The resilience and vulnerability of remote mountain communities: The case of Vent, Austrian Alps

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ABSTRACT

Building on critical community resilience studies, this study analyses the resilience of the village of Vent, a remote mountain community in the Austrian Ötztal valley challenged by slow-onset disturbances such as climate change, outmigration of young people and the repercussions of the post-2008 recession. A conceptual framework which focuses on how well economic, social, cultural, political and natural domains are developed within a community, is used as the conceptual springboard to assess the resilience of Vent. The study highlights that Vent is facing substantial resilience challenges and that the community is particularly vulnerable (weak resilience) with regard to the political and natural domains, is only moderately resilient in economic and social terms, and that only the cultural domain emerges as strongly resilient. Overall, Vent is, at most, moderately resilient in the face of continuing and future shocks/disturbances. The study interrogates current resilience frameworks and suggests that an approach based on the five resilience domains provides a richly textured framework for understanding the subtleties of resilience pathways, all the while acknowledging that obtaining a relatively complete picture of resilience is easier in small (and geographically bounded) communities.

1. Introduction

There is now a plethora of emerging work on community resilience. The generally accepted definition of community resilience is the capacity of a community to absorb disturbance and reorganize while undergoing change to still retain essentially the same function, structure, identity, and feedbacks, whereby resilience is often assessed by the size of the displacement the system can tolerate and yet return to a state where a given function can be maintained (Walker and Salt, 2006). Cumming et al. (2005, 978) further argued that "if system identity is maintained over the time horizon of interest under specified conditions and perturbations, we can term the [community] system resilient" Walker and Salt (2006) distinguished between three different aspects of resilience (persistence, adaptability, transformability). In this view resilient communities[1] should have the capacity to buffer shocks and conserve existing functions and structures in the face of disturbances

(persistence), should be able to reorganise and learn within the current system (adaptability, adaptive capacity) and should have the capacity to create a new trajectory rooted in radical change (transformability). This highlights that resilient communities have a diversity of responses and are often multifunctional, i.e. they have multiple and overlapping development pathways that allow them to remain stable (resilient) (Wilson, 2010). The role of learning is key for resilient communities, and the new system that may emerge after a shock will often be qualitatively different from the previous system (Davidson, 2010). Shocks and disturbances can, therefore, also be positive (window of opportunity), forcing a community to implement transformative change.

Critical studies have highlighted various issues surrounding resilience processes and how to assess them, for example including critiques of the often implied linearity of resilience pathways (Wilson, 2012; Wilson, 2017); the question whether human systems necessarily need revert back to their original starting point after a disturbance

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[1] There has been substantial debate about the meaning and constituents of the notion of 'community', especially whether communities should be regarded as 'open' and 'unbounded' systems rather than 'closed' spaces (Wilson, 2012). In this study, 'community' will be understood as a social network of interacting individuals, concentrated into a defined territory − i.e. a community as the totality of social system interactions, as an affective unit of belonging and identity, a space of human connectedness to a place of physiological condition, and as a network of relations within a defined geographical space. The discussion will focus on the resilience of a geographically-bounded community (see below) with which residents can more-or-less identify, all the while acknowledging that there are many different communities within such spaces, embedded in complex networks of power and with often highly divergent aims related to resilience (Wilson, 2012). The notion of 'community' in this sense does not only include long-standing residents but also newcomers and migrants who all contribute to what makes up the case study community.

(Davidson, 2010); the role of social memory and path dependencies in resilience processes (Olick and Robbins, 1998; Stump, 2010); questions about what resilience is measured and for whom resilience should be assessed (Anderson, 2015; Allen et al., 2016); methodological discussions about the subjectivity of some resilience indicators (Bene, 2013; Bene et al., 2015; Jones and Tanner, 2015; Sharifi, 2016); and conceptual and theoretical discussions about which components, indicators or domains of resilience should be selected for study (e.g. Emery and Flora, 2006; Wilson, 2012; Kelly et al., 2015). While much work is now available on fast-onset disturbances such as natural catastrophes and their impacts on communities (e.g. Kates et al., 2006; Duffield, 2012), there are fewer studies that have investigated the impact of slow-onset disturbances on human communities, especially with regard to less clearly delineated anthropogenic disturbances such as economic recessions or social change (see Cannon and Müller-Mahn, 2010; Martin, 2012; Wilson, 2012; Brassett et al., 2013, for notable exceptions).

In order to address this gap, this study will analyse the resilience of Vent, a remote mountain community in the Austrian Alps. Resilience will be assessed by referring to several natural and anthropogenic slow-onset disturbances, including climate change and economic, social, political and cultural change. These disturbances represent examples of a wide range of possible disturbances currently facing mountain communities in the European Alps. The focus of this study will be on understanding resilience processes themselves and how the community may or may not be able to adapt to change. This study will build on the conceptual framework outlined by Emery and Flora (2006) and Kelly et al. (2015) which suggests that communities are most resilient when social, economic, cultural, political and environmental domains are well developed (Fig. 1). Communities where one or more of the domains are less well developed tend to be vulnerable, i.e. vulnerability is seen here as the antithesis of resilience akin to a 'strong' and normative notion of resilience (Wilson, 2012, 2017). The five domains, thus, provide the basis for the structure of the analysis below, and their relative importance is illustrated through the example of various disturbances highlighted above.

Remote mountain communities in the European Alps, situated either in very remote locations and/or at high altitudes over 1500m, provide particularly apt resilience/vulnerability case studies as they face multiple overlapping disturbances (e.g. Meleghy et al., 1980, 1982; Scharr, 2001, 2013). First, many studies have shown that the impacts of climate change on communities are more pronounced in mountain environments (e.g. Fuchs, 2009; Luthe et al., 2012; Hill, 2013; Koch and Erschbamer, 2013; see also in particular the special issue in 'Mountain Research and Development' 35(2)). Second, almost all remote mountain

communities in the European Alps have faced substantial socio-economic change over the past decades, including a relative weakening and withdrawal of farming in marginal areas, an overdependence on tourism as the main form of income (in particular skiing), but also socio-economic changes linked to outmigration of young people and associated loss of social memory and cultural changes (Zucca, 2006). The emerging complexity points towards an increasingly blurred divide between drivers of, and responses to, resilience. Thus, while climate change is a key *driver* of resilience/vulnerability, processes such as youth outmigration are *both* a driver for, as well as a response to, reduced community resilience (Wilson, 2012). As the next section will discuss, such self-reinforcing cycles of resilience drivers/responses are methodologically challenging. Third, several studies have highlighted that, due to their remoteness and need for self-sufficient livelihoods (at least until the recent past) remote mountain communities can be more inward looking and conservative, making it more difficult for policy-makers to effect changes in community perceptions and behaviours (Scharr, 2001; Zucca, 2006).

A key focus in this study will be placed on understanding resilience transitions based on the assumption that transitional pathways do not exist in a vacuum but are interlinked with complex antecedent histories (Wilson, 2012). This implies that accumulated wisdom, experience and knowledge are passed on within a community and that any community system will be at a specific starting point because of the history of decision-making trajectories *preceding* that starting point (Stump, 2010). In other words, a community carries with it the memory of previous decision-making trajectories, whereby social memory acts as a crucial transitional element which can lead to an *adjustment* and *learning* phase based on past experience.

2. Methods

The small village of Vent in the Ötztal (Tirol, Austria; 140 inhabitants, 6 remaining farms; Fig. 2) was selected as a case study community for this study for four key reasons. First, its remoteness and altitude (at 2000 m the highest permanently inhabited community in the Eastern Alps) mean that Vent is typical for a community living at the extreme edge of 'liveable space' in the European Alps, often cut-off by avalanches (until the recent past) and having to rely on endogenous resources to survive harsh winters. Second, like many Alpine communities Vent has witnessed dramatic socio-economic and cultural changes over the past 100 years which have made the community more vulnerable (Meleghy et al., 1982; Scharr, 2013). Vent has a very high dependency on tourism as its main income stream and is also characterised by pronounced levels of outmigration by young people and an ageing population (the notion of 'community' used in this study, thus, also includes permanent and temporary residents). Third, Vent and adjacent communities were part of the large-scale and widely cited UNESCO 'Man-and-Biosphere' programme in the 1970s/80 s which provides a good baseline with regard to some of the key resilience dimensions investigated in this study, especially with regard to socio-economic drivers of change (see in particular Meleghy et al., 1980, 1982). Fourth, this study was undertaken in close collaboration with the Department of Sociology at Innsbruck University (Austria) who were able to provide invaluable information about the area and facilitated the selection of key stakeholders for interview.

Building on critical community resilience research (e.g. Bene, 2013; Bene et al., 2015; Sharifi, 2016; Allen et al., 2016), a multi-method approach was adopted that included multiple methodological strands. First, 51 in-depth interviews (lasting between 30 and 90 min) were undertaken with locals and regional decision-makers (39 locals; 12 regional stakeholders; Table 1) whose selection was based on preliminary identification of key stakeholder groups (e.g. farmers; tourist businesses; local/regional decision-makers). The 39 local respondents represented almost a third of the total population of the village, which meant that a relatively full picture of resilience patterns, processes and

Fig. 1. Conceptual framework for analysing community resilience.
(Source: authors, after Emery and Flora, 2006; Kelly et al., 2015)