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The Contributions of World Natural Heritage Sites to Sustainable Regional Development - Two Case Studies from the North and the South

Urs Wiesmann ¹, Karina Liechti ²

¹ Geographer, CDE co-director of the Center of Development and Environment (CDE) and professor at the universities of Berne and Nairobi, coordinator of various CDE projects in Kenya, Madagascar and the Swiss Alps, coordinator of CDE's social science programmes and deputy director of the Swiss National Centre of Competence in Research (NCCR). Centre for Development and Environment (CDE), Institute of Geography, University of Berne, Steigerhübelstrasse 3, 3008 Berne, Switzerland
urs.wiesmann@cde.unibe.ch

² Human geographer and research associate at CDE. Regional Coordinator of the Joint Area of Case Studies (JACS) Alps for the NCCR North-South. Centre for Development and Environment (CDE), Institute of Geography, University of Berne, Steigerhübelstrasse 3, 3008 Berne, Switzerland
karina.liechti@cde.unibe.ch

Abstract: The Jungfrau-Aletsch-Bietschhorn and Mount Kenya World Natural Heritage Sites differ in terms of the economic, socio-cultural and ecological dynamics of their surrounding regions. In the case of the Grindelwald region, the cultural landscape is more endangered than the protected natural landscape of the World Heritage Site, whereas in the case of the highland-lowland system of Mt. Kenya, the pressure on the high-potential resources of the World Heritage Site is great and protection can only be carried out if conflicts are taken into account. The contribution of World Natural Heritage Sites to sustainable regional deve-

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Keywords: World Natural Heritage Sites, protected areas, Swiss Alps, Mt. Kenya region, sustainable development, regional development.

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The present paper examines the question of the extent to which protected areas – and in particular World Natural Heritage Sites – enhance sustainable development in mountain regions. The focus is on a comparative assessment of the effects of protected areas of global significance on regional development in the North and the South, particularly in the Alps and the tropical mountains of Africa.

The 'Convention Concerning the Protection of the World Cultural and Natural Heritage' was approved during the 17th session of UNESCO in 1972. It provided the basis for establishing World Cultural and Natural Heritage Sites and defined criteria for their selection. For Natural Heritage Sites, four main criteria were defined relating to unique natural features, natural history, biological diversity, and natural beauty (UNESCO, 1972). A site can be labelled a World Natural Heritage Site if it scores an outstanding universal value for at least one of the four criteria. To date, 172 sites have

been approved as World Natural Heritage within the Convention, 23 of which were selected at the same time on the basis of their high cultural values. The number of World Natural Heritage Sites is low compared to a total of 582 World Cultural Heritage Sites or to the estimated 100,000 protected areas worldwide (WHC, 2003) and underscores the global importance of these sites. Against this background, World Natural Heritage deserves special attention in terms of sustainable development in its global dimensions and universal concerns. If it is further considered that about one third of these sites are located in mountain areas, it is relevant to focus on the concrete contributions of these sites to sustainable mountain development.

The starting point of the present study is the twofold significance of World Natural Heritage Sites. On the one hand, they are established to preserve phenomena of nature that are extraordinary and unique at a global scale. On the other hand, they are always localised and hence related to and significant for specific regional contexts. Preserving global values is therefore dependent on local development, local action, and local actors. By investigating two typical examples from the North and the South, we ask whether regional and local circumstances promote or hinder preservation of global values. This in turn depends greatly on the relation between protected areas and the surrounding regions with their functions as areas of human settlement, economy, recreation, etc. – and hence on the degree of sustainable development.

Approach and methodology

The question of the impacts of large protected areas on the degree of sustainability of development in related regions is usually addressed by trying to estimate the effects of protection in ecological, economic, and sociocultural terms. Well-elaborated examples of such assessments can be found in Hammer (2003). However, this approach has the disadvantage of not taking into account the dynamics of the concerned region that might be more or less independent of the related protected area. This study therefore applies a different approach by first investigating the problems, options, and related dynamics of sustainable regional development and only then establishing the contributions of protected areas to these dynamics and their direction.

The approach is based on a concept of sustainable development that relates the dynamics within a man and environment system to the normative aspects and dimensions of sustainability. Figure 1 illustrates this concept and shows the three major dimensions commonly used to define sustainable development. As these are normative dimensions, it can be argued that sustainability is principally bound to concrete socio-political contexts where negotiation of respective values can take place. Concrete sustainability is not only bound to contexts but is also exposed to and dependent on global dynamics, and additionally, represents a specific and innovative response to these dynamics (Wiesmann, 1998). These basic considerations imply an approach that includes explicit valuation according to concrete normative dimensions relevant to the specific context, as well as the assessment of regional dynamics.

Such an approach not only requires interdisciplinarity; it is also transdisciplinary in the sense of relating research to stakeholder negotiations with a view to addressing the normative dimensions of sustainable regional development (Hurni et al, 2004). For a comparative assessment of the contributions of World Natural Heritage Sites to sustainable regional development in the North and the South, the present paper builds on two long-term regional studies that applied an inter- and transdisciplinary approach.

The first study was part of the Man and Biosphere (MAB) programme of UNESCO that focused on the alpine region of Grindelwald in the Bernese Oberland, Switzerland. Integrative studies on regional development were complemented by a long-term transfer and communication process with the local community (Messerli, 1989; Wiesmann, 1986 and 2001). The region of Grindelwald is related to the Jungfrau-Aletsch-Bietschhorn (JAB) region, which was established in 2001 as the first World Natural Heritage Site in the Alps. The second long-term study built upon research partnerships between Switzerland and Kenya and dealt with problems of sustainable development in the highland-lowland system of Mount Kenya. Integrative studies were directly linked with a multitude of concrete and participatory development projects in the region, which also touched the higher reaches of Mt. Kenya – a UNESCO biosphere reserve since 1978 and a World Natural Heritage Site since 1997 (Ojany, 1998; Wiesmann, 1998; Wiesmann et al, 2000). Both these long-term projects were meanwhile incorporated as ‘Joint Areas of Case Studies’ (JACS) into the Swiss NCCR North-South, a global research network dealing with mitigating syndromes of global change (Hurni et al, 2004).

Sustainable development in the region of Grindelwald

The valley of Grindelwald has a broad range of ecological zones and ecotopes typical of the Northern Alps, forming a manifold and unique landscape. Already in the early stages of alpine tourism Grindelwald was discovered as a key site in which traditional cultural landscape provided a rich contrast to the wilderness of the high mountains and glaciers (figure 2). In the past 200 years the various stages of tourism have thus dominated the history of the valley and have interacted with its people and their traditional mountain agriculture (Wiesmann, 1988). As a result of this history, Grindelwald is dominated by two main sectors that also define land use and environmental impact: mountain agriculture and forestry on the one hand, and tourism on the other hand.

As outlined above, assessing the effects of these sectors with a view to sustainability first requires valuation with respect to concrete normative dimensions, e.g. representing values of nature. It has been proposed that values of nature encompass at least four dimensions (Wiesmann, 1995):

- production-oriented values such as the productivity of soils;
- physiologically oriented values such as the quality of water or the degree of natural hazards;
- socio-cultural values such as the aesthetics of the landscape or the significance of an object as a representation of natural history;
- intrinsic values that are attributed to biological aspects on the basis of ethical considerations.

An integrated valuation reveals that tourism in Grindelwald may be reflected negatively in the above four dimensions of valuation, but that these impacts are spatially limited (Messerli *et al.*, 1986). Mountain agriculture, however, clearly increases the values in all four dimensions, as compared to a potential natural situation without human impacts through the century-long adaptation of agriculture to the alpine environment. Values of nature are therefore closely linked to cultural landscapes (Bätzing, 2003).

This environmental balance is contrasted with an economy in which tourism is absolutely dominant: Whereas agriculture and forestry account for only 3% of the local economy of Grindelwald, tourism directly and indirectly contributes 92% (Wiesmann, 1986 and 2001). This imbalance in economic terms raises the question of how mountain agriculture can survive and even maintain its important environmental functions.

In the case of Grindelwald it can be shown that the touristic labour market plays a major role in supporting a relatively large number of farms on a part-time basis. The core motivation for many local actors to remain partly active in agriculture and to contribute to the maintenance of the cultural landscapes is the high social prestige of agriculture within the local community. This prestige is based on the need for local identity in a region that is being confronted with mass tourism and related urban values (Wiesmann, 1986).

In sum, Grindelwald has reached an indigenously dominated balance between agriculture and tourism, indicating a high degree of sustainability in its development. Tourism plays the dominant role in the economic dimension, whereas agriculture plays a key role in sociocultural and environmental terms.

The positive balance that can be drawn in relation to the criteria for sustainable development in Grindelwald is, however, endangered by built-in socio-economic structures that require continuous growth and promote the qualitative decline of demand in the tourist sector. The key elements of these endangering socio-economic structures are the construction sector and the transport sector, which dominate the indigenous labour market and in particular the labour market for part-time farmers (Wiesmann, 1986; Messerli, 1989).

Grindelwald thus faces a delicate situation regarding sustainable development. Due to the locally controlled interlinks between mountain agriculture and tourism, it exhibits a positive balance with relation to the dimensions of sustainability that is, however, maintained at the expense of future options for sustainable development. Dealing with this situation requires a locally based approach of revising endangering socio-economic structures without destroying the positive interlinks between agriculture and tourism. Such an approach has been successfully developed and implemented in Grindelwald in a long process that could be termed the first local agenda 21 in the Alps (Wiesmann, 2001).

Contributions of the JAB Natural Heritage Site to regional development

The World Natural Heritage Site 'Jungfrau - Aletsch - Bietschhorn' (JAB) was established in 2001. It covers high alpine zones in the Bernese and Valaisian Alps, with their impressive peaks and fascinating world of glaciers (Verein UNESCO-Weltnaturerbe Jungfrau-Aletsch-Bietschhorn, 2002). Part of the perimeter of the JAB extends into the community of Grindelwald. This makes it possible to test whether this World Heritage Site can contribute to the challenges of sustainable regional development outlined above.

Contributions to sustainable regional development can be identified mainly at three levels. First, at the level of spatial organisation, where preservation of the values of nature is maintained and enhanced. However, it must be noted that the World Heritage Site mainly relates to the high alpine natural landscapes and barely touches the cultural landscapes that can be considered the most endangered parts of the environmental dimension of sustainable regional development in this region.

A second contribution relates to maintaining options for future development. Most important here is to make sure that the continuously changing images and views of man-environmental relationships are accommodated by maintaining those parts of the landscape that have not been functionalised. The long history of tourism in Grindelwald clearly underlines the importance of being able to accommodate new views and valuations of nature.

The third level relates to socio-economic structures and developments. It can be expected that the World Heritage Site will contribute to the touristic attractiveness of the region and support those segments of tourism that particularly build on the values of nature. However, it cannot be expected that the JAB will contribute to solving the most critical sustainability problems that are – as outlined above – related to socio-economic structures and dynamics.

In sum, one can state that the JAB is increasing touristic attractiveness and maintaining values and development options for natural landscapes. However, the World Natural Heritage Site can hardly contribute to solving the most critical problems of sustainable regional development that relate, on the one hand, to cultural landscapes and, on the other hand, to socio-economic structures. The JAB can therefore be considered a supplement but not a key to sustainable regional development.

Sustainable development in the highland-lowland system of Mt. Kenya

The second case study on sustainable regional development was in the highland-lowland system stretching from Mount Kenya to the northwest. Ecologically the region is characterised by steep gradients that stretch from the nival zone in the peak region through the alpine moorlands and the mountain rainforest to semi-humid, semi-arid and arid zones in the conjunct high plateau and lowlands (Liniger et al, 1998).

In the last century and more so in the past 40 years, this highland-lowland system has undergone tremendous land use changes and socio-economic dynamics (Kiteme et al, 1998). The region was originally utilised as part of the pastoralist system of the Massai and Samburu. With the rise of colonialism in the early 20th century, most of the high plateau was incorporated into the so-called 'white highlands' and subsequently settled by white settlers who established large-scale farming and ranching. With independence in 1964, subdivision of former large-scale farms commenced, leading to high rates of immigration of marginalised agro-pastoral smallholders from the high-potential but overpopulated areas of Kenya and resulting in rapid population growth. While this trend continued, large-scale farms in the footzone of the mountain were transformed into large horticulture enterprises with an international orientation.

These fast and drastic changes led to a range of sustainability problems in the region, the most important arising in relation to over-utilisation of water resources originating from the mountain. Pressure on water resources, in particular by horticulturalists and agro-pastoral smallholders, led to a significant decline of river runoff during the dry season, thus converting the Ewaso Ng'iro River from a perennial to a non-perennial water source for downstream populations and ecosystems. The loss of this vital resource increasingly led to conflicts between upstream and downstream populations that turned violent on several occasions, e.g. in 1999/2000, when a particularly dry season coincided with critical political processes in relation to the preparations for the 2002 national elections.

In sum, the key problem of sustainable development in the region relates to sharing vital natural resources and resolving conflicts within the highland-lowland system and among the broad range of stakeholders. It has been shown (Kiteme et al, 1998; Wiesmann 1998; Wiesmann et al, 2000) that endogenously and regionally driven solutions to these sustainability problems will most probably not materialise, nor is it easy to promote them. The reason is that not only all stakeholders but also the major resource-related decision-making processes at local, regional and national levels do not contribute to solutions but to an increase in these specific sustainability problems. This implies that strategies must be found that combine activities and interventions at various levels and in terms of technical, communication and planning support to enhance non-river based water supply and reduce river based water demand (Kiteme et al, 1998; Wiesmann et al, 2000). In recent years major portions of such a strategy of sustainable regional development have been implemented in the region (Kiteme & Gikonyo, 2002).

Contributions of the Mt. Kenya Natural Heritage Site to regional development

Based on the former UNESCO biosphere reserve, Mt. Kenya was declared a World Natural Heritage Site in 1997. The site incorporates the national park above the timberline as well as the forest belt that reaches into the footzone of the mountain (figure 3). The contribution of the Mount Kenya Natural Heritage Site to more sustainable regional development can again be distinguished at three levels:

First, the site assists in preventing pressure by growing populations on the resources of

the mountain. As mountains in the tropics tend to be resource-rich islands in marginal surroundings, these pressures are great, resulting in conflicts between the basic needs of marginalized people, the interests of national and international markets, and the goals of nature preservation.

Secondly, the World Natural Heritage Site also contributes to economic prosperity, in particular by attracting international attention and tourism. However, this is more of a theoretical contribution, as up to 90% of the gains from international tourism are immediately redirected towards national and international centres and elites. In other words, the loss of natural resources potentially available to the population through conservation is far from compensated by the income generated by this conservation.

At the third level one could expect a contribution to more sustainable regional development from the World Heritage Site in the sense of promoting negotiations and conflict resolution processes in relation to sharing and conserving natural resources. In other words, empowerment processes related to the World Heritage could also enhance capacities and capabilities to resolve resource conflicts that go beyond the site itself, e.g. the above-mentioned water related conflicts. However, it must be noted that this empowerment-related potential contribution has not taken off. One reason might be the fact that the idea of World Heritage is a concept originating in the North and shared only by elites in this case study from the South, not by the local communities.

Five theses on the contributions of World Natural Heritage Sites to sustainable mountain development in the North and the South

Analyses of the two case studies of regional mountain development and the potential contribution of related World Natural Heritage Sites to more sustainable development suggest some general conclusions. As these conclusions are mainly based on the two in-depth case studies of Grindelwald and Mt. Kenya, they are formulated here as theses that require further evaluation in other contexts. They are organised in accordance with the main dimensions of sustainable development and with the aim of promoting debate, as well as encouraging comparative research involving further sites.

Thesis 1: the core functions of World Natural Heritage Sites

In the North, protection concentrates on regions in the periphery where processes of social, economic and spatial exodus are taking place. Here the function of World Heritage Natural Sites is mainly to increase attractiveness and to counter-balance processes of peripherisation.

In the South, mountain protection concentrates on resource-rich islands in marginalized surroundings where pressure on natural resources is high. Here the function of World Heritage Natural Sites is mainly to ease and control this pressure, hence the function of hindering use seems to be dominant.

Thesis 2: the ecological contribution of World Natural Heritage Sites to sustainable regional development

In the North, due to the effects of globalisation on traditional agriculture, it is the cultural landscape that is mainly in danger. Protection by World Natural Heritage Sites, however, seems to concentrate on less endangered natural landscapes in the periphery of mountains.

In the South, natural landscapes in mountains are endangered because they are rich in natural resources needed by marginalized populations and developing economies. Protection by World Natural Heritage Sites is therefore carried out on the basis of conflicts over these resources and might even exacerbate these conflicts.

Thesis 3: the economic contribution of World Natural Heritage Sites to sustainable regional development

In the North, World Natural Heritage Sites are bound to local and often exaggerated expectations relating to increased attractiveness and respective touristic demand. Exploitation of these potentials is not a question of management of the protected areas but an issue of regional development in a broader sense.

In the South, protection by World Natural Heritage Sites is bound to potential losses in primary production for the concerned populations and stakeholders. Furthermore, these losses are compensated only to a very limited degree by gains through tourism and international aid.

Thesis 4: the socio-cultural contribution of World Natural Heritage Sites to sustainable regional development

In the North, the contribution to sustainable development is probably greatest in socio-cultural terms, as World Natural Heritage Sites provide a basis for renewed regional identity and related socio-political processes of endogenously driven development.

In the South, World Natural Heritage Sites could principally provide a platform for negotiation and empowerment. However, concrete implementation of these sites does not normally reveal this potential and strongly conflicts with local cultures, economies and livelihoods.

Thesis 5: the overall contribution of World Natural Heritage Sites to sustainable regional development

In the North, World Natural Heritage Sites can contribute at various levels and in various dimensions to more sustainable regional development. These contributions are limited, however, and only applicable as a part of integrated regional development strategies.

In the South, the potential contributions of World Natural Heritage Sites to sustainable regional development are largely limited to their protection function – and thus their exclusion function.

This last thesis implies that the South is disadvantaged in a double sense: The 'losses' caused by World Natural Heritage are greater and the respective 'gains' lower than in the North. Against this background, and taking into account that 'World Heritage' implies a global responsibility, World Natural Heritage needs to be re-interpreted as a call for increased solidarity and support from the North to the South. Only if the particular disadvantages faced by countries in the South are taken into account in conservation approaches can the idea of World Heritage significantly contribute to sustainable development at a global scale.

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