (2010): Der Madrid Action Plan und seine Auswirkungen auf die deutschen Biosphärenreservate. In: Europarc Deutschland e. V. (Ed.): *Nationale Naturlandschaften und Biodiversität – Vielfalt macht stark!* 18-22.
- [32] Stoll-Kleemann, S., De la Vega-Leinert, S.C. & Schultz, L. (2010): The role of community participation in the effectiveness of UNESCO Biosphere Reserve management: evidence and reflections from two global surveys. *Environmental Conservation* 37(3), 227-238. DOI: 10.1017/S037689291000038X.
- [33] Taurus-Institut an der Universität Trier and Kernplan Gesellschaft für Städtebau und Kommunikation mbH (2007): *ILEK Bliesgau. Integriertes ländliches Entwicklungskonzept für die Region Bliesgau*, Trier and Illingen.
- [34] UNESCO (Ed.) (1996): *Biosphere reserves: The Seville Strategy and the Statutory Framework of the World Network*. Paris: UNESCO.
- [35] UNESCO (Ed.) (2010a): *Deutsche UNESCO-Kommission e.V. Die Liste der UNESCO-Biosphärenreservate*. <http://www.unesco.de/1467.html?&L=0> (08.11.2010).

- [36] UNESCO (Ed.) (2010b): *Deutsche UNESCO-Kommission e.V. Die 15 deutschen Biosphärenreservate*. http://www.unesco.de/deutsche_biosphaerenreservate.html?&L=0 (08.11.2010).
- [37] Venot, J.-P., Bharati L., Giordano M. & Molle, F. (2011): Beyond water, beyond boundaries: spaces of water management in the Krishna river basin, South India. *Geographical Journal* 177(2), 160-170 DOI: 10.1111/j.1475-4959.2010.00384.x.
- [38] Von der Dunk, A., Gret-Regamey, A., Dalang, T. & Hersperger, A.M. (2011). Defining a typology of peri-urban land-se conflicts – A case study from Switzerland. *Landscape and Urban Planning* 101(2), 149-156. DOI: 10.1016/j.landurbplan.2011.02.007.
- [39] Ziener, K. & Brandenburg, C. (2007). Konfliktbewältigung und Konfliktprävention beim Management landschaftsbezogener Freizeit- und Erholungsaktivitäten (reviewed paper). In: Schrenk, M., Popovich, V. V. & Benedikt, J. (Eds.): *REAL CORP 007 Proceedings/Tagungsband*, Vienna.