

## **33 Sustainable Development and Nature Protection in the Swiss Alps: Finding the Balance**

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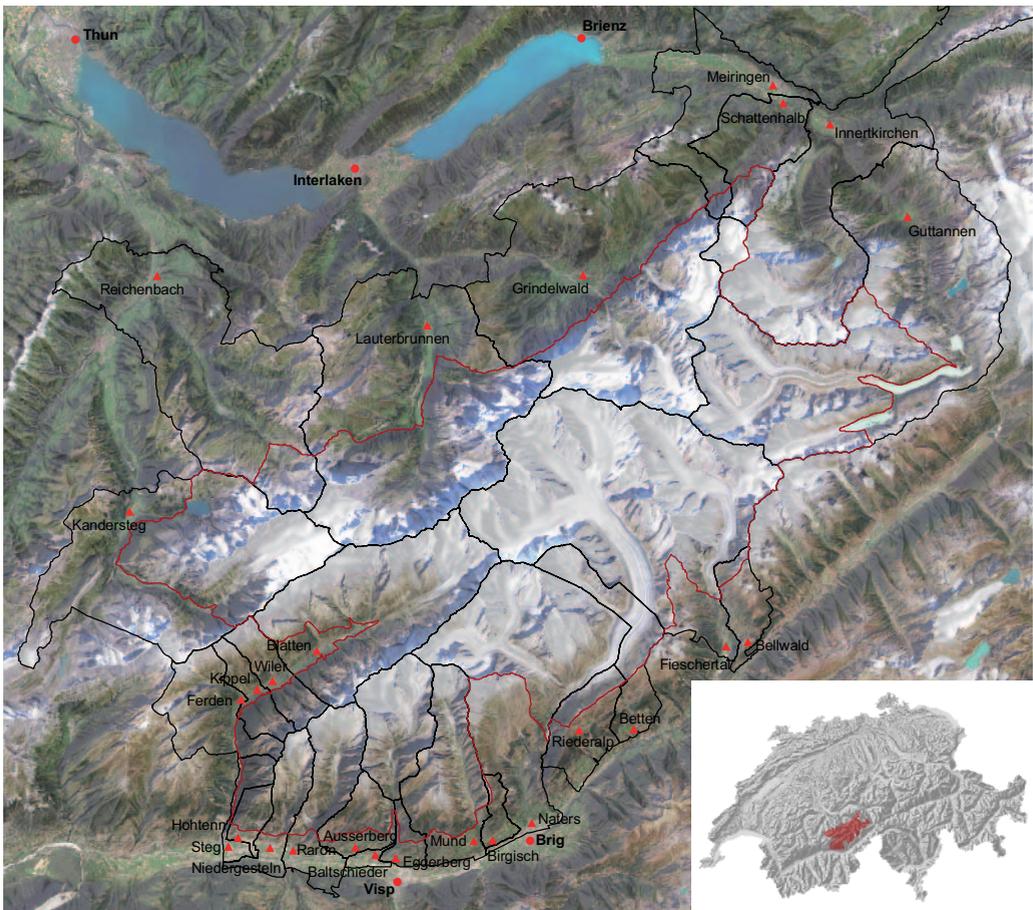
### **33.1 Introduction**

The Alps are the highest and largest mountain system in Europe. In Switzerland, they cover 60% of the country's area. However, only 20% of the Swiss population live in the Alps. Nevertheless, the mountains contribute much to Switzerland's identity. Even though the country's main economic activities are concentrated in the lowlands, the Swiss Alps are more than just a peripheral area: they provide historic examples of problematic interactions involving human development and the environment (Bätzing 2003). The interplay of economic issues with cultural values has been a central factor in the development of the Swiss Alps, where agriculture, forestry, tourism and trade are the mainstays of local livelihoods today. Agrarian mountain cultures and adapted land-use systems have played a key role in creating and maintaining diversity and uniqueness in the Alps (Liechti and Wiesmann 2004). The Alps served as important bridges between major European centres, and transalpine trade had a fundamental influence on the development of the Alps. However, at the beginning of the 19<sup>th</sup> century, the Alps were heavily affected by structural changes due to the industrial revolution. They began to lose their supplementary position in European agricultural production, and marginalisation and impoverishment spread throughout many mountain areas. Subsequently, the Alps became a peripheral region in a rapidly developing Europe. In the mid-19<sup>th</sup> century tourism emerged as a new form of use of Alpine landscapes. In some parts of the Alps this development counterbalanced the marginalisation of traditional mountain agriculture, and sub-centres of economic development emerged. In this highland–lowland context, the Swiss Alps today constitute a peripheral, sensitive and valuable area within a global core region of economic development and globalisation.

Multifaceted demands on land use as well as continuously changing economic and social structures and processes led to increased change in mountain landscapes (Baumgart 2005). In the 1980s, a research project on “Socio-Economic Development and Ecological Capacity in Mountain Regions”

was started in the Swiss Alps within the framework of the Man and the Biosphere (MAB) Programme of the United Nations Educational, Scientific and Cultural Organisation (UNESCO). The 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 mountain regions as areas of production, recreation and protection formed a basis for discussions regarding inscription of the Jungfrau-Aletsch region on the UNESCO World Heritage List (Figure 1; Liechti et al, accepted).

Fig. 1  
Focus area of the  
Joint Area of Case  
Studies (JACS)  
Swiss Alps (ALP).  
(Map by Centre for  
Development and  
Environment)



**Legend**

- Centre of associated commune
- Regional centre
- ⬭ Perimeter of the World Heritage Site
- ⬭ Border of associated commune



Sources of Data:  
Swiss Federal Office of Topography;  
National and commune borders:  
GG25 © 2005 (DV002213)  
Main centres in communes:  
SWSIS/NAME5 © 2004 (DV012687)  
Relief: PK100 © 1998 and PK500 © 1999  
(DV 351.4)  
Swiss Agency for the Environment:  
Perimeter of the World Heritage Site, 2005  
Satellite Image

Reproduced by permission of swisstopo (BA091249)  
Map compilation and cartography:  
ODES (Centre for Development and Environment),  
Institute of Geography, University of Bern,  
in cooperation with the Swiss Alps Jungfrau-  
Aletsch World Heritage Association,  
Naters, 04.2009

Today, researchers of the Swiss National Centre of Competence in Research (NCCR) North-South in the Joint Area of Case Studies (JACS)<sup>2</sup> Swiss Alps (ALP) can draw on the experience of integrated and interdisciplinary research gained in this MAB project. The core research questions in the JACS ALP relate to the balance between endogenous and exogenous driving forces and the potential to foster sustainable regional development. Close collaboration with the Swiss Alps Jungfrau-Aletsch UNESCO World Heritage Site – which was formally established in 2001 – allowed the JACS ALP to contribute to the development of integrated management of this World Heritage Site (WHS) and its surrounding contexts. Therefore, the research scope of the JACS ALP has incorporated issues relating to the challenge of preserving the delicate natural environment of high mountain areas and to simultaneously balancing the interests of conservation and development in the region (Figure 2).

The JACS ALP research focus on issues relating to the Swiss Alps Jungfrau-Aletsch WHS shaped the selection of themes for this synthesis. The underlying research questions within these selected themes were the following:

- Discussions on conservation and development of a region relate to both global and local dynamics and interests. How can these be balanced in order to pursue sustainable regional development?



Fig. 2  
Sheep farming is part of the traditional agricultural use of the Alpine region and is still practised today, even though its economic significance is low. (Photo by Karina Liechti)

- A process of socio-political negotiations is decisive in order to make sustainability meaningful, explicit and operational. In such negotiations, the involved actors construct their own individual ‘realities’, ascribing meanings to the issues under consideration. How decisive are these different meanings in the negotiation of pathways to sustainable regional development?
- Finding pathways to sustainable regional development – where conservation does not impede development – is a complex societal problem that requires the integration of actors from the world of science and from the life-world. This situation sets the frame for transdisciplinary research. What are the potentials and limitations of transdisciplinary approaches?

The three selected themes, 1) *Sustainable Regional Development*, 2) *Meanings of Conservation and Nature*, and 3) *Conservation and Development*, complement each other and together constitute an exemplary approach to analysis of the dynamics of regional development in the Swiss Alps.

## **33.2 Main research outputs**

### **33.2.1 Sustainable regional development**

The Swiss Alps Jungfrau-Aletsch WHS and its surrounding region extend over an area of 1629 km<sup>2</sup>, encompassing territory in the cantons of Bern and Valais, in five planning regions, and in 26 communes. The political and administrative environment of the Swiss Alps Jungfrau-Aletsch WHS consists of a federal system on three levels: the communal, the cantonal and the federal (Hammer 2007; see Figure 1 in Chapter 34 on p 536 of the present volume). Due to this institutional complexity, responsibility for the different economic sectors and activities related to the WHS is shared by a multitude of administrative units. For example, the primary sector (agriculture and forestry) is managed at the federal level. The national policy of agricultural subsidies has a basic impact on the region but is barely influenced by regional actors. At the same time, there is a tendency towards more regional cooperation in linking agricultural and ecological needs for the benefit of cultural landscapes. Policies in this area are mainly in the hands of the cantons. Analysis of this institutional complexity has shown that division of responsibilities among different administrative levels has impacts on coordination and cooperation in practice (Hoppler and Strässle 2007). Moreover, it also leads to ‘non-negotiable’ situations at the local level, such as is

the case, for example, for ecological standards – an issue that is discussed and decided upon at the federal level and in which local actors hardly have a say (Wallner et al 2008).

Next to institutional complexity, there is also a disciplinary complexity inherent in the Swiss Alps Jungfrau-Aletsch WHS region. This region encompasses a glaciated high-alpine area and also links two major hubs of regional economic development: the highly developed tourist region in the eastern Bernese Oberland to the north, and the upper part of the main valley of the Valais to the south, where remote traditional agriculture was superseded by industrial and tourism development during the second half of the 20<sup>th</sup> century (Wiesmann et al 2005). In order to provide a comprehensive overview of the disciplinary complexity of the region, various baseline studies on diverse topics, including geology, hydrology, glaciology and biology, as well as on regional development, tourism and management were carried out (Wallner et al 2007). The results are highly relevant, as they laid the groundwork for long-term monitoring in the WHS region.

### **33.2.2 Negotiating conservation**

A multi-stakeholder participatory process was launched in order to negotiate overall goals, specific objectives and concrete projects related to the Swiss Alps Jungfrau-Aletsch WHS. This methodology had been used in a similar setting in the remote Tajik Pamir Mountains (Breu et al 2005) and was adapted and enhanced for the Swiss context. Analysis of this process revealed eight different pathways to development and conservation, thereby contributing to the discussion of local and global stakes relevant to the issue of sustainable regional development (Aerni 2005; Wiesmann et al 2005; Wallner et al 2008). In order to achieve sustainable regional development, it is necessary to actively involve all relevant stakeholders. However, each of these actors involved have their own particular ideas about the meaning of regional development and how the Swiss Alps Jungfrau-Aletsch WHS can contribute to it. These different meanings play a decisive role when it comes to negotiating pathways to sustainable regional development. Therefore, it is important not only to assess which local and global dynamics are relevant for the development of a region, but also to appraise the existing different meanings of development that influence the negotiations (see Chapters 34 and 35 in the present volume, respectively). These assessments are crucial when it comes to the elaboration of a management plan that must have the support of the stakeholders concerned.

Wiesmann et al (2005) showed that different visions and perceptions of nature and landscape are an underlying current in the debate on the development of the Jungfrau-Aletsch region. These different visions and perceptions influence the positions taken in negotiations. Liechti (2008) has addressed this issue, and her research helped to improve understanding of how the ecological dimension becomes manifest in negotiations of sustainable regional development, how meanings associated with an issue under negotiation are constructed, and whose ascribed meanings are decisive in shaping a concrete way forward. The results indicate that several distinct, but interrelated dimensions – process, history, identity, existence, and power – contribute to the construction of meaningful spaces. On the one hand, consideration of these dimensions has the potential to foster improved understanding of actor perspectives in interactions. On the other hand, it can be useful in understanding, setting up or supporting negotiation processes for sustainable regional development.

### **33.2.3 Mutual learning**

The multi-stakeholder participatory process chosen represents a chance to integrate knowledge from society at large into the realm of science. This integration, linking the scientific world with other parts of society, constitutes the focus of transdisciplinary research (Wiesmann et al 2008). Analysis of the multi-stakeholder participatory process carried out in the Swiss Alps Jungfrau-Aletsch WHS region (Wiesmann et al 2005; Wallner et al 2008; Wallner and Wiesmann 2009) showed that participatory processes hold great potential for striking a balance between conservation and development, thereby contributing to mutual learning processes between various stakeholder groups from the scientific community and society at large. However, there are also limitations to these processes, due mainly to the fact that there is always an inherent power play between the stakeholders involved in such processes (see Chapter 36 in the present volume). Nevertheless, the multi-stakeholder participatory process in the Swiss Alps Jungfrau-Aletsch WHS region supported social learning processes that led to a partial shift from strategic to communicative action through the creation of appropriate social spaces, and thereby confirmed the results of an analysis of similar participatory planning processes in other countries (Rist et al 2006). The fact that the creation of social spaces is essential for social learning processes has been further confirmed by the findings of Schneider et al (2009).

### 33.3 Outlook

A region such as the Swiss Alps Jungfrau-Aletsch WHS or the Swiss Alps in general is never an isolated nucleus. On the contrary, such regions are greatly influenced by local as well as national and global developments. The influence of developments at various scales will be the focus of further NCCR North-South research in the Swiss Alps.

The issue of striking a balance between conservation and regional development is a persistent one in the Swiss Alps. The multi-stakeholder participatory process in the region of the Swiss Alps Jungfrau-Aletsch WHS has helped to address various conflicting issues and raise awareness of differing views among and also within the involved stakeholder groups. However, mutual understanding has not yet solved conflicts. How can persistent conflicts at the regional level be tackled, and which concessions have to be made by the different stakeholder groups in order to overcome the main conflicting issues?



Fig. 3  
The glacial lake at the Lower Grindelwald Glacier in May 2009. From a great distance the lake looks rather small. However, there is potential danger in the possibility that the natural dam could break and cause a flood in the river valley. (Photo by Astrid Wallner)



Fig. 4  
Researchers from  
Mali and Kyr-  
gyzstan interview-  
ing a sheep farmer  
in the Lötschental,  
Switzerland.  
(Photo by Karina  
Liechti)

Another important issue is continuous structural change in the agricultural sector as a result of national and international agricultural politics and their interconnection with international trade agreements. This poses a challenge to the cultural landscape as we know it today, at the regional level. The close interrelationship between the traditional agricultural landscape and the contrasting high-alpine natural landscape is the centre of attraction in the Alpine region. However, recent changes in agricultural policies are influencing land use, and in some areas this can lead to re-wilding of former agricultural land. Will this development lead to a loss of attraction?

At the same time, global phenomena such as climate change are posing a challenge to Alpine tourist regions through rising snow lines owing to higher temperatures. Snow security is important for Alpine skiing areas if they hope to continue to attract as many tourists as they have so far. Furthermore, climate change can lead to an increase in natural hazards such as rock slides triggered by the melting of permafrost. This has implications for the security of hiking trails, for example, but also – as in the case of the glacial lake at the bottom of the Lower Grindelwald Glacier (Figure 3; Swissinfo 2009) – for the security of villages, their inhabitants, and tourists. How can a region that has devoted itself to pursuing pathways to sustainable regional development handle such challenges arising at the local level, but in many cases also at the national and international levels? Research on these issues in the Alpine region can be linked to similar issues in other regions and thereby foster new collaboration among researchers from the North and the South (Figure 4).

## Endnotes

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<sup>2</sup> The NCCR North-South is based on research partnerships with researchers and research institutions in the South and East. These partnership regions are called JACS (Joint Areas of Case Studies). Regional Coordination Offices (RCOs) were established in each of these JACS at the outset of the programme. The original function of the RCOs was to coordinate research; in the third phase of the programme, they will become hubs for generating new research projects and partnerships. The JACS Swiss Alps is the only JACS that is not located in the global South or East; it served as a basis for transferring approaches from South to North and vice versa and studying the outcomes of this exchange.

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