

Case study: Climate change and mountain tourism

Source: Holden and Fennell, 2013, p. 188- 189

Climate change is already affecting many mountain regions worldwide (IPCC 2007). Impacts include increased temperature in summer and winter, changes in precipitation, reduction in snow cover, melting of glaciers and increased extreme climatic events including flooding downstream as a result of the collapse of dams (IPCC 2007). Impacts of climate change on tourism include direct impacts from reduced snow cover and indirect impacts from changes in the marketing of tourism, the behavior of tourists and synergies between climate change and some impacts from tourism such as the spread of weeds (Pickering 2007; Pickering and Buckley 2010).

For ski resorts, the immediate issue is reduction in natural snow cover (Scott et al. 2003; Scott and McBoyle 2007; Pickering and Buckley 2010). As a result, resorts are investing in infrastructure for snow making as a way of offsetting low natural snow (Scott and McBoyle 2007; Pickering and Buckley 2010; Pickering et al. 2010c.). However, snow making, which requires large amounts of energy; is itself likely to contribute to greenhouse gas production, is expensive and, in some cases, limited by water availability (Hudson et al. 2004; Scott and McBoyle 2007; Pickering and Buckley 2010). Other responses by resorts are amalgamation and diversifying into year- round destinations (Scott and McBoyle 2007; Scott et al. 2008; Pickering and Buckley 2010). In some cases, resorts may benefit from increased temperatures in summer at lower altitude tourism destinations, which may result in mountains becoming more attractive as cool summer retreats (Scott and Jones 2006; Scott et al. 2007). The scale of properties in resorts and in surrounding areas is also being used as a way to diversify incomes.

Change in usage of resorts, including a greater focus on summer activities such as mountain biking, hiking, horse riding and relaxation- based activities will have a range of impacts on mountain environments, as a result of differences in impacts from summer versus winter activities, and as summer- based tourism occurs in more diverse locations. Paralleling changes in tourism use are the risk of negative synergies between some tourism activities and existing impacts such as the spread of weeds. Increased summer usage is likely to increase the risk of the spread of weeds, whereas increased temperatures and decreased snow cover will also benefit many weed species. Therefore, weeds may benefit twice over from climate change in mountains (Pickering 2007; Pickering et al. 2007). More research is required into the direct effects of climate change on mountains, on mountain tourism and on the ways in

which changes in the marketing of tourism in response to climate change may alter environmental impacts from tourism.

Pickering, C. and Barros, A. *Mountain environments and tourism*