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Mainstreaming adaptation to climate change in a federal state setting:

Policy changes in flood protection and tourism promotion in Austria?

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Abstract

Since it became clear that mitigation efforts will not suffice to halt climate change, governments have complemented them with adaptation efforts. While adaptation to climate change in unitary states is mainly concerned with mainstreaming or integrating respective goals and measures horizontally into a variety of sectors, federal states such as Austria or Germany add a vertical dimension to the challenge: here more than anywhere else, climate change adaptation also requires coordination between federal and provincial governments. While the literature on environmental federalism suggests that federal states are ill-equipped to protect global public goods but have advantages in solving local environmental problems, it is unclear how helpful federalism is in addressing local impacts of a global problem. We address this gap by exploring to what extent two sectors highly vulnerable to climate change but rarely subject to policy analyses - flood protection and tourism - embrace adaptation at and across federal, provincial and local levels of government in Austria. With regard to horizontal mainstreaming, the paper shows that both sectors struggle with adaptation issues in their own ways. With regard to vertical mainstreaming, it reveals strong coordination and support functions of the provinces (in particular in flood protection). Since municipalities are often overwhelmed by the complexities of climate change, we conclude that federal systems could prove helpful in mediating between national guidance and local measures on climate change adaptation.

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1 Climate change adaptation as a challenge of policy integration

Since actual and expected impacts of climate change (will) affect ecosystems as well as societies in many ways, the following three assumptions are meanwhile widely accepted among both climate policy makers and scholars. First, mitigation efforts have to be accompanied by adaptation to climate change (European Commission, 2007, 2013; Yohe et al., 2007). Second, governments have to play a role in this because autonomous (or market-based) adaptation will oftentimes not suffice or cause undesired external effects (Cimato & Mullan 2010). Third, since climate impacts will affect not one but many sectors (in particular water management, housing, spatial planning, public infrastructure, tourism, agriculture and forestry), adaptation is a cross-cutting concern that requires horizontal mainstreaming or integration (Burton et al., 2006, 6ff, 12; European Commission, 2007; FAO, 2007; OECD, 2008; Yohe et al. 2007, 41). Although adaptation mainstreaming is usually in the self-interest of a sector, policy-makers unfamiliar with climate change are often unaware of or doubt adaptation needs (Clar et al. 2013). In addition, climate change affects all kinds of sectors not at one but at all levels of policy making, ranging from international to national, regional and municipal levels (Adger et al. 2005, 80; Gupta 2007; Gupta et al. 2007; Amundsen et al. 2010; Bauer et al. 2012). With regard to actual adaptation measures, municipalities are regarded as important but often overwhelmed actors (Smith et al. 2009, 55ff; Amundsen et al. 2010). To assure that policy makers from all governmental levels are able to cope with the complexities of climate change adaptation and do not contradict but support each other, governments are called upon to mainstream adaptation concerns also vertically across different levels of government, in particular between national and sub-national governments (Adger et al. 2005; Gupta 2007; Gupta et al. 2007; Bauer et al. 2012). Thus, adaptation mainstreaming usually requires substantial awareness raising and coordination efforts between climate and other sectoral policy makers on the one hand, and between national and sub-national authorities on the other (Clar et al. 2013; Bauer et al. 2012).

Whereas the horizontal dimension of adaptation mainstreaming is similarly important in all political systems, the vertical dimension is particularly pronounced in federal states such as Germany or Austria because their constitutions grant provinces considerable responsibilities. Although the literature on environmental federalism suggests that federal states are ill-equipped to protect global public goods but have advantages in solving local environmental problems, it is unclear how helpful federalism is in addressing local impacts of a global problem. We address this gap by exploring to what extent two sectors highly vulnerable to climate change but rarely subject to policy analyses - flood protection and tourism - embrace adaptation at and across federal, provincial and local levels of government in Austria. We have chosen the two sectors not only because of their vulnerability, but also because their dissimilar character helps to understand the effects of federalism in different political settings. While flood protection is a highly fragmented policy field still dominated by technical experts that are mainly concerned with long-term flood protection planning and durable infrastructure, tourism policy makers aim to support a key sector of the Austrian economy in close collaboration with market players who have a relatively short planning horizon (further details on the sectors and the selected case study regions are provided in sections 3 and 4).

Based on an exploration of how political responsibilities are fragmented between national, regional and local authorities in the two sectors, the case studies address the following research questions:

1) How do sectoral policy makers frame climate change adaptation and to what extent did they integrate this relatively new concern into their policies?

2) How do federal, provincial and municipal actors coordinate their policies and what role does climate change adaptation play thereby?

3) What are the main barriers that hinder adaptation to climate change in the two sectors?

4) How does the Austrian federal system affect adaptation efforts in the two sectors?

The paper answers these questions based on desk research (drawing mainly on constitutional responsibilities, policy documents and studies), 12 semi-structured face-to-face and one written interview with relevant sectoral as well as adaptation policy-makers from federal, provincial and local authorities, the Federal Environment Agency (who played a key role in the formulation of the Austrian adaptation strategy), and regional tourism organisations. The interviews have been conducted between July and December 2011, and they lasted between 25 and 55 minutes (for details on the interviewees see Annex 1; for the interview guides see Annex 2).[1] The recordings were interpreted qualitatively in view of the research questions mentioned above. When we analyse the horizontal mainstreaming of adaptation into flood protection and tourism policies we focus on how sectoral actors frame and embrace climate change adaptation in policy documents and actual measures. When we analyse vertical mainstreaming, we focus on the allocation of responsibilities, interactions between levels, and the relevance of adaptation issues thereby.

Section 2 briefly introduces Austrian Federalism and discusses the literature on environmental federalism. Section 3 answers the three descriptive research questions for flood protection policies in Austria and the province of Lower Austria, and section 4 for tourism policies in Austria and the province of Upper Austria. Section 5 compares the two case studies and carves out the significance of Austrian federalism for adaptation policy making.

2 Federalism and environmental policies

Austria is a centralistic federal state in which the nine provinces (Länder) have limited responsibilities and the federal financial regime is one of the most centralized of all federal OECD countries (Bußjäger 2010; Erk 2004; Pelinka 2003, 522; Feld & Schneider 2002, 2, 29; Esterbauer 1995, 72ff). Although a relatively large number of issues is explicitly assigned to the federal government and provinces are formally weak veto players, Austria is not "A Federation without Federalism" (Erk 2004), and the Austrian provinces cannot be reduced to administrative sub-units or "agents of the federation" (Pernthaler & Gamper 2005, 141), certainly not when informal arrangements such as the powerful Conference of Provincial Governors (Landeshauptleutekonferenz)[2] are taken into account (Karlhofer & Pallaver 2013; Bußjäger 2003). Concerning adaptation, the provinces have important responsibilities in spatial planning, water management, nature protection, agriculture and tourism. Moreover, they have emerged as important authorities for the execution of federal laws (Pelinka 2003, 546). However, as sections 3 and 4 show in detail, the allocation of responsibilities varies considerably between sectors and is not as balanced as in other, strong federal states such as Germany (Kloepfer 2004, 760).

The fact that the vertical fragmentation of responsibilities is stronger in federal states than in unitary states implies several challenges. . First and foremost, stronger vertical fragmentation requires additional coordination efforts. A failure to effectively coordinate actors from different levels of government may result in redundant, incoherent or incomplete policies (Peters 1998, 296; Goulder and Stavins 2010; Galarraga et al. 2011, 165). Second, a larger number of decision makers and institutional duplicities make it more likely that policy changes are blocked or delayed, both of which often result in higher (transaction) costs (Tsebelis 1995 and 2002). Third, federal governments may have difficulties with negotiating or implementing international agreements, in particular with regard to climate change where sub-national entities hold important competencies (Compston 2009; Hudson 2012). Fourth, the economic rivalry between two or more provinces can result in a race to the bottom of environmental standards (Bußjäger 2007, 89; Wälti 2004, 603). Fifth, an inadequate or unclear allocation of responsibilities can hinder the formulation of policies, in particular in relatively new policy fields such as climate change adaptation (Clar et

[1] Further questions that came up during the analysis were clarified with selected interviewees via e-mail or telephone.

[2] Twice a year, the provincial governors adjust their positions in order to speak with one voice vis-à-vis federal authorities.

al. 2013), and when one governmental level is responsible for its enactment whereas another one is responsible for its execution (Kloepfer 2004, 761). Based on these and other challenges, some scholars argue that only a centralized handling of environmental tasks can lead to efficient and effective policies (Jahn & Wälti 2007, 264). In Austria, some of the disadvantages of federalism obviously materialise in province-driven nature conservation policies (Pelinka 2007b, 147), and in the attempt to mainstream climate change mitigation into provincial building policies (Bitterling 2010; Clar & Steurer forthcoming).

In contrast to these challenges, federalism also bears potential advantages for environmental policies (for an overview see Nice 1987; Adler 2005, 139-157). Primarily, fragmented responsibilities and duplicities do not necessarily result in inefficiencies, blockades or a race to the bottom, but instead they may trigger a positive competition of ideas and policies between different provinces (Chappell & Curtin 2013; Kloepfer 2004, 761; Bußjäger 2007, 87) and learning from each other (Buzbee 2005, 122f). Obviously, this applies in particular to countries where the federal government is rather inactive and sub-national governments try to fill a vacuum. Second, functionalist and economic approaches (in particular the fiscal federalism approach) emphasise that regional autonomy can imply higher flexibility and improved capacities to fine-tune federal policies to local specifics (Jahn & Wälti 2007, 263; Feld/Schneider 2002, 3f; Adler 2005). Finally, federalism can increase the democratic legitimacy and the acceptance of governmental decisions because it can improve the possibilities of citizens to be heard by policy makers (Pelinka 2007a, 83; 2007b, 124).

Overall, "[s]tudents of federalism are divided over whether or not federalism helps effective policymaking" in general (Erk 2006, 110), and environmental policies in particular. They claim either advantages for centralised environmental regulation (Bulte et al. 2007), little or no impact of federalism upon environmental performance (Héritier et al. 1996; Knill and Lenschow 2000; Börzel 2003; Scruggs 2003: 183-7), other variables (such as economic wealth and corporatist culture) being more important than federalism (Wälti 2004), or even varying relationships (Vogel et al. 2010; Oates 2001). Obviously, there is no uniform relationship between federalism and environmental policy performance (for other policies, see Wachendorfer-Schmidt 2000; Keman 2000) but one that hinges primarily on the details of the two variables, and on the interests and policies of the federal government (see above).

As Hudson (2012, 29) highlights for forest management in six federal countries, policy performance depends essentially on the details of federal systems, in particular on how federal and sub-national levels interact with each other. Obviously, one cannot speak of federalism as such but only of "varieties of federalism", to be found in different countries, or even in different policy fields within a country, all having different impacts on the environment. Similarly, it is also no use to speak of environmental policy per se but only of particular environmental problems that have very different characteristics. Based on theoretical explorations by Oates (2001, 2ff) and Adler (2005), we can hypothesise that federal systems are more suitable for securing local public goods (such as local drinking water) than for protecting pure or global public goods (such as the ozon layer). This strong contextuality given, it stands to reason that, so far, in particular quantitative studies have not been helpful in solving the puzzle of environmental federalism (i.e. the relationship between federalism and environmental performance). Therefore, qualitative case studies as the one presented here are promising in solving this puzzle piece by piece.

3 Flood protection in Lower Austria's Waldviertel region

According to the Austrian Federal Ministry for Agriculture, Forestry, Environment and Water Management (short: Federal Ministry of Life), "[w]ithout flood protection Austria's river valleys would be uninhabitable in wide areas" (Lebensministerium 2006, 2). Although flood protection has a longstanding history in Austria, Lower Austria experienced a considerable increase of extreme flood events during the last 15 years (Haas et al. 2008). In 1997, several communities were severely hit when the relatively small river Traisen bursted its banks. In 2002, floods of the Danube and smaller rivers caused nine deaths and damages of

approximately Euro 3 billion in Lower Austria alone (Hochwässer in Niederösterreich 2006, 5). The most severely affected communities were located in the Waldviertel, a region with an undulating landscape characterised by small rivers and its border with the Danube (Plattform Hochwasser 2003, 8). In 2013, the region was again struck by a flood. Based on an initial estimate, the governor of Lower Austria reported damages of approximately Euro 100 million.[3] Besides anthropogenic changes in the river landscapes (like river regulations and the installation of hydro power plants), some scientists also see climate change as a reason for the increase of extreme flood events in Lower Austria (Land Niederösterreich 2007, 1). With regard to future developments, however, the Austrian scientific community on flood risks is divided. On the one hand, some studies expect a rise in average temperatures and a higher intensity of precipitation for Lower Austria (Land Niederösterreich 2007). Although the authors acknowledge the lack of regional climate models and emphasize that the local impacts are difficult to calculate (FloodRisk II 2009, 17), they highlight the need to adapt flood protection to the expected impacts of climate change (NÖ Klimastudie 2007; FloodRisk II 2009). On the other hand, a study on "Adaptation Strategies to Climate Change for the Austrian Water Sector" that has been commissioned by the protective water management units at the federal and provincial levels argues that long-term flood trends in Austria cannot be related to climate change (Schöner et al. 2011; Blöschl et al. 2011). Since we are no experts on this issue, we do not take sides. Instead, we consider the scientific dispute when analysing flood protection in Austria. As the case study shows, flood protection policy makers do not take both sides of the dispute into serious consideration but they agree with those who doubt a relation between climate change and flood events. This implied that representatives of the protective water management unit in the Federal Ministry of Life declined to be interviewed on climate change adaptation.

3.1 Awareness and framing of climate change adaptation

Although all interviewed policy makers agree that flood events increased in recent years and that climate change is (or will soon be) a generally important subject, they are nevertheless cautious in establishing direct cause-effect relations with regard to flooding. While a local actor acknowledged paradigmatically, "there has been a trend during the last few years regarding floods: Before 2002, it was very quiet", he warned that "natural variations are much stronger than those related to climate change. But I cannot tell what is the underlying cause". Similarly, another local representative said: "Sporadically, precipitation does occur more intensely, but you cannot tell that more water is coming down from the sky because of climate change". Even two other interviewees from the city and from the provincial level who perceive a link between climate change and flood events in Lower Austria, criticize that the term climate change is used too often and prematurely as an explanation. Consequently, the interviewees do not regard adaptation to climate change as an important topic for their field of work but as an issue of academic debates. One of the provincial policy makers added that these debates are not relevant for his work because he has to act based on facts, "not speculations". Since the regional and the provincial representatives explained their skepticism with explicit reference to the "climate-skeptic" study mentioned above, their position does not reflect ignorance towards climate science. What we can confirm, however, is that scientific uncertainties are a key barrier in adaptation policy making (Clar et al. 2013), in particular in relatively cost-intensive policy fields such as flood protection (see also Amundsen et al. 2010; Refsgaard et al. 2013).

3.2 The vertical fragmentation and coordination of flood protection

Flood protection is codified not in one but in several laws (for an overview see Annex 3). This results in a sometimes incomprehensible and often overlapping distribution of responsibilities among federal, provincial

[3] http://www.wienerzeitung.at/nachrichten/oesterreich/chronik/555195_100-Millionen-Euro-Schaden-im-Donautal-in-Niederoesterreich.html.

and local authorities that poses a major coordination challenge. According to the water law, the federal level is responsible for preventive measures like the regulation and maintenance of waters and their flow conditions (Raschauer 2010, 29). Two units of the Federal Ministry of Life (the unit of water management and the unit of protective water management) carry out these tasks. Additionally, federal authorities have to protect federal infrastructure like roads, railway tracks or trans-provincial power lines from flooding (Wessely 2010, 614). Since these responsibilities are rather limited, the interviewed policy makers at the local, regional and provincial levels do not perceive the federal government as a key player in flood protection. They report that federal authorities are willing to co-finance measures usually with a 40% share when provincial authorities are willing to contribute an equal share and the remaining 20% are covered by local authorities, but that they do not engage in planning and implementation details. According to unofficial figures for the period 2002-2012[4], the ratio was 48-32-19, and according to the website of the Federal Ministry of Life the ratio was 60-23-17.[5] Obviously, reliable figures are difficult to find, inter alia because flood protection budgets are part of natural hazards prevention funds. As the interviewees emphasized, neither federal nor provincial funds for flood protection are scarce since the 2002 flood events, but the increase of funds is not framed as adaptation to climate change. As unofficial figures suggest, the total budget for flood protection in Lower Austria has almost quadrupled between 2002 and 2012 from roughly € 5 Mio to more than € 20 Mio per year.

Provinces are de-facto (not necessarily de-jure) the key players in flood protection in Austria. Formally, they are, inter alia, responsible for environmental and landscape protection, building laws and regional development (see Raschauer 2010, 32; Wessely 2010, 613), and they maintain a comprehensive flood warning system. Since the major floods in 2002, Lower Austria has invested heavily in flood prognosis, warning technologies, and flood retention areas (sometimes proactively ahead of the spatial planning of communities). In addition, the province often fulfills a gatekeeper function between local wishes and federal budgets. Especially local policy makers emphasize that financial support of their projects depends mainly on provincial approval. After 2002, Lower Austria aimed to build local capacities in flood protection, inter alia by drafting flood guidelines and by providing communities with management plans, technical data and feasibility concepts, etc. All of our interviewees agreed that, in most cases, communities obtain whatever provincial support (financial, technical, juridical or other) they need. Often, provincial actors take over the implementation of local plans entirely (usually in close cooperation with the communities). Regions such as the Waldviertel are no political body and have therefore no official responsibilities or funds for flood protection. Consequently, regional actors (such as the representative of the Regional Management Agency Lower Austria-Waldviertel[6]) emphasize their dependence on the provincial level. Their key task is to engage in strategic regional planning (e.g. on how to promote tourism) and regional marketing.

The main responsibilities of Austrian communities in flood protection are local spatial planning (Wessely 2010; Niederösterreichisches Raumordnungsgesetz 1976), caring for the aesthetics of the local environment, and acting as the first instance for the execution of the federal water law (with responsibilities in water supply and waste water treatment; Akyürek 2010; Kerschner et al. 2004, 13). Since the civil protection law regards communities as the authority in charge of flood protection and the building law urges communities to define flood-threatened areas in their land use plans, three of the interviewees would like to see communities as the key players in flood protection, but they are aware that their capacities depend essentially on the community size and on support by the province. One interviewee underlined that

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4 Unfortunately, official and reliable figures on flood protection budgets are impossible to obtain, inter alia because they are mingled with the prevention of other natural hazards such as landslides, avalanches, etc.

5 http://www.lebensministerium.at/wasser/schutz_vor_naturgefahren/finanz_hws.html; accessed on 10/10/13.

6 For details see http://www.rm-waldviertel.at/index.php?channel=1&content=240.

especially smaller communities long for cooperation (e.g. when retention areas are defined), inter alia because they often lack the capacities (including knowledge) necessary for an effective flood protection. Thus, local and regional representatives emphasised that they often simply react to emergencies. Confronted with this problem, provincial representatives underlined the importance of cooperation among communities and with the province (e.g. when developing and implementing warning systems).[7] While all interviewees pointed out that communities obtain manifold support (in particular expertise, technical, financial and legal assistance) from the province, provincial policy makers expect communities to become more proactive in the future because they know the needs on the ground.

The province of Lower Austria is obviously not only the most active player but also the coordination hub in the strongly fragmented flood protection governance setup. All interviewees explicitly mentioned or implicitly confirmed that almost all local flood protection measures are connected to provincial policy makers in one of the following three ways. First, since communities often lack the technical and/or legal capacities to fulfill their extensive flood protection responsibilities, provincial actors support them, for example in developing their water management strategies and plans. Second, local flood protection projects depend on provincial and federal co-funding, approved and managed mainly by the province. Third, provincial actors sometimes pro-actively encourage communities to initiate local planning, policies or infrastructure projects. An example for a provincial initiative that relies on local action is the appeal of the Lower Austrian Civil Defense Association (a provincial authority) to expand retention areas and flood zones in local spatial planning. Although all actors confirmed that the provinces play not only an important but also a constructive role in local flood protection, local actors mentioned two points of critique: First, they criticized that provincial coordination usually takes place ad-hoc on a project basis. Second, they miss a common target-oriented framework that helps to prioritize different flood protection projects in a transparent way and that adds a long-term perspective to the project-based cooperation between communities and the province.

3.3 Mainstreaming climate change adaptation in flood protection?

Obviously, the responsibilities in flood protection are strongly fragmented vertically but regular exchange between national and sub-national decision makers (often on a project basis in co-financing arrangements) seem to address this governance challenge adequately. Besides, the interviewees also mentioned that they collaborate regularly when specific flood protection standards are revised, subsidy schemes restructured or joint statements (e.g. on climate change adaptation) formulated. In an attempt to better coordinate the mainstreaming of climate change adaptation into various sectors (including flood protection) across levels of government, the climate protection unit in the Ministry of Life (supported by the Austrian Environment Agency) has formulated a National Adaptation Strategy (NAS) between 2009 and 2012.[8] Although most of the flood protection policy makers from the same ministry explicitly reject to frame their work as adaptation to climate change, some of them were involved in the formulation of the NAS (Lebensministerium 2011, 97f). As a representative of the climate protection unit has put it, the adaptation and the flood protection protagonists were able to find a common language that allowed them to include water management in the NAS as one of 14 key chapters. However, in order to underline its position on flood protection and climate change on its own terms, the department of water management in the same ministry seems to regard the commissioned study that rejects the linkage between flood events and climate change as its sector-specific adaptation strategy. Although the publication is more a scientific study than a policy document, it is titled “Adaptation Strategies to Climate Change for the Austrian Water Sector”

[7] For an example of such a collaboration, see http://www.wasserstand.info/.

[8] For details see http://www.klimawandelanpassung.at/.

(Schöner, et al. 2011). The short version of the study even adds "Aims and Conclusions for the Federation and the Provinces" as a subheading (Blöschl et al. 2011), as if it was a policy document. Since most interviewees from various levels of government share the viewpoint that linkages between flood events and climate change are unclear and that their work should therefore not be regarded as adaptation to climate change, we can conclude that the different actors in the water sector are part of a close-knit policy community which is not only characterized by regular exchange but more importantly by shared core values and beliefs (or "policy cores"), similar to what Sabatier described as an "advocacy coalition" of policy makers, scientists and other actors (Weible et al. 2009). The fact that this advocacy coalition does not embrace climate change adaptation as a "new concern" that adds momentum (in particular new resources) to flood protection may have to do with the fact that recent flood events gave them sufficient political salience, perhaps more than they expect to gain from uncertain climate and flood scenarios.

3.4 Barriers of more effective flood protection

Although flood protection seems to be high on the political agenda since the 2002 flood events at all levels of government in Austria, the interviewed policy makers mentioned some barriers when asked what hinders more effective flood protection measures. Although the skeptical view on climate change can prove to be a barrier for adequate flood protection in the future, the key barrier today is a lack of scientific certainty. However, while the climate protection unit of the federal environment ministry called on policy makers in the water sector to reconsider climate change as a serious threat (as the water sectors in Switzerland and Bavaria/Germany do already), the water management units in the same ministry responded to this call not with ignorance but with opposing evidence (see above). Another obstacle to effective flood protection also concerned with a lack of knowledge, albeit not with regard to possible future impacts but about the current situation: Local and provincial representatives acknowledged that, at the moment, they cannot comprehensively monitor and assess all relevant factors related to flooding, making knowledge-based flood protection a difficult task.

Only one interviewee highlighted the obvious link between flood protection and flooding events as a problem: "Especially where disasters have occurred, it became an issue, [...] but it is not on the agenda in general. If there have not been any heavy rainfalls, if the streets have not been washed away, if the houses have not been under water, flood protection is irrelevant". Similarly, another interviewee noted that only regions in which disasters have struck recently are interested in possible reasons and solutions for a relatively short while (for similar findings in Norway, see Amundsen et al. 2010).

While adaptation policy scholars frequently identify a lack of financial and personnel resources and a lack of coordination between different actors as key barriers in adaptation policy making in general (Clar et al. 2013), these barriers do not seem to apply to flood protection in Lower Austria. All interviewees agree that since the major flood events in 2002 the provincial and federal levels of government devoted sufficient funds to flood protection. Only some local representatives complained that they are suffering from financial cutbacks, and that they depend on provincial and federal support.

4 Tourism policies and adaptation in Upper Austria

Tourism in Upper Austria is a major economic sector. Its added value amounts to Euro 6.39 billion, or 13.9% of the gross provincial product (Oberösterreich Tourismus 2011b). More than 2 million people visit Upper Austria for an average of three days per year whereby the summer season is more important than the winter season (4.25 million vs. 2.46 million overnight stays in 2010; see Statistics Austria[9]).

[9] For details see http://sdb.statistik.at/superwebguest/login.do?guest=guest&db=detourannae; accessed at 04/23/2012.

The climate change impacts on Austrian as well as Upper Austrian tourism are likely to be mixed. On the one hand, (Upper) Austrian summer tourism (e.g. in the famous alpine lake district "Salzkammergut") can gain significantly from warmer, drier and longer summers. In addition, tourists may prefer the mountainous lake regions in Upper Austria, Salzburg and Carinthia to Mediterranean destinations that are likely to experience increasingly hot summers (Formayer & Kromp-Kolb 2009). On the other hand, (Upper) Austrian winter tourism suffered already from the rise of average temperatures, a receding snow line, and a sharp decline of skiing resorts with de-facto guaranteed snow (Unbehaun & Pröbstl 2006). While Upper Austrian skiing resorts above 1100m can expect relatively safe snow conditions in the short and medium term, they are highly vulnerable in long-term scenarios looking at 2050 and beyond (Balas 2010, 47; Formeyer & Kromp-Kolb 2009).[10] Major adaptation options in the tourism sector are therefore to reduce the dependency on weather by diversifying touristic offerings, tap new target groups and promote all-year tourism (Formayer & Kromp-Kolb 2009; Haas et al. 2008, Pröbstl 2007).

4.1 Awareness and framing of climate change adaptation

According to a representative of the Federal Ministry of Life, the Austrian tourism sector was not interested in climate change impacts and possible adaptation measures when the work on the adaptation strategy began in 2007. In contrast, regional tourism representatives hold that they were invited to the NAS process only after the provincial climate protection representative initiated their involvement. As the formulation of the NAS progressed, major actors in the tourism sector (such as Upper Austrian Tourism and the department of tourism in the Federal Ministry of Economy, Family and Youth, short economics ministry) showed increasing interest. The department of tourism in the economics ministry launched for example its own study on adaptation options in the Austrian tourism sector (BMWFJ 2013), unlike the flood protection community not to oppose but to explore the threats and opportunities climate change may bring to the tourism sector in more depth. The study presents the latest scientific knowledge and provides companies as well as other stakeholders, from regional to national levels with practical information on climate change (BMWFJ 2013, 3).

4.2 The vertical fragmentation of responsibilities

Similar to flood protection, responsibilities for tourism are strongly fragmented in Austria (for an overview see Annex 4). Although the federal government does not have any formal responsibilities directly connected to tourism, it is an important policy field for the economics ministry. Its department of tourism aims in particular to raise awareness for needs and options of climate change adaptation, it promotes a nationwide tourism strategy, offers a number of climate change related subsidies (e.g. for all-year tourism and electro-mobility), and it is responsible for negotiating and meeting international accords.

Provincial authorities are formally the most important tourism policy makers. Under Article 15 of the Federal Constitutional Act (B-VG, General Clause), the provinces are responsible for legislating and executing tourism law, regulating tourism associations (Tourismusverbände), classifying tourism communities, and setting standards for guest accommodations. In addition, provinces are responsible for building codes (also applicable to hotels), regional spatial planning and economic development, public infrastructure (e.g. regional roads), and the regulation of (touristic) events.[11] In practice, provincial actors are also responsible for outlining a broad strategic tourism framework (e.g. via non-binding tourism policy-papers and

[10] A warming of 4 degrees Celsius would threaten the snow guarantee of every Upper Austrian winter sport resort, potentially resulting in a decline in the winter tourisms net product of up to € 28 million per annum. A warming of 1 degree Celsius would reduce the percentage of winter sport resorts with snow guarantee from 64% to 36% (potential loss: € 15 million) (Arbesser et al. 2008, 17ff).

[11] http://www.bmwfj.gv.at/TOURISMUS/TOURISMUSINOESTERREICH/Seiten/default.aspx

strategies). The tourism associations put the provincial strategic orientations into practice, for example by developing and marketing regional tourism concepts (Tourismus-Organisation Oberösterreich 2012[12]). With regard to climate change adaptation, the province-wide association Upper Austrian Tourism and the Upper Austrian environmental secretary commissioned a study examining climate change impacts on Upper Austrian tourism (Formayer & Kromp-Kolb 2009). After the study was completed, the Upper Austrian tourism strategy was finalised. However, it addresses climate change adaptation only with regard to all-year tourism (Land Oberösterreich 2011).

Communities can exert influence on the tourism sector by applying for the status of a tourism community under the tourism law, via local spatial planning, the regulation and/or the provision of local infrastructure (e.g. baths, cable cars, sports facilities, hiking trails, etc.), and by developing local tourism concepts. Referring to these responsibilities, most interviewees perceived local governments as major actors of adaptation in the tourism sector. However, all interview partners from the local to the federal level also emphasized that local actors may be well aware of climate change impacts (such as higher temperatures, less snow and drier summers) but have neither the detailed knowledge nor the financial capacities for comprehensive adaptation strategies or measures. Therefore, in particular local and regional policy makers expect guidance from higher governmental levels on how to adapt the tourism sector to climate change.

4.3 Mainstreaming climate change adaptation in Austrian tourism policies?

How do the different levels of government with responsibilities in the tourism sector coordinate their actions and what role does adaptation play? First, the Austrian Tourism Conference aims to coordinate tourism policies across provincial borders on an annual basis by bringing together policy makers from all provinces and from the federal economics ministry. One interviewee praised this new initiative as crucial for a common future development of Austrian tourism. However, adaptation issues were addressed at best implicitly at the first conference in 2011. Second, neither the national tourism strategy adopted by the economics ministry (BMWFJ 2010) nor its tourism action plan (BMWFJ2011) that followed the conference address environmental or adaptation issues explicitly. The former mentions climate change only three times and addresses adaptation once as an issue that may require new subsidies. Third, the federal picture is replicated at the provincial level. Confronted with the fact that the Upper Austrian tourism strategy hardly addresses adaptation to climate change (Land Oberösterreich 2011), a provincial representative confirmed that environmental issues in general and adaptation issues in particular play a rather marginal role in tourism policies. He emphasized that regional tourism policy makers welcome information on environmental issues from other departments or from researchers, but that they hesitate to focus their own resources on these issues. According to a provincial interviewee, the obvious absence of climate change adaptation in provincial tourism policy papers may be resolved by the on-going involvement of respective actors in the NAS process. This brings us to the fourth point relevant for mainstreaming adaptation policies horizontally and vertically in the tourism sector. Since tourism strategies hardly address adaptation yet, the NAS is the only comprehensive attempt that aims to facilitate adaptation also into the tourism sector. Coordinated by the climate protection department of the Austrian Ministry of Life, the strategy formulation was a lengthy process in which the tourism unit of the economics ministry and provincial tourism associations played an increasingly active role (see above). However, although tourism is one of the key themes of the NAS, and despite the fact that all interviewees praised the cooperation between federal and provincial actors in the NAS formulation, the facts presented above suggest that tourism is part of the adaptation agenda, but that adaptation is not yet mainstreamed into tourism policies, not even in strategy papers. This conclusion is supported by anecdotal evidence from two other Austrian provinces: While the province of Carinthia subsidises uneconomical skiing resorts without even considering climate change adaptation (Land Kärnten

[12] http://www.oberoesterreich-tourismus.at/sixcms/media.php/4419/TORGO%D6%20Stand%20J%E4nner%2012.pdf

2011), the province of Lower Austria bought several insolvent skiing resorts to guarantee their existence.[13] Obviously, short-term regional economic development often trumps long-term adaptation concerns in provincial tourism policies.

4.4 Adaptation barriers

To what extent do Upper Austrian policy makers perceive barriers that hinder the climate change adaptation in the tourism sector? While all interviewees are well aware of the general requirements to adapt the tourism sector to climate change (e.g. by reducing the dependence on guaranteed snow in winter, or the reliance on seasonal tourism), they obviously struggle with the details on how to actually achieve these and other broad adaptation objectives. Thus, the major barriers across all levels are a lack of knowledge on how to actually adapt, and a lack of adequate (i.e. affordable, no-regret) adaptation options. This applies in particular to regional and local actors. They often miss clear guidance from provincial and federal authorities on how to promote adaptation on the ground.

Lack of funding is another barrier that plays a prominent role in the adaptation literature in general (Clar et al., 2013), and we can confirm it for tourism policies, in particular at the local level. Local interviewees complained not only about budgetary constraints but also about a lack of long-term, structural development measures. In this respect, it is worth mentioning that strategic frameworks such as the Austrian NAS or the tourism strategy are not accompanied by a budget that could be used to implement adaptation measures. As in the flood protection sector, the financing of local adaptation measures in the tourism sector is decided mainly by provincial actors through co-financing selected projects, and as in the flood protection case study local actors complained that the decision criteria are not always clear to them.

5 Comparison and conclusions

The present paper has analysed how policy makers responsible for flood protection and tourism at various levels of government in Austria perceive and address a relatively new but increasingly important concern, i.e. adaptation to climate change. Since Austria is a federal state in which responsibilities in both policy fields are strongly fragmented and the needs for vertical mainstreaming between the federal, provincial and local levels of government are significant, we also explored how actors from different levels coordinate their activities. Among the most obvious similarities in both sectors is the hesitation to proactively embrace adaptation concerns, either because policy makers struggle with the uncertainties of climate change impacts (flood protection), or because their key concern is (short-term) regional development rather than long-term climate change resilience (tourism). Consequently, both sectors mainly react to actual events (such as heavy flooding or receding snow lines) and refrain from anticipatory measures addressing long-term climate change trends. A better horizontal mainstreaming of adaptation concerns in both policy fields is hindered most prominently by a lack of certainty regarding regional climate change impacts. Second, the roles communities, provinces and federal actors play in the two policy fields are very similar: Provincial policy makers are de facto the key actors in both sectors because they take not only most decisions on projects that require co-funding but they also function as a communication hub between federal and local actors. Communities, in turn, are important for highlighting the needs for adaptation actions bottom-up, but they obviously struggle with the complexities that emerge when projects proceed to the development and implementation stages. While expectations regarding the role of communities in adaptation are generally high (both among many of our interviewees and in the adaptation literature, see Urwin & Jordan 2008; Amundsen et al. 2010), our case studies showed that local actors struggle with fulfilling these expectations,

[13] See http://www.wienerzeitung.at/nachrichten/panorama/chronik/424187_Ein-Dorflift-gehoert-dazu-wie-der-Kindergarten.html; http://www.wienerzeitung.at/nachrichten/wirtschaft/oesterreich/484302_Schroecksnadel-und-Land-Niederoesterreich-kaufen-Hochkar.html.

inter alia because they often lack the necessary expertise as well as the financial resources. Thus, we conclude that communities are not necessarily key actors in climate change adaptation but rather key partners for higher governmental levels such as provinces, at least in federal states such as Austria. This highlights the importance of vertical mainstreaming (or multi-level governance) in adaptation policy making, especially between local and provincial levels. Third, provincial and local actors maintain close relations (mainly through co-funded projects) in both sectors so that the fragmentation of responsibilities did not appear to be problematic, on the contrary. The only critique levelled by local actors in both policy fields is that provincial decisions are sometimes not sufficiently transparent because a comprehensive strategic frame is missing and decision criteria are unclear.

The most important difference between the two cases are the sector-specific perceptions of adaptation, and, as a consequence, the varying involvement of the sectors in the formulation of the NAS. Since flood protection policy makers regard climate change adaptation consistently as irrelevant for their day-by-day work, they hesitated to participate in the NAS formulation. Tourism policy makers, on the other hand, learned to embrace climate change adaptation cautiously as a relevant challenge. However, although they got increasingly involved in the development of the NAS and they at least signal openness to adapt their long-term tourism strategies, adaptation is not yet a key concern for them either. Including tourism in an adaptation strategy is an initial step of horizontal mainstreaming that can help to raise awareness for the issue in the sector. The integration of adaptation into tourism policies, however, is an incomparably more demanding policy change that has not taken place yet, not even at the programme or strategy level.

Overall, we conclude that the key challenge in the two sectors analysed here is not so much their vertical fragmentation but the horizontal mainstreaming of climate change adaptation as a new and relevant issue. The vertical fragmentation of responsibilities in the Austrian federal political system is addressed either by means of project-based collaborations (flood protection and tourism), or with close-knit policy communities characterised by frequent exchange (flood protection). Since in particular small communities are often overwhelmed with the complexities of climate change adaptation and federal policy makers are often too far remote from local problems, the supporting and intermediating role provinces play in both policy fields suggests that the Austrian federal system can facilitate the fine-tuning of climate change adaptation at regional and local levels. The fact that the same federal system hindered rather than facilitated nature conservation policies (Pelinka 2007b) and climate change mitigation (at least in the sectors where federal and provincial authorities share responsibilities, such as space heating; see Clar & Steurer, forthcoming) is not a contradiction to our conclusion. It is a reminder that the advantages and disadvantages of federalism must not be judged in general ways but that they depend on the issue at stake. Since the buying of insolvent skiing resorts by the Lower Austrian government is most likely “maladaptation” (i.e. an inadequate response to climate change) driven by (short-term) regional economic concerns, the advantages of Austrian federalism are obviously not even generalizable for adaptation per se.

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Annex 1: Overview of interview

WALDVIERTEL, LOWER AUSTRIA: FLOOD PROTECTION					
Organisation	Governmental Level				Date
	Local	Regional	Provincial	Federal[14]	
City of Krems	X				7/20/11
Community of Krumau am Kamp; Office of the Lower Austrian Provincial Government, Group: *Water*, Department: Water Management, Regional office Waldviertel	X	 X			7/20/11
Regional Management Agency Lower Austria-Waldviertel		X			7/13/11
Office of the Lower Austrian Provincial Government, Group: *Construction*, Department: Hydrology and Geoinformation			X		7/14/11
Office of the Lower Austrian Provincial Government, Group *Water*, Department: Water Management			X		7/14/11
Federal Ministry of Agriculture, Forestry, Environment and Water Management, Department of Emission Control and Climate Protection				X	12/7/11
Environment Agency Austria				(X)	11/28/11

UPPER AUSTRIA: TOURISM					
Organisation	Governmental Level				Date
	Local	Regional	Provincial	Federal	
Community of St. Wolfgang; Upper Austrian Tourism Board	X		X		7/18/11
Regional Tourism Association of the "Attersee-Salzkammergut" region		X			7/19/11
Upper Austrian Tourism, Department of Tourism Development			X		7/19/11
Federal Ministry of Economy, Family and Youth, Department of Tourism and Historical Objects, Tourism-Service Center				X	9/9/11
Federal Ministry of Agriculture, Forestry, Environment and Water Management, Department of Emission Control and Climate Protection				X	12/7/11
Environment Agency Austria				(X)	11/28/11

[14] The Department of Water Management at the Federal Ministry of Agriculture, Forestry, Environment and Water Management declined to give an interview on climate change adaptation in flood protection for reasons explained in section 3.

Annex 2: Interview guide (in German)

a) Hochwasserschutz Niederösterreich

I. Name:
II. Vorname:
III. Organisation/Institution:
IV. Funktion:
V. Datum:
VI. Dauer des Interviews:

1. Persönliche Rolle/Zuständigkeit im Bereich Hochwasser(schutz)

2. A) Im Bereich der strategischen, allgemeinen Ausrichtung o.ä. tätig?
   B) Im Bereich der (praktischen) Umsetzung von Maßnahmen tätig?

3. Konkrete Bezugnahme der (persönlichen) Tätigkeit auf/Verbindung zu Klimawandel und seine Folgen (Ist es ein Thema? Inwiefern? Wie präsent? …)

4. Sind Maßnahmen konkret auf den Klimawandel bzw. auf die zu erwartenden Folgen des Klimawandels ausgerichtet/abgestimmt? Also: sind Maßnahmen im Bereich des Hochwasserschutzes konkret auf Anpassung an den Klimawandel ausgerichtet?

5. Erwartete Folgen:
   A) Welche Folgen sind das/Mit welchen Folgen rechnen Sie? Welche Folgen des Klimawandels werden aller Voraussicht nach Auswirkungen auf Ihren Bereich haben?
   B) Welche Folgen erachten Sie als am wichtigsten/zentralsten für den Hochwasserschutz? An was müssen Sie sich am ehesten anpassen?
   C) Quellen(lage)/Verwendete Quellen/Auf was beziehen Sie sich (Studien, eigenen Erfahrungen, Kooperation mit anderen Akteuren, etc.)? Arbeiten Sie mit Wissenschaftlern direkt zusammen?

6. Hat Anpassung an den Klimawandel Auswirkungen auf Ihren Bereich? Richten Sie Ihre Arbeit im Bereich Hochwasser(schutz) anders aus? Und: erkennen Sie eine gemeinsame Strategie?
   A) Wenn Ja: Von wem geht Sie aus? Wer ist die treibende Kraft?
   B) Wenn Nein: warum nicht?
   C) Sind Erfolge zu erkennen?
   D) Probleme/Hindernisse/Verbesserungspotential einer erfolgreichen Anpassungsstrategie?
   E) Sind die rechtlichen Rahmenbedingungen adäquat? Oder eher hinderlich? …

7. Was sind die Maßnahmen vonseiten der POLITIK, die konkret auf den Klimawandel bzw. auf die Folgen des Klimawandels ausgerichtet sind? (im Bereich Hochwasserschutz!)
   A) Welche Maßnahmen werden gesetzt? Warum diese?
   B) Haben Sie das Gefühl, dass die Maßnahmen adäquat sind? Stehen Ihnen jene Maßnahmen, die Sie gerne setzen würden, in ausreichendem Maße zur Verfügung?
   C) Sind die Zusammenhänge zwischen Maßnahmen und (angeblichen) Folgen ersichtlich/nachvollziehbar?

8. Wer sind die relevanten Player/Akteure (in Planung, strategischer Ausrichtung und Umsetzung von politischen Maßnahmen)?
   A) Politisch: Gemeinden, Land, Bund?
   B) Andere (Unternehmen, NGOs, etc.)

9. Wer sind die Aktivposten? Wer treibt das Ganze an? Wer bremst?

10. Welche Interessen stehen – Ihrer Meinung nach – dahinter? Bzw.: Werden diese formuliert?
    A) Inwiefern hoffen die Akteure, dass es sich positiv für sie auswirkt?
    B) Werden (meist) die gleichen Interessen verfolgt? Großes Konfliktpotential? Wie könnte man das ändern/diesbzgl. vermitteln/o.ä.?

11. Wie funktioniert die Zusammenarbeit mit Akteuren anderer politischer Ebenen (Gemeinden/[Regionen]/Ländern/Bund) sowie mit anderen Bereichen/Abteilungen auf derselben Ebene?
    A) Institutionalisierung der Zusammenarbeit?
    B) Abhängigkeit von Einzelpersonen?
    C) Sind die Verantwortlichkeiten geklärt/klar/nachvollziehbar?
    D) Stehen (Extra-)Mittel für die Zusammenarbeit/Abstimmung/o.ä. zur Verfügung?
    E) Verbesserungsmöglichkeiten?

12. Erfahrungen betr. bereits implementierte Maßnahmen? Kann man bereits auf Erfolge/Misserfolge verweisen? →
    Oder eher schwer abzuschätzen? (Vergleichsmöglichkeiten?/ Komplexität erfassbar?/ …)

13. Betreffend das Problem ausreichend Ressourcen? Was betrifft die Knappheit: Personal, Expertise, Finanzen, etc.?

14. Was – glauben Sie – wären die wichtigsten/effektivsten Schritte, um Hindernisse, die wir jetzt angesprochen haben, zu überwinden?

15. Anmerkungen Interviewpartner

b) Tourismus Oberösterreich

I. Name:
II. Vorname:
III. Organisation/Institution:
IV. Funktion:
V. Datum:
VI. Dauer des Interviews:

1. Persönliche Rolle/Zuständigkeit im OÖ Tourismus

2. A) Im Bereich der strategischen Ausrichtung des OÖ Tourismus tätig?
   B) Im Bereich der (praktischen) Umsetzung von Maßnahmen tätig?

3. Konkrete Bezugnahme der (persönlichen) Tätigkeit auf/Verbindung zu Klimawandel und seine Folgen (Ist es ein Thema? Inwiefern? Wie präsent? …)

4. Ist Klimawandelanpassung im OÖ-Tourismus ein Thema? Politische Ziele zum Thema Tourismus/Anpassung an Klimawandel in OÖ?

5. Erwartete Folgen:
    A) Welche Folgen stehen im Mittelpunkt der Klimawandel-Anpassung im Bereich Tourismus?
    B) Welche Folgen erachten Sie als am wichtigsten für den Tourismus (Sommer/Winter)?
    C) Quellen(lage)/Verwendete Quellen/Auf was beziehen Sie sich (Studien, eigenen Erfahrungen, Kooperation mit anderen Akteuren, etc.)? Arbeiten Sie mit Wissenschaftlern direkt zusammen?

6. Der OÖ Tourismus richtet sich auf Ganzjahrestourismus aus: wie wirkt sich das – in Ihrem Bereich – aus? Sind Sie Teil dieser Neuausrichtung? Erkennen Sie eine gemeinsame Strategie?
    A) Wenn Ja: Von wem geht Sie aus?
    B) Wenn Nein: warum nicht?
    C) Sind Erfolge zu erkennen?
    D) Probleme/Hindernisse/ Verbesserungspotential einer erfolgreichen „Umorientierung"/Anpassung des OÖ Tourismus?
    E) Sind die rechtlichen Rahmenbedingungen adäquat? Oder eher hinderlich? …

7. Gibt es bereits POLITISCHE Maßnahmen, die konkret auf den Klimawandel bzw. auf die zu erwartenden Folgen des Klimawandels ausgerichtet sind? Politische Maßnahmen zur Förderung des Ganzjahrestourismus?
    A) Welche politischen Maßnahmen werden gesetzt? Warum diese?

B) Haben Sie das Gefühl, dass die Maßnahmen adäquat sind? Stehen Ihnen jene Maßnahmen, die Sie gerne setzen würden, in ausreichendem Maße zur Verfügung?
C) Sind die Zusammenhänge zwischen Maßnahmen und (angeblichen) Folgen ersichtlich/nachvollziehbar?

8. Wer sind die relevanten Player/Akteure (in Planung, strategischer Ausrichtung und Umsetzung von politischen Maßnahmen)?
   A) Politisch: Gemeinden, Land, Bund?
   B) Andere (Unternehmen, NGOs, etc.)

9. Wer sind die Aktivposten? Wer treibt das Ganze an? Wer bremst?

10. Welche Interessen stehen – Ihrer Meinung nach – dahinter? Bzw.: Werden diese formuliert?
    A) Inwiefern hoffen die Akteure, dass es sich positiv für sie auswirkt?
    B) Werden (meist) die gleichen Interessen verfolgt? Großes Konfliktpotential? Wie könnte man das ändern/diesbzgl. vermitteln/o.ä.?

11. Wie funktioniert die Zusammenarbeit mit Akteuren anderer politischer Ebenen (Gemeinden/[Regionen]/Ländern/Bund) sowie mit anderen Bereichen/Abteilungen auf derselben Ebene?
    A) Institutionalisierung der Zusammenarbeit?
    B) Abhängigkeit von Einzelpersonen?
    C) Sind die Verantwortlichkeiten geklärt/klar/nachvollziehbar?
    D) Stehen (Extra-)Mittel für die Zusammenarbeit/Abstimmung/o.ä. zur Verfügung?
    E) Verbesserungsmöglichkeiten?

12. Erfahrungen betr. bereits implementierte Maßnahmen? Kann man bereits auf Erfolge/Misserfolge verweisen? →
    Oder eher schwer abzuschätzen? (Vergleichsmöglichkeiten?/ Komplexität erfassbar?/ …)

13. Betreffend das Problem ausreichend Ressourcen? Was betrifft die Knappheit: Personal, Expertise, Finanzen, etc.?

14. Was – glauben Sie – wären die wichtigsten/effektivsten Schritte, um Hindernisse, die wir jetzt angesprochen haben, zu überwinden?

15. Anmerkungen Interviewpartner

Annex 3: Legal responsibilities in flood protection

Measure	Area of law	Governmental level		
		Local	Provincial	Federal
Active protection	*Building law*	- Definition of flood-threatened areas (in local land use plans) - Housing or open space-concepts (referring to the land management plan)	- Maintenance and protection of buildings and their users - Preventive flood protection	- Water regulation infrastructure (e.g. flood protection dams, straightening and/or broadening of water courses) - Risk zone plans; river engineering
	Water law			- Preventive flood protection (concerning waters and their catchment areas) - Regulation and maintenance of waters - Regulation of flow conditions
	Nature and landscape conservation		- Torrent control measures	
Passive protection	*Regional development*	- Local spatial planning (determined by provincial spatial planning); definition of retention areas - Area zoning (according to spatial-functional provisions of the province) - Local development plan - Realization of specific provincial and federal spatial planning acts (according to local demands)	- Overall spatial planning responsibilities (determines local spatial planning) - Supra-local development plan; definition of retention areas - Coordination of demands for land use - Restrictions in order to (I) avoid damages of specific water routes and ground water areas and (II) maintain clean waters (see also *water use)*	- Case-specific spatial planning responsibilities - Formulation of spatial planning interests and goals - Provision of protective water management concepts; definition of HQ30- and HQ100-inundation zones - Fulfilment of EU requirements - Risk zone plans (only the nature of a proposal to the provinces)
Water use	*Building law*			- Maintenance and protection of buildings which serve the direct water use
	Water law	- First instance for the execution of the *water law*	- Execution of the *water law* - Restrictions in order to (I) avoid damages of specific water routes and ground water areas and (II) maintain and keep clean waters (see also passive protection)	- Maintenance and protection of waters - Modification of water lines and immediate catchment areas - Removal of water pollution (with the exception of disastrous pollution)
	Environmental law	- Wastewater disposal		
	Other			- Implementation of the EU Water Framework Directive
Supervision and monitoring	*Civil protection law*	- Provision of local disaster protection plans to the province (not mandatory)	- Maintenance of a comprehensive flood warning system (implementation and organisation)	
Disaster management an disaster relief	*Civil protection law*	- Authority in charge of immediate flood protection within community borders	- In charge of immediate flood protection if crossing community borders - Provincial warning centres	

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Annex 4: Legal and other responsibilities in tourism policies

Level of government	Instrument type	Policy	Themes adressed		
			Diversi-fication	New target groups	All-year tourism
Federal level	Subsidies	Promotion of business tourism projects (*Förderung von betrieblichen Tourismusprojekten*)	X	X	-
		TOP Tourismus-Förderung (TOP A Investment)	X	-	X
		General tourism promotion and EU co-financing	X	-	-
	Marketing	National tourism organisation (*Österreich Werbung*)	-	X	-
	Strategies	National Adaptation Strategy	X	X	X
	Legal regulations	-	-	-	-
Provincial level	Subsidies	Tourism-Impulse program (immaterial investments)	X	X	-
		Tourism-Impulse program (material investments)	X	-	-
		Tourism-Impulse program (innovation-cooperation; touristic infrastructure; marketing-sales)	X	X	X
		Funding of infrastructure (provincial roads, etc.)	X	-	X
	Marketing	Upper Austrian Tourism Marketing	X	X	X
	Strategies	*Kursbuch Tourismus Oberösterreich 2011-2016*	X	X	X
		Upper Austrian Adaptation Strategy	X	X	X
	Legal regulations	Tourism law	-	-	-
		Building codes	X	-	X
		Supra-local spatial planning	X	-	X
		Regulation of touristic events	X	X	X
Local level	Subsidies	Funding of local infrastructure	X	-	X
	Marketing	Tourism community (*Tourismusgemeinde*)	X	X	X
	Strategies	Local tourism concepts	X	X	X
	Legal regulations	Local spatial planning	X	-	X

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