13 Protection: A Means for Sustainable Development? The Case of the Jungfrau-Aletsch-Bietschhorn World Heritage Site in Switzerland

Astrid Wallner[1], Stephan Rist[2], Karina Liechti[3], Urs Wiesmann[4]

Abstract

The Jungfrau-Aletsch-Bietschhorn World Heritage Site (WHS) comprises mainly natural high-mountain landscapes. The High Alps and impressive natural landscapes are not the only feature making the region so attractive; its uniqueness also lies in the adjoining landscapes shaped by centuries of traditional agricultural use. Given the dramatic changes in the agricultural sector, the risk faced by cultural landscapes in the World Heritage Region is possibly greater than that faced by the natural landscape inside the perimeter of the WHS. Inclusion on the World Heritage List was therefore an opportunity to contribute not only to the preservation of the 'natural' WHS: the protected part of the natural landscape is understood as the centrepiece of a strategy to enhance sustainable development in the entire region, *including* cultural landscapes. Maintaining the right balance between preservation of the WHS and promotion of sustainable regional development constitutes a key challenge for management of the WHS. Local actors were heavily involved in the planning process in which the goals and objectives of the WHS were defined. This participatory process allowed examination of ongoing problems and current opportunities, even though present ecological standards were a 'non-negotiable' feature. Therefore the basic patterns of valuation of the landscape by the different actors could not be modified. Nevertheless, the process made it possible to jointly define the present situation and thus create a basis for legitimising future action. From this participatory process, a link between the concepts of 'protected area' and sustainable development in the region emerged.

Keywords: World Heritage Site, participation, natural landscape, cultural landscape, negotiation, sustainable regional development, values, Switzerland.

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13.1 Introduction

The Jungfrau-Aletsch-Bietschhorn World Heritage Site (WHS), designated by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 2001, is not only the first World Natural Heritage Site in Switzerland, but also the first such site in the Alps. The site covers an area of 824 km^2. This area is formed by portions of the territory of 26 communes. The overall area covered by these communes is 1,629 km^2, nearly double the size of the WHS itself. The uniqueness of this WHS lies in its heavy glaciation and its extraordinary topography. Consequently, it is among the areas least marked by human influence anywhere in the Alps. This pristine character in the midst of a region containing settlements and small-scale cultural landscapes is one of the outstanding features of the Jungfrau-Aletsch-Bietschhorn WHS.

The site itself is situated in an area of transition between the northern and the central Alps. This results in different climatic and topographical conditions and consequently different ecosystems and land-use systems, influenced by both human beings and nature. Yet neither the natural landscape that comprises the WHS as such, nor the cultural landscape surrounding it, are in themselves static. Both are subject to dynamic processes that bring about constant change, with the result that there is interaction between the natural and cultural landscapes. Hence the interplay between the natural area designated as the WHS and the surrounding cultural landscape undoubtedly constitutes the greatest challenge in managing the site. It is the declared aim of the associated communes to preserve this area in all its diversity for future generations and to strive to promote its sustainable development as an economic, living, recreational and natural space.

The Swiss political, administrative, legal and planning environments play an important role in achieving the objectives of the Jungfrau-Aletsch-Bietschhorn WHS and with respect to the concept of landscape protection in Switzerland generally (see also Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005; for further information see Hammer 2007). The political and administrative environment is shaped by a federal system comprised of communal, cantonal and federal levels, which share official responsibilities in accordance with cantonal constitutions and the federal constitution.

According to UNESCO guidelines, the national government must send a request for nomination to the World Heritage Committee. However, in the

Swiss political system, the federal government cannot submit such a candidature without the formal consent of the communes concerned (the communes are the smallest government division in Switzerland). Therefore, intense discussions with the population and the administration of the 26 communes concerned took place. It was up to each commune to decide whether it wanted to participate in the proposed WHS. Such a decision could be taken either by the communal council or by the general assembly (compromised of all adult Swiss inhabitants of the commune). This process provided a basis for discussion of the boundaries and the goals of the WHS and its relation to sustainable regional development.

This paper explores the diversity of the region's ecological, economic and socio-cultural features as well as the diversity and fundamental features of actors' perspectives linked to the WHS.

13.2 The setting of the Jungfrau-Aletsch-Bietschhorn World Heritage Site

13.2.1 Natural characteristics

The Jungfrau-Aletsch-Bietschhorn WHS primarily incorporates the uninhabited High-Alpine zone, which is mainly natural landscapes, with 80% of the area covered by glaciers and non-vegetated rocks (see Figure 1). It represents the most glaciated part of the Alps, containing Europe's largest glacier, the Great Aletsch Glacier, and a range of classic glacial features such as U-shaped valleys, cirques, horn peaks and moraines. This area provides an outstanding geological record of the uplift and compression that formed the High Alps (see also Labhart 2007). The northern part is characterised by steep mountain slopes and includes the famous Eiger, Mönch and Jungfrau (4,148 m) peaks as well as the Jungfraujoch with the highest railway station in Europe (3,471 m). The southern part is less steep and mainly dominated by extended glaciers and remote valleys.

The climate in the WHS region is characterised by a marked north–south contrast. The northern front of the Bernese Alps, which is part of the main Alpine drainage divide, acts as a weather divide where a barrier effect occurs along a north–south axis (see also Weingartner 2007). A moist, cool, suboceanic climate prevails in the north (mean annual precipitation in Grindelwald, 1966-1989: 1,390 mm), while the Canton of Valais constitutes a

dry island with the characteristics of a sub-continental climate, owing to its inner-Alpine location between the major chains of the Valaisian and Bernese Alps (mean annual precipitation in Visp, 1961-1990: 600 mm). Precipitation values in the northern Alpine area are considerably higher than those in the inner-Alpine area. There is also great seasonal variation between the northern and inner-Alpine locations. There is more precipitation in summer (April to September) than in winter in the northern Alps. The inner-Alpine area, by contrast, has more winter precipitation than summer precipitation. Thanks to the water resources of the Alps, there is no problem with water supply in the World Heritage communes on the northern side of the Alps. On the south-facing slopes of the Great Aletsch Glacier and the Bietschhorn, on the other hand, water supply has always been a problem, owing to the aridity of the inner-Alpine valleys. Water has had to be diverted with enormous effort from glacial streams, or tapped at remote sources and conducted over distances of many kilometres to southern slopes. Innovative construction of historic channels to collect water, known as *suonen* (in French: *bisses*), which were sometimes built even on overhanging cliffs, bear impressive witness to the centuries-old struggle over 'sacred water' (Weingartner 2007).

Great differences in altitude and climate within the World Heritage Region have given rise to the formation of many alpine and sub-alpine habitats (Küttel 2007). These can be distinguished by exposition, gradient and altitude. The following habitats are found in the World Heritage Region: glaciers, firn fields and snowfields, moraines and glacier forelands, rocky and stony areas, boulders, surface water and humid areas, alpine grass, forests, and agricultural habitats such as orchards, vineyards, and croplands, as well as alpine meadows and pastureland (see Figure 1). Rocky steppe habitats are found on the dry southern slopes in the Canton of Valais – the Lötschberg south ramp. Thanks to its sub-continental climate, this habitat is home to a great diversity of flora and fauna. Sheep grazing and fire have both contributed heavily to the expansion of rocky steppes. Today, sheep grazing has declined as a result of the abandonment of agriculture in many areas. Consequently, invasion by shrubs poses a threat to the rocky steppe habitat (Küttel 2007).

Even though a total of 80% of the area of the WHS has no vegetation, more than 500 flowering plants and ferns have been identified to date, while there are more than 3,500 species of flora and fauna found above the tree line in the associated communes of the WHS. A study of the World Heritage Region delineated the areas containing particularly high numbers of endangered species or species for which Switzerland has a particular responsibility, based on the current state of knowledge (Capt 2005).

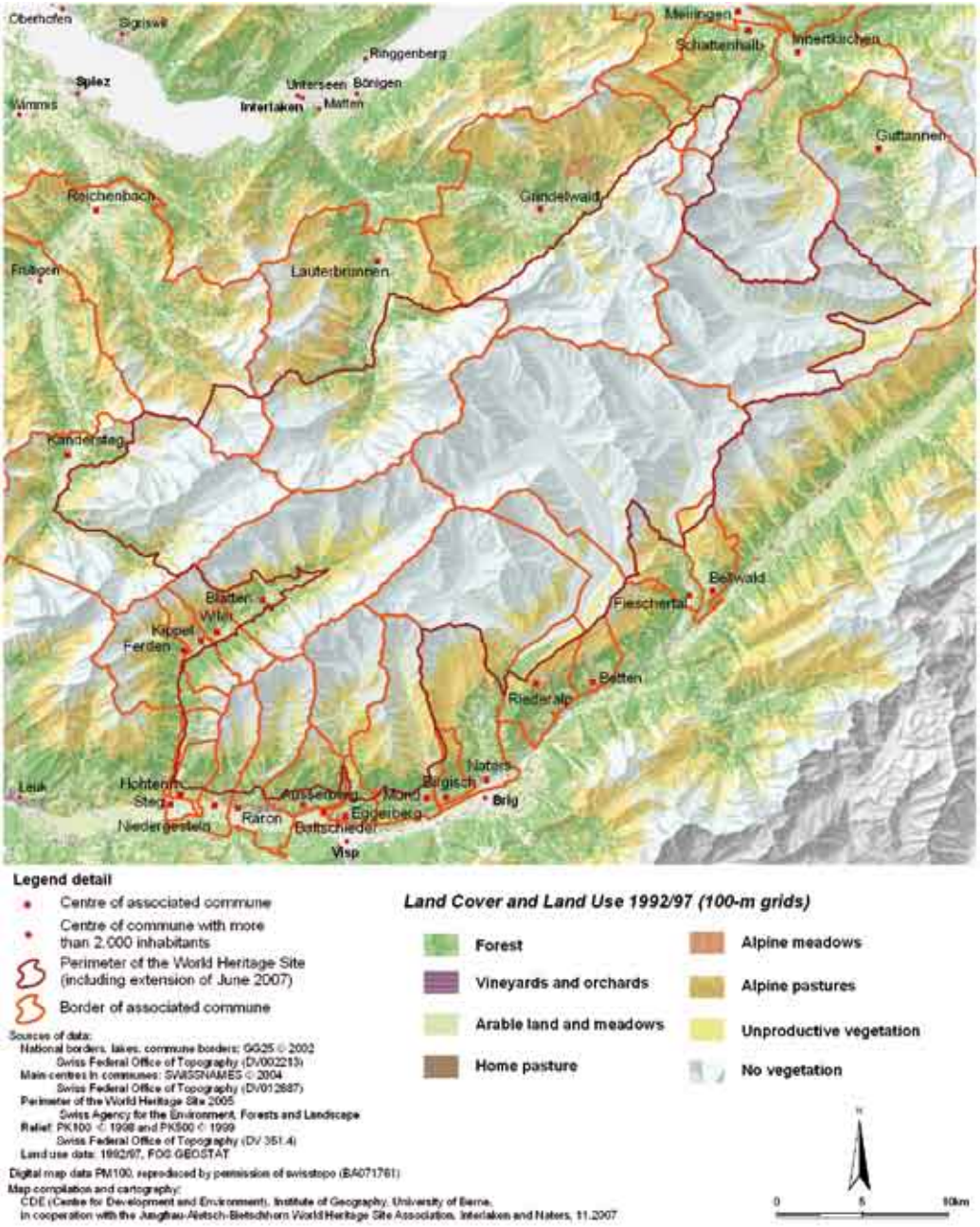

Fig. 1
Land cover and land use in the Jungfrau-Aletsch-Bietschhorn World Heritage Site 1992/97 (100-m grids), including the borders of the associated communes.

It is not only this pristine landscape that makes the WHS so outstanding. Its attractiveness clearly stems from the rich contrast of the wilderness of the high mountains and glaciers and the traditional cultural landscape surrounding it. However, given the ongoing dramatic changes in the agricultural sector, the risk faced by the cultural landscapes in the World Heritage Region must be assessed as greater than that faced by the natural landscapes inside the perimeter of the WHS (Wiesmann and Liechti 2004). This was recognised early on by the communes involved. Inscription on the World Heritage List was therefore leveraged not only as an opportunity to contribute to the preservation of the World Heritage Site in the narrower sense, but also as a commitment to sustainable development in the entire region covered by the associated communes.

13.2.2 History of the World Heritage Site

The glaciers (mainly the Unteraar and Great Aletsch glaciers) are amongst the areas where the foundations of modern glaciology were laid, while the impressive vista of the north wall of the High Alps has played an important role in European tourism, literature and art. Discussions concerning a candidature of this area as a WHS began in the 1970s. Within the framework of UNESCO's Man and the Biosphere (MAB) programme, Grindelwald and Aletsch represented 2 out of 4 test areas in the "Socio-economic development and ecological capacity in mountain regions" project funded by the Swiss National Science Foundation. This research integrated natural and social sciences. Guiding questions were the carrying capacity of a region and the balance between the ecosystem and human activities (Messerli and Messerli 1978). This integrated view of the region as an area of protection, production and recreation led to first ideas about creating a WHS. The discussion was mainly held within the research community, including consultations with the authorities at commune level. However, conflicts over construction of a water pipe and an access road along the Great Aletsch Glacier put a halt to further discussions. The main argument of the researchers was the "protection of unspoiled nature" while local authorities argued for "utility and communal sovereignty" (Liechti et al, submitted).

In the 1980s, a large part of today's WHS was included in the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN; object 1507/1706), which demands that the objects listed be entirely preserved or conserved as far as possible. This discussion remained at the administrative level (federal, cantonal, communal). The borders in the BLN were

drawn according to actual or intended land use and therefore mainly covered natural landscapes. At this time, discussions about a WHS were dormant.

A new initiative for promoting a WHS in the Jungfrau-Aletsch-Bietschhorn region was launched by different actors at the federal, communal and individual levels in the 1990s. A hotel owner from the Bernese Oberland , an expert on World Heritage Sites, was primarily responsible for renewing the discussions. A controversial debate at the local level developed, focusing mainly on arguments about the fear of restrictions in land use. Discussions between protagonists of the WHS idea and political representatives, as well as the general public, helped to turn scepticism into acceptance and enthusiasm. This was the result both of broad campaigns involving strong personalities, and of a formal democratic decision-making process at the level of the communes involved (Wiesmann et al 2005). On 13 December 2001, at the request of the Swiss Federal Council, the UNESCO World Heritage Committee inscribed the Jungfrau-Aletsch-Bietschhorn region on its World Heritage List. This inscription was awarded on the basis of three out of four criteria: (1) The importance of the high-mountain region and its glaciation as a source of geological data and a witness to climate change; (2) The importance of the region's dynamics (due to glacier fluctuations) and the rich diversity of its alpine and sub-alpine habitats; (3) The extraordinary scenic and aesthetic appeal of the region, which has frequently been attested to throughout cultural history (Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005).

The communes involved in the Jungfrau-Aletsch-Bietschhorn region (represented by their mayors) signed the WHS "Charter of Konkordiaplatz". One of the main purposes of this Charter, which is not legally binding but advisory to the signatories, is to preserve the aesthetic beauty of the landscape in the vicinity of the Jungfrau, the Aletschhorn and the Bietschhorn for future generations. Furthermore, by signing the Charter, the associated communes committed themselves to practise sustainable land use beyond the perimeter of the WHS, i.e. to observe the principle of sustainable development in the remaining area of their commune. In 2002 the member communes founded the Jungfrau-Aletsch-Bietschhorn World Heritage Site Association as the legal authority of the WHS. The Management Centre of the WHS is the operational division of the Association and was set up in 2003. The two project managers immediately started to work on a Management Strategy and Plan for the WHS based on the ideas of sustainable regional development contained in the Charter of Konkordiaplatz.

In order to actively involve the local population, as well as various organisations, a multi-actor participatory process was launched (see Wiesmann et al 2005). The central purpose of this process was to develop a common vision with the aim of assuming responsibility for sustainable development in the region and promoting it successfully. Furthermore, it was designed to create a notion of ownership among the population and its organisations, and also to expose the potential for conflict and points of contention. Needs, project ideas and synergies could thus be ascertained and compared. This process was divided into three rounds of discussion forums and involved a total of 256 persons representing agriculture, forestry, hunting, game warding, tourism, hotel management, mountain railways, transport, commerce, trade, nature preservation, culture, education, social services, administration, planning, and local development. The participants came from various areas of the World Heritage Region. Some were selected after a preparatory workshop, while others joined as a result of several announcements in the media or face-to-face communication. The three forum rounds proceeded as follows:

– The first round involved an exchange of visions and expectations. Following this – based on the Charter and the Guidelines – objectives for the World Heritage Site and the surrounding region were defined. The objectives formulated in the cantons of Berne and Valais were then compiled by a group of experts and made available to the participants for assessment (agree/disagree) and ranking.

– In the second round, these objectives were discussed and clarified. They were then used as a basis for determining the need for action and corresponding measures. The group of experts compiled the proposed measures following the forums and forwarded them to participants for evaluation and ranking.

– The third round was devoted to discussion and clarification of the compendium of objectives and measures, and to definition of appropriate project lines.

This process resulted in the formulation of 69 objectives and 226 corresponding measures regarding the WHS (Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005). The three rounds of forums concluded with a general forum, in which fields of action were defined based on the objectives and corresponding measures. These were prioritised by participants in terms

of importance and urgency and are the basis for the development of concrete projects that aim to implement the objectives today. The definition of these concrete projects is done by so called WHS core groups. These are composed of representatives from various local actor groups. Continued involvement of the local population and ongoing discussion is thus guaranteed.

At the same time, intense discussions took place regarding the extension of the WHS, in order to integrate several adjoining areas with high associated natural values. Following intense negotiations and subsequent broad acceptance by other communes, a proposal to extend the perimeter was submitted to UNESCO in January 2006, together with the Management Strategy and Plan. After an evaluation of the proposed extension by IUCN (World Conservation Union), the decision to extend was taken by the World Heritage Committee in summer 2007 (see Table 1).

13.2.3 Political setting

There are 26 communes participating in the WHS. Eight of these belong to the Canton of Berne and 18 to the Canton of Valais. The 8 communes in the Canton of Berne belong to two different regional planning associations, while the 18 communes in the Canton of Valais belong to three such associations, each of which has between 5 (Kander Valley region) and 32 (Visp/western Raron region) member communes (see Table 2). The regional planning associations are a result of the Federal Decree on Investment Assistance in Mountainous Regions (Bundesgesetz über Investitionshilfe für Berggebiete). With this decree the Federal Government intended to foster investment in infrastructure and thereby enhance living conditions in mountainous areas (Hoppler and Strässle 2007). The regional planning associations are composed of communes and develop and steer regional planning strategies. They aim to bridge the institutional gap between the local and cantonal levels and serve as a platform where largely sectorally organised entities of public administration and representatives of civil society can coordinate actions in a more inclusive and trans-sectoral way.

Furthermore, there are ten tourist destinations present in the World Heritage Region. And as mentioned before, the political and administrative environment is shaped by the federal system comprised of three levels: communes, cantons, and the national government. Considered altogether, the World Heritage Region is neither a political, nor an administrative, nor a cultural unit.

Table 1

Chronology of the Jungfrau-Aletsch-Bietschhorn World Heritage Site.

Time	Major events
1970s	First discussions about the establishment of a WHS within the research community of the MAB program, including consultations with the authorities at commune level.
1980s	Inclusion of most of today's WHS territory into the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN; object 1507/1706).
1990s	Launching of a new initiative on a WHS.
2000	Petition of the Swiss Federal Council to UNESCO World Heritage Committee on 28 June 2000 to inscribe the Jungfrau-Aletsch-Bietschhorn area on the World Heritage List.
2001	Signing of the Charter of Konkordiaplatz by the associated communes. Inscription into the World Heritage List based on the evaluation of the site by IUCN.
2002	Establishment of the Jungfrau-Aletsch-Bietschhorn WHS Association as the legal authority of the WHS.
2003	Opening of the Management Centre of the WHS.
2004	Launching of a multi-actor participatory process in order to develop a common vision with the aim of assuming responsibility for sustainable development in the region and promoting it successfully. Discussions on the extension of the WHS start.
2005	Implementation activities of the objectives are initiated by so called core groups, working on specific objectives. Submission of the Management Strategy and the Nomination for Extension of the WHS to UNESCO World Heritage Committee.
2006	Evaluation of the areas proposed for extension by IUCN.
2007	UNESCO World Heritage Committee agrees the extension.

Source: Compiled by authors

Given this situation, it is all the more important that the associated communes think of themselves as belonging to a World Heritage Region. Adopting such a perspective will strengthen the feeling of ownership as well as identity vis-à-vis other regions (e.g. in marketing), allowing the communes to achieve together the objectives they formulated themselves in the Charter of Konkordiaplatz.

The system of nature and landscape protection in the World Heritage Region is quite complex, owing to the three-level federal system of communes, cantons and the Confederation. Nature and landscape protection is based, among other things, on international agreements, as well as on national and cantonal constitutions and laws. The cantons are responsible for nature and landscape protection, while the Confederation makes laws and regulations and supports efforts to protect nature and the landscape. Execution is a mat-

Table 2

Membership of associated communes in regional planning associations.

Name of regional planning association	Associated communes	Canton	Number of communes in perimeter / Total member communes
Oberland East Regional Planning Association	Grindelwald, Guttannen, Innertkirchen, Lauterbrunnen, Meiringen, Schattenhalb	Berne	6 / 29
Kander Valley Region	Kandersteg, Reichenbach i.K.	Berne	2 / 5
Goms Region	Bellwald, Fieschertal	Valais	2 / 21
Brig-Aletsch Region (previously Brig/Eastern Raron Region)	Betten, Mund, Birgisch, Naters, Riederalp	Valais	5 / 15
Visp/Western Raron Region	Ausserberg, Baltschieder, Blatten, Eggerberg, Ferden, Hohtenn, Kippel, Niedergesteln, Raron, Steg, Wiler	Valais	11 / 32

Source: Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005

ter for the cantons, which in turn may delegate responsibility to the communes (which can also take action on their own). The Confederation, the cantons of Valais and Berne, and the 26 associated communes participate in nature and landscape protection in the World Heritage Region. Furthermore, private nature protection organisations often take on the important function of advocating nature and landscape conservation and making sure that conservationist arguments are taken into consideration in spatially relevant decision-making processes (Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005).

Most of the area of the WHS consists of the property of municipalities or local cooperatives, and some areas are privately owned, for example Alp Understeinberg, which is owned by the nature protection organisation, Pro Natura. The area outside the perimeter is predominantly privately owned. In terms of nature and landscape protection, this means that numerous owners have to be involved in the implementation of projects.

13.2.4 Social context, economy and livelihoods

The perimeter of the WHS is, with a few exceptions, uninhabited. 35,314 people live in the remaining area of the associated communes; this rises to 69,627 if the regional centres of Interlaken, Brig and Visp, which are in close proximity of the WHS, are included (Federal Statistical Office 2002). Pop-

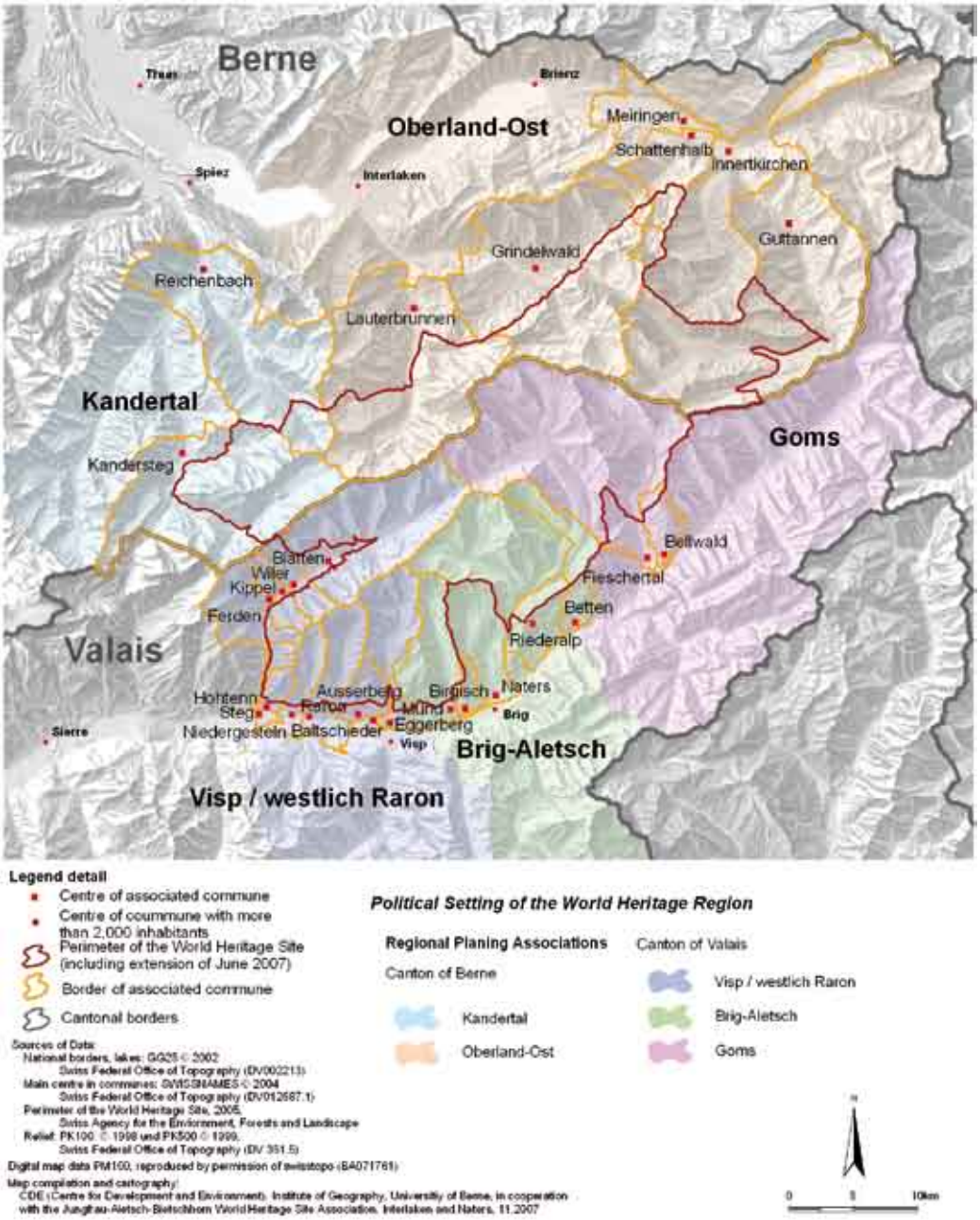

Fig. 2
The political setting of the World Heritage Region, including cantons, communes and regional planning associations.

ulation distribution focuses on inner-Alpine centres such as Grindelwald, Meiringen, Reichenbach and Lauterbrunnen as well as in the proximity of Visp and Brig (see Figure 3). Population development was generally positive in the period 1970-2000. The number of inhabitants in communes close to the regional centres has grown while the number of inhabitants in communes on the periphery has declined. This shows a process of concentration in the centres and their proximity and a process of decline on the periphery (Färber and Stettler 2006). The same is true for population development in small settlements in the communes. Today, more people are living close to valley floors, while settlements at higher elevations are declining. This process of concentration and decline can be observed at the regional as well as village levels and expresses the changing relevance of settlements (Aerni et al 2007).

The WHS is related to two major hubs of regional economic development: to the north lies the highly developed tourist region of the eastern Bernese Oberland, with the internationally famous tourist resorts of Grindelwald, Wengen and Mürren, and to the south lies the upper part of the main valley of the Valais, where remote traditional agriculture was superseded by industrial and tourist development in the second half of the 20th century (Wiesmann et al 2005).

The economy is clearly dominated by the tertiary sector, which accounts for 62% of all employment (see Table 3). The focus of this sector is on the hotel and restaurant industry and on retail, two branches important in relation to tourism. Table 3 shows that the economic structure of the World Heritage Region, together with the regional centres, reflects the national economic structure. However, if we exclude the regional centres, the relevance of the primary sector in rural areas is considerably greater (for further information see Aerni et al 2007).

Table 3

	WHS Region	**WHS Region including regional centres Interlaken, Visp and Brig**	**Switzerland**
Primary sector	16%	7%	6%
Secondary sector	22%	26%	27%
Tertiary sector	62%	67%	67%

Percentage of employment in the three economic sectors.

Source: Federal Statistical Office, 2006

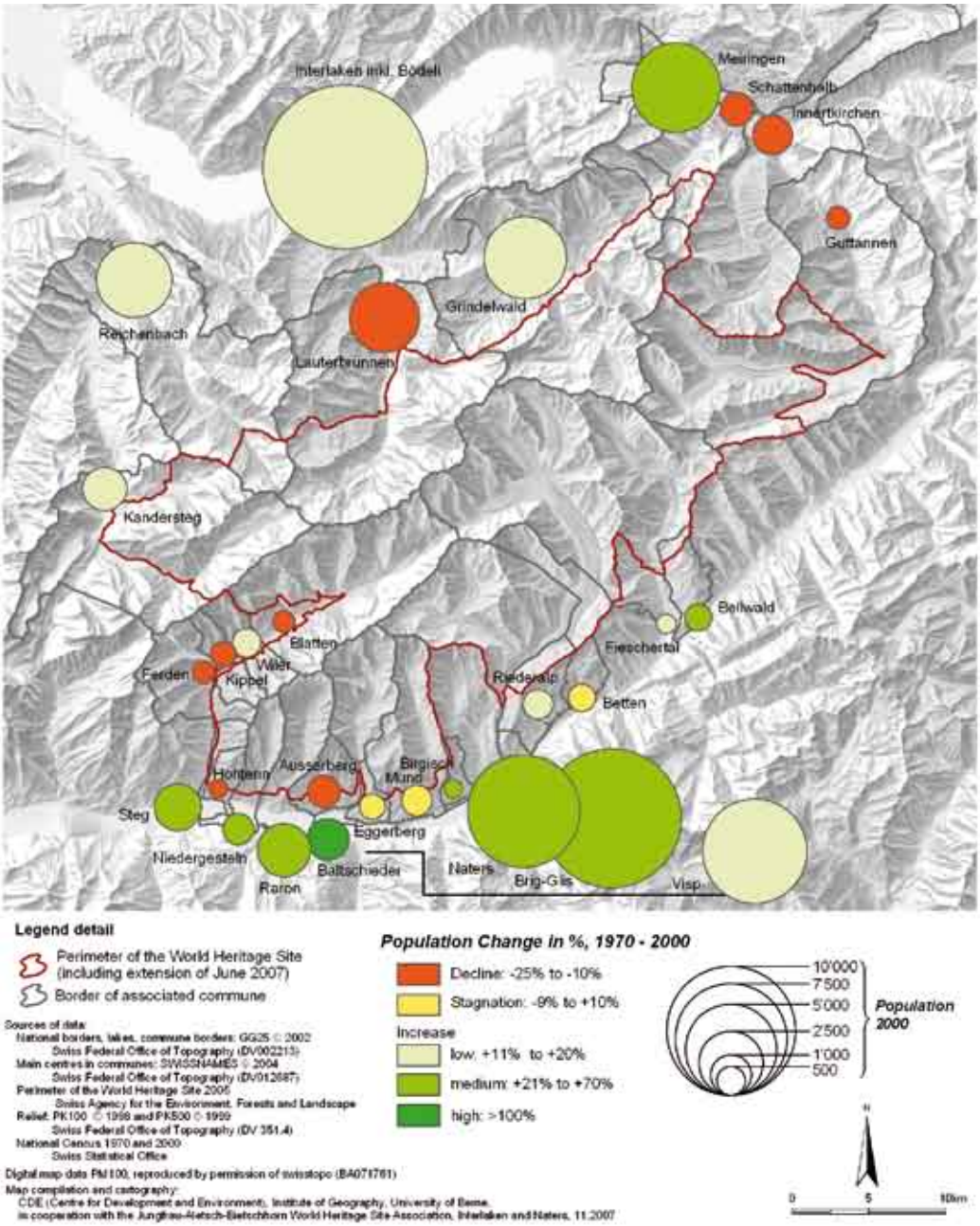

Fig. 3
Population in 2000 and population development 1970-2000.

As shown in Table 3, the employment rate in the primary sector is relatively high in the World Heritage Region compared to the national level. However, there was a significant increase in the number of part-time farms between 1955 and 1965, at the expense of full-time farms, which declined slightly in number until 1990. In 1990, 70% of all farms in the World Heritage Region were operated as part-time farms (for further information see Egli 2007).

Figure 4 shows the economic structure of the associated communes and the regional centres. In the regional centres, the difference between the industrial site of Visp (mainly chemical industry) and the two service sites of Interlaken (mainly tourism) and Brig (tourism and other services) is clearly evident. In the communes of Steg and Raron (mainly construction) the secondary sector is dominant, whereas the other smaller communes of the area around Visp are dominated by the primary sector (mainly small-scale part-time farming). The secondary sector is also dominant in the Bernese communes of Innertkirchen and Guttannen, where the Kraftwerke Oberhasli (KWO) Grimselpower's hydroelectric plants are located. Tourism governs the economy in the communes of Riederalp, Betten, Grindelwald, Kandersteg and Lauterbrunnen. The range of offerings is highly diversified. Large ski resorts as well as more family-oriented activities can be found. Adventure tourism is also important (hiking, climbing, canyoning, paragliding, mountain biking) and there are plenty of opportunities for wellness tourism. While winter tourism prevails in the Valais part of the World Heritage Region, summer and winter tourism are about even in the Bernese part (for further information see Wiesmann et al 2007a).

Even though the general economic situation of the World Heritage Region is manifold, economic activities are concentrated in the best-developed sites such as the regional and tourist centres, as well as a few communes in the area of Visp with its strong industrial orientation. That means that the processes of concentration and decline can be observed not only in the population but also in the economic structure of the World Heritage Region (Aerni et al 2007).

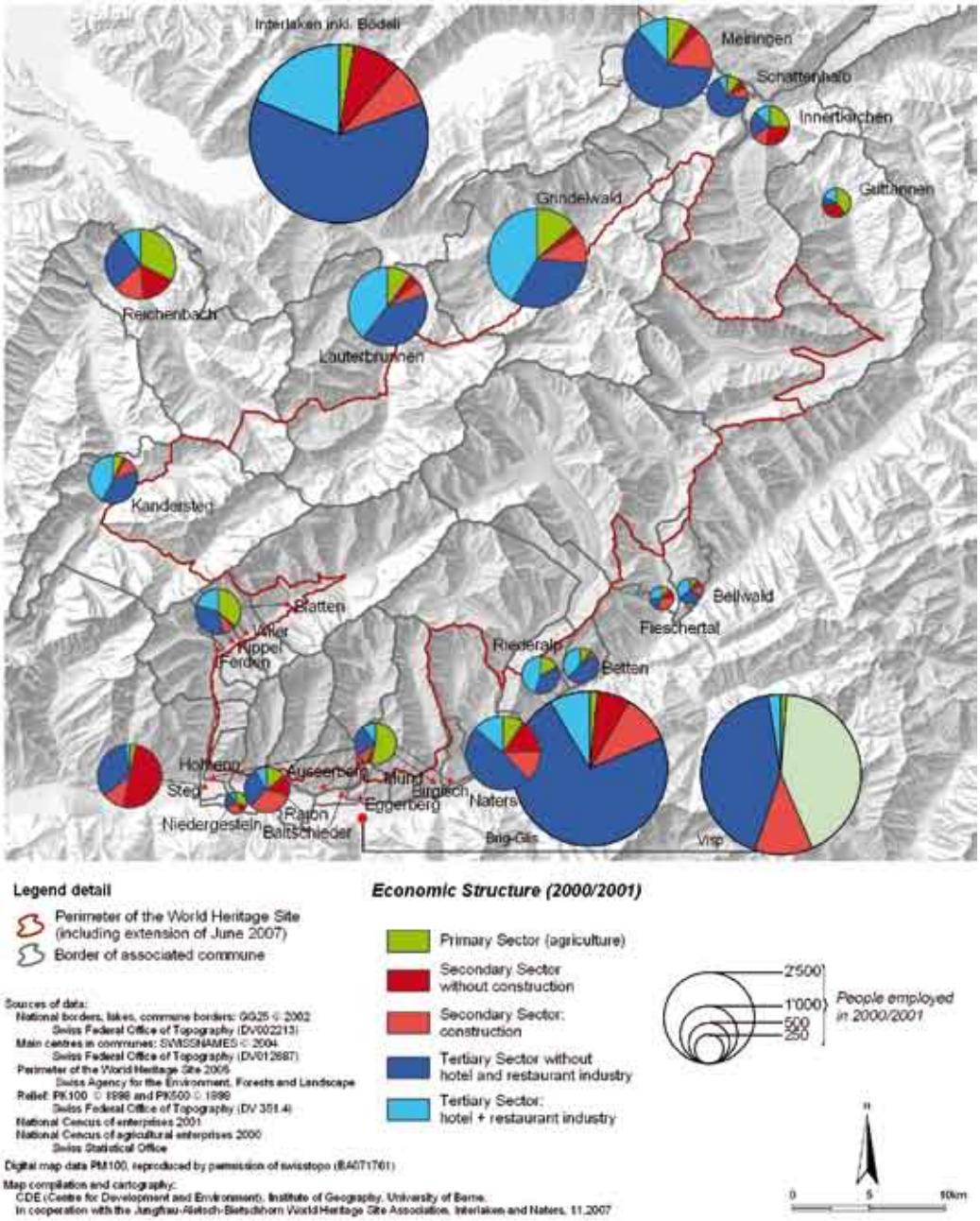

Fig. 4
Economic structure of the World Heritage Region including surrounding regional centres, in 2000/2001.

13.3 Governance

13.3.1 Organisational structure

The WHS is organised as a foundation in which all the communes as well as various private organisations and non-governmental organisations (NGOs) are represented in the Assembly of Delegates, which consists of 48 members (for further information see Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005).

In order to tackle the main challenge in management of the WHS – combining conservation with regional development – the organisational structure is intended to integrate administrative units of the Confederation, the cantons and the communes with the local population, local businesses, and interested local and regional organisations. They are internally differentiated in the following organisational units (Wiesmann et al 2007b):

1. The Jungfrau-Aletsch-Bietschhorn UNESCO WHS Association (including the Management Centre), which comprises the main public and private representatives and steers the implementation process in its entirety;

2. WHS core groups (working groups), which are involved in the implementation of specific prioritised project lines and consequently consist of interested, competent individuals in the relevant segments of the population and organisations;

3. An extensive cooperation network of administrative and research bodies and other interested organisations, which can be leveraged for specific project needs.

13.3.2 Protection status

Based on the provisions in the UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, inscription of a site on the World Heritage List does not override national legislation. Accordingly, in legal terms, inscription on the World Heritage List does not entail any changes in the previous protection status of an area. Inscription only confirms that the site deserves protection and recognition at the international level, and that as part of a World Natural Heritage it must be preserved for future generations. However, in accordance with the relevant UNESCO

Convention, the UNESCO WHS label commits the Swiss Confederation to maintain existing protection of the area and to set up a management scheme for the site (Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005).

The WHS is listed in category V "Protected Landscape" as defined by the World Conservation Union (IUCN). The area inside the perimeter of the WHS is almost congruent with objects 1507 and 1710 of the Federal Inventory of Landscapes and Natural Monuments of National Importance (BLN), corresponding, respectively, to the northern and southern parts of the "Bernese High Alps and Aletsch-Bietschhorn Area". These two objects cover around 94.4% of the WHS. Therefore, they are the most important instrument of protection in terms of area. Moreover, 41% of the area is accorded additional overriding protection status in terms of biotopes of national importance, cantonal and communal nature reserves, federal hunting reserves, etc. Of the 5.6% of the surface not under BLN protection, a further 2% is protected by other measures. This situation means that protection in the legal sense of the term is sufficient to preserve the World Heritage (in total, 96.4% of the surface area is accorded at least one protection status). However, a need for action exists in terms of implementing and controlling the various existing protective regulations (see Figure 5).

By determining the protection status, the fact is once more highlighted that implementation of the WHS goals and objectives is not primarily a question of administration and legal status, but requires a broadly based process which must involve as many segments of the population, the business community and interested organisations as possible.

13.4 Problems and opportunities

The World Heritage Region is torn between the competing demands of protection and use. From the beginning it was clear that a socially, economically and ecologically acceptable balance can be achieved only through a negotiation and learning process involving all actors affected by the project. The region has accepted this challenge – made manifest by the fact that all the associated communes have signed the Charter of Konkordiaplatz. The Charter declares that sustainable development must take place throughout the entire World Heritage Region and not only in the WHS itself.

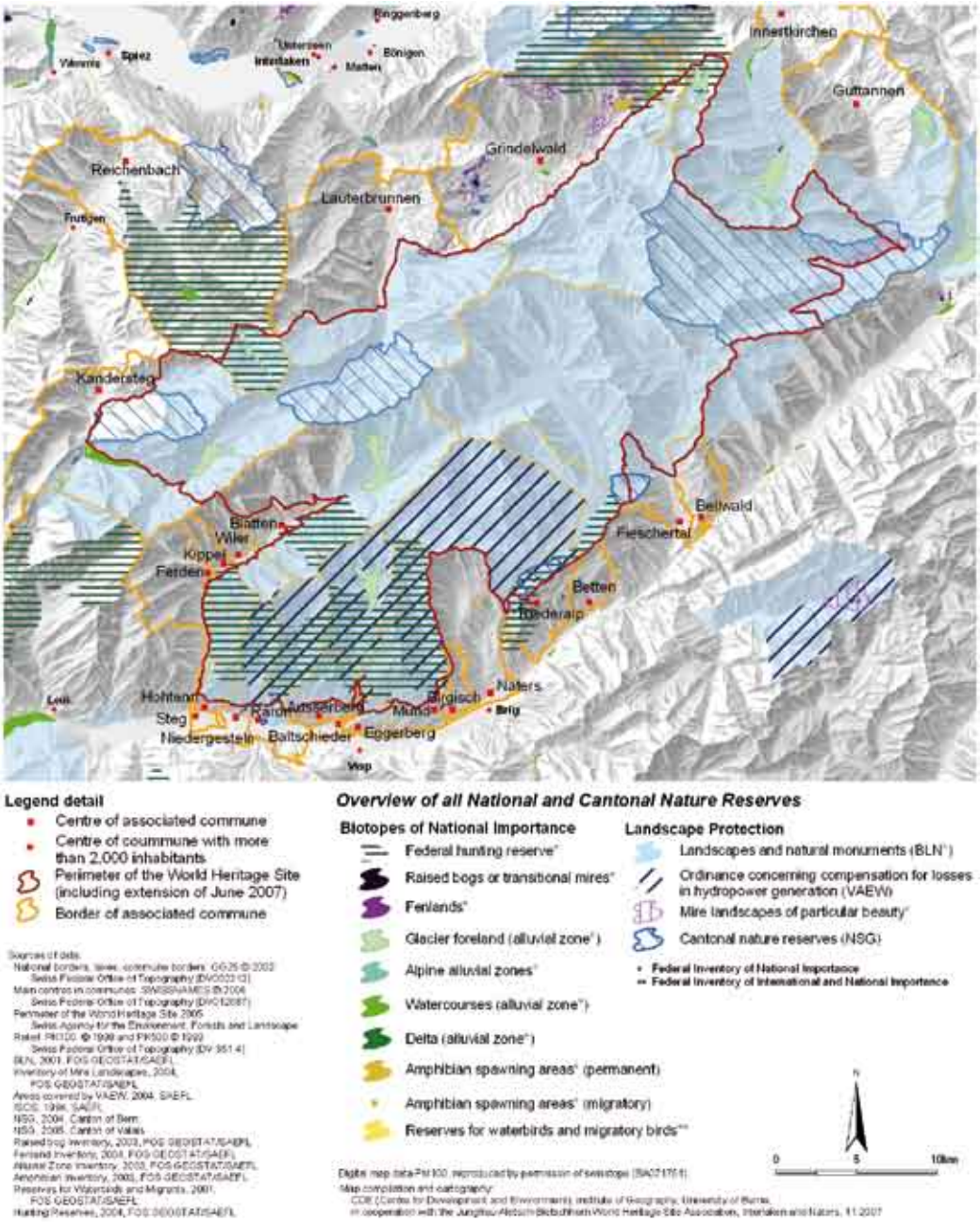

Fig. 5
Overview of national and cantonal nature reserves.

13.4.1 Natural dynamics and their consequences for the World Heritage Site

The unique glacial and High-Alpine landscape of the WHS has an aesthetic potential that has contributed significantly to economic development in the World Heritage Region for centuries. But the dynamics of this unique landscape pose a major challenge. These dynamics are apparent above all in the changes affecting glaciers. This can be seen as both a gain and a loss with respect to opportunities for sustainable development within the World Heritage Region. Changes in the landscape resulting from glacial retreat can be beneficial to the extent that new habitats develop, thereby increasing ecological and hence scientific potential. At the same time, however, glacial retreat could make the landscape less attractive to tourists, thus impairing the economic potential of the World Heritage Region. Furthermore, it is also important to remember that glacial retreat brings many natural hazards in its wake (ice avalanches, mudslides following heavy precipitation, rockslides triggered by melting of permafrost) that can pose a threat to the security of tourists and local residents (danger on hiking trails and hazards affecting Alpine huts and settlements). Such developments could endanger the function of the World Heritage Region as an economic space.

The availability of water is an additional challenge posed by glacial retreat. Water in the form of snow is a valuable resource in the World Heritage Region (Weingartner 2007). Snow security plays an important role for skiers in the choice of a ski area. Scientists assume that due to climate change the snow level is likely to rise by 200-300 m, which implies a possible intensification of pressure on areas of snow security and at the same time a loss of income due to shortage of snow in ski areas situated at lower elevations, and growing demand for snow-making equipment, which in turn means greater consumption of water. High demand for water presents a problem in many places in the World Heritage Region, as levels in watercourses are low during the winter and spring discharge is at a minimum. Moreover, warming is linked with a change in the climate regime: precipitation in a warmer environment will be in the form of rain rather than snow, even at high altitudes. As a result, water will not be stored but lost to runoff. This will alter the runoff regime, making the region much more susceptible to summer aridity. Warming will thus have a major influence on water supply in the World Heritage Region, with negative impacts on tourism, agriculture and energy production (Jungfrau-Aletsch-Bietschhorn World Heritage Site Association 2005; Weingartner 2007).

13.4.2 Social dynamics and their consequences for the World Heritage Region

The World Heritage Region faces a problem relating to the process of population concentration on the one hand and to the process of out-migration on the other hand (Aerni et al 2007). The population is continuously growing in settlements, where concentrations of economic activities are taking place and which therefore function as centres. Population decline in the peripheral regions leads to a reduction of basic services (public administration, transport, stores, health, education, bank and insurance services), which in turn lowers attractiveness for potential newcomers. The segregation of economic functions, which is often associated with the aforementioned tendencies, implies a vulnerability to global shifts in demand (e.g. in the tourism industry or for agricultural products) and therefore a risk of uncontrolled regional development and loss of self-determination. Tourism and agriculture are the two economic branches which seem to be the focal driving forces in the economic, ecological and social development of the World Heritage Region. Tourism pervades all parts of economy in most of the areas and can therefore be seen as the main engine of regional development. But there is a prerequisite connected to this powerful position: tourism relies to a great extent on the richness, diversity and aesthetics of the landscape. Here agriculture plays an essential role: it is central to the maintenance of the cultural landscape, which has attracted tourists from all over the world to this region since the middle of the 18th century by virtue of the visual contrast it poses to the gorgeous natural landscape of the WHS. In summary, tourism plays the dominant economic role, whereas agriculture plays a key role in socio-cultural and environmental terms (Wiesmann and Liechti 2004). Thus both economic branches need to cooperate. The potential negative dynamics of this interplay between tourism, agriculture and landscape can be seen in the development of infrastructure. The construction of vacation homes, access roads, ski lifts, etc. is creating income for local inhabitants, especially for small-scale part-time farmers and those in the construction industry. On the other hand, it is leading to the destruction or splintering of valuable land resources (often high-quality agricultural land). This leads to an aesthetic devaluation of the region (Wiesmann 1999).

Forested areas are continually expanding and a central element of the traditional cultural landscape is diminishing due to the decline in the amount of land used for agriculture. While some people regard this as undermining the attractiveness of the area for tourism, others see it as desirable in terms of the growth

of wilderness. These divergent positions indicate a considerable potential for conflict but also for finding new avenues to transform competitive claims on landscapes and development into new patterns of cooperation between the different actors. The process of defining goals and the resulting project implementation for the WHS play a paramount role in eliciting the required shift from competition towards collaboration (see also section 13.2.2).

13.5 Discourses and narratives

The basic discourses and narratives of the main actor categories of the Jungfrau-Aletsch-Bietschhorn WHS are summarised below (Table 4). This synthesis of the basic features of these discourses and narratives is the result of participatory observation during the three multi-actor forums and a series of 42 semi-structured interviews with 21 representatives of the main actor categories (Aerni 2005). The discourses and narratives displayed here represent the dominant discourses and narratives of the actors. Existing internal differentiations of discourses within the diverse actor categories are not considered in this analysis. An exception is the category of "tourism". This group is clearly differentiated by those advocating global mass tourism and those in favour of 'soft tourism' oriented towards the regional and national levels.

In general terms it can be concluded from Table 4 that all actor categories agree – within limits – that the cultural and natural landscapes are the main capital in the region. So public debates on development issues do not have to address the basic question of development as opposed to protection, the way this often happens in other protected areas. The different discourses and narratives of the actors vary in the *emphasis* that each actor category puts on development or protection.

For example, farmers and forest managers argue for a multifunctional landscape which serves them, as well as the other actors in the region. They advocate maintaining public support for the environmental and cultural services they provide to the other actors. In relation to tourism they are rather favourable in principle. However, by supporting arguments for tourism they also aim to improve their share in the distribution of the resulting profits. They welcome tourism as it presents better opportunities for the sale of locally produced food, e.g. to hotels, or becoming engaged in showing tourists specific aspects related to farming and life in rural areas.

The tourism sector is clearly divided into two groups. While the more pow-

Table 4

Actor categories and the key features of discourses and narratives. (Complied by authors)

Actor category	Key features of discourse and main narratives
Agriculture / forestry	**"Cultural landscape is at the root of our history, identity and present economic development."** Tourism is the main economic driver in the region, but it strongly depends on the cultural landscapes maintained only through traditional, mainly small-scale, part-time agricultural farming and forestry. Farmers can only survive if public subsidies are maintained, the erosion of public services (post, physical infrastructure, public administration) is stopped and greater shares in the value chains of income through tourism are assured. But we have to watch out that regulations and bureaucracy do not prevent us adapting to global changes.
Tourism	**Global tourism: "We can only survive as a global tourist destination if we offer clearly shaped packages that consider the specific demands of international, higher-income tourists."** Due to its cultural landscape the region has a great potential for high quality-oriented tourism, but it is increasingly challenged by global competition. It is difficult to meet the Swiss regulatory constraints and still compete with tourist sites all over the world, where regulations are often less strict. Those in tourism need more freedom from regulations, because they know best what their clients really want. **Soft tourism: "In the long run our future will depend on a continuous flow of regional or national tourists because we don't know how long it will be possible to come from India, China, Russia or the USA to our region."** The particularity of our cultural and natural landscape is attractive for people of regional, national and global origins. Although this might be a good opportunity for diversification, we have to be aware that in the long run, this represents a dilemma: Not all tourists share the same preferences. While global tourists give greater preference to infrastructures of high standard, 'soft tourists' prefer more unobtrusive infrastructures which make them feel closer to nature. This means that orienting tourism towards one sector makes our region less attractive to the other and vice versa.
Transport / crafts / trade	**"Whatever we do, we will be increasingly dependent on people, goods and finances coming from beyond our region – we have to adapt to changing conditions."** In order to keep the cultural landscape productive, adaptation to habits and preferences of tourists coming mainly from abroad is most important in the long run. This is not possible without making concessions with regard to exaggerated environmental norms. Overly tough legislation of economic activities impedes survival of the sector, which due to the processes of marginalisation has to operate with increasingly lower returns for work and capital invested. Our 'room for manoeuvre' is too limited by all kinds of regulations, especially those related to environmental issues.

Nature conservation	**"We need much more stringent protection within and outside the WHS."** It is vital to protect the whole cultural landscape. However, the inner perimeter of the WHS should be protected even more: existing tourism in the WHS (helicopter skiing, climbing) and military flights are preventing the development of a real 'wilderness', which is the key demand of tourists interested in 'soft' tourism.
Education / culture	**"In the long run it is the attachment of the people to this historically grown region that decides whether they stay or move away."** The historical and cultural heritage of the region is expressed in its landscape. In the long run, this is the deciding factor that keeps people in the region. The loss of interest of young people in the historical and cultural patrimony should be reversed by improving education and social interaction between them and older generations. The challenge is to find a balance between maintaining one's own cultural roots and accepting new outside innovations.
Public administration	**"The region's future cannot rely on public services. Private initiatives must be increased in order to find the WHS's place in an increasingly globalised tourist destinations market."** The main role of public administration is to find a good mix of private and public investment in the area – this alone makes it economically, ecologically and socially sustainable in the long run. We have to consider and improve, where necessary, the manifold legal regulations that are designed to foster the development of the region. Existing regulations already assure a high level of protection of the landscape with or without the WHS.

erful actors clearly want to keep future options open to further increase mass tourism, more locally-oriented tourist operators prioritise tourists from Switzerland and neighbouring countries. Integration of these two groups is difficult, because proponents of soft tourism oppose a landscape shaped according to the requirements of mass tourists.

The discourses and narratives of the actors representing transport, crafts and trade are quite similar: They stress the increasing dependence of their vital economic activities on external factors. In view of these factors emerging from global trends, a strategy of adaptation, with more freedom for private initiatives (via further deregulation), seems to be the most rational solution.

Increasing external dependency was also at the core of public administration discourse voiced partly by affected (communes) and partly by co-responsible actors regarding the erosion of public services in marginal areas (administrators based at cantonal and national levels). Those involved in this discourse see decreased public sector support, with the long-term result

of increased external dependency. They point out that this does not mean the public sector will lose importance; instead the role of the communes will be much more important in creating conditions for maintaining or increasing income opportunities in the regions. As a consequence, they see a redistribution of responsibilities away from the national and cantonal levels to the communes.

The nature conservationists took the most dissenting positions. While stressing the need to further regulate the flow of tourism and the construction of related infrastructure, they opposed the narratives of those actors who advocated opening or broadening opportunities for international 'high-class mass tourism'. They are a rather critical element in the arena of discourse. Although they question currently existing power relations and inequalities with regard to benefit-sharing of tourism, it was interesting to observe that their discourses were not rejected outright. Other actors tried to show through their narratives that giving high priority to their interests would also assure the achievement of the goals that underlie the conservationists' discourses.

In this sense it became clear that the main lines of tension or conflict are emerging from the narratives in which different actors valorise the cultural and natural landscapes. Narratives that make explicit the ways in which the cultural landscape should be used and reproduced are the elements that discursively link the natural and cultural landscapes – as the main assets – with the specific socio-economic and environmental interests of different actors. Tourism is a major issue in these narratives. Although tourism is recognised by all actors as a basic economic dimension of development in the World Heritage Region, the definition of what tourism is and what its role should be in future development varies according to the actor categories involved.

A closer analysis of the discourses showed that the fact that all actors consider the cultural and natural landscapes as the main assets of their region means that in the long run, all actors recognise at least implicitly the 'limits of growth' of tourism which is explicitly stated by conservationists. The point of view of the dominant regional alliance constituted by tourism and hotel operators, infrastructure constructors and hegemonic political parties could be potentially threatened by an alliance of conservationists and farmers or forest managers and the culture and education sectors, which have a lower stake in the value chains of tourism. As a consequence, the dominant actors introduced an additional discourse that attempts to increase the dis-

cursive distance between conservationists and the community of local actors by stressing the fact that local actors – unlike urban-based conservationists – are living directly within and are dependent on the resources of the World Heritage Region. This further accentuates the distinction between local and external actors. Consequently, the debate about the recognised 'limits of growth of tourism' was further complicated by this distinction between 'we the local people' as opposed to the 'green outsiders'.

Subsequently, the debates about tourism were also linked to the collective memory of people for whom the struggle for recognition of their own identity and the resulting need for high levels of socio-cultural and political autonomy have always been – and still are – an important reference for evaluating current and future pathways of development. However, by averting the risk of an alliance between conservationists, farmers and cultural groups, by implicitly appealing to the collective attitude of suspecting that outsiders will possibly undermine local self-determination, the unequal power relationships between regional elites and other subordinated actors – which is also part of the collective memory – were also brought into play.

This became very evident when the actors from agriculture/forestry argued for better access to hotels in order to offer their local food and handicraft products. They argued that the prices offered by national retailers (supermarkets) simply do not cover production costs. So they need cooperation with hotels that will allow them to sell their products as local specialities at prices which reward them for the services they provide in maintaining the cultural landscape that makes the region attractive for tourism. The rather arrogant response from some representatives of the tourism sector that such aspirations were "dreams" triggered support for the agriculture/forestry sector from all other groups hoping for a better deal (regarding construction, transport, labour recruitment, conservation, etc). As a consequence, the power of the tourism sector was challenged by broadening the scope of the deliberative process. Indirectly, the process began to address asymmetries in the social distribution of power determining the actor-specific shares in the tourism value chain. To what degree the resulting development projects really achieve this ambitious objective is unclear, because the local power elites mostly involved in tourism can try to exploit those projects for their own purposes.

13.6 Conflicting issues in participatory planning

All objectives and measures that were elaborated in the multi-actor participatory planning process were constantly assessed by the actors involved, who accepted or rejected them by means of a questionnaire (Wiesmann et al 2005). This made it possible to identify objectives and measures that generated consensus or divergence and contradiction, and to further elaborate on these issues in the participatory process. At the level of objectives, and based on selected actor categories, the following examples outline some conflicting issues (Tables 5 and 6).

The first group of conflicting objectives are related to landscape changes (Table 5). The contested meanings that nature and landscape dynamics can have for different actor categories are clearly pointed out.

All three actor categories greatly value the labour of farmers for conservation of cultural landscapes. Nevertheless, the valuation of natural and cultural landscapes differs to a certain extent according to the actor category. Whereas farmers and people in the tourism sector see the abandonment and shrub invasion of former agricultural/pasture land as undesirable, these aspects are not seen as a major problem by conservationists. Greater degrees of 'wilderness' resulting from the advancement of shrub and forest vegetation on agricultural land constitutes added value in their view. However, half of the representatives of the tourist sector oppose this position and believe that enlargement of the forest area should be stopped. The valuation of forests as recreational sites compared to shrubs and bushes might thereby play a certain role. People in the tourism sector are well aware of the attraction of the cultural landscapes to tourists. Therefore, they even take direct financial contributions to the maintenance of cultural landscapes into consideration.

For farmers, cultural landscapes are generally very highly valued compared to 'wild' nature. They stated that landscape was the result of their own manual labour. Expansion of wilderness would be a result of their retreat from the landscape and thus it also relates to existential fears. Great support among farmers for the objective of compensating for the managing effects of agricultural use with adequate landscape conservation measures indicates that they see themselves not only as producers, but also as conservators of the land they live on. To a certain extent the issue of subsidies could also play a role in this context: landscape conservation is a task that has to be paid for and is therefore a source of income.

Table 5

Objectives in the thematic realm of landscape development assessed by selected actor categories during the participatory process.

Objectives	Actor category	Votes AGAINST objective
Agriculture ensures the sustainable use of the cultural landscape and helps protect against erosion.	Agriculture	3%
	Tourism	4%
	Nature protection	38%
Undesirable abandonment, shrub invasion and wild growth on areas previously under agricultural use are to be prevented.	Agriculture	0%
	Tourism	33%
	Nature protection	75%
If agricultural use ceases, it must be compensated for with adequate landscape conservation measures.	Agriculture	17%
	Tourism	22%
	Nature protection	63%
The forest area should be conserved in size and not become larger.	Agriculture	17%
	Tourism	48%
	Nature protection	88%
Tourism will contribute financially to the maintenance of the cultural landscape.	Agriculture	14%
	Tourism	33%
	Nature protection	0%

Other issues of conflict arising during the negotiation and participatory planning process relate to themes of infrastructure expansion versus protection of flora and fauna against human disturbance and the expansion of economic activities versus the quest for quiet, undisturbed natural environments. The examples in Table 6 give an impression of actor-specific valuations of objectives made for tourism and related infrastructure development.

Table 6 shows that most differing views exist between actors representing tourism or transport and actors representing nature conservation. The latter claim that optimal use of the natural capital of the WHS means preventing any kind of human disturbance. Visitors should only leave footprints (if at all) in this highly sensitive environment. From the tourism or transport perspective, potential economic gain played a central role in their stand against restrictions on the expansion of infrastructure. Nevertheless, Table 6 also shows that a majority of the tourism actors are not in favour of expanding tourist infrastructure. This might be an indication that many tourism representatives favour soft tourism development. They are obviously aware that the natural values sought by tourists might be degraded. Broad acceptance

Table 6

Objectives	Actor category	Votes AGAINST objective
The responsible people in tourism should contribute more actively to the reduction of game disturbances by tourists.	Agriculture	16%
	Tourism	43%
	Nature protection	20%
	Transport	13%
The construction of new infrastructure, above all new transport facilities, should be avoided inside the perimeter.	Agriculture	34%
	Tourism	43%
	Nature protection	0%
	Transport	63%
No mountain airfields inside the WHS perimeter.	Agriculture	27%
	Tourism	70%
	Nature protection	0%
	Transport	75%
Noise disturbances from army and civil aeroplanes be reduced and canalised in time and space.	Agriculture	10%
	Tourism	17%
	Nature protection	0%
	Transport	22%

Objectives in the thematic realm of tourism and infrastructure assessed by selected actor categories during the participatory process.

of channelling aircraft movements also indicates the direction of further discussions about the above-mentioned issues.

Although the actors took different positions regarding infrastructure and air traffic in the area, they were also aware that some aspects are the responsibility of the federal and cantonal governments. As a consequence, these rather political foundations of development were stated in the negotiation process but were not considered solvable at regional or local levels of negotiation. A clear sign of this was the protest occupation of helicopter landing sites in the WHS high mountains by conservationists in the winter of 2007. The objective of this protest was to increase pressure on the federal government to revise current policies that allow the elite pastime of heli-skiing.

The data presented in the Tables 5 and 6 also show that the degree of acceptance of various objectives varies. This variation in acceptance reveals that within a specific actor category dominant positions co-exist with other more or less dissenting views. The degree to which a position is dominant deter-

mines the room for negotiation available for alliances beyond what would be possible if only dominant views existed. Hence conflicting positions in the context of the multi-actor participatory process led not only to debates between but also within the actor categories involved.

13.7 Conclusions

Based on analysis of the history of the Jungfrau-Aletsch-Bietschhorn World Heritage Site and the participatory process implemented after its approval as a World Heritage Site, we can draw the following conclusions regarding the interrelation of protection and sustainable regional development:

1. The WHS, together with the surrounding area of 26 participating communes, possesses a fascinating landscape and at the same time presents an important economic space and living space. The constellation of protection and regional development creates an interplay that poses a great challenge for management of the WHS. However, due to the complex political setting, the World Heritage Region cannot operate as a political or an economic unit. Furthermore, due to the ongoing dramatic changes in the agricultural sector and the tertiarisation of the economic structure, the challenge of managing the World Heritage Region is even greater. The risk faced by the cultural landscapes in the World Heritage Region must be assessed as greater than that facing the natural landscapes inside the perimeter of the WHS. At the same time, classification as a WHS offers a unique chance for the region to work towards sustainable development. The participatory process chosen is a chance to address problems and opportunities and thereby enhance a sense of ownership of the World Heritage Site among the local population.

2. In analysing the way in which negotiations between the actors took place, it was surprising to find that the discourses – understood here as the ways in which references to actor-specific worldviews legitimise strategic positions in relation to the development of the WHS – were not made explicit in the participatory planning process. Instead, evaluation and elaboration of narratives was at the centre of the deliberations – understood here as the actor-specific ways of explaining the present situation of the actors with respect to the development of the WHS. The conflicting narratives of different actors framed a set of partly converging and partly contradictory explanations of the present situation. Through this joint definition of the

situation they created a framework for debate about solutions and a basis for legitimising specific future action.

3. Particularly within the perimeter of the WHS, existing national and regional laws assure a high level of protection of the natural landscape. In the surrounding cultural landscape, present legal norms, together with relatively high amounts of direct payments remunerating the ecological services provided by farmers, assure a relatively high level of biodiversity conservation. Ecological standards thus represented a kind of 'non-negotiable' feature in the process. This meant that the basic patterns of valuation of the landscape by the different actors could not be modified. As a consequence, negotiation between different actors focused on struggling to increase the farmers' share of benefits from tourism.

4. This recursive effect of conflicting narratives in the forums leading to a set of shared narratives was identified as the main element facilitating a gradual shift from strategic action – which according to Habermas (1984) is defined as action oriented towards ego-centric self-interests – to communicative action that was oriented towards the inter-subjective construction of elements aiming at a collective explanation of the present situation of the WHS. This constituted the basis for coordinating actions related to regional development beyond the exclusive consideration of ego-centric interests or utility calculations. The emerging social learning processes that allowed a partial shift from strategic to communicative action became an important element of interaction among actors participating in the forum processes in the WHS. This confirmed the results of an analysis of similar participatory planning processes in Bolivia, Peru, India and Mali (Rist et al 2006) where social learning was shown to be closely related to the creation of appropriate social spaces in which actors can transform strategic into communicative action.

Endnotes

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[1] Dr. Astrid Wallner, Social Anthropologist, regional coordinator of the NCCR North-South "Swiss Alps" Partnership Region and scientific collaborator of the Jungfrau-Aletsch-Bietschhorn UNESCO World Heritage Site. Contact: astrid.wallner@cde.unibe.ch

[2] PD Dr. Stephan Rist, University Docent in Human Geography at the University of Bern, Studies in Agronomy and Rural Sociology, Senior research scientist of the Centre for Development and Environment (CDE), coordinator of Transversal Package of the NCCR North-South. Contact: stephan.rist@cde.unibe.ch

[3] Dr. Karina Liechti, Human Geographer, scientific collaborator in the NCCR North-South. Contact: karina.liechti@cde.unibe.ch

[4] Prof. Dr. Urs Wiesmann, Geographer, Co-director of the Centre for Development and Environment (CDE) and Co-director of the NCCR North-South. Professor at the universities of Bern and Nairobi, Coordinator of various projects in Kenya, Madagascar and the Swiss Alps. Contact: urs.wiesmann@cde.unibe.ch

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