Climate Adaptation Governance in Austria
Country Report Austria (WP1)

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Final Report
Vienna, December 2018

This project is co-financed by the European Regional Development Fund through the Interreg Alpine Space programme
Table of contents

1 Introduction .................................................................................................................................................. 5
  1.1 Background: the GoApply project ........................................................................................................ 5
  1.2 Goals of the report ................................................................................................................................ 5

2 Methods .................................................................................................................................................. 6
  2.1 Mapping of climate adaptation governance .......................................................................................... 6
    2.1.1 Categories of governance network items ....................................................................................... 6
    2.1.2 Identification, selection and analysis of governance items .......................................................... 7
    2.1.3 Scope of the mapping ...................................................................................................................... 8
  2.2 Case study design .................................................................................................................................. 9
    2.2.1 Goals and research questions ......................................................................................................... 9
    2.2.2 Selection of cases ........................................................................................................................... 10
    2.2.3 Data collection and analysis .......................................................................................................... 11
  2.3 Selection of good practice examples .................................................................................................... 12

3 Mapping climate adaptation governance in Austria ................................................................................. 13
  3.1 Policies ................................................................................................................................................ 13
    3.1.1 Work programmes of the Austrian federal government ................................................................. 13
    3.1.2 National Adaptation Strategy (NAS) and National Adaptation Action Plan (NAP) ......................... 13
    3.1.3 Provincial Adaptation Strategies on federal state level ................................................................... 16
    3.1.4 KLAR! funding programme for climate adaptation model regions ............................................... 17
    3.1.5 Research funding programmes ...................................................................................................... 18
  3.2 Measures ............................................................................................................................................. 18
    3.2.1 Information, knowledge provision and capacity-building infrastructure ..................................... 19
    3.2.2 Dialogue Events in Provinces and Regions .................................................................................... 19
    3.2.3 KLAR! – Climate Change Adaptation Model Regions .................................................................. 20
    3.2.4 Adaptation advisory services for municipalities ......................................................................... 22
    3.2.5 Working Group on “Self-Responsible Risk Precaution” (LURK AG) ................................................. 23
    3.2.6 “Natural Hazards Check Climate Change” for Austrian municipalities ........................................ 23
  3.3 Knowledge .......................................................................................................................................... 24
    3.3.1 APCC Austrian Assessment Report 2014 and Special Reports ....................................................... 24
    3.3.2 ÖKS15 – Climate Scenarios for Austria .......................................................................................... 25
    3.3.3 COIN – Cost of Inaction: Assessing the cost of climate change for Austria .................................. 26
    3.3.4 Project-based decision support ...................................................................................................... 26
3.4 Actors ................................................................................................................................. 27
  3.4.1 Federal Ministry of Sustainability and Tourism (BMNT) ........................................... 27
  3.4.2 Environment Agency Austria (EAA) .............................................................................. 27
  3.4.3 The National Climate Protection Committee (NKK) .................................................... 28
  3.4.4 Conference of State Environmental Ministers (LURK) .................................................. 29
  3.4.5 Climate Coordination Officers of the federal states ...................................................... 29
  3.4.6 Regional climate adaptation managers in model regions ............................................. 30
3.5 Visualisation ....................................................................................................................... 30

4 Good practice examples of climate adaptation governance in Austria.................. 31
  4.1 Good practice example 1 ................................................................................................. 31
  4.2 Good practice example 2 ................................................................................................. 32
  4.3 Good practice example 3 ................................................................................................. 33
  4.4 Good practice example 4 ................................................................................................. 34
  4.5 Good practice example 5 ................................................................................................. 35

5 Case Studies ......................................................................................................................... 37
  5.1 Case Study 1: Multilevel governance of climate adaptation by the example of the federal state of Styria ............................................................................................................ 37
      5.1.1 Case study description .............................................................................................. 37
      5.1.2 Case study analysis .................................................................................................. 39
      5.1.2.1 Climate adaptation goals and goal achievement ...................................................... 39
      5.1.2.2 Most supportive factors ........................................................................................ 39
      5.1.2.3 Main barriers ........................................................................................................ 44
      5.1.3 Major lessons learned .............................................................................................. 47
  5.2 Case Study 2: Working Group on “Self-Responsible Risk Precaution” [LURK AG]...... 51
      5.2.1 Case study description .............................................................................................. 51
      5.2.2 Case study analysis .................................................................................................. 52
      5.2.2.1 Climate adaptation goals and goal achievement ...................................................... 52
      5.2.2.2 Most supportive factors ........................................................................................ 53
      5.2.2.3 Main barriers ........................................................................................................ 55
      5.2.3 Major lessons learned .............................................................................................. 56

6 Lessons learnt and enhancement options ................................................................. 60
  6.1 Major lessons learnt ....................................................................................................... 60
  6.2 Major enhancement options ......................................................................................... 65
7 Conclusions .................................................................................................................. 69
8 References .................................................................................................................. 71
9 Annex .......................................................................................................................... 74
  9.1 List of interviews ...................................................................................................... 74
  9.2 Interview guide Case 1 – Styria (sample) ................................................................. 75
  9.3 Interview guide Case 2 – LURK AG (sample) .......................................................... 81
  9.4 Analytical matrix for evaluation of interviews .......................................................... 86

Listing of Tables
Table 1: List of the 20 climate adaptation model regions receiving funding by the KLAR! Programme........ 21
Table 2: List of interviews conducted for two case studies ...................................................... 74

Listing of Figures
Figure 1: Structure of the Austrian Adaptation Action Plan (Lexer et al. 2015) ......................... 15
Figure 2: The Austrian strategy for adaptation to climate change (BMNT, 2017a) ...................... 15
Figure 3: Status and types of adaptation strategies on the level of the federal states (graph: Umweltbundesamt, 2018) ................................................................. 17
Figure 4: Allocation of KLAR! model regions across Austria (Source: Klima- und Energiefonds 2018; Tiles © Esri — Esri, DeLorme, NAVTEQ) ................................................................. 21
Figure 5: Governance network of the KLAR! model region Zukunftsregion Ennstal, Styria ........ 21
Figure 6: Number of measures per type of measure and sector (graph: Umweltbundesamt 2018) .... 22
Figure 7: Visualisation of the governance network of the Climate Adaptation Strategy Styria 2050 .... 38
Figure 8: Visualisation of the Working Group on Self-Responsible Risk Precaution – Measure ........ 52
Figure 9: Visualisation of the Working Group on Self-Responsible Risk Precaution – Actor ........ 52
1 Introduction

1.1 Background: the GoApply project

This report is a deliverable of the project GoApply – Multidimensional governance of climate change adaptation in policy making and practice1 (11/2016 – 04/2019). The project is co-funded by the Interreg V B Alpine Space Programme 2014-2020, runs under programme priority 4 “Well-governed Alpine Space” and addresses the programme objective “Increase the application of multilevel and transnational governance in the Alpine Space”.

GoApply responds to challenges, barriers and gaps related to multilevel governance that currently all Alpine countries are facing in their efforts to implement their national adaptation strategies in practice. The project aims to strengthen capacities for the governance and implementation of climate adaptation across multiple levels and sectors. In doing so, it pursues the following specific objectives in interlinked work packages:

1. Improving understanding of adaptation governance systems and promoting vertical coordination and cooperation for the implementation of adaptation policies across levels
2. Supporting effective horizontal integration of climate change adaptation into relevant sector policies (mainstreaming)
3. Strengthening more active involvement of public and non-public stakeholders in regions and municipalities and stimulating adaptation coordination structures on sub-national levels
4. Sustaining, deepening and leveraging transnational cooperation, knowledge transfer and learning in the context of the EU Strategy for the Alpine Region (EUSALP) and the Alpine Convention

GoApply tackles these objectives in a transnational approach. The project builds on the network of the national public adaptation coordinators responsible for climate adaptation policy-making in the Alpine countries. These institutions are carrying out the project as project partners and in observer roles.

WP1 of the GoApply project is centered around three main lines of activities:

- Mapping, analysing and comparing multilevel climate adaptation governance systems
- Compiling good practice examples of effective adaptation governance
- Exploring and developing governance enhancement options and innovations

The results are delivered in country reports (Austria, Germany, Italy, Switzerland) and compiled in a transnational synthesis report, which presents a knowledge base for enhanced Alpine multilevel adaptation governance and a portfolio of success factors, barriers, lessons learnt, good practice examples, and enhancement options. Moreover, the mappings of the national adaptation governance systems have been visualised in an interactive website2. The report at hand contributes to the transnational synthesis and complements the online visualisation.

1.2 Goals of the report

In accordance with the objectives of WP1 of the GoApply project, the goal of this study is to gain and provide a deeper understanding of climate adaptation governance in Austria, to build a practice-related knowledge base, and to contribute to strengthening of multilevel governance capacities of adaptation actors. By mapping the adaptation governance network, describing and analysing selected elements of

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2 http://markjanbludau.de/goapply/?#
overriding importance, conducting case studies and identifying good practice examples, we seek to answer
the research questions presented in chapter 2 of this report. The focus of our analysis is on the most
important success factors and barriers facilitating or hindering the planning and implementation of climate
adaptation, and on how to overcome barriers and further capitalize on success factors. Based on analytical
findings, we aim at deriving lessons learnt and developing enhancement options for the improvement of
adaptation governance. The Austrian country report shall inform the transnational comparison and
synthesis of similar studies conducted, based on the same methodological framework, in the other partner
countries.

2 Methods

2.1 Mapping of climate adaptation governance

The mapping of climate adaptation governance in the Alpine countries within the GoApply project involved
the identification, systematic stocktaking, analysis, visualisation and selective description of relevant
governance elements and processes. The methodological approach applied to the mapping of the climate
adaptation governance system in Austria follows the common framework and applies the procedure and
tools developed by the WP1 leader FOEN / WSL with the support of all partners (Pütz et al., 2018; see also
Annex to the GoApply WP1 synthesis report). Basic definitions that facilitate self-contained understanding
of this report as well as specific rationales of the approach applied to the mapping exercise in Austria are
explained in the sections below.

2.1.1 Categories of governance network items

Building on the common understanding of “climate adaptation governance” as defined within the GoApply
project (Pütz et al., 2018), for the purpose of mapping “governance” is conceptualised as a multi-level
network of i) policies, ii) measures, iii) actors and iv) knowledge resources, which are linked by different
types of v) interactions, often cutting across levels (Braunschweiger et al., 2018).

The term “policies” (i) is applied to the following types of items, which are usually identifiable in the form
of policy documents and represent outputs of public policy making: i) strategies, actions plans, concepts or
programmes of measures, political resolutions or agreements; ii) funding programmes and financing
schemes, in particular if they act as important policy instruments providing (co-)funding for pilot adaptation
projects, model regions, measures and knowledge production, and therewith support implementation of
overarching strategies; iii) relevant pieces of legislation (laws, regulations, ordinance).

“Measures” (ii), as used in this report, include all activities, actions, initiatives, projects, procedures, and
interaction formats (e.g., information and awareness-raising events, stakeholder participation processes)
implementing adaptation. Measures are often formulated and laid down in policy documents (e.g. in an
adaptation action plan). As regards their status quo, relevant measures can be implemented, running and
planned adaptation measures. They can be both dedicated adaptation measures and sector-related
measures. Sector-related adaptation measures can be designed for either one specific sector or as multi-
sectoral (or cross-sectoral) measures. Measures can be voluntary or mandatory, individual cases or regular
routines, innovative or standard procedures. In principle, measures include both ‘hard’ (structural)
measures and ‘soft’ measures enabling, facilitating, and supporting actors in actually implementing ‘hard’
measures (e.g. communication activity, awareness-raising campaign, capacity-building, enhancement of the
knowledge base, establishment of regional adaptation capacities).
“Actors” (iii) can be individuals and collectives, incl. authorities, organisations, agencies, working groups, coordination bodies, networks etc. This includes actors from public administration, politics, research and science, business and industry, and civil society. Mapping actors involves a judgment on their position (responsibilities, mandate) in the adaptation process and on their role in interactions with other governance items. Key actors are usually characterized by their legitimate role and decision-making power, sufficient resources (expertise, capabilities, etc.), and a well-working network of relationships to relevant other actors.

“Knowledge” (iv) includes the most relevant climate adaptation related knowledge and information resources. Knowledge is provided by basic and applied research, by monitoring and evaluation of past adaptation experiences, and by tapping the experiences and local expertise of stakeholders. Typical adaptation-related knowledge resources include climate scenarios, climate impact assessments, risk or vulnerability analysis, climate information services and databases as well as tools, guidelines, manuals, work aids and decision support systems.

The four categories of governance network items described above are linked through different types of “interactions” (v). These refer to processes and practices of adaptation and can be characterized as relations between policies (i), measures (ii), actors (iii), and knowledge (iv). The mapping distinguishes the following generic types of governance interactions: information (incl. influencing and co-developing of policies and measures); decision-making; implementation; financing; and monitoring (incl. reporting and evaluation). Mapping governance thus means taking stock and visualising (1) who or what implements which policies and measures, (2) who or what informs which policies, measures, and actors, and (3) who decides, funds, and monitors which policies and measures (Braunschweiger et al., 2018).

2.1.2 Identification, selection and analysis of governance items

To get a clear picture about the overall state of play of the adaptation governance system and adaptation policy processes in Austria, we mapped relevant governance network items (i – v, as defined above) from a country-wide perspective. An item has been considered as relevant if it actually does exist, is adopted or in place, is working, being implemented and being used. In exceptional cases, an item could also be considered relevant if its development is in progress or its deployment is foreseeable, and if it has been replaced or revised (e.g., a policy document), but is still considered helpful in tracking evolution of adaptation governance over time.

Identification of items builds, for the most part, on desktop research and the expertise of the Environment Agency Austria (EAA) and was greatly facilitated by the agency’s central role in adaptation policy processes, knowledge generation and its brokerage in Austria. Selection of items for entry into the mapping database and the online visualisation is based on expert judgments about relevance by the EAA project team and internal consultations within its climate change department. Expert assessments were guided by the following qualitative criteria:

- relevance from a country-wide perspective (i.e. for several or all federal states)
- relevance in a multi-level governance context (i.e. preference for items linking two or more governance levels);
- governance elements that are innovative, more recent and have potential to shape future dynamics of adaptation governance in Austria;
- priority for comprehensiveness over selectiveness, if in doubt (for both the national scale and the regional zoom-in example of the federal state of Styria).
Gathering of data relied heavily on screening and analysing relevant contents of documents, i.e. adaptation strategy documents themselves were an important information source for identifying the connected measures, actors, and knowledge resources.

In principle, the selection of policies relevant to adaptation comprises both, dedicated (stand-alone) climate adaptation policies and sectoral policies with explicit integration of climate adaptation goals (mainstreaming of climate adaptation). The focus of this report is on stand-alone climate adaptation policies from the national to the regional level. Particularly relevant sectoral policies (strategies, programmes) on the national level that have integrated climate adaptation concerns have been mapped and visualised, but have been omitted from this report.

Due to their relevance in a governance context, ‘soft’ types of measures prevail in the Austrian mapping. As regards measures defined in comprehensive national or state level adaptation strategies, single measures have not been mapped one-by-one, but in an accumulated way at the level of sectoral activity fields. As an exception to this general rule, adaptation measures related to natural hazard prevention and disaster risk reduction have been charted individually (chapter 2.1.3).

Mapping of the diverse specific actors, as addressed e.g. as implementing agents in policy documents, was to some extent done by aggregating them into more homogeneous, standardized actor groups (such as ‘interest groups/associations’, ‘infrastructure and service providers’).

Knowledge resources are considered particularly relevant to the governance of adaptation if, firstly, they serve as the knowledge base for the development and/or implementation of adaptation policies and measures, if they inform decision-making of actors, and if they support the building of awareness of stakeholders and the public. Secondly, knowledge is relevant as a governance item if it is produced or provided by the implementation of a policy or a measure (usually to further enhance future adaptation practices).

A structured stocktaking matrix provided by WP1 leader FOEN / WSL was used to collect and organise the data, including additional information about items, such as the time dimension and weblinks.

2.1.3 Scope of the mapping

Scope of the visualisation

The entire mapping database and the online visualisation cover the Austrian climate adaptation governance landscape as far as relevant from a country-wide perspective and up to the date of publishing this report. Starting out from the national adaptation strategy and action plan at federal level, the focus is thus on governance elements and processes that are, in one way or another, of relevance for entire Austria, i.e. for several or all of its nine federal states. The regional adaptation policy processes in place in the federal states are covered comprehensively as far as the level of regional adaptation strategies and climate adaptation model regions, including the related actors, knowledge and processes.

As a detailed and complete multi-level mapping for all of Austria was beyond the scope of the project, we applied an additional two-fold case study approach to add larger depth of detail to selected areas of interest. This enriches the country-wide picture with a regional focus and a thematic focus:

(1) Regional focus: We mapped the adaptation governance landscape of one federal state by the example of Styria, ranging from the level of the state government to the levels of Styrian model regions and pilot municipalities. This allowed capturing the complete multi-level governance chain from the federal down to the local level in an exemplary way.

(2) Thematic focus: We selected the policy field of natural hazard management and disaster risk reduction to shed light in an exemplary way on the mainstreaming of adaptation into a selected
sector. This choice of an additional sectoral mainstreaming focus responds to the close connection between climate change and natural hazard processes as well as to recent international and EU policy frameworks calling for enhanced coherence of climate adaptation and disaster risk reduction policies. Within all categories of governance items, the mapping thus covers items related to the natural hazard / disaster risk sector that are relevant in the adaptation context. In particular, we have included in detail all respective single measures of the national and the Styrian adaptation strategy.

At the time of publishing this report, the online visualisation of Austrian adaptation governance contains 67 policies, 187 measures, 113 actors, and 95 knowledge items, which are connected by more than 5,000 interactions.

**Scope of the descriptive report**

This report highlights and describes in larger detail the most important adaptation governance elements in Austria (chapter 3). The focus is on key items within each of the categories that are considered most relevant for adaptation policy-making in entire Austria from a multilevel governance perspective. Based on expert judgment, we selected key governance elements that have strong multilevel dimensions, are of more recent origin, represent interesting governance innovations, and hold promising future potential to leverage the implementation dynamics of adaptation. Significant governance interactions and links between levels are referenced where applicable. The purpose is to give a focussed introduction and overview of the state of play of adaptation governance in Austria (chapter 3), to support identification of good practice examples (chapter 4), to provide context information for the analysis of case studies (chapter 5), and to back up lesson-drawing and formulation of enhancement options (chapter 6).

### 2.2 Case study design

#### 2.2.1 Goals and research questions

The objective of empirical case study work is to gain a deeper understanding of climate adaptation governance at and across levels of government in Austria by investigating selected practice cases of multilevel governance. The analysis of case studies focuses on the most important facilitating factors and barriers hindering or supporting the planning and implementation of climate adaptation, and on how to overcome barriers and further capitalize on success factors. By shedding light on processes, interactions and context conditions, the case studies put particular emphasis on factors that are relevant to the vertical governance of climate adaptation across levels and seek to answer in how far, and why, the respective approaches have been successful (or not). In accordance with the methodological framework of the project (Pütz et al., 2018), our research focus was guided by the following questions:

1. What climate adaptation goals are/were pursued in the cases, and to which extent have these goals been achieved?
2. What are the most supportive factors for climate adaptation from a governance perspective?
3. What are the main barriers for climate adaptation from a governance perspective?
4. What are the major lessons learned? What options do actors identify for enhancing adaptation governance across levels?

By comparing the findings of both cases and blending them together with insights gained from the mapping of the Austrian adaptation governance system, we aim to derive overall lessons learnt and to identify strategic enhancement options to improve multi-level climate adaptation governance in Austria (chapter 6).
2.2.2 Selection of cases

In order to investigate the abovementioned research questions, we performed a comparative analysis of two case studies. Our cases were:

1. Multi-level governance of climate adaptation by the example of the federal state of Styria
2. The cross-level Working Group on “Self-Responsible Risk Precaution” [LURK AG]

These cases will in the following be refered to as **Case 1 - Styria**, and **Case 2 - LURK AG**.

We selected the two cases according to the following **general criteria**:

- richness of multilevel governance aspects, with relevance for two or more levels of government;
- relevance and added value for climate adaptation governance in Austria on a country-wide scale;
- pre-existing expert knowledge and field access to interview partners;
- synergies with other work packages in the GoApply project, in particular coverage of mainstreaming aspects related to natural hazard management and disaster risk reduction.

Building on these general criteria, the two cases have been selected based on the following more **specific rationales**:

**Case 1 – Styria**: Styria has a broad, multi-sectoral regional adaptation strategy (RAS) in place since 2015, which allows essential insights into frontrunner-experiences with multilevel governance of adaptation for the agendasetting, formulation and implementation phases of the policy cycle. Since the Styrian RAS was developed in close connection to the NAS and frequently addresses regional actors and municipalities as implementing agents, the investigation of this case facilitates understanding of both, the governance interactions between national and state level, and between the state level and regional/local levels. Moreover, Styria is part of the existing cross-level coordination bodies in Austria and collaborates actively in joint implementation initiatives of the federal Ministry and state governments, thus allowing insights into multilevel governance mechanisms relevant for entire Austria. As Styria has the highest share of KLARI model regions (see chapter 3.2.3) among all federal states and additionally participates with a sample of pilot municipalities in a running LIFE project on local adaptation, it has experience and a track record in coordinating adaptation on sub-state level. In addition, the Styrian RAS defines a considerable number of measures relevant to the natural hazard and disaster risk sector, and the responsible sector departments of the state administration were part of the core team for RAS development, which allows analysis of horizontal governance aspects. Finally, an UBA expert was involved in the RAS development, allowing us first hand insights and excellent field-access.

**Case 2 - LURK AG**: The case meets all selection criteria as regards a number of aspects and dimensions. Firstly, the Working Group has been established in response to a resolution by the Conference of the State Environment Ministers (LURK), which itself is a cross-level coordination body of the federal government and the state governments. The mandate explicitly relates to the implementation of cross-cutting measures of the NAS, which require close vertical and cross-sector cooperation. Secondly, the LURK AG is a joint initiative by the responsible Ministry and the state governments for coordinated implementation of the NAS and the state-level adaptation strategies. It is composed of representatives of the federal government and the state administrations from both sectoral policy fields, climate adaptation and natural hazard management, and thus clearly serves as a multi-level and horizontal governance format. Thirdly, the developed output, a tool and procedure for natural hazard and climate risk checks, explicitly addresses municipalities in an attempt to enter a new stage of adaptation counselling, thus extending the interactions across levels also to municipal authorities. Fourthly, also the implementation phase of the developed product – training of check coordinators, financing, documentation, coordination, etc. – is organized collaboratively between the federal Ministry and the states. Last not least, all phases of the LURK AG
process deliberately aim at enhanced coherence between climate adaptation and disaster risk reduction and build on the horizontal cooperation between the two affected policy fields. The case thus offers crucial insights into a highly innovative approach to the multilevel and cross-sector governance of adaptation within a federal state setting.

2.2.3 Data collection and analysis

We conducted our research using two complementary analytical approaches, document analysis and expert interviews.

In the document analysis, we studied the available official documents that were identified in the mapping exercise, e.g. the RAS document, the adaptation concepts of the Styrian KLAR! model regions, and the referenced knowledge resources. Especially in Case 2 - LURK AG, where public documents are still rare, we used internal documents which we accessed through participants (for details on this methodology, see Flick 2014).

Based on the guidance provided by the WP1 methodological framework and the information gained through desktop research, we developed semi-structured interview guides for qualitative expert interviews. The interview guides were adjusted to each case and to the background situation of each interviewee. All interview guides covered our research questions and were structured into the following main items: agenda-setting and initiation; development of policy and measures; implementation of measures; success factors and barriers; outlook, recommendations and potentials for improvement. Altogether, we conducted eight expert interviews with ten key actors from both cases, including two double interviews (for details on this methodology see Przyborski & Wohlrab-Sahr 2013, Meuser & Nagel 2009). The following experts were interviewed per case:

(1) **Case 1 – Styria**: Climate coordinator, senior officer flood risk management, head of department civil protection (all: state administration); two national adaptation coordinators (federal ministry, EAA); regional adaptation manager of one Styrian KLAR! Region; local adaptation coordinator (municipal council member and environmental municipal officer) of a Styrian LIFE project pilot municipality.

(2) **Case 2 – LURK AG**: Chair of LURK AG (head of department of federal ministry); deputy chair of LURK AG (senior officer for flood risk management in a federal state administration); external expert contracted for process support (EAA).

All interviews were conducted face-to-face from March to July 2018. They lasted between 45 and 120 minutes. We examined the recorded audio material and additional field notes through qualitative content analysis and entered the results into an analytical matrix (see annex to this report). This analytical matrix reflects the thematic clusters of the interview guide and is, in addition, structured based on the following theory-based concepts:

- simplified policy-cycle analysis (Vogel & Henstra 2015), consisting of the three stages: agenda-setting, development, and implementation;
- factors of policy change (Clar & Steurer, 2017; based on Kristof 2010, Jänicke & Weidner 1995, and others);
- adaptation barriers categorisation scheme of Biesbroek et al. (2011).

The analysis of case studies was conducted in two steps: i) separate for each single case, and ii) comparative across both cases. This particular design is well-suited for a qualitative investigation into a small number of cases with the purpose to better understand a large number of similar cases (Gerring 2004). Its specific strength lies in the combination of benefits from single-case analysis and cross-case analysis to test hypotheses by applying a “replication logic” (Yin 2003: 47) and to support the comparative
building of theory (Eisenhardt & Graebner 2007). According to Vogel & Henstra (2015: 116), the comparative in-depth study of multiple similar cases is particularly well-suited to investigate emerging policy fields, like multilevel climate adaptation, because the tentative and incremental theory-building leaves space for empirical evidence to unfold theory rather than vice versa (Vogel & Henstra 2015: 116).

2.3 Selection of good practice examples

The good practice examples of multilevel climate adaptation governance were identified from the entire database of mapped items, based on expert judgments of the authors and guided by the following criteria:

- The range of examples should cover all categories of governance items (as mapped and described in the chapter 2.1.1);
- each selected example should cover interactions across multiple levels and, ideally, be relevant for the national, state and regional or municipal level;
- examples should be relevant for entire Austria;
- examples should exemplify innovative aspects with learning potentials also for countries other than Austria;
- examples should be confirmed as “good practice” through the expert interviews (case studies) and/or previous research or publications, and they should exemplify success factors identified in the present study.
3 Mapping climate adaptation governance in Austria

3.1 Policies

It is an overriding characteristic of the adaptation policy field in Austria that there is no dedicated regulatory framework that stipulates policy making and implementation of climate adaptation in Austria. As in most other EU member states, climate adaptation strategies, action plans and the measures recommended therein have no direct anchoring in legislation, but are non-binding, “soft” policy instruments with guiding, information and orientation functions. Adoption of adaptation policy documents by government bodies (e.g., Council of Ministers) creates political legitimation and significance, but implementing adaptation is in essence a voluntary task without legal obligations. This contributes to explaining the strong role of informal, cooperation-oriented, “soft” governance modes and coordination formats that predominate Austrian adaptation policy-making on all levels.

3.1.1 Work programmes of the Austrian federal government

The National Adaptation Strategy (NAS), Austria’s central policy document for climate adaptation, was anchored twice as a goal in federal government programmes. This explicit mentioning provided the underlying political mandate and legitimation for efforts in national adaptation policy making from 2008 onwards:

- Work programme of the federal government 2008-2013: participatory development of a NAS;
- Work programme of federal government 2013-2018\(^3\): implementation and evaluation of the NAS.

In the work programme of the current government period 2017-2022\(^4\), the national adaptation policy process is not explicitly mentioned as such, but references to coping with the impacts of climate change are made in the context of several sector-related goals, among others with regard to a strategic infrastructure and spatial development concept, flood protection, water resource management, water supply infrastructure, sustainable forest management, agriculture, and the science-education-practice interface. This may indicate that climate adaptation is increasingly perceived by politics as a cross-cutting task to be mainstreamed in relevant sector policies.

3.1.2 National Adaptation Strategy (NAS) and National Adaptation Action Plan (NAP)

Participatory development of the first NAS and NAP:

Starting in 2007, the first Austrian National Adaptation Strategy (NAS) was developed over a period of five years under the political responsibility of the Federal Ministry of Agriculture, Forestry, Environment, and Water Management (BMLFUW), which has in the current government period been replaced by the Federal Ministry for Sustainability and Tourism (BMNT). The Ministry in its role as the process owner was extensively supported by the Environment Agency Austria (EAA), ranging from provision of technical expertise on vulnerability assessments and adaptation options to strategy drafting and steering of the national participation process. The process was organized along several, closely interlinked lines of work and employed different levels of participation, encompassing information, consultation and the active influence of stakeholders on decision-making in terms of joint strategy drafting. Over the duration of more than two years, a broad national stakeholder participation process involving 106 institutions, 670 persons

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\(^3\)https://www.justiz.gv.at/web2013/home/justiz/aktuelles/aeltere_beitraege/2013/arbeitsprogramm_der_oesterreichischen_bundesregierung_2013_bis_2018-2c94848642ec5e0d0142fac7f7b9019a.de.html

\(^4\)https://www.bundeskanzleramt.gv.at/documents/131008/569203/Regierungsprogramm_2017%e2%80%932022.pdf/b2fe3f65-5a04-47b6-913d-2fe512ff4ce6
and 16 workshops has been conducted. It was characterized by the extensive and active participation of representatives from the federal ministries, the state governments, organized interest groups, NGOs, and other institutions (incl. private sector companies, such as from the insurance industry). In addition, an online consultation of the broad public was conducted. The strategy (BMLFUW, 2012a, 2012b) was adopted by the Austrian Council of Federal Ministers on 23 October 2012 and endorsed by the Conference of the Federal State Governors on 16 May 2013.

Overall, the inclusive strategy development process can be viewed as a temporary, informal coordination arrangement that fulfilled vertical and horizontal coordination functions during the drafting process. Moreover, it has strengthened input and output legitimation, was effective in scientific knowledge integration, built acceptance and commitment among the participating actors, and increased capacities of implementing agents. It may be argued that participatory strategy development has created good potentials for implementation through (predominantly) voluntary, cooperation-based governance modes (Prutsch et al. 2018; Lexer, Stickler & Prutsch, 2013; Menzel & Pütz, 2013).

**Characteristic features of the NAS and NAP:**
The NAS consists of two parts, which have been delivered at the same time in one strategy package: i) Strategic Framework and Context (BMLFUW 2012a; Figure 2), and ii) a National Adaptation Action Plan (NAP) (BMLFUW 2012b). Like NAS in most other European countries, the Austrian NAS represents a broad, integrated strategy cutting across multiple sectors. The context part of the NAS provides a country-wide strategic framework for joint, aligned and coherent action in a partnership approach. It aims to bring together relevant actors, support cooperative action, and facilitate the use of synergies through cooperation wherever possible. In accordance with the precautionary principle, the NAS attempts to lay a foundation for forward-looking action with regard to future climate change impacts. Major contents include: policy objectives, guiding principles, prioritisation criteria for actions, cross-cutting recommendations, social aspects, good practice examples, and identification of vital knowledge resources and implementation support tools.

The second part of the strategy – the NAP - presents a catalogue of 136 recommendations for action (adaptation options) clustered into 14 sector-related activity fields: agriculture, forestry, water resources and water management, tourism, energy (with a focus on the electricity industry), protection from natural hazards, construction and housing, disaster risk management, health, ecosystems and biodiversity, transportation infrastructure and selected aspects of mobility, spatial planning, business/industry/trade, and cities (with a focus on urban green and open spaces). Figure 1 gives an overview of the structure of the Action Plan and of the content items elaborated for each activity field and each recommendation for action.

Implementation of the NAS and NAP is coordinated by the Austrian Ministry of Sustainability and Tourism (BMNT), supported in many respects by the Environment Agency Austria in its role as a semi-public expert institution. Both are also in charge of steering monitoring and progress reporting. The recommendations for action address a broad range of implementing actors on all levels, allowing categorisation in the following homogenized groups:

- Public authorities on all levels (federal government, state governments and state administrations, agencies, district authorities, municipalities)
- Interest groups, associations, NGOs/NPOs, and other intermediary actors (e.g. chambers, public companies) on various levels
- Science/research organisations, research funding bodies
- Educational/research organisations, research funding bodies
- Infrastructure and service providers/managers
- Private companies/entrepreneurs/consultancies, industry, insurance industry
- Resource managers/landowners (e.g., farmers, forest owners, etc.)
- Emergency response organisations
- Health and social services
- Private households/individuals, civil society

**Figure 1: Structure of the Austrian Adaptation Action Plan ( Lexer et al. 2015)***

**Figure 2: The Austrian strategy for adaptation to climate change (BMNT, 2017a)**

**Monitoring, progress report and first revision of the NAS and NAP:**
As foreseen in the NAS document, implementation progress has been monitored from 2014 to 2015. Monitoring and reporting on progress of the Austrian NAS employed two methodological approaches: i) monitoring implementation progress per adaptation option by means of a survey (self-assessment of implementing actors); ii) semi-quantitative indicator-based monitoring of responses, climate impacts and changes in levels of resilience for the 14 activity fields of the NAS. The results were reported in the first progress report on adaptation to climate change in Austria (BMLFUW 2015), which was endorsed on 29 September 2015 by the federal government and taken note of by the Conference of the Federal State Governors on 11 May 2016.

Based on the progress report, integration of new knowledge and research results (incl. from national flagship projects such as the latest Austrian climate scenarios ÖKS15, COIN, AAR2014; see chapter 3.3), and taking into account changes in framework conditions, the NAS and NAP have been updated in 2016. The same stakeholder groups having been part of the first strategy development process were involved in a written consultation procedure. The revised editions of the NAS (BMNT 2017a) and the NAP (BMNT 2017b) were adopted by the Austrian Council of Federal Ministers on 22 August 2017 and subsequently endorsed by the Conference of the State Governors.

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5 https://www.bmnt.gv.at/umwelt/klimaschutz/klimapolitik_national/anpassungsstrategie/Fortschrittsbericht.html
6 https://www.bmnt.gv.at/umwelt/klimaschutz/klimapolitik_national/anpassungsstrategie/strategie-kontext.html
The next progress report is scheduled in 2020. Currently, the monitoring and reporting procedure is being further developed: M & E systems of other countries are analysed, compared and modified for the needs in Austria.

3.1.3 Provincial Adaptation Strategies on federal state level

From 2013 onwards, significant progress in the proliferation of regional adaptation strategies and action plans on the level of state governments has been achieved. Often, set-up of provincial adaptation strategies has previously been defined as a goal in the work programmes of the state governments.

Austrian Provinces follow different approaches of policy making to tackle climate change adaptation within their responsibilities (Figure 3):

- Stand-alone climate adaptation strategies: Upper Austria, Styria, Salzburg, Vorarlberg
- Integrated strategies for mitigation and adaptation: Tyrol, Carinthia (not yet adopted by the provincial parliament)
- Adaptation measures integrated in (existing) mitigation and energy programs: Vienna, Lower Austria
- Adaptation incorporated in various administrative sectors: Burgenland

The strategies in Tyrol and Vorarlberg are supplemented by separate action plans, with Vorarlberg issuing short term action plans with prioritisation of measures on an annual basis. Carinthia has announced that a detailed action plan is going to be developed.

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7 http://www.umwelt.steiermark.at/cms/dokumente/11919303_125052026/76863340/2017-10-20%20KWA-Strategie%20Steiermark%202050%2028Web%29.pdf
10 https://www.vorarlberg.at/pdf/strategiezuranpassungande.pdf
11 https://www.tirol.gv.at/landesentwicklung/nachhaltigkeit/klimaschutz/tiroler-klimastrategie/
12 http://www.klimawandelanpassung.at/ms/klimawandelanpassung/de/kwa_politik/kwa_bundeslaender/
13 https://www.wien.gv.at/umwelt/klimaschutz/programm/klip2/index.html
The regional adaptation policies on state level are coordinated and monitored by the climate coordinators of the respective provincial governments. The implementing actors addressed are most regularly the sector departments of the state administration; moreover, authorities on regional level, the municipalities, intermediary actors (organised interest groups, e.g. chambers, NGO), research organisations and – less often – the private sector are addressed as well.

All existing provincial adaptation policies take a multi-sectoral approach. Although the level of detail differs between the federal states, all strategies are building on and referring to the national adaptation strategy and action plan, but are usually less comprehensive and more prioritised, according to the respective regional context. Both the progress in proliferation on state level and the rather close orientation of provincial adaptation policy documents on the contents of the NAS/NAP suggest that the NAS has satisfactorily achieved functions related to guidance, communication, orientation and legitimation across levels.

3.1.4 KLAR! funding programme for climate adaptation model regions

Launched in 2016, the KLAR! programme\textsuperscript{15} is a Europe-wide unique climate adaptation funding programme for Austrian regions. The programme is financed by the Climate and Energy Fund (KLIEN) and coordinated by a dedicated programme manager at the KLIEN. The overall budget in the current first funding period is 2,1 Mio Euros\textsuperscript{16}. The goal of the programme is to support Austrian regions and municipalities in preparing for climate change by implementing adaptation measures in a structured way. The programme requires the installment of a climate adaptation manager (KAM) in each model region. In general, manpower, awareness-raising measures and model region coordinators are grant-aided, while implementation of more investment-intense measures has to be financed via other sources, including through application for existing public incentives. 25 % co-financing by municipalities is obligatory (up to one half thereof as in-kind contribution possible). A funding register is available to support the regional adaptation managers in

\textsuperscript{15} \url{http://klar-anpassungsregionen.at/}

\textsuperscript{16} \url{http://www.umweltbundesamt.at/aktuell/presse/lastnews/news2018/news_180613/}
identifying suitable funding sources for measures needing investment. A model region must be composed of at least two municipalities, with their population ranging from approx. 3,000 to 60,000 inhabitants. The project executing body must be a public legal entity, i.e. one of the municipalities, an alliance of municipalities, a registered association, or a public company. Consultation of model region representatives with the climate coordinator of the respective federal state government is an obligatory funding criterion, and it is required to describe coherence with both national and state-level adaptation strategies in the adaptation concept of each model region.

The programme cycle is structured in four phases: i) submitting draft adaptation concept (funding application); ii) elaborating detailed adaptation concept, awareness-raising and agenda setting in the regions (2016-2017); iii) implementation of adaptation measures according to the concept, monitoring and evaluation (2018-2020); and iv) re-adjustment of measures, dissemination of best practices, and continuation (from 2020 onwards). The implementation phase in model regions selected for funding in the first call has started in May 2018. In the continuation phase (iv), existing model regions can apply for new funding for additional measures. A second funding call for further adaptation model regions is currently open, will close in March 2019 and has a budget of 1,75 Mio. Euros.

Through the KLAR! funding programme, the federal level (funding body) directly intervenes at regional level, i.e. in the federal states. Model regions are expected to consider the NAS and the relevant RAS in their activities, and they are required to coordinate their concepts and actions with the climate coordinator of the respective state. Therewith, it shall be ensured that activities in model regions are coherent with public adaptation policies and contribute directly or indirectly to their implementation.

3.1.5 Research funding programmes

**Austrian Climate Research Programme (ACRP):** The Climate and Energy Fund (Klima- und Energiefonds; KLIEN)\(^{17}\) is an important instrument of the Austrian Federal Government for the creation of incentives in the field of climate policy. Within the Climate and Energy Fund framework, the Austrian Climate Research Programme (ACRP)\(^{18}\) provides an institutional framework for supporting climate research in Austria. The programme focuses on issues of climate change and its impacts, adaptation, mitigation, and their mutual interrelation. Supporting implementation and advancement of the Austrian NAS through enhancement of the knowledge base and provision of usable knowledge for the policy-making community is an explicit goal of the ACRP, and its projects regularly produce tools, guidance, recommendations and work aids for practitioners (chapter 3.3.3 and 3.3.4). Each year, about 20 projects receive funding in the frame of annual calls. In total 4.4 million of funds were available in 2017 for the Austrian Climate Research Programme; plus 300.000 Euro for producing an APCC special report on health, demography and climate change (APCC, 2018).

**StartClim:** The climate research programme StartClim\(^{19}\) was initiated in 2002 by the climate research initiative AustroClim in cooperation with the BMLFUW (now BMNT) as an interdisciplinary programme to investigate the impacts of climate change on Austria. The programme supports research on topics not yet established in Austria and puts a special focus on the involvement of young scientists. Despite comparably low funding, its short-term projects allow addressing emerging issues and showing where further research is necessary.

3.2 Measures

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17 https://www.klimafonds.gv.at/home-en-US/
18 https://www.klimafonds.gv.at/foerderungen/aktuelle-foerderungen/2011/austrian-climate-research-program/
19 http://www.startclim.at/
3.2.1 Information, knowledge provision and capacity-building infrastructure

National climate adaptation online portal: The Austrian online portal www.klimawandelanpassung.at hosts an embedded, searchable database of adaptation activities and is characterized by a broad coverage of climate adaptation information. This includes target group-oriented information for sectors, regions and municipalities, useful research results, and good practice examples at various levels of governance. The website is implemented by the Environment Agency Austria (Umweltbundesamt) and funded by the Climate and Energy Fund (KLIEN).

Digital Austrian Climate Adaptation Newsletter: Via the online portal www.klimawandelanpassung.at it is also possible to subscribe to a newsletter on climate adaptation. Authored by the climate adaptation team of the EAA and funded by the Austrian Climate and Energy Fund (KLIEN), the newsletter emphasises various topics of current interest and regularly informs about new research results, ongoing activities and upcoming events. The newsletter has issues every two months, is free of cost, has close to 1,000 recipients and addresses the entire Austrian adaptation community. All issues are permanently available in the newsletter archive of the national adaptation portal.

Climate Change Centre Austria (CCCA): In June 2011 the association “Climate Change Centre Austria” was formally established upon the initiative of five Austrian universities. As the coordinating body for the promotion of climate research in Austria, CCCA is a focal point for researchers, politicians, the media, and the public for all questions concerning climate research in Austria. Its defined goals are to strengthen Austrian climate research, to facilitate the education of a new generation of researchers, to support knowledge transfer and last but not least to advise politics and society. CCCA currently holds 23 full members, including many universities and non-academic research institutions. The information services offered by the CCCA website to the Austrian adaptation and climate research community include an online data centre, a map of expertise of Austrian climate change experts, a literature database, and a series of fact sheets for the interested public.

3.2.2 Dialogue Events in Provinces and Regions

Offered as support by the Ministry (BMLFUW / BMNT) to the federal states, more than 20 dialogue events on climate change adaptation took place from 2014 onwards all over the country, covering each of the nine Austrian federal states. From 2016 to 2018 alone, 17 events have been conducted, and further formats are already scheduled for the first part of 2019. Supported by the Environment Agency Austria (EAA), the events were attended by 30 to 50 participants each and were designed as a series of multi-purpose face-to-face events (up to 1 day) with special focus on the state administration as well as regional stakeholders. Customized according to the needs of the states and employing information and interactive dialogue/workshop formats, the events fulfilled important communication, agenda-setting, capacity-building and accessory (informal) coordination functions. Subsequently, they played a crucial role in the formulation of state-level adaptation strategies as well as in supporting regional implementation processes. It is planned to continue this type of events in the future in order to support iterative agenda-setting in regions and municipalities and to strengthen capacity-building of implementing actors.
3.2.3 KLAR! – Climate Change Adaptation Model Regions

In the recently started implementation phase of the first funding cycle, 20 model regions have been selected and receive funding in support of implementing their adaptation concepts. A service platform operated by experts of the Environment Agency Austria and, in the first implementation phase, the national met-service ZAMG (Zentralanstalt für Meteorologie und Geodynamik) supports the model regions with customized climate change and adaptation information packages, direct counselling and via organizing regular peer-group learning and networking meetings of all model regions. Many of the knowledge resources mentioned in chapter 3.3 are used to inform adaptation planning in the model regions, including regionalised climate fact sheets based on the ÖKS15 climate scenarios (chapter 3.3.2), regional climate change impact maps produced by the ClimaMaps project (chapter 3.3.4) as well as tools, manuals and good practice compilations provided by other ACRP-funded projects (chapter 3.3.4). The service platform is also responsible for overseeing monitoring in each region and evaluating their progress reports. Each region was required to appoint a regional climate adaptation manager (KAM) and to submit a detailed regional adaptation concept including a minimum of 10 concrete adaptation measures (soft/smart, green, and grey measures) on local and regional level. Model regions have installed project management structures, which are usually composed of a public project executing body, the participating municipalities, a steering group, and a range of cooperating actors, depending on the issues tackled. The regional adaptation manager (KAM) is responsible for operative project management, coordination within the region and with higher-ranking levels as well as for monitoring and reporting. A mapping example of the typical governance network of a KLAR! model region is shown in Figure 5. In many cases, the KLAR! regions have been previously active in climate mitigation, sustainable energy or local sustainable development processes in the frame of the corresponding Climate and Energy Model Region (KEM) Programme of the Climate and Energy Funds and/or as part of LEADER regions. In case of such overlaps, early coordination with the responsible regional managers is required, and usually the KLAR! management structure makes use of, and is aligned with, pre-existing structures established within the KEM or LEADER programmes.

The 20 KLAR!-regions (Table 1) not only cover a wide range of Austrian climatic conditions and seven out of nine Austrian federal states (Figure 4), but also differ in size, ranging from two to 32 municipalities per model region:

<table>
<thead>
<tr>
<th>KLAR! Model Region</th>
<th>Federal state</th>
</tr>
</thead>
<tbody>
<tr>
<td>KLAR! Bucklige Welt - Wechselland</td>
<td>Lower Austria</td>
</tr>
<tr>
<td>KLAR! Das Kernland wird Klimafit</td>
<td>Lower Austria</td>
</tr>
<tr>
<td>KLAR! DIE Modellregion gegen sommerliche Überhitzung-Stiefingtal</td>
<td>Styria</td>
</tr>
<tr>
<td>KLAR! Freistadt</td>
<td>Upper Austria</td>
</tr>
<tr>
<td>KLAR! KLAGe Zukunft Thayaland</td>
<td>Lower Austria</td>
</tr>
<tr>
<td>KLAR! Region Pongau</td>
<td>Salzburg</td>
</tr>
<tr>
<td>KLAR! Region Unteres Traisental &amp; Fladnitztal</td>
<td>Lower Austria</td>
</tr>
<tr>
<td>KLAR! Kleinregion Hartberg</td>
<td>Styria</td>
</tr>
<tr>
<td>KLAR! Klimaparadies-Lavanttal</td>
<td>Carinthia</td>
</tr>
<tr>
<td>KLAR! Klimawandel im Natura 2000 – Joglland</td>
<td>Styria</td>
</tr>
<tr>
<td>KLAR! Klimawandelanpassungsmodellregion &quot;Terra future&quot;</td>
<td>Carinthia</td>
</tr>
<tr>
<td>KLAR! Modellregion mittleres Raabtal</td>
<td>Styria</td>
</tr>
<tr>
<td>KLAR! Naturpark Pöllauer Tal</td>
<td>Styria</td>
</tr>
</tbody>
</table>

24 [http://klar-anpassungsregionen.at/klar-regionen/](http://klar-anpassungsregionen.at/klar-regionen/)
In total, 218 adaptation measures have been defined in the 20 regions. While the measures cover a broad range of thematic activity fields and region-specific climate change impacts, an evaluation across all regions shows that

- awareness-raising, adaptive forest management, agriculture, disaster risk reduction as well as construction and housing, and
- heat, increasing average temperatures, heavy rainfall, and drought

are most often addressed. Cross-cutting measures addressing several sectors are implemented more frequently (40%) than sector-specific measures. Regarding the types of adaptation measures (Figure 6), soft measures (awareness-raising, education, building knowledge base, economic incentives, governance framework) clearly predominate (75%), followed by mixed interventions combining green, grey and soft measures (21%). About 4% of all measures are exclusively green or grey. The strong bias towards soft measures can be explained by the current intervention logic of the programme, which does not directly allow for funding of implementation measures needing investments.
3.2.4 Adaptation advisory services for municipalities

The Conference of State Environmental Ministers [LURK – Landesumweltreferentenkonferenz] decided on 29th May 2015 to intensify the cooperation between the Federal Ministry and the state governments under the umbrella of the Austrian NAS and to jointly strengthen the support for municipalities. In response to this resolution, the Austrian states and the Ministry (BMNT) decided to jointly finance a training programme for municipality adaptation advisors [“Lernwerkstatt Klimawandelanpassung”]25. After adaptation strategies had become available on the national level and in most federal states of Austria, there was the common recognition that there is still a widespread lack of agenda-setting and policy uptake in Austrian municipalities, especially in the many smaller ones. The Environment Agency Austria and the consultancy alpS have been contracted to design, organise and implement the training. Following the “train-the-trainers” approach, the primary target group of trainings (i.e. the trainees) were selected staff of existing multiplier and transfer organisations that are already familiar to working with municipalities on climate mitigation, energy and sustainable development issues. Depending on the preferences of the federal states, these organisations include the Climate Alliance, state energy agencies, the e5 programme, regional management agencies (e.g. LEADER), or state environment agencies. The main training goals were to enable the participants to conduct initial advisory visits and workshops in municipalities and to deliver process and technical support for municipal adaptation processes.

After completion of the training programme in April 2018, a small team of qualified municipality adaptation advisors is now available in each federal state (except Vienna). A portfolio of knowledge resources, including those described in chapter 3.3 of this report as well as customized information packages (fact sheets with regional and sectoral climate change and adaptation information, regionalised climate impact maps, etc.), has been used in the training workshops and will be employed by the adaptation advisors in their on-site visits in municipalities. The adaptation advisory service teams are funded and coordinated by the climate coordinators in each federal state, whereas participation is free of cost to the municipalities. During the 2nd half of the year 2018, up to 10 municipalities per federal state have already received initial counselling, focusing on sensitisation and agenda-setting. The financing role of the state governments in the training programme contributes to assuring long-term political commitment, sustainability and proliferation of the advisory services. The state climate coordinators have already stated their interest in

25 http://www.klimawandelanpassung.at/ms/klimawandelanpassung/de/kwa_anpassungspraxis/frei/
conducting a second training programme for qualifying new advisors, in regular skill enhancement measures, and in annual peer-to-peer exchange meetings. It is planned that graduates of the programme shall also receive specific training as future auditors of the “Climate Check Natural Hazards” tool (chapter 3.2.6).

3.2.5 Working Group on “Self-Responsible Risk Precaution” (LURK AG)

In order to further strengthen cooperation between national and state governments in the field of climate adaptation under the umbrella of the NAS, the Conference of State Environment Ministers (LURK; chapter 3.4.4) decided in its resolution from 29th May 2015 to identify and select cross-sectoral measures of high complexity from the national adaptation strategy (NAS), whose successful implementation depends strongly on close vertical cooperation. The resolution provided the general mandate to develop concrete courses of action for such cross-cutting issues by forming working groups involving all relevant actors, without stipulating the concrete topics. Consequently, the NAS coordination (BMNT, Division IV/1 Climate Policy Coordination; chapter 3.4.2) and the state climate coordinators decided to focus in a first step on the topic of “self-responsible risk precaution”, which is addressed by several recommendations for action in the NAP, in order to strengthen risk preparedness of municipalities and private citizens regarding natural hazards and extreme weather events. For this purpose, the Working Group on “Self-Responsible Risk Precaution” [LURK AG ‘Eigenvorsorge’] was installed in 2017 and decided to develop a new sensitisation and counselling tool to raise risk awareness and strengthen risk precaution measures of municipalities, including in their role as multipliers and contact points for private citizens and households. The work of the group was inspired by the model of the German flood audit scheme (DWA), whose thematic coverage was extended by further categories of climate-driven natural hazards and a range of extreme weather risks.

In the logic of the governance mapping in GoApply, the Working Group is both an actor and a measure, the latter because it implements the resolution of the LURK. The working group is innovative and particularly remarkable from a governance perspective within a federal state setting, because it represents a newly created multi-level and cross-sector cooperative governance format that is temporary, non-formalised, and has been deliberately established by resolution of a joint coordination body of the national government and the federal states in order to contribute to implementation of the NAS. The group aligns relevant actors from the national level and state levels representing the two policy fields climate adaptation and natural hazard management, and it thus aims at enhancing coherence between both policy fields. Its main objective is to support municipalities in their risk management efforts. Co-chaired by the Head of Division of Torrent and Avalanche Control of the Federal Ministry for Sustainability and Tourism (BMNT) and the flood risk management coordinator of the Styrian state government, the 22 members of the group are the adaptation coordinators of the ministry and the state governments, flood risk and natural hazard management officers of federal and state administrations, plus representatives of the insurance industry, academia and the Environment Agency Austria.

The direct results of the Working Group are the (i) methodology (tool and manual) as well as the (ii) implementation and training concept for the so-called “Natural Hazards Check Climate Change” for Austrian municipalities. All results have been delivered by the end of 2018 (chapter 3.2.6 below).

3.2.6 “Natural Hazards Check Climate Change” for Austrian municipalities

The “Natural Hazards Check Climate Change” developed by the Working Group under the LURK (chapter 3.2.5 above) is not formally intended as an audit system in the strict sense, but rather as a sensitisation, consulting and advisory instrument to support municipalities in strengthening their risk preparedness. The tool consists of a set of 33 indicators, translated in easily understandable questions, that evaluates the level of municipal risk preparedness within five assessment fields: i) municipal hazard & risk profile,
precautionary measures related to iii) land use, iv) behaviour, and v) risk precaution. Construction of new structural protection measures is consciously excluded. Building on the German flood audit scheme (DWA), the concept allows integrated coverage of weather-/climate-driven hydrological (floods, mudflows, heavy precipitation), gravitational (landslides, rockfall, avalanches) and meteorological hazards, which include extreme weather hazards such as heat, drought, snow burden, storm, hail, and lightning. Based on a manual (Braun & Skolaut, 2018), the tool shall be applied by 2 qualified external check coordinators (“auditors”) together with up to 10 municipal decision-makers during a 1 to 2 days on-site visit. Municipalities are then provided with an evaluation report displaying indicator profiles, traffic light scales and diagrams. The check results inform the municipalities about their current performance in risk precaution, identify need for action and help them in defining measures to improve their risk preparedness. Application of the check tool is voluntary, and it is up to the municipalities whether they want to publish the results or not. Follow-up checks in 6-year intervals shall allow municipalities to evaluate their progress. At the time being, test checks in selected municipalities are carried out to allow for re-adjustments.

The agreed concept for Austrian-wide roll-out of the tool again relies on a governance model that builds on collaborative efforts of climate adaptation and natural hazard management actors of the Ministry and the states. The BMNT will organise and finance the training of a first pool (10-15) of check coordinators, who shall receive further training on the job during the test applications. The trainees are to be recruited from both the natural hazard and the climate adaptation expert community, e.g. the existing municipality adaptation advisors (chapter 3.2.4). The trainers of the first course will come from the institutions represented in the steering group of the LURK AG, i.e. the BMNT, the Environment Agency Austria, and all other members. The teams for each municipality check shall be composed of two experts, one with background in natural hazard management and one with background in climate adaptation. It is planned that trainings, implementation and documentation of the checks will be coordinated by a central platform, most likely provided by the Environment Agency Austria on behalf of the BMNT, in order to ensure country-wide quality standards. Long-term financing of trainings and implementation shall be provided jointly by the federal and state governments, if possible via applicable existing funding instruments. It is foreseen that municipalities will have to contribute moderate co-financing for the check. It is planned that the governance structure for the implementation phase shall be operational in the course of 2019.

3.3 Knowledge

Scientific knowledge in the form of impact assessments, climate scenarios or climate data as well as practice-related support tools, manuals and guidance play a key role in informing planning and implementing climate adaptation policies and measures. On the other hand, “soft” adaptation measures aiming at enhancement of the knowledge base regularly provide new information, which in turn strengthens adaptation practices. The knowledge resources described in more detail below are referred to by most adaptation strategies in Austria on national and state level and are informing the country-wide measures introduced in chapter 3.2. In addition, a broad range of projects funded by the Austrian Climate Research Programme (ACRP) and other funding sources has contributed to building the knowledge base and to providing support tools and guidance for actors at different government level.

3.3.1 APCC Austrian Assessment Report 2014 and Special Reports

Over the course of a three-year process, the Austrian climate change science community, organised in the Austrian Panel on Climate Change (APCC), has produced the Austrian Assessment Report 2014 (AAR14) (APCC 2014)26. Following the model of the IPCC Assessment Reports, in this extensive work about 240

scientists depict the state of knowledge on climate change in Austria and the impacts, mitigation and adaptation strategies, as well as the associated known political, economic and social issues. Thereby, AAR14 represents the most comprehensive and most authoritative scientific reference framework for climate science and climate policy in Austria to date. It has been presented to the public in a ministerial press conference and has received wide-spread media attention. Similar to the IPCC assessment reports, the AAR14 is based on the principle of being policy-relevant, but not policy-prescriptive.

The assessment report is organized in three volumes: i) climate change in Austria; ii) impacts and consequences on environment and society; iii) mitigation and adaptation. The full report of 1.096 pages (in German only) is accompanied by a synthesis and a summary for policy-makers, which is available both in German and English language. The Austrian Climate Research Program (ACRP) of the Climate and Energy Fund has enabled the realisation by financing the coordinating activities and material costs. The extensive and substantial body of work has been carried out gratuitously by the researchers.

In extension of the AAR14, the APCC elaborates Special Reports providing state-of-the-art assessments of more specific climate change issues. The Austrian Special Report Health, Demography and Climate Change (ASR18) (APCC, 2018)27 has been published in 2018, and release of the Austrian Special Report on Tourism and Climate Change (ASR19)28 is scheduled for 2019.

3.3.2 ÖKS15 – Climate Scenarios for Austria

Anticipatory climate adaptation requires a solid knowledge base about future climatic change and its impacts. In order to adequately prepare for impending changes, the Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (BMLFUW), in partnership with the nine federal states, has initiated the project ÖKS15 - Climate Scenarios for Austria (Chimani et al., 2016)29. Carried out 2015-2016 by the Central Institute for Meteorology and Geodynamics (ZAMG), the Wegener Center for Climate and Global Change at the University of Graz, and the Interfaculty Department of Geoinformatics – Z_GIS at the University of Salzburg, the ÖKS15 are based on best available historical data and climate simulation data by 13 EURO-CORDEX models, and they apply the concept of representative concentration pathways (RPCs) by the IPCC. The results are available since 2016 and represent the so far most detailed analysis (spatial resolution: 1 x 1 km) of past and future climate change in Austria, including projections for a portfolio of key climate indices, quantification of likelihood and statistical significance of projected trends, and an optimised presentation for decision-makers. Key results comprise:

- a comparison of different past climate periods;
- climate projections for a business-as-usual-scenario (RCP8.5) and a climate mitigation scenario (RCP4.5) for the periods 2021-2050 and 2071-2100;
- future trends of climate indices such as temperature, precipitation, drought periods and global radiation for the 21st century;
- regionalised climate scenarios for each federal state;
- opportunity for on-demand production of climate fact sheets for regions, cities and municipalities.

The results are fed into the federal and state GIS systems, and the modelling data are available for further research and processing on the Climate Data Centre of the Climate Change Centre Austria (CCCA), in particular for more detailed regional and local climate impact assessments in support of adaptation planning. Based on ÖKS15 data, regionalised climate impact maps have been produced for all Austrian federal states by the ClimaMaps project (chapter 3.3.5). With the ÖKS15, for the first time a homogeneous

27 https://sr18.ccca.ac.at/downloads/
28 https://sr19.ccca.ac.at/
29 www.bmnt.gv.at/umwelt/klimaschutz/klimapolitik_national/anpassungsstrategie/klimaszenarien.html
and commonly accepted climate scenario database is available for entire Austria. Since 2016, they inform basically every adaptation policy and measure in Austria, including implementation of the national and state-level adaptation strategies, the adaptation activities in the KLAR! model regions, and the work of the municipal adaptation advisors.

3.3.3 **COIN – Cost of Inaction: Assessing the cost of climate change for Austria**

COIN\(^{30}\) responds to the urgent need of policy makers for information about the costs of climate change in Austria to allow for knowledge-based decisions on adaptation measures across a range of different sectoral areas. The COIN project applied a disaggregated bottom-up approach to come up with realistic cost ranges for economic, social and environmentally relevant fields of activity, classified according to the Austrian NAS. The project was funded by the ACRP and conducted by a consortium of 12 Austrian scientific institutions.

The project regards costs of inaction as costs of climate change in Austria without planned/anticipated action on adaptation and without any further action on mitigation (after OECD: only action that has already been ratified, not action that is envisaged). In that way, COIN results are the first milestone on the way towards a ‘cost-benefit analysis’ of adaptation (i.e. the implementation of the Austrian NAS via adaptation at different policy scales – from national to local) by delivering the information on the potential benefits (i.e. the damage avoidance potential) that adaptation would have in Austria.

In order to adequately address in particular stakeholders and policy makers of the various target groups, the main project results were also summarized in the form of tailored factsheets, using different formats and different levels of detail. Factsheets are available for the sectoral areas agriculture, transport and mobility, tourism, manufacturing and trade, human health, water supply and sanitation, urban regions, disaster management, energy and electricity, and forestry.

3.3.4 **Project-based decision support**

Research projects, often funded by the Austrian Climate Research Programme (ACRP), but also by INTERREG, play a strong role in providing policy support, capacity-building tools, guidance and work aids for decision makers and stakeholders at different government levels. Such project-based knowledge resources aim at building adaptive capacities and are an important part of the enabling governance framework for adaptation in Austria. They are brokered to stakeholders and being used in the frame of, among others, the KLAR! funding programme and the adaptation advisory services for municipalities. An incomplete list of resources informing regional and local adaptation processes includes:

- Online decision support tool for municipalities, developed in the project CC-ACT – Awareness Raising and Capacity Building for Action in Austria; 2016; [http://www.ccact.anpassung.at/](http://www.ccact.anpassung.at/)
- **Handbook on communicating climate change adaptation,** provided by project CcTalk! – Successful Communication of Climate Change; 2014; [http://klimawandelanpassung.at/fileadmin/inhalte/kwa/pdfs/cctalk_strategie/Web-Version.pdf](http://klimawandelanpassung.at/fileadmin/inhalte/kwa/pdfs/cctalk_strategie/Web-Version.pdf)
- **Barriers and success factors of local climate adaptation and recommendations for adaptation governance in Austrian municipalities,** project GOAL – Governance of local climate adaptation; 2018; [http://klimawandelanpassung.at/goal/](http://klimawandelanpassung.at/goal/)
- **Regional climate change impact maps for Austrian regions and municipalities,** project ClimaMaps; [https://clima-map.com/](https://clima-map.com/)

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\(^{30}\) [http://coin.ccca.at/](http://coin.ccca.at/)
3.4 Actors

Selected key actors and bodies with an important central and more formal role in the overall multilevel adaptation governance framework in Austria on the different levels are described below.

3.4.1 Federal Ministry of Sustainability and Tourism (BMNT)

Responsible for coordination at national level - and in this way also acting as the “policy owner” - is the Division Climate Policy Coordination (Div. IV/1) in the Federal Ministry of Sustainability and Tourism (BMNT, former BMLFUW). The Ministry interacts with federal fellow ministries and the climate coordinators of the states via semi-formal coordination bodies (chapters 3.4.3, 3.4.4) and manifold informal ad-hoc contacts. The Ministry is supported in its NAS-related tasks in manifold ways by the Environment Agency Austria (chapter 3.4.2).

3.4.2 Environment Agency Austria (EAA)

The Environment Agency Austria (EAA) is the expert authority of the federal government in Austria for environmental protection and environmental control. It is a government-owned limited liability company, acting under private law, which functions as the national environment agency for Austria.

In particular with its Department of Environmental Impact Assessment & Climate Change, the EAA plays in many respects a central role in the Austrian adaptation governance landscape. On the one hand, it regularly acts as a semi-public support unit providing expertise and policy support to the responsible federal...
Ministry, the Climate and Energy Fund as well as federal state governments. On the other hand, the EAA often acts as a “bridging” or “boundary organisation” that is deeply involved in knowledge generation, capacity-building as well as provision and brokerage of policy- and practice-related decision support (manual, work aids, etc.) for stakeholders, thereby linking science, administration and policy-making. Some more prominent examples of these roles include the following:

The EAA had a stake in all preparatory activities for developing the Austrian National Adaptation Strategy (e.g. vulnerability assessments, strategy drafting, expert-based drafting of adaptation options for a range of sectors) and was leading the accompanying national participation process. It supports the Ministry in facilitating implementation of the NAS and NAP, including by elaborating the first progress report on NAS implementation, drafting the first update of the NAS, conducting dialogue and information events in Austrian regions, and providing the process management for specific implementation initiatives. On behalf of the Climate and Energy Funds, the EAA is running the national online adaptation portal and the national electronic adaptation newsletter. Currently, the EAA and the ZAMG (national met service) are commissioned to act as the service platform for the climate adaptation model regions receiving funding from the KLAR! programme. EAA experts have also provided consultancy services to some of the federal states in their own adaptation strategy development processes, and a consortium of EAA and alpS Gmbh has been commissioned by all federal states to carry out the first training programme for municipality adaptation advisors. Through its regular involvement in a coordinator or partner role in many policy support and applied research projects, often funded by the Austrian Climate Research Programme (ACRP), EAA is contributing to enhancing the knowledge base and to providing adaptation support tools to Austrian stakeholders.

3.4.3 The National Climate Protection Committee (NKK)

According to the latest amendment of the Austrian Climate Protection Law, § 4 (2)\textsuperscript{31}, in 2017, the National Climate Protection Committee (NKK) is now also definitely asked to include questions of adaptation to unavoidable effects of climate change in its principal debate on national climate politics against the background of the Paris Agreement. The Committee meets at least once a year and is chaired by the Ministry of Sustainability and Tourism (BMNT). Appointed deputy is the representative of the federal state that chairs the Conference of the State Environmental Ministers (LURK) in the year concerned.

The National Climate Protection Committee is composed of one representative per political party of the National Assembly, one high-ranking representative each of the Ministry of Sustainability and Tourism (BMNT), the Federal Chancellery (BKA), the Ministry of Finance (BMF), the Ministry of Justice (BMJ), the Ministry of Transport, Innovation and Technology (BMVIT), the Ministry of Education, Science and Research (BMBWF), the Ministry of Work, Social Affairs, Health and Consumer Protection (BMASK), all nine federal states, the Austrian Economic Chambers, the Federal Chamber of Labour, the Chamber of Agriculture, the Austrian Trade Union Federation (ÖGB), the Federation of Austrian Industries, the Association for Consumer Information (VKI), the Austrian Association of Cities and Towns, the Austrian Association of Municipalities, the Association Austrian Energy, the Association Renewable Energy Austria, the science community as well as three representatives of NGOs.

In formal respects, the NKK is the highest-ranking national coordination body for climate policies, and the recent extension of its mandate may hold potential for enhanced horizontal and vertical policy integration as regards climate adaptation. However, at the time being it is too early to judge the role of this body for adaptation policy-making in Austria.

\textsuperscript{31} https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=20007500
3.4.4 Conference of State Environmental Ministers (LURK)

The Conference of State Environmental Ministers (LURK) usually holds their meetings once a year. Participants are the members of the nine state governments in charge of environmental affairs as well as the Minister for Sustainability and Tourism (BMNT). The main purpose of the meetings are common deliberations on fundamental questions in the area of environmental protection, including activity fields such as waste management, air quality, energy, climate mitigation and adaptation. Taking into account that the conference is often trend-setting for (national) political decision-making concerning important environmental questions, on subordinated administrative level, in particular on the level of climate coordinators, intense preparatory consultations take place more frequently. Since 2013 all resolutions of the LURK are available to the public. In recent years, resolutions of the LURK, e.g. on a joint framework implementation plan 2016/2017 for prioritised adaptation issue areas, have paved the way for stronger cooperation between the federal government and the federal states on adaptation policy making (see Chapters 3.2.4, 3.2.5, 3.2.6, and 3.3.2).

3.4.5 Climate Coordination Officers of the federal states

The climate coordinators of the state governments are crucial intermediaries between levels, sectors and other federal states. Primarily responsible for the development and implementation of adaptation strategies on state level, the provincial climate coordinators are the main agents of vertical coordination and cooperation towards national as well as regional and local levels. Furthermore, they are in charge of horizontal coordination within the state governments and administrations. Most regularly, and due to historical reasons, the climate coordination functions in the state governments are allocated in the environmental administrative departments. Their tasks comprise both climate mitigation and climate adaptation policies, with adaptation to climate change usually occupying a significantly smaller part of their daily work load. The climate coordination functions are usually carried out by just one person or by small sub-units within the respective departments, which implies that overall capacities in terms of staff and working time are limited. For more implementation-oriented activities (advisory services, capacity-building, awareness-raising) within their respective federal states, they can to some extent make use of the capacities of intermediary organisations working close to the level of municipalities, such as in particular the provincial Climate Alliance organisations.

Communication and coordination between the state climate coordinators and the national climate coordination on federal government level is carried out by several mechanisms:

- The Conference of Climate Coordinators of the Federal States [Landesklimareferenten-Konferenz (LKRK)] is the most formal consultation and coordination body between climate (mitigation and adaptation) policy-making of all nine federal states and the responsible federal Ministry. It usually meets once a year, but its resolutions are not public. In recent years, the LKRK has played a role in paving the way for joint cooperation initiatives between the federal states and the federal government, such as joint funding for the new Austrian Climate Scenarios ÖKS15 and the training programme for municipality adaptation advisors.

- In addition, climate adaptation topics have regularly been put on the agendas of meetings of the Conference of State Environmental Ministers [Landesumweltreferenten-Konferenz (LURK)] (see chapter 3.4.4).

- The state climate coordination officers hold informal meetings, which may be organized on demand and ad-hoc, in order to - among other purposes - prepare resolutions of the aforementioned LKRK or LURK, or to develop joint positions for deliberations with the responsible Ministry BMNT.

32 https://www.wien.gv.at/umweltschutz/lurk.html
• Bilateral ad hoc-communication between state climate coordinators and the federal level is a common, traditional and often effective way of interacting across levels in Austria.

3.4.6 Regional climate adaptation managers in model regions

The KLAR! funding programme for climate adaptation model regions requires appointment of a regional adaptation manager [Klimaanpassungsmanager – KAM] in each model region. The staff costs of KAMs are directly funded by the programme. The regional adaptation manager (KAM) is responsible for operative project management and coordination as well as for monitoring and reporting. Usually, the adaptation managers are employed by the public entity executing the funding project. In many of the KLAR! regions, the adaptation managers are experienced regional coordinators, who have been active previously in the management of LEADER regions or of Climate and Energy Model Regions (KEM) of the corresponding funding programme of the Climate and Energy Funds.

3.5 Visualisation

The results of our mapping of climate adaptation governance in Austria have been visualised and are available online at: http://markjanbludau.de/goapply/?#austria. The visualisation applies an interactive radial force diagram and offers users a range of functionalities. Simply click on the picture to follow the link to the full, interactive version of the visualization. The introduction on the landing page of the website explains how to navigate and read the visualisations. For a more detailed accounting on the methodology used to compile the data see the GoApply WP1 synthesis report. The following pre-selections have been prepared to allow an easy entry to online exploration of Austrian adaptation governance (http://markjanbludau.de/goapply/?#):

• KLAR! Funding Programme Climate Change Adaptation Model Regions
• Climate Adaptation Strategy Styria 2050
• KLAR! Model Region Zukunftregion Ennstal in Styria
• "Natural Hazards Check Climate Change" for Austrian municipalities
4 Good practice examples of climate adaptation governance in Austria

4.1 Good practice example 1

<table>
<thead>
<tr>
<th>Name</th>
<th>KLAR! funding programme and KLAR! climate adaptation model regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of governance element</td>
<td>Policy + measure</td>
</tr>
<tr>
<td>Level / Region (country)</td>
<td>Regional (20 regions)</td>
</tr>
<tr>
<td>Date (start)</td>
<td>2016</td>
</tr>
</tbody>
</table>

**Description**
In the current 1st funding cycle, a total of 20 model regions, each encompassing 2 to 32 municipalities, have been selected and receive national funding in support of implementing their adaptation concepts. A service platform operated by experts of the Environment Agency Austria supports the model regions with customized climate change and adaptation information packages, direct advice, and via organizing regular peer-group learning and networking meetings of all model regions. The 2nd call for new model regions is running and will close in March 2019.

**Explanation: why is it a good practice?**
KLAR! has been successful in setting adaptation on the agendas of participating regions and stimulating implementation of adaptation projects and measures in municipalities. Model regions have to prove coherence with the NAS and the RAS of the respective federal state and to coordinate their activities with the state climate officer. The programme supports vertical coordination by combining financial incentives with ‘soft coercion’, while still allowing a regional bottom-up approach to priority setting.

Model regions have installed clear project management structures, which are usually composed of a public project executing body, the participating municipalities, a steering group, and a range of cooperating actors. Regional adaptation managers (KAM) have been appointed and receive funding; they are responsible for operative project management and coordination as well as for monitoring and reporting. KAM managers take over the role of ‘change agents’ in the respective region. Participating municipalities are organised in regional networks, which fosters inter-municipal exchange and peer-to-peer learning.

The 20 KLAR!-regions cover a wide range of Austrian climatic conditions and seven out of nine Austrian federal states. In total, 218 adaptation measures have been defined. Through the national coordination and funding framework, conflicts and resistance on local level are significantly reduced.

**References (website, report)**
http://klar-anpassungsregionen.at/klar-regionen/

**Links to visualisation**
KLAR! funding programme:
http://markjanbludau.de/goapply/#austria?KLAR!_Funding_Programme_Climate_C
### KLAR! model regions:

[http://markjanbludau.de/goapply/#austria?KLAR!_model_regions](http://markjanbludau.de/goapply/#austria?KLAR!_model_regions)

KLAR! Model Region Zukunftsregion Ennstal:

[http://markjanbludau.de/goapply/#austria?KLAR!_Model_Region_Zukunftsregion_Ennstal](http://markjanbludau.de/goapply/#austria?KLAR!_Model_Region_Zukunftsregion_Ennstal)

### 4.2 Good practice example 2

<table>
<thead>
<tr>
<th>Name</th>
<th>Training programme for adaptation advisory services in municipalities ['Lernwerkstatt Klimawandelanpassung']</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of governance element</td>
<td>Measure</td>
</tr>
<tr>
<td>Level / Region</td>
<td>National</td>
</tr>
<tr>
<td>Date (start)</td>
<td>2017</td>
</tr>
<tr>
<td>Description</td>
<td>The Austrian federal states and the Federal Ministry BMNT decided to jointly finance the training programme in order to intensify the cooperation between the BMNT and the provincial governments under the umbrella of the Austrian NAS, and to jointly strengthen the support for municipalities. The Environment Agency Austria and alpS have been contracted to design, organise and implement the training. Following the “train-the-trainers” approach, the primary target group was selected staff of existing multiplier organisations. The main training goals were to enable the participants to conduct personal counselling in municipalities and to deliver process support for municipal adaptation processes.</td>
</tr>
<tr>
<td>Explanation: why is it a good practice?</td>
<td>The training programme was initiated in response to a resolution by the multilevel coordination body Conference of State Environment Ministers (LURK). As a new support offer from federal and state governments, it tackles the up-to-then almost complete lack of adaptation policies on local level. The innovation of municipal adaptation advisory services applies the recognition that successful sensitisation and agenda-setting on the local level benefits much from personalised interactions by qualified personnel in a counselling situation. In the training and in the course of the advisory visits, customized information packages, which have been informed by policy support projects under the ACRP programme and tailored to the needs of municipalities, are used. After completion of the training programme in April 2018, a team of qualified municipality adaptation advisors is now available and operating in each federal state. The financing role of the state governments in the training programme assures long-term political commitment, sustainability and proliferation of the advisory services. Due to the success of the initiative, a second training course is currently in preparation. It is foreseen that the municipality advisors will also</td>
</tr>
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</table>
receive specific training to become future on-site coordinators of the “Natural Hazards Check Climate Change”, which offers considerable synergies between two measures targeting municipalities.

Carried out by the federal ministry and the Austrian state governments in order to support municipalities, the training programme represents a form of ‘living practice’ and a ‘cloud point’ of multi-level adaptation governance. It is in the frame of such concrete projects that cooperation across levels (and sectors) is truly needed, really materializes, thrives and can become effective.

<table>
<thead>
<tr>
<th>References (website, report)</th>
<th><a href="http://www.klimawandelanpassung.at/ms/klimawandelanpassung/de/kwa_politik/kwa_oesterreich/">http://www.klimawandelanpassung.at/ms/klimawandelanpassung/de/kwa_politik/kwa_oesterreich/</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>Link to visualisation</td>
<td>Training programme for adaptation advisory services: <a href="http://markjanbludau.de/goapply/#austria?Training_programme_for_adaptation_advisory_services_in_municipalities(%22Lernwerkstatt_Klimawandelanpassung%22)">http://markjanbludau.de/goapply/#austria?Training_programme_for_adaptation_advisory_services_in_municipalities(%22Lernwerkstatt_Klimawandelanpassung%22)</a></td>
</tr>
</tbody>
</table>

### 4.3 Good practice example 3

<table>
<thead>
<tr>
<th>Name</th>
<th>Working group on ‘Self-Responsible Risk Precaution’ (LURK AG) + &quot;Natural Hazards Check Climate Change&quot; tool for Austrian municipalities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of governance element</td>
<td>Actor + Measure</td>
</tr>
<tr>
<td>Level / Region</td>
<td>Miscellaneous (cross-cutting) &amp; local</td>
</tr>
<tr>
<td>Date (start)</td>
<td>2017</td>
</tr>
<tr>
<td>Description</td>
<td>The LURK AG was founded in response to a resolution of the multilevel coordination body Conference of the State Environment Ministers (LURK), which called for intensifying the cooperation between national and provincial administration to implement cross-cutting measures of the NAS. The adaptation coordinators of the federal ministry and the state governments decided jointly to focus on the topic of “self-reponsible risk precaution”, which is addressed in the NAS and the regional adaptation strategies of the states. Members of the group are climate coordinators of the federal ministry and the state governments, flood risk and natural hazard management officers of federal and state administrations, plus representatives of the insurance industry, academia and the Environment Agency Austria. Consequently, the LURK AG is both, a tool of horizontal governance between the spheres of natural hazards and adaptation, and a tool of vertical governance between national, federal, and municipal institutions. The tool “Natural Hazards Check Climate Change” for municipalities represents the direct output of the LURK AG. Its goal is to function as a sensitisation, consulting and advisory instrument to support municipalities in strengthening their risk preparedness. The tool consists of a set of 33 indicators, translated in easily...</td>
</tr>
</tbody>
</table>
understandable questions that evaluate the level of municipal risk preparedness. The group has also developed an implementation concept and a governance model for the country-wide launch of the measure. This governance structure shall become operational in the course of 2019.

Explanation: why is it a good practice?

The LURK AG represents a newly created, temporary multi-level and cross-sector cooperation format that aligns actors from the national level and state levels representing the two policy fields climate adaptation and natural hazard management. The group entered a completely new stage of adaptation policy counselling by developing a tool for municipal guidance which displays substantial added value in comparison to existing instruments, as well as a useful complement to them. Moreover, it was deliberately and explicitly established to contribute to implementation of the NAS and to enhance coherence between the both involved policy fields. The preceeding LURK resolutions are an important strategic support and provide legitimation for adaptation actors on all levels. The LURK AG has great potential to serve as a role model for the future implementation of further complex adaptation measures that require close vertical cooperation.

References (website, report)

https://www.wien.gv.at/umweltschutz/lurk.html

Link to visualisation

Working Group “Self-Responsible Risk Precaution” (measure):
http://markjanbludau.de/goapply/#austria?Working_Group_on_Self-Responsible_Risk_Precaution_-_Measure

Working Group “Self-Responsible Risk Precaution” (actor):
http://markjanbludau.de/goapply/#austria?Working_Group_on_Self-Responsible_Risk_Precaution_-_Actor

Natural Hazards Check Climate Change:
http://markjanbludau.de/goapply/#austria?%22Climate_Check_Natural_Hazards%22_for_Austrian_municipalities

<table>
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<tr>
<th>4.4 Good practice example 4</th>
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</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>ÖKS15 – Climate Scenarios for Austria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of governance element</td>
<td>Knowledge</td>
</tr>
<tr>
<td>Level / Region</td>
<td>National + regional</td>
</tr>
<tr>
<td>Date (start)</td>
<td>2016</td>
</tr>
<tr>
<td>Description</td>
<td>Jointly financed by the federal ministry BMNT in partnership with the nine federal states, the ÖKS15 climate scenarios represent the so far most detailed analysis (spatial resolution: 1 x 1 km) of past and future climate change in Austria. The scenarios are based on best available historical data and climate data.</td>
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</table>
simulation data by 13 EURO-CORDEX models, and they apply the concept of representative concentration pathways (RPCs) by the IPCC. Results include climate projections for a business-as-usual-scenario (RCP8.5) and a climate mitigation scenario (RCP4.5) for the periods 2021-2050 and 2071-2100 as well as quantification of likelihood and statistical significance of projected trends. Regionalised climate scenarios have been produced for all federal states. Presentation of results has been optimized for the needs of decision-makers.

Explanation: why is it a good practice?
The joint procurement by the ministry and all state governments is in itself a successful example of multilevel cooperation in a federal state system. With the ÖKS15, for the first time a homogeneous and commonly accepted climate scenario database is available for entire Austria. Since 2016, they inform basically every adaptation policy and measure in Austria, including implementation of the national and state-level adaptation strategies, the adaptation activities in the KLAR! model regions, and the work of the municipal adaptation advisors. The climate modelling data are available at the Climate Data Centre of the CCCA for further research and more detailed regional climate impact assessments. Customized information products for regions and municipalities that have been prepared include climate change fact sheets for each KLAR! model region and regional climate impacts maps for all states, which are used by regional adaptation managers and municipality advisors in their communication work.

These products use tailored visualisation formats that have been co-designed with stakeholders. The scientific information has prepared in vivid ways and uses eye-catching and easy-to-understand graphic, which fosters creating personal affectedness, imaginations and feelings in local actors, and therefore helps adaptation policies to be taken serious.

References (website, report)
https://www.bmnt.gv.at/umwelt/klimaschutz/klimapolitik_national/anpassungssonstrategie/klimaszenarien.html

Link to visualisation
http://markjanbludau.de/goapply/?#austria%C3%96KS15:_Climate_Scenarios_for_Austria_2015

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<tr>
<th>4.5 Good practice example 5</th>
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<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Type of governance element</td>
</tr>
<tr>
<td>Level / Region</td>
</tr>
<tr>
<td>Date (start)</td>
</tr>
<tr>
<td>Description</td>
</tr>
<tr>
<td>Explanation: why is it a good practice?</td>
</tr>
<tr>
<td>References (website, report)</td>
</tr>
</tbody>
</table>
5 Case Studies

To answer our research questions, we investigated the following two case studies (see chapter 2.2 for the details of our analytical design):

- Case 1: Multi-level governance of climate adaptation by the example of the federal state of Styria
- Case 2 Working Group on “Self-Responsible Risk Precaution” [LURK AG]

The analysis of case studies focuses on the most important facilitating factors and barriers hindering or supporting the planning and implementation of climate adaptation, and on lessons learnt about how to overcome barriers and further capitalize on success factors.

Apart from being subject to multi-level governance challenges, climate change adaptation is at the same time always an issue of horizontal governance, i.e. the integration of adaptation goals and measures into the policies and practices of different sectors, such as natural hazard management, civil protection or human health. To be able to use synergies with other project activities in GoApply, we used the same empirical cases to gather data on both, vertical and horizontal aspects of governance. However, in order to focus our research, the mainstreaming perspective was as far as possible excluded from the following study, although we are aware that a strict separation has not always been feasible. The case study reports thus reflect that the vertical and horizontal dimensions of governance are in reality often intertwined, and that the distinction between both is to some extent an analytical one and not always straight-forward. Following the structure of the GoApply project, the main findings on inter-sectoral cooperation at the same level are reported in a separate mainstreaming case study report (WP2).

5.1 Case Study 1: Multilevel governance of climate adaptation by the example of the federal state of Styria

5.1.1 Case study description

Styria is one of nine federal states in the southeast of Austria. The state has approximately 1.2 million inhabitants, living in 287 municipalities. The capital is Graz, with 286,000 inhabitants. Similar to other federal states, the Styrian climate coordinator, representatives of the state administration and further sectoral stakeholders have participated in the development of the Austrian national adaptation strategy (NAS) and action plan (NAP) from 2009 to 2011. Styria already keeps experiencing severe effects from extreme weather events and long-term climatic changes, including flooding from heavy precipitation and damages from other natural hazard processes. Endowed with a mandate by the state government, the regional administration has developed a state-level regional adaptation strategy (RAS)\(^3\) (chapter 3.1.3), which was politically adopted in 2015 (FAEW, 2015). The policy document is a multi-sectorial, integrated, ‘stand-alone’ climate adaptation strategy that defines in total 97 measures in 13 sector-related and cross-cutting activity fields. Overall responsibility for coordinating the RAS is held by the climate coordinator of the Styrian government, who is organisationally allocated to Department A15 - Energy, Housing and Technology, Operating Department for Energy and Housing. Strategy formulation was based on the structure and contents of the NAS / NAP and inspired by its process design. Initiated and steered by the climate coordinator, the RAS was developed in a participatory process organised in a core team of strategic actors within the state administration, an extended team of further sector departments, and further non-

\(^3\) [http://www.umwelt.steiermark.at/cms/dokumente/11919303_125052026/76863340/2017-10-20%20KWA-Strategie%20Steiermark%202050%20%28Web%29.pdf](http://www.umwelt.steiermark.at/cms/dokumente/11919303_125052026/76863340/2017-10-20%20KWA-Strategie%20Steiermark%202050%20%28Web%29.pdf)
public stakeholders that were informed and could give inputs. The selection of measures attaches rather closely to recommendations for action on the national level, and the involvement of the Environment Agency Austria in the role of an external expert provided an indirect actor-based linkage to the national adaptation policy process.

Styria is in the process of implementing its adaptation strategy and is currently elaborating its first progress report. A permanent cross-departmental working group for steering RAS implementation is not in place, but coordination and reporting of implementation activities has been incorporated in regular administrative procedures. As part of her coordination role, the Styrian climate coordinator is an active member of the group of climate coordinators of the federal states, interacts frequently with the NAS coordinators on federal level, and participates in all recent country-wide key adaptation initiatives that link adaptation policy-making on the national, state and sub-state (regional, local) levels. Recent examples of these cooperation initiatives include the co-financing of the first homogeneous Austrian climate scenarios ÖKS 15 (see chapter 3.3.2), the training programme for adaptation advisors for municipalities (see chapter 3.2.4), and the Working Group on “Self-Responsible Risk Precaution” under the LURK (see chapter 3.2.5).

Moreover, there are increasing experiences with adaptation on the regional and municipal level in Styria. It is the federal state with the highest share of climate adaptation model regions (see chapter 3.2.3) within the KLARI funding programme (6 out of 20 KLARI model regions), and it participates with five pilot municipalities in the running LIFE project LOCAL ADAPT on municipal adaptation.

![Figure 7: Visualisation of the governance network of the Climate Adaptation Strategy Styria 2050](image)

The case of Styria therefore allows investigating in an exemplary way aspects of vertical adaptation governance between all relevant levels in Austria: a) between the state and the national level, as well as b) between the state and sub-state levels (regions, municipalities). To shed light on success factors and barriers, we conducted five interviews with seven experts, comprising policy-makers of the Styrian state
administration (climate coordinator, two high-ranking sector officers representing flood risk management and civil protection), two national NAS coordinators, one regional adaptation manager of a Styrian KLAR! region, and one local adaptation coordinator of a Styrian LIFE project pilot municipality.

5.1.2 Case study analysis

5.1.2.1 Climate adaptation goals and goal achievement

In a nutshell, the main goal of the Styrian RAS is to contribute to implementation of the NAS, by “preparing Styria in the best possible way for future climatic conditions, reducing negative climate impacts, and using opportunities” (FAEW, 2015: 15). The RAS identifies adaptation needs, defines and prioritises adaptation measures, and allocates responsibilities. In this regard, the successful development of a RAS was already the first major goal of the Styrian adaptation process, which got achieved in 2015 by resolution of the Styrian parliament.

The achievement of further RAS goals cannot be quantified yet, as the implementation phase is an ongoing process and the first progress report is not completed yet (scheduled for the end of 2018). However, the RAS was insofar successful as it increased the priority of adaptation as a relevant topic in Styria and fostered the enactment of a new Spatial Planning Law to support coherent cross-sectoral implementation of adaptation measures.

5.1.2.2 Most supportive factors

(a) Multilevel governance between the Styrian state level and the national level

Triggers for developing the Styrian adaptation strategy. From the perspective of the adaptation coordinator, the following factors have been the most important drivers for engaging in development of a state-level adaptation strategy in Styria: i) increasing problem pressure (e.g., heat, floods, landslides), often in connection with climate-driven extreme events; ii) scientific evidence, in particular results of (regional) climate scenarios and of studies commissioned by the state administration; iii) provisions by higher-ranking political levels, specifically the NAS development process and adoption of the NAS (2012), with further legitimation provided by the UNFCCC Paris Agreement (2015); iv) recognition that the NAS and NAP documents, despite their volume, are not directly applicable on federal state level and need to be ‘translated’, concretised and prioritised according to the regional context; v) bottom-up pressure by stakeholders from sectors (agriculture, health) affected by climate change impacts. Sector representatives of the water management and civil protection departments also identified growth in problem pressure, reactive bottom-up pressure by local actors, and implementation of the NAS as drivers. Implementation of the EU Flood Directive and the invitation of the state climate coordinator to contribute to the RAS formulation were additional motivations from their sector perspectives.

Influence of the NAS process on development of the Styrian adaptation strategy. As aforementioned, the NAS process has been one of the triggers for strategy development in Styria. Several mechanisms can be detected how the strategy processes on both levels interact and influence each other.

(1) Presence of the NAS: There has been good progress in proliferation of adaptation strategies and action plans on the level of federal state governments in Austria. As in Styria, most of the regional adaptation policy documents in place in the federal states relate – to a larger or smaller extent – to the NAS and NAP as regards contents, structure and selection of measures, while setting their own priorities and concretising national recommendations for action for the state level context. Although the NAS can be considered a soft instrument without legally binding effects, this suggests that the national strategy process has performed well in terms of its awareness-raising, agenda-
setting, communication, motivation and legitimation functions and in providing a knowledge base and orientation framework to sub-national levels.

(2) Participation of state actors in the NAS development process: The Austrian NAS and NAP have been developed in a years-long and broad national participation process. Key actors from the state administration of Styria, as from all other federal states, have participated in the process and contributed their expertise and perspectives. Apart from strengthening input (Scharpf, 1999) and output legitimation (Gibbons et al., 1994; Nowotny et al., 2003) of the NAS, personal involvement of state actors has built acceptance, understanding and commitment among the participating actors, increased capacities of implementing agents, and stimulated recognition of the need for regional action (Prutsch et al. 2018; Lexer et al. 2013). Through its process impacts, the participatory NAS development process was thus a supportive factor for agenda-setting on the state level.

(3) Communication and policy diffusion activities of the federal level in a partnership approach: In close cooperation with the federal state governments, the responsible Ministry, supported by the Environment Agency Austria, has over the years carried out intense communication activities reaching out to the federal states and regional actors. Important formats include dialogue events (chapter 3.2.2) organised in the federal states and so-called informal workshops addressing in particular state-level actors. Building on a partnership approach on eye-level, these formats have demonstrated the commitment of the federal level and contributed to awareness-raising, agenda-setting and knowledge brokerage in the federal state administrations. Most important, they strengthened the position of regional climate coordinators within their own institutions and provided them with legitimation to develop adaptation strategies in their own states.

Structured and well-organised strategy development process with committed central coordination. The organisation of the RAS development process in Styria was successful because it relied on three cornerstones: i) clear leadership by the climate change coordinator, ii) broad participation of the state administration’s sector departments, and iii) a hierarchical process structure composed of a core team of strategic actors, an extended team, and information flows to relevant actors outside the state administration. Moreover, the Environment Agency Austria facilitated the entire process. Leadership was enacted through the pre-selection of adaptation measures, based on the NAS and specific regional climate vulnerabilities. On the other hand, stakeholders and sectoral specialists were invited to prioritize and deepen the pre-selected pool of measures during workshops and repeated consultations. This allowed sectors to develop ownership for their respective measures and subsequently led to great satisfaction with the process, which was reflected in our interviews.

Well-developed and well-rehearsed informal governance interactions across levels. Institutionalised mechanisms of vertical coordination of adaptation policies are poorly developed in Austria, but the national stakeholder participation process has to some extent acted as a temporary informal coordination arrangement during the NAS development phase. Since no permanent vertical coordination mechanism has been installed thereafter, voluntary, “soft”, cooperation-based governance modes predominate, such as informal talks, ad-hoc interactions, information exchange, voluntary agreements, networking, case-based meetings of national and state-level adaptation coordinators, etc. However, the overall satisfaction with these rather informal governance modes seems to be high. The high quality and density of informal cross-level interactions, often in the context of concrete initiatives or projects, benefits from relations of trust and networks built during the participatory NAS development process.

Official resolutions by semi-formal bodies for cross-level deliberations. Two semi-formal coordination bodies dealing with climate adaptation policy making, among other issues, exist in Austria: the Conference of State Environment Ministers (LURK) and the Conference of State Climate Coordinators (LKRK) (chapter 3.4). In both bodies, the federal government and the state governments are represented. In recent years,
resolutions of the LURK calling for intensified collaboration between the federal government and the federal states to implement complex cross-cutting actions under the umbrella of the NAS have paved way for stronger multi-level cooperation on adaptation policy making. In response to these resolutions, the Austrian federal states and the Ministry (BMNT) have jointly financed and implemented a training programme for municipality adaptation advisors (chapter 3.2.4) and established the multilevel “Working Group on self-responsible Risk Precaution” under the LURK (chapters 3.2.5 and 5.2). Both mentioned initiatives represent efforts for more effective coordination in implementing national and state-level adaptation strategies. Although not directly relevant for day-to-day work, joint resolutions of the federal state governments and the national government taken by these bodies are an important strategic support and provide legitimation for adaptation actors on all levels, as is the case for the Styrian state administration.

**Being out of the political spotlight.** Differently than mitigation, adaptation is until now politically rather uncontroversial and tends to be framed as a technical or administrative issue. In comparison to mitigation, adaptation has a different problem structure and follows different policy logics. The up to now comparatively unpolitical character of adaptation is due to a range of interconnected reasons: the non-binding status of adaptation strategies, qualitative policy goals whose achievement is difficult to measure, the perceived non-disruptive nature of many adaptation interventions, a predominance of soft measures, a lack of dedicated budgets whose distribution could cause conflicts, and the currently still prevailing reactive adaptation modes with a tendency to implement rather low-cost, no-regret and non-transformational measures with immediate (co-)benefits. Especially informal adaptation governance benefits largely from this. Both on the national and state level, actors have more creative leeway ‘under the radar’ of highly politicised debates, because political party statements and forceful stakeholder lobbying are rarely part of the process. Therefore, the missing explicit support for adaptation as a policy field in the current Work Programme of the Austrian Federal Government 2017-2022 (chapter 3.1.1) opens, counterintuitively, the chance for intensified and constructive informal cooperation about technical details of adaptation. Collaboration between actors on various scales of government as well as from different policy sectors becomes less politically charged, less conflict-riddled, smoother, and otherwise impossible compromises, e.g. between actors from the agricultural sector and nature conservation, can be found.

‘Mole work’. Interviewees referred to this term to describe the ‘underground’ preparation of policies with the goal to reach pragmatic, technical compromises in informal talks, ad-hoc meetings and irregular contacts, using an unpoliticised setting. In effect, actors are able to draft pre-aligned proposals that then pass formal decision processes without much resistance. This finding may be specific to the Austrian history and political landscape.

**Personal engagement of committed key actors.** The above described informal governance strategies critically rely on personal engagement of key actors, often beyond their mandatory responsibilities. In this context, connotations of the abovementioned term ‘mole work’ relate also to the persistent communication work and sustained persuasion efforts delivered by such ‘change agents’ (Kristof, 2010) or ‘policy entrepreneurs’ (Kingdon, 1984). As demonstrated by our case, only a handful of experienced and well-networked key actors on the federal and state level are then able to drive the whole adaptation policy process at and between the state and the national level. These actors are mostly the public adaptation coordinators, plus committed sector representatives on both administrative levels. The importance of such ‘change agents’ is confirmed also on the sub-state level by the crucial role that highly active regional adaptation managers play in the KLAR! model regions. However, the long-term success of the individual engagement of ‘change agents’ depends also on the commitment of other participants, including non-state actors, and strongly benefits from bottom-up initiatives.
Institutionalised central coordination responsibilities. The establishment of institutionalised central adaptation coordinators on all levels of government is a key success factor during all stages of the adaptation policy process and an indispensable prerequisite for cooperation between levels. As is demonstrated by the case of Styria, the instalment of public climate change coordinators in the administration of all federal states as well as the incorporation of climate adaptation into their responsibilities has been a crucial and necessary institutional innovation since adaptation entered the policy agenda. Apart from initiating, motivating, driving, and monitoring the adaptation process at their own level, the state-level climate coordinators are also the main agents of vertical coordination and are able to mediate between the municipal, state, and national level. A well-developed network of contacts to actors on other levels is an important prerequisite of successful central coordination.

External problem pressure and utilisation of “policy windows”. It applies in two ways, namely extreme weather and natural hazard events, and their public perception. Extreme events can be related to meteorological hazards, e.g. torrential rain, storm, frost, heat or drought, to hydrological hazards, i.e. floods or mudflows, and to gravitational hazards, e.g. landslides, rockfall or avalanches. Any of those factors alone can open “policy windows” (Vogel & Henstra 2015: 114; Kingdon 2003: 165) and be a trigger for agenda setting or implementation, but coupled with a broad public perception, e.g. in national television, reports, or party statements, it accelerates implementation significantly. To some extent, also media coverage of impacts of climate-driven extreme events in other places can have a similar effect. A remaining challenge is that such “windows of opportunity” often have a short time span before they are replaced by other issues perceived as more urgent.

Specific projects with independent budget. ‘Game-changing’ adaptation initiatives and implementation of adaptation measures in general are most successful when they are handled as projects or are actually embedded in a project context. Project-based collaboration is very helpful in integrating actors from various levels and sectors. If such a project has independent financial resources, involves external expertise, and yields visible results, it can significantly foster coordinated implementation of adaptation. Such projects can also be shown to decision makers and give politicians an opportunity to present themselves in a positive context, thus helping to build political commitment. For instance, interviewees reported that adaptation measures of the Styrian adaptation strategy addressing flood risk management and civil protection are mostly implemented as part of larger projects, campaigns or initiatives (which can also be seen as an example of piggybacking adaptation on other measures). On a broader scale, the Austrian training programme for municipality adaptation advisors was a project carried out in joint cooperation of all federal states and the national ministry, representing a form of ‘living practice’ and a ‘cloud point’ of multi-level adaptation governance, where effective coordination is really needed and can materialize.

Economic incentives combined with ‘soft coercion’. Our interviews reveal that the federal funding programme KLAR! (see chapter 3.2.3), which provides public (co-)funding for climate adaptation model regions, has so far been successful in setting adaptation on the agendas of the participating Styrian regions and stimulating implementation of adaptation projects and measures in municipalities. This confirms the experience from other countries that economic incentives for adaptation by the government, if they do exist, usually have a clearly positive effect. Moreover, the KLAR! programme supports vertical coordination by combining financial incentives with ‘soft coercion’. For example, binding funding requirements by the federal funding body require the model regions to coordinate their adaptation concepts and measures with the state climate coordinator and to prove coherence of their adaptation concepts with the NAS and with the respective state-level adaptation strategy. While still allowing a regional bottom-up approach to priority setting, this allows the Styrian climate coordinator to streamline adaptation activities in the model regions with the Styrian adaptation strategy, to facilitate contacts to relevant sector departments, and to offer the most suitable support by the state.
**Multi-level governance between the Styrian state level and the regional and local level**

**Factors that are supportive at all levels:** A number of success factors are similar to the above described superior echelon of governance: (1) un-politicised, pragmatic approach towards adaptation, (2) external problem pressure as trigger for agenda-setting, (3) central coordination, (4) personal engagement of committed key actors, (5) economic incentives through public funding, (5) collaboration in specific projects. In the following, we will therefore focus on the factors that are predominantly relevant for local adaptation governance within a multi-level setting only.

**Most actors know each other.** Due to the small size of Austrian municipalities and of the climate change policy community within a federal state, relevant actors usually know each other, which eases communication and increases mutual trust. On the downside it may occur that two neighbouring municipalities do not have any knowledge about their respective climate vulnerabilities and adaptation efforts, due to personal antipathies or party-political idiosyncrasies.

**Avoidance of patronizing top-down structures.** Interviewees reported that this significantly facilitated the cooperation between the federal state Styria and those municipalities that are already active in adaptation (in the context of the KLAR! programme and the ongoing LIFE project). Mayors ‘want to be heard’, i.e. they want their cases to be taken serious, and to participate in the development of adaptation measures. Such collaboration relies, if successful, on mutual trust between municipalities and the federal state administration, on direct contacts to municipalities, and on good references and credibility in the region. The institution of the climate change coordinator (see above and chapter 3) supported achieving this. According to interviewees, local actors do feel that ‘their voice is heard’ on superior level, because of repeated direct dialogues between them and the state climate coordinator.

**Official and operational support from higher-ranking governance levels.** If higher governande echelons show their support for adaptation projects or measures, conflicts and resistance on local level are significantly reduced. This was the case for the implementation of the federal KLAR! programme (chapter 3.1.4), which was officially supported by the Styrian government and administration. Additionally, also other supra-regional institutions provided crucial support in the KLAR! process in formal or more informal ways: the Federal Environment Agency and the national meteorological service ZAMG (in their role as service platform for the KLAR! model regions), research institutions located in the regions, and managers of pre-existing climate and energy model regions (KEM) as well as LEADER regions (KEM).

**Climate mitigation processes and pre-existing regional structures as ‘door openers’**. Many of the KLAR! regions have been previously active in climate mitigation and sustainable energy processes within the federal climate and energy model region (KEM) programme. Although KLAR! was deliberately designed as a separate adaptation programme by the federal funding body, bottom-up organisation of the KLAR! management structures in the model regions benefitted from being able to attach to pre-existing regional governance structures established under the KEM programme. Experienced KEM managers acted as “door openers” and facilitated the process of putting adaptation on local agendas with their existing networks of local contacts, credibility, and local expertise. Already ongoing regional mitigation and energy processes thus provided entry points for the newer topic of adaptation.

**Public funding for regional and local adaptation processes.** The case of Styria confirms that economic incentives provided by public co-funding are a key driver for setting adaptation on regional and local agendas. Up to now, most Styrian municipalities that are knowingly active in adaptation are participating in publicly funded programmes (KLAR!) or projects (LIFE). A crucial trait of the KLAR! programme is that it provides funding to regional adaptation managers, who function as the central initiators, multipliers, process drivers and coordination hubs (‘caretakers’) in the adaptation model regions, mediating both to the municipalities, other actors in the region, the state-level coordinators, and – to a lesser extent – to the adaptation policy process on the national level. Similarly, the LIFE project LOCAL ADAPT required
instalment of contact points (most often the environmental or climate officers in the municipal administration and/or municipal council members responsible for environmental affairs) in the participating municipalities, who are acting as ‘caretakers’ for adaptation within their own municipality. Creating clear responsibilities and providing funding for coordination on the regional and local level is thus a key to overcoming the well-known barrier of missing or limited coordination capacities for adaptation. Moreover, public co-financing for the implementation of concrete adaptation measures motivates municipalities to tackle adaptation and gives local coordinators a stronger position.

**Supportive context conditions.** Regional coordinators can become effective as ‘change agents’ most successfully if several preconditions are fulfilled. These supportive context factors relate to the experience, commitment, and reputation of change agents in the field. They need to have a good intuition for the specific local context, and be accepted by municipal actors. If these change agents, for example, live in the same region they collaborate with, they are perceived as more credible and thus their efforts are much more fruitful. A supportive context can, moreover, also be external problem pressure, meaning either extreme weather events or bottom-up pressure from local actors.

**Support by committed local actors.** Looking at the implementation phase of local adaptation governance, support for coordinators from local key actors is of course crucial. These applies especially to mayors with an entrepreneurial approach and the municipal council, but also far-sighted small businesses and engaged citizens can make a difference. Apart from the mere willingness to cooperate, the commitment of local actors and partners needs to include the contribution of resources, their engagement in the process, and their problem awareness. If such commitment exists, a well-functioning cooperation between the process participants needs to be constantly maintained through a diplomatic approach of the coordinating actor, the constant signalling of openness to all relevant actors, and good support with scientific information and know-how.

**Dedicated transfer of usable knowledge.** Our interviewees revealed that information provision and workshops alone are not enough for successful agenda-setting: scientific results also need to be translated into the daily practise of local decision-makers and practitioners. In doing so, the concept of adaptation and its relation to mitigation are a continuous source of confusion to regional and local actors. Successful communication in our case therefore relied on two alternative main strategies: a) to better inform actors in the public administration about what adaptation actually is, or b) not to waste time and energy by explaining the difference of adaptation, but talking about climate change in general and ensuring that adaptation is an obligatory part of it. In addition to this, vivid and visualised scientific information (e.g. scenarios, maps, graphs) creates emotions and imaginations in local actors and therefore helps adaptation policies to be taken serious. Moreover, successful knowledge transfer benefits from the personal affectedness of the communicators (e.g. own experiences with climate impacts, such as floods) and from (personal) efforts in communication and persuasion (personal interactions instead of top-down dissemination).

5.1.2.3 **Main barriers**

(a) **Multilevel governance between the Styrian state level and the national level**

**Perceived vagueness of national guidelines.** The federal states and municipalities are the implementing actors most frequently addressed by the recommendations for action in the NAP. However, the NAP does not spell out their concrete roles, tasks and responsibilities in the implementation process. The NAP can thus not be used as a blueprint for direct implementation on other levels. Although doing so would significantly go beyond the scope of a national policy document in a federal political system, actors on other levels perceive that this hinders governance on their own levels, because of missing coherence,
guidance, and concreteness, resulting in decreased motivation to cooperate. The positive flipside of this perceived barrier is that the federal states were forced to develop their own adaptation strategies.

**Lack of high-level political will and commitment.** The relevance and saliency of adaptation at higher political level is, at the best, moderate. Adding up to this, a recent political change in the national government threatens to slow down the whole process of adaptation. The current governmental programme (chapter 3.1.1) does not mention adaptation as a discrete goal anymore, implying that governmental support for adaptation has decreased. On the other hand, such decreasing political relevance can also open up leeway for informal processes (see above).

**Lack of permanent institutionalised coordination mechanisms across levels.** The national stakeholder participation process has to some extent fulfilled temporary informal coordination functions during the NAS development phase. However, no permanent vertical coordination arrangements have been installed for the implementation phase. Cyclic work plans, reporting obligations, mandatory progress reports etc. between levels are missing in Austria. For instance, monitoring of the NAS implementation completely depends on voluntary collaboration by the federal states. This can be explained by the Austrian federal state system and its division of competencies between governmental levels as well as by the soft, non-binding character of adaptation strategies. In an effort to compensate for the lack of formal coordination mechanisms, Austrian adaptation actors have responded to this void by developing a culture of informal governance approaches, turning to some extent a weakness into strength.

**Dysfunctionality of existing high-level coordination body.** The only existing formal high-level coordination body for climate policies in Austria is the National Climate Protection Committee (NKK), whose mandate has recently been expanded and now covers also adaptation in addition to mitigation (chapter 3.4.3). However, its performance is perceived as not very effective by interviewees both from the national and state level, which has reinforced their scepticism towards formal coordination. As a result, the preference is to rather keep adaptation out of the agenda of the NKK as far as possible and continue relying on informal ‘mole work’. While this may be seen as a missed chance of formal coordination of adaptation policies across levels, it has in turn also given more weight and value to informal governance approaches, which have proven so far rather effective.

**Misunderstandings about adaptation and its priorities.** Even established actors in the policy arena still show severe lacks of knowledge, e.g. what adaptation is and how it relates to mitigation. Confusion of adaptation and mitigation as well as preoccupations that a higher relevance of adaptation could undermine support for mitigation efforts is particularly a barrier on the local level, but they continue to occur also among actors on higher-ranking level. This causes controversies and misunderstandings about the necessity of adaptation policies, their content, and their relevance in relation to other policy fields. Thus many actors do not perceive adaptation as a relevant and pressing agenda item, often based on false assumptions. To give an example: some state actors feared prohibitions and bans that the national level could enforce upon them. Negatively associated keywords – such as ‘audit’ in relation to the “Climate Check Natural Hazards” tool – and a focus on the difficulties (e.g. uncertainties) of adaptation are slowing down the governance process. Notably, our interviewees commented that concerning common misconceptions about adaptation, there is plenty of informational material, but it does not reach the relevant target groups.

**Actors with hidden agendas.** Resistance towards adaptation comes from various actors that fear bad reputation for Styria and negative effects on (sectoral) group interests. Adaptation policies in the sector of winter tourism, for instance, are rejected because they would imply the reality of declining snow reliability and therefore threaten the viability of Styria as a winter tourism region and location for related industry. Similarly, adaptation in the field of agriculture would question Styria as established producer of fruits and vegetables. For such reasons, some economic sectors are not interested in adaptation and do not participate in respective processes. Furthermore, the Austrian federal states have a historically rooted
distrust in the national state, suspecting a political threat behind any national policies. A second hidden agenda therefore is the preservation of federal state autonomy.

**Stakeholder lobbying.** As soon as adaptation policies touch sensitive issues, e.g. tourism or agriculture (see above), and thus enter the political spotlight, established stakeholders engage in the process. Examples are the Federation of Austrian Industry and the Federal Economic Chamber, who lobbied against the KLAR! programme. For the agenda-setting phase, this means as soon as adaptation reaches the political level, leeway for action decreases significantly and different lobbying efforts gain upper hand. As a result of this experience, many adaptation actors shift to pragmatic and informal approaches, which they call ‘mole work’ (see supportive factor above).

**Restricted resources limit coordination capacities.** Lack of resources is an important barrier that occurs on all levels, and it does not spare out even the national level. Limitations in resources confine what even the most engaged adaptation coordinators can achieve. This applies in particular to personnel, work time and budgets (including for external support or studies) of responsible coordination units. For example, only one person in the responsible department of the Ministry has her full work time dedicated to adaptation. For the climate coordinators of the federal states adaptation typically takes up only about 20-30 % of their work time (in contrast to mitigation).

**(b) Multilevel governance between the Styrian state level and the regional and local level**

**Municipalities are over-challenged by institutional crowdedness, unclear or double funding structures, and too many projects.** Austrian municipalities face a diversity of partly overlapping regional development structures and funding instruments, such as regional management associations, LEADER, KEM, KLAR! etc., which all target partly closely related municipal issues. In effect, municipalities can feel overwhelmed with processes going on in parallel, events and requests for project participation. In the context of a plethora of existing projects, local stakeholders are sometimes uncertain about the actual benefit of a certain policy, study or project, and it gets difficult to interest them in implementing adaptation policies. Mayors, for instance, refused to participate in “yet another flipchart workshop” without seeing tangible results. The landscape of available funding instruments, which are partly run by the state governments and partly by the federal government, is perceived as complex by local actors. Combined with a lack of expertise and capacity to deal with funding offers and related requirements, this results in high entry thresholds. Municipal actors easily lose the overview and may question the necessity to engage in new projects, both financially and content-wise.

**Local actors do not see the need for adaptation.** Partly because they feel that existing institutions or processes already cover adaptation issues (see above). Local actors are reported to feel not responsible for action on climate adaptation, lack awareness for the urgency of adaptation, and pay little attention to adaptation policies in general. Reasons may be that the problem pressure is still too weak, or that information is felt to be too unspecific, causing priorities to shift to other competing issues that are “easier” to handle. To give an example: A municipal spatial planning department does not want to cooperate in developing adaptation policies because of the perceived lack of ‘hard facts’.

**Budgetary commitments to adaptation measures tend to be avoided.** This is because they can be perceived as a concurrence to other projects whose budgets could get shortened in return. Thus, adaptation policies become part of contested budgetary negotiations, where they face a rather weak position (see above).

**Misconceptions about adaptation.** The difficulty to grasp the difference between mitigation and adaptation is still largest on the local level. A common misconception is, for instance, the fear that adaptation means resignation towards anthropogenic climate change and thus the end of any support for mitigation efforts (see also barriers in section a). As a consequence, the – in comparison to mitigation -
inherently more favourable motivation logics of local adaptation problems (municipalities are direct beneficiaries of effective local adaptation measures; immediate co-benefits and comparative cost advantages of many adaptation measures; etc.) remains unexploited, meaning a lost chance for framing and communicating local adaptation. Another factor is increasing “climate scepticism” (Brunnengräber 2018) outside of the climate change community. Both factors contribute to the situation that the urgency of adaptation is often not seen on the (local) political level, and that sufficient support from politics can not be expected.

**Municipalities are reluctant to pioneer in adaptation.** Partly the effect of the above-mentioned factors, this barrier is crucial for funding programmes or projects that rely on pilot municipalities to test new forms of local adaptation governance in order to use their example as model for other municipalities. Disinterest in becoming an adaptation frontrunner results from several local factors, such as missing political will for adaptation, or political/personal sensitivities of mayors and local actors (e.g. refusal to cooperate with a certain other municipality, refusal to cooperate with the project due to the amount of related e-mails). Another impeding aspect in this regard are conflicts with the interests of local landholders and forest owners.

**Tight agendas and lacking resources on local level.** Most relevant for the implementation phase is the scarcity of time resources, which (although being causally interrelated) in practise even prevails in comparison to lack of budget or personnel. Municipal actors work avocational and have different full-time jobs. In effect, many of them lack capacity to engage in the time- and work-intensive process of pioneering local adaptation. If information or guidelines are too unspecific, priorities quickly shift to issues other than adaptation. For example, the length and complexity of the Styrian RAS document was mentioned to prevent local actors to work with it, due to their time-wise constraints. Moreover, most local actors can participate in implementation workshops only outside of working hours – due to their avocational occupation in municipal politics/administration – whereas external experts are most often bound to their working hours. Therefore, many local actors request a stronger political commitment to adaptation, in the form of more budget and staff, in order to overcome the bottleneck of limited work resources.

**Lacking inter-municipal exchange.** In some cases, two neighbouring municipalities know nothing about their respective climate vulnerabilities and adaptation efforts. This is not only a problem for climate change-induced problems and adaptation measures that traverse the territory of individual municipalities, but it also means lost chances for pooling resources or peer-to-peer learning. In order to stimulate crucial inter-municipal exchange, municipalities miss a continuous regional mediation, which points to the important facilitator role of regional climate managers and/or of the state government in organising such exchange.

### 5.1.3 Major lessons learned

**a) Multilevel governance between the Styrian state level and the national level**

Institutionalised central coordination combined with committed coordinators and sufficient capacities. Establishing clear, central and permanent responsibilities for coordination at each level of public administration is an overall success factor at all levels and a prerequisite for vertical governance. Ideally, coordination of adaptation should be centralized on a high administrative level and in a powerful and resourceful (i.e. not a small) department, in order to reflect the cross-cutting and multilevel nature of adaptation issues and to be able to exercise effective leadership. Central coordination can become fully effective especially the more of the following requirements are fulfilled: institutionalising of coordination functions; back-up of coordinators by robust political mandate; allocation of formal decision-making competences; endowment with sufficient resources (staff, work time, budget); pro-active attitude and personal commitment of coordinators (“change agents”); professional expertise in climate adaptation;
personal communication and coordination skills; good personal networks of contacts at different levels of the policy community (e.g., Clar & Steurer, 2017). The case study confirms that a supportive governance framework at higher-ranking levels and the provision of adaption services (awareness-raising, information, advise, capacity-building, mediation) to regions and municipalities is crucial. This includes in particular support, e.g. in the form of public (co-)funding, for the creation of coordination capacities at the regional and local level (Lexer et al., 2019). In turn, however, this needs first sufficient central coordination capacities at the federal and the state level.

**Main roles of climate adaptation coordinators.** When it comes to influencing implementation of adaptation strategies, adaptation coordinators in Austria on both national and state level are well aware that their main roles relate to providing a facilitating, supportive and empowering framework to adaptation actors on other levels and in relevant sectors. Their possible courses of action thus strongly rest upon awareness-raising, communicating, capacity-building, information provision, and efforts at persuasion. The portfolio of activities, services and initiatives that has been launched and delivered in this regard in the recent years, e.g. joint efforts of the Ministry and the federal states to support regions and municipalities, confirms that this crucial role of adaptation coordinators in the governance process is performed in a very committed and successful way. The strong role that coordinators play in this regard represents an asset that should be built on and strengthened further in the future.

**Framework of obligatory regulations for municipalities necessary.** The interviewed experts agreed that voluntary engagement works for a small range of pioneers only, not for the majority of municipalities. Therefore the federal or national administration needs to define a framework of obligatory adaptation responsibilities for municipalities, such as making adaptation part of the statutory competences of municipalities and requiring appointment of local adaptation coordinators. Binding obligations for municipalities should, however, go hand in hand with support offered by higher-ranking levels.

**Adaptation knowledge needs to be prepared in usable ways and mediated.** In cooperation with research institutions, government authorities on state or national level need to keep up and intensify their efforts in preparing and communicating relevant and usable knowledge to decision-makers and practitioners on regional and local level; this would increase the chance for anticipatory action. Abstract climate knowledge needs to be broken down into practical and useful pieces for local actors, so that it can open creative new pathways. National and state-level climate coordinators, in close cooperation with the Climate and Energy Funds, the Environment Agency Austria, and other research and knowledge brokerage institutions, have recognized and responded to this need by preparing and brokering knowledge, guidance and decision support customized to the need of regional and local actors in the frame of the KLAR! programme, the training programme for municipality adaptation advisors, and in a range of policy support projects funded by the ACRP. However, since up to now only a small minority of Austrian municipalities is reached by the mentioned programmes, respective efforts in knowledge transfer have to be extended beyond the limited number of existing pilot regions and municipalities.

**Project-based collaboration is very helpful.** As has been shown previously (e.g., Bauer & Steurer, 2015; Clar, 2019; Clar & Steurer, 2017, 2019b; Steurer et al., 2018), adaptation strategies as such are not sufficient preconditions for implementation of concrete adaptation measures, and they are relatively weak coordination hubs. The essential goal of multi-level governance to integrate actors from various levels benefits largely from project-based or project-like settings. Coordinated implementation of adaptation measures, such as those defined in adaptation strategies, works best and is most likely to succeed in integrating actors across levels if they are embedded in concrete project contexts (Clar & Steurer, 2017, 2019; Steurer et al., 2018). This shows, for example, in the KLAR! model regions, of which each is basically handled as a project within the respective funding programme. Projects with EU co-financing, e.g. by LIFE or INTERREG programmes, have additional surplus value through transnational learning. It is in the frame of
such concrete projects that coordination and cooperation across levels (and sectors) is truly needed, really materializes, thrives and can become effective. It follows that coordination of adaptation across levels should focus not so much on strategies as such, but more on concrete projects, policies or solutions to specific problems.

**Sensitive communication is crucial.** A couple of examples from the case study will illustrate this. (a) Avoiding the topic of tourism in context of adaptation, in order not to question Styria as a winter tourism region, smoothed the collaboration on adaptation issues. (b) Many irrational fears, like the sudden end of winter tourism, were created by the media oversimplifying adaptation issues. (c) Many adaptation related measures were ‘hidden’ in construction programmes in order to secure the financing (‘piggybacking’ or ‘adaptation under cover’). (d) Successful communication needs to anticipate the difficulties of a transdisciplinary, multilevel, and cross-sectoral discourse about adaptation, because it is a necessary prerequisite for agenda setting. Enhancing the political comprehension of adaptation is crucial to succeed in this endeavour.

**Cornerstones of successful governance.** (a) We noted that pragmatic and technical approaches to adaptation and its governance are a key lesson for success. (b) On the other hand, we assume that this experience can be explained by the observation that up to now adaptation practices tend to focus on soft, rather small and low-expense, and thus “easy” measures (“low-hanging fruits”). (c) Interviewees concluded that adaptation policies need a strategic shift from incremental to more anticipatory and transformational adaptation, e.g. from mere technical hazard protection to integrated risk management that respects spatial planning needs, individual precaution, and public participation alongside technical requirements. (d) Moving towards more transformational adaptation means that in the future adaptation could become more political, and governance thus more conflict-laden, which implies a stronger need for negotiation mechanisms, public opinion-building and participation. (e) For this transition, further formal institutions (like NKK, LKRK, LURK; see chapter 3.4) were stated to be not necessary. Instead, informal interactions are generally regarded as more effective. (f) These interactions need to involve all relevant actors in order to reduce resistance and ensure acceptance of outcomes. It is furthermore helpful that those actors get along well with each other on the personal level. (g) Well-organized central coordination is necessary in order to use synergies between projects and actors and to avoid redundancies in the complex multilevel landscape. (h) Municipal bottom-up processes need (rhetorical and operational) support from superior institutions and politicians (e.g. ministers). If the political level expresses support for a process, it often accelerates. (i) Politicians should be given the possibility to present themselves in a positive context, which in turn again fosters their commitment.

**(b) Multilevel governance between the Styrian state level and the regional and local level**

**Direct communication with local actors and between municipalities.** The closer the proximity between adaptation actors, the more successful are local projects. This is because collaboration gets easier if the participants know each other. It is therefore essential for regional and municipal adaptation coordinators to keep a direct dialogue with local stakeholders and not to miss out contact with any relevant actor in the governance process. Relevant actors can come from any sector or level in governments, administrations, research, or businesses, and also include individual actors (e.g. farmers, tourism entrepreneurs). Here it is necessary to reach a mutual agreement with local actors; otherwise the municipalities will not cooperate. In doing so, it is important to include not only the mayors, but also local actors from other political parties, and to better communicate the advantages of being a pioneer (e.g. access to funding, reputation, media attention). An exchange between municipalities (e.g. between LIFE, KLAR municipalities and their neighbours) on a personal basis is necessary and facilitates implementation. Superior political levels need to formally support adaptation measures, both financially and rhetorically. The latter is especially important in the communication with municipalities.
Three keys to successful multi-level communication. The communication of background information about adaptation to local actors and stakeholders can be done best by regional and/or local climate coordinators. (1) To be successful they need eye-catching and easy-to-understand visualised information, posters etc. for public communication, e.g. to show 'these are the facts' and 'this is how it is going to be'. (2) There is a plethora of (printed) material, but it is yet not usable and relevant enough for local target groups and/or not delivered in a useful way. To change this, communication of graspable local threats and benefits is the key. (3) Such usable materials need to be prepared and provided by higher-ranking, i.e. state or national government levels, as part of their overall supportive governance framework for adaptation (see section a) directly above).

Problem pressure alone is not enough, because municipalities need support in tackling climate adaptation. The Styrian KLAR! regions are a positive example of how provision of target group-oriented information was successful in creating awareness among local stakeholders, including private actors like forest owners. Moreover, an informational campaign to promote "self-responsible protection from floods" (2017-2019) of the Styrian government successfully addressed landlords and private individuals.

Persuasion of local actors is more important than financial incentives only. To successfully engage municipalities, money is not the main factor, but the political will of stakeholders. According to interviewees, if municipalities want to start local adaptation, they do have the necessary financing. Even if there is public funding for local adaptation, municipalities should be required to contribute financially themselves, because “adaptation measures need to have a price in order to be perceived as important and valuable”. A strong further motivation for municipalities to engage in adaptation can be non-monetary incentives, such as gains in prestige through public visibility as a pioneer or good practice example.

Making use of “policy windows”: Acute problem pressure (climate-driven extreme events) is still one of the most important triggers to start tackling adaptation, especially for municipalities. Damaging climate events can open up “policy windows” that can be used to set adaptation on the agenda, to initiate an adaptation strategy process, or to actually implement measures that have been developed earlier, especially if they coincide with other supportive factors (Rauken et al., 2015; Clar & Steurer, 2017). However, being able to make effective use of such “focussing events” (Vogel & Henstra, 2015) before they are pushed aside again by other issues competing for attention requires that local adaptation coordinators or regional climate change managers prepare for such time windows. This includes that the respective knowledge base is already available, first concrete adaptation solutions have been prepared in advance, and financing options have been screened, so that respective proposals can readily be put forward to the mayor and the municipal council (Lexer et al., 2019).

Cornerstones of successful governance. (a) It is crucial to establish clear coordination responsibilities for adaptation in municipal administration, either by creating a new function or by integrating adaptation into existing and well-working structures for, e.g., climate mitigation or local sustainable development. (b) As the successful innovation of publicly funded regional adaptation managers in the KLAR! programme demonstrates, public (co-)funding for local coordination capacities, e.g. in the form of municipal adaptation managers, who could be shared by two or more small municipalities, would be a very helpful intervention by higher government levels. (c) Competitive funding of regional or local adaptation activities should be avoided, as it frustrates local actors. (d) Moreover, precise and tailored information about the specifics of local adaptation are necessary, for example, it needs a roadmap that clarifies 'where are we, where do we want to be in 2030, what has to be done until then, and with which budget?'. (e) Municipal actors, on the other hand, can not be expected to participate in each workshop, to fill flip charts, and answer e-mails, they need focussed and efficient guidance as well as visible results. Therefore, external experts and/or regional climate change managers (e.g. KEM, KAM; see chapters 3.2.3, 3.4.6) are crucial, because they can fill the gaps in capacity of municipal actors, who are in turn responsible and have the expertise and capacity to act. Otherwise, municipalities will slip into merely reactive adaptation approaches, caused by increasing or
changing problem pressure. (f) Regions of more than five municipalities need to be organized in a network in order to be manageable. Organising inter-municipal networks needs organisational support by regional adaptation managers or the state government. (g) A remarkable trait that Austrian local adaptation can build upon is a broad system of local voluntary emergency relief organisations (e.g. 50,000 voluntary fire fighters in Styria). Although being expensive in maintenance, these structures are reported to be extremely effective in implementing measures on the ground.

5.2 Case Study 2: Working Group on “Self-Responsible Risk Precaution” [LURK AG]

5.2.1 Case study description

In order to further strengthen cooperation between the federal government and the state governments in the field of climate adaptation, the Conference of State Environment Ministers [Landesumweltreferentenkonferenz – LURK] together with the responsible Federal Ministry (BMNT) decided in its resolution from 29th May 2015 to identify and select cross-sectoral measures of high complexity from the Austrian national adaptation strategy (NAS), whose successful implementation requires close vertical cooperation. The resolution followed intense preparatory consultations between the national and state climate coordinators. The LURK is a non-formalized multi-level governance body for common deliberations on environmental policy issues between the nine Austrian federal states and the national state (chapter 3.4.4)34. In order to tackle such cross-cutting issues, the resolution calls for thematic workshops involving all relevant actors. This mandate paved the way for founding temporary, informal, and non-public working groups.

The climate coordinators on federal and state levels jointly decided to focus in a first step on the topic of “self-responsible risk precaution”, both because it figures as a key strategy of adaptation in the NAS and to address increasing problem pressure from natural hazards in municipalities. Therefore, in 2017 the Working Group on “Self-responsible risk precaution” has formed as the first of such working bodies under the LURK resolution. It will in the following be referred to as LURK AG. Its members are administrative experts from federal and state levels, representing in both cases the public policy domains of climate adaptation and natural hazard management; in addition, non-public members came from academia and the insurance industry. It is chaired by the Head of Department Torrent and Avalanche Control of the federal Ministry BMNT, supported by the flood risk coordinator of the state of Styria in the role as co-chair. The work was crucially supported by the Environment Agency Austria, which provided comprehensive process support, and by an external expert, which was contracted by the BMNT to develop the methodological concept for the tool. Starting in March 2017, the working body was organised in a steering group and an extendend working group, who engaged in a work process involving a series of thematic workshops (up to date five working group meetings and several steering group meetings) and informal consultations in between sessions. In the first phase of the LURK AG process, the general objective of strengthening individual risk preparedness was concretised by the specific goal to enter a new phase of adaptation policy counselling by developing a new sensitisation and advisory tool for empowering municipalities and private citizens to improve their risk precaution measures. The tool should display substantial added value in comparison to existing instruments and complement them in a useful way. Running under the heading “Natural Hazards Check Climate Change”, the voluntary, facilitated self-assessment tool is currently being tested in pilot municipalities. The ultimate goal is being able to offer to

34 All available public information can be accessed here: https://www.wien.gv.at/umweltschutz/lurk.html.
all Austrian municipalities a systematic check by specially trained local check coordinators (‘checkers’). Further details on the case can be found in chapters 3.2.5 and 3.2.6.

The LURK AG is an innovative adaptation governance format for both, vertical cooperation between national, federal, and municipal institutions, and horizontal cooperation between the spheres of natural hazards and climate adaptation. It thus allows first-hand insights into novel multi-level governance approaches for implementing adaptation measures of the NAS. In order to focus our analysis, we have tried to put stronger emphasis on multi-level aspects in this case study report, whereas findings that are of predominant or exclusive relevance to mainstreaming (horizontal perspective) have been elaborated further in a separate WP2 report.

5.2.2 Case study analysis

5.2.2.1 Climate adaptation goals and goal achievement

As described above, the climate adaptation goals related to the LURK AG on various interlinked levels have been fulfilled to the extent possible until now:

- The Austrian NAS defines several recommendations for action that aim at the promotion of self-responsibility and individual risk preparedness towards natural hazards. The LURK has responded to the resulting need for cross-level and cross-sector cooperation and passed a respective resolution.
- The resolution of the LURK has been implemented by founding the LURK AG, as a multi-level and cross-sector cooperative governance format that provides informal space for dialogues in a non-political setting.
- The goal of the LURK AG to contribute to implementation of the NAS by developing a new voluntary multi-hazard instrument to support municipalities in enhancing their risk precaution measures has been achieved. At the end of 2018, the working group has delivered a clear methodological concept and application manual for the so-called “Natural Hazards Check Climate Change”, and it has provided...
an implementation concept for the country-wide roll-out of the measure, covering aspects such as pilot testing, the governance model, trainings of check personnel, financing, etc.

- The first training course for check coordinators and establishment of an operational governance structure for implementation of the check tool are planned in the course of 2019. The chair and members of the LURK AG’s steering group are committed to playing vital roles in the implementation. The achievement of the intended outcome, i.e. strengthened capacity of municipal self-precaution regarding climate hazards, can therefore not yet be evaluated.

5.2.2.2 Most supportive factors

In contrast to Case 1 - Styria, all mentioned factors refer to multi-level governance between the national state and the federal states, because municipalities are rather a target group of the LURK AG, not active participants.

**Broadness of mandate and openness of goals.** The underlying mandate of the resolution by the LURK and the topic of “self-precaution” chosen jointly by the federal and state climate coordinators were rather broad and ambiguous. Counterintuitively, the initial vagueness of the goal among participants and a blurry understanding of the product during the first phases left space for creative thinking and uncommon alliances, and it fostered open-minded discussions beyond traditional divides between levels and sectors. More precisely, the topic of ‘self-precaution’ was not politicised, but perceived as a neutral problem-solving strategy. Therefore, different actors imagined different outcomes of the process, and no institution or level of governance felt threatened. This was a key pre-requisite for the constitution of the working group, for the acceptance of the general topic by all involved actors, and for the unfolding of successful collaboration.

**Precise idea, clear concept and concrete product.** The shift from initial thematic broadness to a clear joint vision towards a concrete product, which occurred at a soon-enough point in time, was an equally important success factor. Having a clear goal with a practicable and attractive product proved motivating to all participants and succeeded in focussing the group’s common efforts in an efficient way.

**Attractiveness and benefits for the involved levels and sectors.** The topic of “self-responsible risk precaution” and the idea for the concrete product were equally attractive to the participating actors from both policy communities, climate adaptation and risk management, because they were in line with their respective sectoral interests and agendas. A crucial factor was the decision to extend the coverage of the initial German flood risk audit scheme so that both, risks from natural hazards and climate change-driven extreme weather events, could be assessed – this allowed both policy communities to identify with the jointly developed product. The same applies to participants representing different levels: both the NAS and most state-level adaptation strategies address adaptation on municipal scales in the context of natural hazard management, and natural hazard authorities are used to working with local actors; the agreed product thus contributes to policy goals of the federal ministry and the state governments and creates benefits for all levels. In this context, we need to highlight the fact that LURK AG actors from national and federal level cooperated on a matter that affects municipalities. The circumstance of ‘talking about the others’ facilitated the ability to find compromises and the readiness for implementation.

**Motivation of participants.** In addition, all participants were motivated by the perspective to take a new step in policy counselling through the joint development of a hazard check tool for municipalities, and by the positive feeling of joint cross-sectoral efforts towards ‘something which matters’. A common excursion to Germany in order to get to know the German Flood Risk Audit model was a critical turning point in that regard.

**Creation of a steering group.** The LURK AG work process was organised into meetings of the full work group and separate sessions of a small steering group. The interviewees agreed that without this
organisational measure the LURK AG would not have been able to achieve the results it did, given the timely constraints on only four meetings of the complete working group with a large number of rather heterogeneous participants. The steering group prepared the strategic decisions, and through intense briefings and de-briefings of meetings was able to bridge gaps between diverging interests of the different levels and policy sectors.

**Joint excursion was a critical turning point.** Getting first-hand information about the German Flood Audit during the excursion turned the tide from sceptical resistance to motivated support regarding the development of a check tool. Through this motivation, LURK AG meetings could reach almost full participation, had a positive spirit, achieved a broad consensus for the product, and thereby a strong mandate for implementation. The existence of the German audit, as a blueprint for the expanded Austrian tool, greatly facilitated this process.

**Trustful atmosphere due to established actors with good personal relations.** This constellation may be a typical find for a small country like Austria. Almost all participants knew each other before they initiated the LURK AG – a key-condition which facilitated open-mindedness towards the topics of the common agenda, mutual respect, mutual consent, and in sum a professional collaboration, characterized by a good working climate. Moreover, each participant had profound experience in governance processes, relevant technical expertise, and a broad professional network. Additionally, the size and the complementary professional expertise of the working group members – participants with experiences in natural hazards management and practical adaptation work – contributed to the significance of this success factor.

**Key actors making determined efforts to push cooperation.** Leadership by committed key actors was crucial for integrating a broad spectrum of actors from different levels and sectors and for guiding them towards a productive common output. Without these individual efforts, the LURK AG would not have been able to overcome multi-level barriers, to agree on a common topic, and to yield tangible results. Persistent personal efforts in convincing participants of the common agenda (including, e.g., to take part in the excursion or the meetings) also account for the fact that consensual decision making could be achieved. Our interviewees agreed that in particular the chair, the deputy chair, the EAA member in charge of process support, and one of the state climate coordinators acted as “change agents” in steering the process. It was rated as highly supportive that the LURK AG is chaired by a powerful institution on the federal level.

**Professional process management and sound preparation of joint discussions.** Professionalism in preparing, organising, facilitating, and documenting the work meetings is considered a success factor by all interviewees. Involving an adaptation expert from the Environment Agency Austria in the process support role thus proved to be helpful. Although the result of the discussion process was sometimes described as a ‘lucky coincidence’, careful preparation obviously played an important role. Joint discussions were not only prepared content-wise, but also strategically. Here, informal communication in the background was crucial, as well as forming alliances with supporters among the participants, who advocated the suggested directions against the resistance of ‘trouble makers’. Preparation also depends on a responsible ‘trouble shooter’, personal engagement, and the commitment of all participants – both inside and outside the steering group.

**Involvement of external expert for preparation of input.** It was greatly supportive that the chair of LURK AG was able to mobilise additional resources for hiring an external expert, who was tasked to develop the methodology and implementation guide of the check tool. Otherwise, it would not have been possible to elaborate a draft concept in the short time in between two LURK AG meetings. Being able to present the draft tool to the group established common ground for further discussion and increased acceptance of the proposed check tool among the experts from different levels and technical backgrounds.

**Official resolutions in the context of implementing the NAS.** Through the formal support provided by the national adaptation strategy and related resolutions of the LURK, the whole process experienced increased
legitimation, a coherent frame of reference, and willingness of actors from different sectoral backgrounds to cooperate – both in the initiation and the implementation phase.

Organisational support of the federal ministry BMNT. The support and leading role by the Ministry, as central and powerful authority on federal level, was rated as important, as was the involvement of the climate change coordinators of the state governments and the participation of eight out of nine Austrian federal states.

Power of the factual. This means having a well-defined topic and sufficient financing, which creates pull-factors that are attractive, motivating and convincing for participants. In our case the topic was the development of a climate hazard check tool, and the financing was provided by actors in the federal ministry BMNT. In turn, these actors were able to use an open window of opportunity to select a specific issue and acquire resources for implementation of the NAS.

5.2.2.3 Main barriers

In contrast to case 1, all mentioned hindering factors refer to multi-level governance between the national state and the federal states, because municipalities are rather a target group of the LURK AG, not active participants. Furthermore, several of the factors relate to open questions concerning implementation of the developed tool, which were an issue at the time of the interviews, but have in the meantime been mostly clarified.

Non-transparent nomination process of LURK AG participants. While participants were formally nominated by the state administrations, it was not always clear whether they acted as official representatives of their federal states or rather as individual experts. While this is to some extent coherent with the nature of an informal working group, it sometimes appears to have caused problems resulting from varying understandings of roles, a lack of back-anchoring of participants in their home-institutions or missing communication between representatives of the same federal state.

Heterogeneous composition of the Working Group. Participants came from different administrative levels and sectors of government, with different levels of knowledge and different areas of expertise. This caused a broad variety of different motivations and conceptualisations of “self-responsible risk precaution” among the participants, which made it more difficult to collaborate towards a mutually agreed goal. It was therefore a challenge to establish a common understanding among all participating actors as well as a mutual consent about the goals and intended results. This was aggravated by the fact that participation tended to be volatile, some members got replaced by other persons, participants did not always appear prepared to meetings, and either willingness or capacity to put effort in the joint process met upon limitations.

No political or legal definition of ‘self-precaution’. Since there was no generally acknowledged definition, a common understanding of the concept of “self-precaution” needed to be agreed first. Especially the question whether and why ‘self-reliance’ is not redundant with existing measures (e.g., municipal civil protection plans, voluntary emergency organisations) hampered communication and led to confusing discussions. In effect, some participants underestimated the possible political consequences of the joint product (e.g., such connected to bad publicity for municipalities).

Joint product might yield politically inconvenient results. Respective concerns related, for example, to declining tourism or negative publicity for municipalities with ‘bad’ check results. Hence, some participants were sceptical towards the product, to the point that the word ‘audit’ itself caused significant resistance in some state authorities, due to its association with external control and sanctions. In reaction, the audit was renamed to ‘check tool’, it was clarified that application is totally voluntary, and it is left up to the municipalities whether they want to publish the results, which all eased the collaboration considerably.
Hidden political agendas (federal states vs. national state). According to the interviewees, it was an initial motivation of representatives from federal states to get the national state into a binding financial agreement to support them in their activities to implement the NAS. While this may in the beginning have motivated some state representatives to participate in the LURK AG, it also caused some disagreements during the process. This aspect is specific to a federal state system like Austria. Generally speaking, it is rooted in a socio-historical distrust toward the national state, which is often suspected to use national policies to weaken federal states. Consequently, the states may collaborate in order to jointly resist national policies and reinforce their political leeway. The national state, on the other hand, needs to cooperate because its own institutions are very limited in their ability to reach out to municipalities and influence their decisions.

Adaptation as an abstract policy field. When it comes to implementation, adaptation strategies depend heavily on established sectors. Similarly, the direct influence of adaptation policies on decisions taken at other levels is limited. Hence, different sectors and different levels of governance make sense of adaptation strategies in different ways, and they all need to define the cornerstones of adaptation action within their own fields of responsibility. Many actors believe to have settled the issue of adaptation with existing policies, which increases the challenge to win them over to new approaches and different understandings of adaptation.

Too little understanding about adaptation, natural hazards, and how they intertwine. Most LURK AG participants have expertise either in climate change adaptation or natural hazards management, and lack a deeper understanding of the respective other field. While this may be seen as a general difficulty of any interdisciplinary work processes, interviewees report that it has hindered the endeavour to find and exploit synergies. On one side, new solutions got suggested instead of building on existing measures and structures, and, on the other side, participants approached the product (i.e. the check tool) with scepticism, assuming that existing institutions already cover its functions.

Lack of time and workforce. Notably, financial constraints were not mentioned as a barrier. Instead, time was a severe limiting factor, because many administrative experts and influential actors have full schedules and often cannot participate in workshops, which hinders the process. Especially if leading actors that push and drive the whole process are missing, this makes it difficult for the entire steering group to decide and proceed. This additionally conflicts with the external time pressure to achieve progress, because the longer the duration of the process, the higher the risk that certain actors might lose interest or drop out due to restrictions in time capacity. Also the available workforce constrained the process. Interviewees reported that members of the steering group heavily exceeded their planned work resources, because the efforts required for process management were underestimated.

5.2.3 Major lessons learned

Standardisation of process formats is not possible. The first and arguably most fundamental lesson learned is that there is no ‘one-size-fits-all’ model, but that a successful process needs creativity, intuition and flexibility. While having a framework process design in the beginning is necessary and helpful, governance process formats should be open to incorporate new aspects, to integrate inputs by participants, and to respond to any changes or external influences beyond control. This requires adaptability and (re-)flexibility throughout the process, which can be facilitated by leaving creative leeway in the process management. It is also essential to carefully consider the context conditions that a governance process operates in, i.e. to be sensitive to the political, institutional, cultural, etc. background of the process and its participants.

Informal a priori coordination is crucial. The informal talks and consultations before the beginning of the process were reported as essential, ranging from the preparation of the LURK resolution and the choice of
the topic for the LURK AG to decisions on the chair role and selection of participants. In doing so, key actors were able to avoid competition for thematic leadership and other sensitivities of cooperating institutions.

Successful processes benefit from structure and ad-hoc communication: Processes in support of multilevel governance are more likely to succeed if they are structured and well-organised. At the same time, however, informal, bilateral and ad-hoc consultations of key actors in between official meetings are generally supportive and can be key to success, e.g. in order to pre-arrange strategic decisions, moderate conflicts, coordinate positions, prepare meetings, etc.

Steering group was essential. The interviews revealed that without establishment of a steering group the LURK AG had not been able to achieve such tangible results under the given framework conditions, i.e. a high number of participants with very heterogeneous backgrounds vis-à-vis an overall tight time budget with a limited number of meetings. Having a core group of committed actors that prepares strategic decisions and coordinates positions ‘behind the curtains’ can considerably increase efficiency and effectiveness of such group formats. In general, a steering group should be based on rules and responsibilities that are mutually agreed among the entire working group, and keep frequent and transparent communication with all other participants.

Proactive leadership. Successful processes need a strong lead that takes ownership, keeps the process together, and fosters a trustful working climate, i.e. who exercises leadership without trying to overrule or dictate decisions. Furthermore, proactive leadership is characterized by the courage to commit money to the process, and by complementary personal and political goals.

Committed actors are vital to the process. The success of the process heavily relied on key actors engaging with their ‘lifeblood’, often voluntarily beyond their direct responsibilities. Through their pro-active engagement, these persons can act as ‘change agents’ that are able to convince and motivate other participants. At the same time, open-mindedness among the participants is necessary in order for key actors to be heard.

Involve external experts. Cooperation with external experts facilitates the establishment of a commonly shared technical expertise between all participants and, moreover, increases the legitimacy of the developed product. Such common body of knowledge should ideally be established a priori to the process. External experts also help to overcome constraints related to capacity in terms of time, workforce or readily available technical expertise, and thus improve efficiency of the process. Commitment of sufficient resources is a pre-requisite for being able to contract external consultants.

Lead by high-level central institution is crucial, but needs reinforcement by a network of supporting institutions. One the one hand, it is crucial to have a central coordinating authority, such as the federal ministry BMNT, for such multi-level process as the LURK AG, both during the work process, and even more with a view to future implementation of the jointly developed measure - e.g., to provide financing, to provide assistance, to take care of quality assurance, and to prevent fragmentation. On the other hand, it needs more collaborating institutions to support the country-wide implementation of a measure. Ideally, these partners needed for the implementation phase should be involved already in the development process. Therefore, chairs of similar future working groups (especially if they are from the adaptation community) should look for a supportive peer group from relevant other sectors early on.

Role of state climate coordinators was essential. Both from the multi-level and sector perspective, the cooperation with the climate change coordinators of the federal states was essential. In the beginning, participation of state-level climate coordinators was rather patchy and discontinuous, possibly because some of them suspected that the process, which was initiated as an adaptation working group, had been ‘captured’ by the natural hazard management sector. This created insecurities within the group that the final product might fail to be accepted by the adaptation policy community. However, this critical stage in
the process was passed successfully when the climate coordinators recognized the relevance of the tool for their adaptation goals. The lesson learned may be that adaptation policy makers should take ownership and commitment to governance processes running within their own policy domain from the beginning.

**Involve municipalities in the co-design of local adaptation measures early on.** As adaptation in general, and application of the developed check tool in particular, cannot be forced upon municipalities, they need to be motivated and convinced of their own benefits from applying the tool. Future governance initiatives developing adaptation support offers for municipalities should seek to involve representatives of the municipal level in the co-design of such tools or measures early on for two key reasons: It helps to develop measures that are considered useful by municipalities and match their specific needs, and it contributes to overcoming of scepticism and fear of negative consequences, and therefore lowers the barriers for participation. In the LURG AG case, involvement of local representatives in the work group could also have facilitated the identification of pilot municipalities for testing (which turned out to be a time-consuming obstacle), because this needs cooperative mayors. Due to the principle of voluntarism, the local diffusion of adaptation measures as the “Natural Hazards Check Climate Change” needs ‘lighthouse projects’, word-of-mouth recommendation, consequent promotion of good practise examples, and good leadership, in particular a central institution that ‘is pushing the issue’. Moreover, as also previous experiences suggest, municipalities should pay a symbolic contribution (e.g. 1,500 – 2,000 Euros) for usage of the tool, since ‘what is free of charge is worth nothing’.

**Governance thrives on a network of established players with individual initiative.** If such network does not exist, it must be developed first. Here, it is important to note that governance is only an extension, not the opposite of traditional hierarchical government.

**Have a clear goal, an attractive idea and a concrete, practicable product.** This is not only a critical precondition for effective work of a cooperative governance process as the LURK AG, it also motivates participants better than an abstract and product-less ‘idea workshop’ or merely political goals. Any ‘armchair reasoning’ should be avoided strictly in favour of a clear concept and of as much simplification as possible, which also increases acceptance. Products need to be practicable, concrete and generate added value for target groups and all involved actors, because, after all, adaptation is no end in itself. Especially in cross-sectoral governance processes, clear goals and concrete measures can ease cooperation, because this helps finding common ground among heterogeneous participants with different expertise and backgrounds. To succeed, these precise ideas need to meet upon committed actors and an open-minded (non-saturated) clientele with the capacity to engage.

**Attractiveness of adaptation solutions to different levels and sectors:** Multilevel and cross-sector governance of adaptation is non-hierarchical and cooperative (Clar & Steurer, 2017), i.e. actors from different levels and sectors can hardly be forced to collaborate on joint adaptation solutions, but they need to have interest and motivation to do so. The key for successful cooperative adaptation governance is thus the attractiveness of adaptation solutions to the involved levels and sectors. Crucial features of attractiveness include in particular the following: (i) the envisaged product (e.g. the check tool in case 2 – LURK AG) of the process delivers benefits and added value for all involved groups, and thus serves their self-interests; (ii) the product is compatible with the agendas, cognitive patterns, intervention logic, work routines etc. of the affected sectors and levels (‘accuracy of fit’). In the LURK AG case, both the adaptation coordinators and the natural hazard experts recognized the added value of the developed check tool for their own policy goals, and both the federal government and the state governments were in favour of an instrument that helps them in addressing local authorities and private individuals.

**Working groups need resources, namely time, financing, and external expertise.** Financing is needed to organize the process, to develop the product, to subcontract external expertise, and – in the long run – to implement it in practice. Participants, and their delegating institutions, need to be willing to invest their
work time, which also implies that the time-intensity of the process needs to be balanced with its outcome. The highest inputs in terms of work time are required from participants of the steering group.

**Building on existing knowledge, practices and experiences.** The existence of the German audit, as a blueprint for the expanded Austrian tool, greatly facilitated the LURK AG process. Getting to know the German Flood Audit during the excursion was a critical turning point that helped overcome sceptical resistance and sparked motivated support among the group. This demonstrates the advantages of building on existing good practices and of learning from the experiences of others, instead of trying to ‘re-invent the wheel’.

**Product should generate substantial added value, and not be a concurrence or threat.** To avoid questioning the competence of other institutions, the developed measures or product should not display a concurrence to existing measures or instruments, but rather offer added value and a useful complement to those. Furthermore, to avoid fear of control and negative consequences, it proved necessary to not speak of an audit, but of a voluntary, non-public self-assessment of natural and climate hazards (‘check’).

**LURK AG can serve as a role model for further NAS / RAS implementation.** Overall, the working group represents an innovative and successful governance format that could be exemplary for future multilevel adaptation governance in Austria, especially in the context of the NAS implementation. The LURK AG has demonstrated that multilevel and cross-sector working groups are a suitable and effective approach for implementing complex and cross-cutting issues addressed by adaptation strategies. It is a big advantage of such project-like settings that coordination and cooperation efforts across levels are allowed to focus on concrete goals, measures or products. As far as applicable, similar new cooperative formats should, however, consider forming around existing institutions (e.g. Working Group ‘Heat’, ISDR platform) in order to build on existing networks, exploit synergies and reduce scepticism.
6 Lessons learnt and enhancement options

6.1 Major lessons learnt

Building on both the case study-specific findings (chapter 5) and the description of important cornerstones of Austrian adaptation governance (chapter 3), this chapter presents a cross-case synopsis of results from both cases, Styria (case 1) and LURK AG (case 2), blended together with insights gained from the mapping. We focus here on major lessons learnt that have emerged from both of our case studies and/or that provide important rationales for the formulation of our enhancement options (chapter 6.2). To take into account the different specifics of (sub-)national and local adaptation governance contexts, the following chapter will be divided in two respective parts.

All interviewees confirmed that climate change impacts, both from long-term changes and extreme weather effects, will become more important in the future, thus the facilitation of adaptation policies is of great relevance. Before we come to lessons which are specific for certain stages in the multi-level architecture, we can sum up a few general findings that reoccurred in both cases.

1. Despite all attempts to find a recipe for success, **there is no standardization** or one-size-fits-all design of multi-level governance. Successful approaches need a certain leeway for creativity, intuition and flexibility, and they need to be sensitive to specific context conditions.

2. The mere external **problem pressure is not sufficient** to stimulate effective governance responses, but bears the risks of persisting in purely reactive adaptation responses and/or of leading to maladaptive outcomes (Lexer et al., 2016). To reinforce anticipatory adaptation that does not shy away from transformational adaptation options, committed, enduring, foresighted and **proactive leadership with broad participation** is needed instead.

3. Governance is not the opposite of traditional government, but its extension and complement, meaning that conventional hierarchical and administrative approaches are still urgently needed to yield effective adaptation policies. In any case, multilevel governance can support this endeavour.

4. Important success factors of multilevel adaptation governance common to both cases can be briefly characterized with **pragmatism, simplicity, a precise and outcome-oriented idea, and the use of tangible good practice examples.**

(a) Successful multi-level governance in the national and state-level context

Proactive leadership, committed key actors and institutionalised central coordination are key success factors. In all phases of the policy cycle, pro-active leadership and personal engagement of committed individual key actors combined with clear responsibilities and institutionalised central coordination roles are key to successful governance of adaptation on all levels. This relates to the crucial roles of so-called ‘change agents’ or ‘policy entrepreneurs’, who can act as initiators, communicators and drivers of adaptation processes and are the main agents of both horizontal and vertical coordination. These actors often commit to their roles ‘with their lifeblood’, often beyond the formally agreed tasks. Their functions are best fulfilled by institutionalised public adaptation coordinators. Also every governance process set up for specific purposes needs proactive leadership, in other words a person who creates coherence and ‘holds everything together’. This ‘caretaker’ needs to have the formal power and the courage to commit resources to the process. In the best case, personal interests and political goals of this person go hand in hand. Due to the immense amount of coordination work in a multi-level governance environment, a successful process needs act The work of these actors can be facilitated by voluntary supporters and through cooperation.
Sufficient resources are needed to overcome limitations in coordination capacities. In order to yield meaningful results, climate change coordinators as well as cooperative working groups need sufficient resources in terms of time, personnel, budget, and external expertise. Limited coordination capacities, resulting from the combination of a lack of resources (staff, budget, work time) with the broad, multi-sectoral nature of adaptation strategies, are a major barrier on all levels and confine what even the most committed adaptation coordinator can achieve. which tends to over-challenge coordinators in their roles. These key actors in charge of coordinating and managing adaptation processes thus need (better) public financing.

Coordination across levels and sectors benefits from a permanent core team or steering group. The development of adaptation strategies on the national and the state levels has benefitted from participatory approaches and the installation of cross-sectoral core groups. However, after strategy formulation, permanent cross-departmental working groups in charge of coordinating, steering and monitoring the implementation of adaptation strategies are often lacking, but would be beneficial for assuring coherent and coordinated implementation, building on regular feedback loops with representatives of other sectors. Such permanent central coordinating groups should consist of a small amount of strategic key actors from different disciplinary and administrative backgrounds.

Coordination should be in a powerful department on a high administrative level. Allocating coordination in a small (sub-)department is not adequate to the necessarily cross-cutting and multi-level nature of adaptation policies. Instead, a more powerful department with better resource endowment can reduce barriers in communication, foster an interdisciplinary collaboration between the plentitude of affected sectors and levels, and drive implementation more efficiently. Without such coordination, valuable synergies can not be exploited. It should therefore be considered whether sub-units of environmental departments, which are traditionally rather weak and often have histories of conflicts with other sectors, are the best coordinating institutions, or whether a different and more powerful department (e.g. natural hazards, water management, spatial planning) can act as a more effective lead.

Governance thrives on (informal) networks of established players with individual initiative. If it does not exist, related networks need to be developed before an adaptation governance process can begin. It is furthermore vital to strive for inclusion of actors from all relevant sectors and levels in governments and administrations, of research, businesses, and important individual actors (e.g. farmers, tourism union). All relevant key actors need to be involved, preferably by means of informal coordination talks before a development process starts as well as during the implementation phase. A main goal is to avoid concurrence for thematic leadership between different actors a priori.

Adaptation strategies have positive impacts through several ‘soft’ mechanisms. Our study confirms that the national adaptation strategy and the regional adaptation strategies in the federal states are delivering important functions and added value for adaptation policy processes on other levels. Although they can be considered ‘soft’ instruments without legally binding effects, they are important inputs to other other levels and are performing well as regards: awareness-raising, communication, and motivation of actors; legitimation of actors on other levels; improvement of information flows between levels; provision of a knowledge base; and serving as orientation framework providing directions for actors on lower-ranking levels. The influence of adaptation strategies on other levels can to some extent also be explained by “soft pressure” resulting from their presence and political adoption.

Quality and density of informal governance modes are an asset of Austrian adaptation policy making: Institutionalised mechanisms of vertical coordination of adaptation policies are poorly developed in Austria, and no permanent vertical coordination arrangements in a stricter sense have been installed for the NAS implementation phase. This finding holds true for most other European countries that are active in adaptation. As has been shown by previous studies (Casado-Asensio & Steurer, 2014; Bauer & Steurer,
2015; Nordbeck & Steurer, 2016; Clar & Steurer 2017, 2019), adaptation strategy processes as such are generally rather weak coordination hubs and do not provide adequate coordination frames for vertical policy integration and coordination. This may partly be due to the soft, non-binding status of adaptation strategies and the lack of dedicated implementation budgets, whose allocation could cause conflicts; this may reduce both the need and the added value of strengthened vertical coordination. In an effort to compensate for the lack of formal coordination mechanisms, Austrian adaptation actors have responded to this void by developing a culture of informal governance approaches, turning to some extent what may seem a weakness into strength. The overall satisfaction with the predominating voluntary, "soft", cooperation-based governance modes, such as informal talks, ad-hoc interactions, information exchange, voluntary agreements, networking, case-based meetings of national and state-level adaptation coordinators, etc., seems to be high. The mapping and visualisation of the Austrian governance landscape confirms that there is a high density of interactions and network relations across all levels. Especially in a small country like Austria, informal governance via “short channels” can often perform well. Meaningful multi-level adaptation governance should build upon these existing dynamics and mechanisms instead of trying to set up new processes from scratch (Steurer et al., 2018). Instead of trying to force formal vertical coordination through adaptation strategies, it is thus suggested to rather maintain, intensify and leverage the use of available informal governance modes and formats.

Develop regional adaptation strategies in a participatory and inclusive approach. The development process itself is an effective result of adaptation policy-making and paths the way for further actions. The design needs to be transparent and with broad participation. It can be argued that participatory NAS development has created good potentials for voluntary, cooperation-based cross-level governance modes that predominate in Austrian adaptation governance, and that informal coordination between levels benefits from the interactions, networks and commitment built during the stakeholder process. Adaptation policy processes on sub-national levels should try to follow the general model provided by the NAS.

More formalised coordination across levels is not a universal remedy. Formal vertical coordination mechanisms in Austria are rare, but the few that exist (LURK, LKRK) have recently contributed to progress in implementation of adaptation policies across levels. Based on our case study results, it would be unfair to argue that more formalised coordination would automatically lead to more effective adaptation governance and better adaption outcomes. Under the given set-up of adaptation strategies and the framework conditions of adaptation policy making (see directly above), this would appear both rather unrealistic and hardly useful. Our interview partners do not expect that stronger institutionalizing of vertical coordination would be a universal remedy. Also, experiences made in other policy fields have shown that more formal coordination can be an inhibiting factor for implementation, because processes tend to become more politically charged, more conflict-riddled, more difficult and slower.

Project-based collaboration is very helpful. It is within concrete projects or project-like implementation initiatives that multi-level governance is really needed, can enfold and deliver its added value. The main objective is to integrate actors from different sectors and governance levels under one common theme, using one common ‘language’. The LURK AG (case 2) is a good example of a governance process with concrete goals that takes place in a project-like setting. Another example from case 1 – Styria are sectoral measures of the Styrian adaptation strategy, whose implementation has been embedded in a broader campaign on "self-responsible protection from floods". Moreover, actual projects funded by (research) programmes are often successfully used to contribute to implementation of adaptation measures. International projects that are co-financed by the EU have a special surplus value through knowledge exchange and mutual learning in a transnational context. The joint excursion of the steering group of the

http://markjanbludau.de/goapply/#austria
LURK AG (case 2) to Germany (see chapter 5.2) is a good example for the added value of learning from international examples.

**Adaptation knowledge needs to be mediated.** This aspect encompasses two dimensions. (1) **Vertical mediation:** National and federal state administrations as well as research institutions need to mediate adaptation knowledge to stakeholders in a compact and usable way. This means abstract climate information needs to be broken down into practical and target group-oriented pieces for local actors and communicated to them in more effective ways, which then can put them in the position to act in a foresighted way. In other words, not so much the content, i.e. the ‘what’ of adaptation mediation, is the current gap, but the ‘how’ of knowledge transfer. The necessary information and materials exist to an increasing extent, and are partly already used for the counselling of KLAR! regions and for training municipality adaptation advisors. What remains unresolved is how to reach the large majority of Austrian municipalities outside of still ‘elitary’ pilot programmes? Obviously, the mere provision of online sources is not sufficient, successful mediation needs to be personalized, interactive, and stimulate active mutual learning. (2) **Horizontal mediation:** Also within regional and national administrations a common ground of knowledge needs to be established in order to facilitate cross-sectoral and multi-level cooperation. Currently, many key actors still miss sufficient understanding of adaptation.

**The KLAR! programme is an important innovation in Austrian climate adaptation governance.** The Europe-wide unique KLAR! funding programme for climate adaptation model regions, which has been launched in Austria in 2016, demonstrates that economic incentives can indeed be an effective coordination mechanism. KLAR! already tackles some of the barriers and employs success factors as identified by our case studies by, among others:
- overcoming bottlenecks in coordination capacity by providing funding for regional adaptation coordinators;
- combining financial incentives with soft coercion through binding funding conditions and reporting requirements, while allowing bottom-up priority setting;
- providing for clear and stringent management structures in the model regions;
- providing knowledge, process support and direct advise to model regions through a “service platform”, which helps overcoming capacity limitations, assuring coherence with the NAS, and avoiding maladaptation;
- requiring model regions to prove coherence of their adaptation concepts with the NAS and respective state-level adaptation strategies, and to coordinate their concepts and actions with provincial climate coordinators.

**Build on existing achievements, practice examples and experiences.** Instead of re-inventing the wheel, synergies with existing resources, knowledge, and practice examples should be sought – this can turn skepticism of key actors into support. To give an example: The steering group of the LURK AG (see chapter 5.2) went on a common excursion in order to get to know the German flood audit system for municipalities. This was crucial for taking the joint decision to develop a natural and climate hazard assessment tool for Austrian municipalities on this basis. The suggestion achieved broad consensus due to the large amount of useful synergies.

**Supportive context conditions:** In order to facilitate multilevel governance as part of project-based initiatives (see above) it needs (1) open-mindedness of participants and a non-saturated clientele with capacity to engage, (2) a clear concept with a precise idea for a product, (3) voluntariness of the process, (4) staying away from political or abstract goals, because adaptation is no end in itself, and (5) practice-relatedness, meaning to motivate participants with a concrete product instead of ‘idea workshops’ only.
(b) Successful multi-level governance in local contexts

Adaptation processes on regional level need mutual agreement with municipalities. Municipalities will most likely not cooperate if they are not included from the very beginning of a regional adaptation process, e.g. in KLAR! model regions. This concerns not only the mayors, but also local actors from other political parties. To achieve a mutual agreement, municipalities need to be heard and taken seriously.

Municipal actors need efficient guidance. Since they can not be expected to participate in each workshop, fill flipcharts, and answer emails, they need focused and efficient guidance, a clear, well-structured and straight-forward process organisation, and visible results. The key is communication of graspable local threats and benefits. Cooperative mayors can facilitate this endeavor greatly. In the KLAR! regions, the required guidance is provided by the regional adaptation managers.

Municipalities should co-finance adaptation measures. Public funding of adaptation measures is an important success factor, but in order to be perceived as important and valuable, adaptation measures need to have a (symbolic) price for municipalities (which can be as low as approx. 1,500 to 2,000 Euros). The main objective is to stimulate the political will for adaptation. Deciding about financial contributions by the municipalities themselves usually requires a resolution by the municipal council, thus ‘forcing’ adaptation onto political municipal agendas and increasing its political relevance.

Regional adaptation coordinators are essential. Most municipal actors have too little time to engage in adaptation work, therefore superior administrative levels need to be able to rely on cooperation with experienced and responsible regional actors that can act as regional network hubs and have the necessary capacity. The innovation of regional adaptation managers, as part of the KLAR! programme, proved very efficient in this regard. At the same time, regional managers need contact points with clear responsibility for adaptation within the municipalities, a role that is best fulfilled by a municipal officer that has mayoral support.

Municipalities need to be organized in peer-to-peer networks. Two aspects of this issue are relevant: (1) Horizontal exchange between municipalities, encompassing mutual learning, common projects, pooling of resources, and exchange of experiences. (2) Vertical coordination of regions with a large amount of municipalities. Regions with more than five municipalities should be organized in such networks.

Sensitive communication. Two examples show why this is essential in cooperation with municipalities: (1) In order not spark local resistance against adaptation, the topic of tourism was intentionally avoided, as it would question Styria as an important winter tourism region. (2) For similar reasons, the term ‘audit’ was avoided for the tool developed by the LURK AG, because it suggested external control and negative consequences for municipalities (e.g. bad publicity, decrease in tourism). Instead, a voluntary and non-public ‘check’ tool was proposed, which significantly lowered the concerns of group members to participate.

Adaptation is currently a voluntary task of local authorities. Voluntary uptake of adaptation policies by municipalities depends much on efforts in communication and persuasion and/or on financial incentives. Interviewees agreed that this works for a small range of pioneers only. According to them, municipalities expect to some extent clarifications of their roles and responsibilities in adaptation

Adaptation needs ‘lighthouse projects’. Since adaptation can currently not be forced upon municipalities, it needs the promotion of good practice examples, which can motivate municipalities to adopt local adaptation policies, by letting them have a personal interest in adaptation. This strategy relies on word-of-mouth recommendation. Creating forerunner municipalities that can serve as models and multipliers for other municipalities in Austria is a rationale behind the KLAR programme.
Put positive public attention on participating municipalities. This motivates further municipalities to engage in adaptation, and triggers further projects and broader local networks. Such effect has been triggered in context of the KLAR programme, by national TV coverage, press releases or statements of high-ranking politicians.

Reactive bottom-up processes. Some of the effective adaptation policies were created through the bottom-up pressure of local actors, after increasing or changing local problem pressure. However, approaches to make better strategic use of ‘windows of opportunity’ are still needed in order to manage the transition from merely reactive to anticipatory and sustained adaptation.

Politics needs to support adaptation. Lack of higher-level political will and commitment levels continues to be a barrier for implementation of adaptation. This aspect relates to both rhetorical and financial support for municipalities, which are equally important.

6.2 Major enhancement options

Based on the findings presented so far, we are able to derive the following enhancement options for climate adaptation governance in a multi-level context in Austria. Many of the recommendations are, in principle, valid for several or all levels of governance.

Strengthening and institutionalising central coordination capacities on all levels. Following the successful model of climate change coordinators on the national and the state level, a central authority, unit or agent in charge of coordination adaptation processes should be installed also on other sub-state levels, i.e. on regional and/or municipal level. Providing public funding for regional and local coordinators is a key success factor. This could follow the model of Germany, where the staff costs of municipal climate change managers are carried to 75% by the state, and two or more small municipalities can share the same person. Alternatively, regional and local adaptation coordination functions could also be integrated into well-working existing structures, e.g. such for climate mitigation or sustainable development. Important prerequisites for adaptation coordinators allowing them to act as ‘change agents’ are a pro-active attitude, personal commitment and leadership qualities, a robust political mandate, endowment with sufficient resources, coordination and communication skills, sound professional expertise, and good contacts to the right policy and actor communities. Similarly, process- or project-based governance initiatives like the LURK AG need a strong coordinating body to provide assistance to all involved institutions, to commit money to the process, to do quality assurance, to prevent fragmentation, and to avoid struggle over thematic leadership.

Structural improvements for central coordinating units. First, a core team or steering group, as it operated successfully during the development of the Styrian Adaptation Strategy, should be maintained after finalisation of the strategy document and exercise coordination functions at the same level throughout the implementation process. Such a permanent coordination body is beneficial as regards the integration of adaptation across sectors, provision of expertise, coherent implementation, monitoring, and quality assurance. Second, central climate policy coordination units should be allocated in powerful departments at a high administrative level, rather than in a small environmental (sub-)department. Third, coordinating units need separate and sufficient financing with adequate personnel resources in order to be able to carry out their time-intensive work and to effectively fulfil their roles in communication, capacity-building, information provision and as support and service hubs for regions and municipalities.

Capitalizing on well-developed culture of informal adaptation governance. Generally, formal and informal governance modes are by no means to be seen as competitive or excluding each other, but rather as complementary approaches. The existing well-developed culture of informal, ‘soft’, cooperation-oriented
adaptation governance modes, building on so-called ‘mole work’ under the radar of politicized debates, is an asset of the Austrian adaptation governance system. It thus should be maintained, capitalized on, and, if possible, further developed. Governance thrives on (informal) networks of established actors with individual initiatives. If such networks do not exist, they first need to be developed before launching new governance formats or processes for specific multilevel and/or cross-sectoral adaptation issues.

**New formalised multilevel coordination bodies are not necessary.** The current mechanisms of voluntary and semi-formal multilevel cooperation, which are centered around the few existing multilevel coordination bodies directly relevant for adaptation issues, i.e. the Conference of State Environmental Ministers [Landesmweltreferentenkonferenz – LURK] and the Conference of Climate Coordinators of the Federal States [Landesklimareferenten-Konferenz - LKRK], represent an efficient compromise between liability and leeway for action. Under the present framework conditions of adaptation policy-making, including the non-binding status of adaptation strategies and the lack of dedicated budgets for their implementation, there is no evidence from our analysis that additional formal cross-level coordination bodies could deliver added value.

**Building on existing assets of national and state-level adaptation coordinators.** A main role and a particular strength of adaptation coordinators in Austria on both national and state level lies in providing a facilitating, supportive and empowering framework to adaptation actors on other levels and in relevant sectors. The portfolio of activities and services delivered in terms of awareness-raising, communication, capacity-building, information provision, and efforts at persuasion should be continued, extended and, if possible, intensified in the future. For that purpose, adaptation coordinators need sufficient resources, including budgets.

**Multi-level governance of adaptation should focus on concrete implementation activities and projects.** Instead of trying to force the coordination of adaptation policies across levels by means of adaptation strategies, multi-level coordination of adaptation should in particular take place in the context of concrete projects, policies, or implementation initiatives (see also Clar & Steurer 2017; Steurer et al., 2018). This also allows best to deal with the complex distribution of competencies across levels in a federal state system like Austria, because the relevant competencies and related actors that need to be involved depend strongly on the specific issue. To be successful, governance processes in the context of concrete implementation projects should have a clear goal, an attractive idea and aim at concrete, practicable products or measures. For adaptation solutions to be attractive and motivating to other sectors and levels, they should be in line with their own self-interest (e.g., responding to problem pressure, delivering added value and co-benefits) and compatible with the cognitive patterns and action logics of the involved sectors and government levels.

**Use the LURK AG as a role model for future NAS and RAS implementation.** Following the highly successful model of the LURK AG on ‘Self-responsible risk precaution’, further multilevel working groups on other complex and cross-cutting issues addressed by the NAS and the RASs of the state governments (e.g. heat) should be formed, tackling joint priority issues of adaptation in a focused way. Such ‘task force’ approaches do not necessarily need to be installed in connection to the LURK, but the mandate and legitimation provided by resolutions of such official bodies proved to be helpful. They should seek the alignment to established cross-sectoral and multi-level institutions (e.g. Working Group ‘Heat’, ISDR platform). In any case, future chairs should start the process by looking for a supportive peer group from another sector. Future cross-level working groups can benefit from the frontrunner experiences gathered by LURK AG. It is recommended to take into account the more specific success factors and lessons learned from our case study on the LURK AG (chapter 5.2)
Continuation, evaluation and re-adjustment of the KLAR! programme with strong focus on the dissemination and transfer phase. It is strongly recommended to maintain, evaluate and, if necessary, re-adjust the KLAR! funding programme for climate adaptation model regions. Continuity and stability of funding mechanisms are pre-conditions for successful policy diffusion. We recommend the following specific improvements: First, the competitive funding process of KLAR! frustrates local actors in participating municipalities and should be revised. Secondly, already during the first KLAR! funding phase leading to the submission of a regional adaptation concept, agreements with participating municipalities should be accomplished for both funding phases. Thirdly, also adaptation measures requiring investments (e.g., “grey” or “green” measures) should be eligible to public co-financing. Currently, the intervention logic does not allow for direct funding of implementation measures needing investments, which explains to a large extent the strong predominance of “soft” measures in the adaptation concepts of model regions. Fourthly, a concept should be developed to assure that existing model regions continue their respective adaptation processes after the funding period has phased out. This may include maintaining public (co-) financing of regional adaptation managers and/or further funding offers for continuation of activities or for new adaptation measures. Finally, and more generally, sufficient resources and efforts should be invested into the concluding phase of each KLAR! funding cycle, which foresees the dissemination of good practices. The full success of the programme will largely depend on the effective spread and transfer of good practices and adaptation solutions to Austrian municipalities and regions beyond the participating model regions.

Enhancing political comprehension of adaptation and strengthening political commitment. Generally, a broader recognition of the necessity and importance of adaptation is needed among politicians. If the results of informal cross-sectoral and multi-level exchange of responsible adaptation policy makers meet the support of a politician, for instance because of the possibility to have a positive public appearance, the implementation process can benefit significantly.

Preparing usable target group-oriented information and intensifying mediation of knowledge to stakeholders. There is still a need to prepare and provide information about adaptation that is customized to the needs of local and regional decision makers, both as regards form and content. In recent years, good progress has been made in that regard in Austria. However, up to now this information does not yet reach the vast majority of municipalities in Austria outside of still ‘elitary’ programmes. The delivery of such information thus needs to be improved. In any case, the KLAR! model region programme, the training programme for municipality adaptation advisors, and the “Natural Hazards Check Climate Change” demonstrate that successful modes of knowledge mediation should employ direct contacts in personalised, interactive advisory settings. Such approaches combining target group-specific information materials with personal mediation by qualified personnel should be continued, strengthened and intensified. Knowledge brokerage to local stakeholders and the public is a key task of local and regional climate coordinators, but also policy transfer organisations like the Climate Alliance or local energy advisors should play a more important role in that regard. Furthermore, generating and providing such target group-specific information is an essential part of the facilitating governance framework by state governments and the federal government. In particular the state administrations are the most adequate level to provide access to bundled, quality-assured information offers for adaption in regions and municipalities. The respective services of the state administrations should thus be strengthened by establishing central information hubs and contact points on adaptation for municipalities and for municipality advisors (“first-stop-shop”).

A stronger regulatory framework for municipalities should be considered. It is worth considering the policy option of making adaptation part of the statutory competences of municipalities, rather than leaving it a completely voluntary task that has to rely on the effects of motivatory work and incentives. According to our interviewees, municipalities expect to some extent clarifications of their roles and responsibilities in adaptation. However, this would require revision of relevant laws, regulations and standards, and it is thus
an intervention that is likely to meet upon political debates and will be feasible only over the long term. Stronger provisions for municipalities should, in particular, encompass an obligation to install local coordinators for adaptation (municipal adaptation officers) with well-defined responsibilities. State or federal administrations are requested to provide such regulatory framework, which has to go hand in hand with appropriate support by higher-ranking levels. Furthermore, local bottom-up processes need more official support from higher political hierarchies (e.g. state ministers, federal minister), both in rhetorical and financial terms.

**Agenda-setting and institutional anchoring of adaptation in municipalities should make use of a portfolio of strategies.** To a varying extent and proportion, implementation of most of the following recommendations requires active contributions by actors on various levels: municipal actors, state governments, federal government, and intermediary mediators or transfer agents (such as regional adaptation managers, municipality advisors, policy counselling organisations, e.g. Climate Alliance). Based on Lexer et al. (2019), Buschmann & Steurer (2019) and Feichtinger et al. (2018), the following recommendations are largely supported by our case study findings: (i) Emphasizing the direct advantages and benefits of adaptation that are in the self-interest of municipalities (including, e.g., co-benefits and comparative cost advantages of adaptation measures against conventional solutions) in the framing and communication of local adaptation. (ii) Preparing for extreme events to be able to use “windows of opportunity” created by acute problem pressure to set adaptation on municipal agendas. (iii) Seeking mayoral support and establishing political commitment by the municipal council. (iv) Establishing local coordination capacities by either creating a new responsibility or by integrating adaptation in existing, well-functioning structures (e.g. on climate mitigation or local sustainable development). (v) Organizing information flows and cooperation on adaptation within the municipality and to external actors, e.g. by installing a cross-unit working group. (vi) Involving professional external expertise. (vii) Starting with concrete, low-cost and low-effort measures that generate benefits regardless of climate change (“quick wins” through “no-/low regret”/“co-benefit” measures), while keeping in mind that individual measures or incremental adaptation steps should be followed by more long-term, anticipatory and – in the best case – transformational adaptation. (viii) Working towards institutionalising and mainstreaming adaptation by integrating it stepwise in municipal development and planning processes and related instruments. (ix) Organising regional municipality networks for peer-to-peer exchange, mutual learning, and pooling of resources. (x) Involvement and participation of local citizens, *inter alia* because more transformational adaptation measures need public support and political consent. (xi) Several of the abovementioned recommendations will require better financial support by the federal and state governments; public (co-) funding for municipal adaptation can usefully be combined with “soft coercion”, e.g. through funding conditions that require hiring of a municipal adaptation officer or an analysis of key climate change vulnerabilities based on climate projections.
7 Conclusions

The analysis results presented in the present WP1 country report for Austria shed light on the complexity of the national adaptation governance landscape and demonstrate the progress achieved in recent years. The mapping and visualisation of the Austrian adaptation governance network provides in an unprecedented way a comprehensive and up-to-date picture the overall state of play of the multilevel adaptation governance network in Austria. At the same time, the empirical case studies allow gaining a deeper and more profound understanding of adaptation policy processes at and across levels by the example of two governance constellations that are of country-wide relevance and rich in multilevel aspects.

The combination of both methodological approaches, i.e. (i) the governance mapping with visualisations and more in-depth description of selected network items that are innovative, relevant from a country-wide perspective, and deeply rooted in multi-level governance contexts with (ii) the analysis of case studies, proved useful and was productive in identifying a significant number of success factors, barriers, lessons learnt, and good practice examples. By comparing the case-specific findings and blending them together with insights gained from the mapping of the overall adaptation governance system, we were able to contextualise interpretation of the case study results. This allowed us to derive overall lessons learnt and to identify strategic enhancement options in order to improve climate adaptation governance across multiple levels and sectors in Austria.

The twofold study approach alleviates to some extent limitations that are inherent to case study work. In particular, limitations are connected to, firstly, the context-dependence of each case, secondly, the low number of cases and the certain amount of subjectivity in their selection, and, thirdly, the limited number of interviews conducted per case (case 1: 7; case 2: 3). A reasonable amount of cautiousness has thus to be applied to the generalisation of case study results and as regards their transferability. The lessons learnt and the recommended enhancement options are based on the interviews and the expert judgements of the team of authors, backed up by up to 10 years of work-related knowledge of Austrian adaptation governance. Where possible and useful, conclusions have been compared and referenced with findings from previous research in more recent literature.

The mapping and the visualisation represent an innovative approach to capture the complexity of a governance system and to present it with a necessary and reasonable degree of simplification. The visualisation of the Austrian mapping reveals the dynamics and progress of adaptation policy processes: from 2016 onwards, the number of mapped network items has increased rapidly, with the strongest and most recent peak occurring in 2018. In particular, the vast majority of network items on the local level have just emerged during the last two years, indicating significant progress in efforts to put adaptation on the agendas of municipalities. The mapping also shows a large number and density of interactions (in total: 2627), in terms of informing, deciding, implementing, funding and monitoring, that cut across and connect all governmental and administrative levels, from national to regional to local. This supports our conclusion that adaptation governance in Austria can build on comparatively well-developed, albeit mostly informal relations across levels.

The visualisation offers particular strengths and potentials: it is well-suited for communication purposes; it gives an instant overview even too experienced adaptation actors and provides information for specific governance elements about who and what is connected to whom and what, and via which interactions; it allows exploring complex governance situations by moving through the network; it can assist deeper in-depth analysis; and it supports identification of gaps. In order to fulfil these functions, the mapping database needs to be maintained and updated.
The work conducted provides valuable insights that future analysis of adaptation governance in Austria can build upon. Based on the present study, further needs for enhancing adaptation governance in Austria and related policy recommendations are formulated in this report. These enhancement options are by no means meant to be exhaustive, but rather indicative. However, they propose possible future directions, by building on existing strengths and supportive factors, and aiming at overcoming present barriers and hindering factors. In that sense, our analysis results lend themselves to be used for advising adaptation policy making, for supporting design and implementation of adaptation policies, and for informing future advancements.

Regarding knowledge gaps and future challenges, we would like to highlight in a selective way just three issues that have been mentioned, but not really elaborated on in our study: (1) How can the current level of financing of adaptation (measures, coordinators, their activities and services, knowledge generation, information provision, etc.) be sustained and possibly be increased? How can synergies among different adaptation initiatives and with structures and processes existing in other policy realms be used in a smart way to leverage adaptation action? (2) How could a broader mix of policy instruments, going beyond the currently predominating “soft” instruments and making use also of appropriate “hard” instruments (economic, fiscal, regulatory, etc.), usefully support implementation of adaptation? (3) How can climate governance support the necessary shift from reactive and incremental adaptation towards more transformational adaptation, in particular on regional and local levels?
8 References


Clar, C. & Steurer, R. (2019): Climate change adaptation at different levels of government: conditions for policy change. (forthcoming)


## 9 Annex

### 9.1 List of interviews

<table>
<thead>
<tr>
<th>Case</th>
<th>Actor</th>
<th>Affiliation</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Case 1 - Styria</strong></td>
<td>Climate coordinator</td>
<td>State government of Styria</td>
<td>09.04.2018</td>
</tr>
<tr>
<td></td>
<td>Flood risk management coordinator</td>
<td>State government of Styria</td>
<td>26.03.2018</td>
</tr>
<tr>
<td></td>
<td>Head of Department Civil Protection</td>
<td>State government of Styria</td>
<td>26.03.2018</td>
</tr>
<tr>
<td></td>
<td>National adaptation strategy coordinator</td>
<td>Federal Ministry (BMNT)</td>
<td>06.07.2018</td>
</tr>
<tr>
<td></td>
<td>National adaptation policy advisor</td>
<td>Senior adaptation expert (EAA)</td>
<td>06.07.2018</td>
</tr>
<tr>
<td></td>
<td>Regional adaptation manager</td>
<td>Styrian KLAR! model region</td>
<td>04.05.2018</td>
</tr>
<tr>
<td></td>
<td>Local adaptation coordinator</td>
<td>Styrian LIFE project municipality</td>
<td>09.04.2018</td>
</tr>
<tr>
<td><strong>Case 2 – LURK AG</strong></td>
<td>Chair of Working Group “Self-Responsible Risk Precaution”</td>
<td>Dep. Torrent and Avalanche Control and Protection Forest Policy, Federal Ministry (BMNT)</td>
<td>03.07.2018</td>
</tr>
<tr>
<td></td>
<td>Co-Chair of Working Group “Self-Responsible Risk Precaution”</td>
<td>Senior flood risk officer in a federal state administration</td>
<td>26.03.2018</td>
</tr>
<tr>
<td></td>
<td>External expert for process support</td>
<td>Senior adaptation expert (EAA)</td>
<td>22.06.2018</td>
</tr>
</tbody>
</table>

*Table 2: List of interviews conducted for two case studies.*
9.2 Interview guide Case 1 – Styria (sample)

Fallstudien GoApply – Fallstudie 1: Land Steiermark

Interviewleitfaden

0. Begrüßung, Vorstellung, Einleitung
- Vorstellung des Interviewers (1 Satz)
- Vorstellung des Projekts (1 Satz) und Anliegen des Interviews (1 Satz)
- Rahmenbedingungen des Interviews: Verwendung der Daten, Datenschutz, Einwilligung zur Audio-Aufzeichnung, Angebot zur Durchsicht des Fallstudienberichts
- Kurze Vorstellung von Interviewablauf und -dauer
- Erwartungen an die Antworten: kein richtig oder falsch; kein Zwang zu kurzen Ja-/Nein-Antworten; Hintergründe, Prozesse und Erfahrungen sind interessant
- Haben Sie noch Fragen zum Interview?

1. Rolle / Aufgabenbereich der interviewten Person
1.1 Wann und wie kamen Sie beruflich mit dem Thema Klimawandelanpassung zum ersten Mal in Kontakt?
1.2 Was war Ihre Aufgabe bzw. Rolle während der Entwicklungsphase der Klimawandelanpassungs-Strategie Steiermark 2050?36?
1.3 Was ist Ihre Aufgabe bzw. Rolle in der Umsetzung der KWA-Strategie Steiermark?

2. Initiierung, Thematisierung, Agendasetzung
2.1 Was waren die entscheidenden Auslöser (Motivation, Treiber, Anstöße) dafür, die Entwicklung der KWA-Strategie Steiermark einzuleiten?
2.2 Wer hat die Thematisierung auf Landesebene initiiert? Wer waren die Schlüsselakteure (Politik, Verwaltung) bei der Agendasetzung?
2.3 Was war Ihrer Erfahrung nach das größte Hindernis für die Thematisierung (d.h. für den Beginn des Strategieprozesses), und wie konnte es überwunden werden?
2.4 Welchen Rolle spielten andere Verwaltungsebenen dabei, dass Klimawandelanpassung auf die Agenda der Landesverwaltung gelangte?
   a) Anpassungspolitik auf Bundesebene: Einfluss der nationalen Anpassungsstrategie, des nationalen Strategieprozesses und/oder von Akteuren auf Bundesebene (z.B. die koordinierende Abteilung des BMLFUW/BMNT)?
   b) Fachpolitiken auf Bundesebene: nationale Strategien, Konzepte oder andere Vorgaben in sektoralen Kompetenzfeldern der Landesverwaltung?
   c) Einflüsse von regionaler oder kommunaler Ebene?

36 Im Folgenden abgekürzt mit: KWA-Strategie Steiermark
d) Vorliegen oder Entwicklung von Anpassungsstrategien auf derselben Ebene in anderen Bundesländern/Ländern?

3. Entwicklung der Strategie und der fachrelevanten Maßnahmen

3.1 Wie war der Prozess der Strategieerstellung insgesamt organisiert?
   a) Gab es einen politischen Beschluss zum Start des Strategieprozesses (z.B. einen Auftrag im Regierungsprogramm)?
   b) Welche Aufgaben umfasste Ihre Koordinationsrolle?
   c) Welche Organisationseinheiten der Landesverwaltung (Abteilungen, Referate) waren in den Prozess involviert? Wie erfolgte die Auswahl der beteiligten Akteure (Organisationseinheiten, Personen)?
   d) Auf welche Weise erfolgte die Involvierung? Was waren die Rollen von Kernteam und von erweitertem Projektteam?
   e) Wie wurden nicht-öffentliche Akteure (NGOs, Private, Interessenvertretungen etc.) in den Prozess einbezogen?
   f) Wie zufrieden sind Sie mit dem Prozess? Was war besonders positiv? Wo hätte es Verbesserungspotenzial gegeben?

3.2 Wie genau und von wem wurden die Maßnahmen in den Themenbereichen entwickelt? Wie bzw. anhand welcher Kriterien wurden die Maßnahmen ausgewählt bzw. priorisiert?

3.3 Wie kontroversiell bzw. wie konsensual verlief die Entwicklung der Strategie bzw. der für Sie relevanten Maßnahmen und die Beschlussfassung? Wie wurde mit Widerständen bzw. mit Konflikten umgegangen?
   a) Falls es (politische oder anderweitige) Kontroversen gab: Können Sie ein Beispiel dafür nennen, und wie wurde der Konflikt gelöst?

Multilevel Governance, vertikale Kooperation

3.4 Gab es Interaktionen mit anderen Verwaltungsebenen (Bund; Bezirk, Region, Städte/Gemeinden) während der Entwicklung der Maßnahmen in Ihrem Fachbereich, und welchen Einfluss hatten andere Ebenen auf den Prozess (z.B. auf die Auswahl und Ausgestaltung der Maßnahmen)? Wie würden Sie die Form der Interaktionen beschreiben?

Mainstreaming, horizontale Kooperation

3.5 Welche Fachbereiche der Landesverwaltung waren aus Ihrer Sicht besonders aktiv und interessiert am Thema Klimawandelanpassung und an der Entwicklung der KWA-Strategie?
   a) Was, glauben Sie, waren die entscheidenden Faktoren (Motivation, Auslöser, Treiber) dafür?

3.6 Welche Fachbereiche der Landesverwaltung waren aus Ihrer Sicht eher inaktiv oder desinteressiert am Thema bzw. am Strategieprozess?
   a) Was, glauben Sie, waren die Gründe dafür?
   b) Wie ist es ggf. dennoch gelungen, diese Akteure in den Prozess einzubinden?

4. Umsetzung von Anpassungsmaßnahmen

4.1 Was sind Hauptziel und hauptsächliche Arbeitsinhalte Ihrer Koordinierungstätigkeit in Bezug auf die Umsetzung der Strategie?

4.2 Wie schätzen Sie den Stellenwert (Relevanz, Priorität) des Themas „Anpassung an den Klimawandel“ im Vergleich zu anderen Aufgabenfeldern der öffentlichen Verwaltung ein?
a) Innerhalb Ihrer Fachabteilung: insbesondere im Vergleich zum Klimaschutz?
b) In der Landesverwaltung generell; in der Landespolitik?
c) Wie drückt sich diese Relevanzbeimessung aus, und wie beeinflusst dies die Umsetzung von Anpassungsmaßnahmen in Ihrem Bereich?

4.3 Inwiefern sind die politischen Büros der Landesregierung in den Umsetzungsprozess einbezogen?

4.4 Sehen Sie sich hinreichend unterstützt und ausgestattet (Arbeitszeit, Personal, Budget, Informationen und Know-how), Ihre Verantwortung und Koordinationsaufgabe im Bereich Klimawandelanpassung effektiv wahrnehmen zu können? Wo sehen Sie mögliches Verbesserungspotenzial?
   a) Gibt es neben Ihnen noch weitere Koordinationsverantwortliche bzw. durch wen erhalten Sie praktische Unterstützung bei der Organisation von Austausch und Zusammenarbeit mit verschiedenen Verwaltungssebenen und –sektoren?

4.5 Wie groß ist die Akzeptanz der Ihren Fachbereich betreffenden Maßnahmen (bei angesprochenen Handlungsträgern und/oder bei Betroffenen)? Wie häufig kommt es bei der Umsetzung zu Konflikten?
   a) Falls Konflikte aufgetreten sind: Können Sie ein konkretes Beispiel nennen, und wie sind Sie damit umgegangen?

4.6 Wie ist der Stand der Umsetzung der Maßnahmen in den Fachbereichen? Inwieweit wurden die Ziele (bereits) erreicht?
   a) Könen Sie ein konkretes Beispiel für die erfolgreiche Umsetzung einer Maßnahme nennen?

4.7 Wie erhalten Sie den Überblick über den Umsetzungsstand der Maßnahmen in den verschiedenen Fachbereichen?
   a) Findet seitens der Fachabteilungen Berichterstattung (im Rahmen von Berichtspflichten oder freiwilligen Vereinbarungen) an die Klimakoordination statt? Falls ja, in welcher Form?

Mainstreaming, horizontale Kooperation

4.8 Sie sind für die Gesamtkoordination von Aktivitäten zur Umsetzung und Weiterentwicklung der Anpassungsstrategie verantwortlich. In welcher Form wird diese Aufgabe wahrgenommen? Wie sind Austausch und Zusammenarbeit zwischen den verschiedenen Verwaltungssektoren im Hinblick auf die Klimawandelanpassung organisiert?
   a) Wie zufrieden sind Sie mit der bestehenden Form des Austauschs / der Koordination? Fühlen Sie sich ausreichend informiert und in Ihrer eigenen Rolle hinreichend unterstützt?
   b) Was verläuft besonders positiv? Wo gäbe es noch Verbesserungspotenzial?

4.9 Gibt es eine abteilungsübergreifende Arbeitsgruppe, um die Umsetzung der Anpassungs-strategie zu steuern bzw. zu begleiten?
   a) Mit welchem Mandat ist die Arbeitsgruppe betraut? Was sind ihre Aufgaben?
   b) Wer ist darin vertreten? Wer sind die TeilnehmerInnen?
   c) Wie ist die Arbeit des Gremiums organisiert? Welche Vereinbarungen gibt es zu Kommunikation, Zusammenarbeit und Entscheidungsfindung? Wie oft finden Treffen statt?
   d) Wie sind Sie mit der Arbeit des Gremiums zufrieden? Was verläuft besonders positiv? Wo sehen Sie Verbesserungspotenzial?

4.10 Gibt es in den betroffenen Fachabteilungen klare Zuständigkeiten / Verantwortlichkeiten für Klimawandelanpassung bzw. für die korrespondierenden Maßnahmen in der Strategie?
b) Gibt es in den Abteilungen für das Thema Klimawandelanpassung zentrale Ansprech-personen für die Kommunikation mit Ihnen als Klimakoordinatorin?

4.11 Die Umsetzung vieler Maßnahmen der Strategie erfordert Beiträge von zwei oder mehr Fachabteilungen bzw. Referaten. Wie sind **Austausch, Zusammenarbeit bzw. Koordination** bei der Umsetzung solcher **Maßnahmen mit geteilter Handlungsträgerschaft zwischen den Fachabteilungen / Referaten** organisiert?

a) Gibt es maßnahmen- oder themenzentrierte, abteilungsübergreifende Arbeitsgruppen oder Austauschformate? Falls ja, werden hierfür bestehende Austauschformate/Abstimmungsmechanismen genutzt, oder wurden neue eingeführt?

b) Inwieweit sind Sie als Klimakoordinatorin in diese Abläufe einbezogen oder darüber informiert?

c) Können Sie kurz ein konkretes Beispiel für solche abteilungsübergreifende Kooperationen bei der Umsetzung schildern?

4.12 Gibt es in allen betroffenen Abteilungen, die haupt- oder mitverantwortlich für die Umsetzung von Maßnahmen sind, **konkrete, operative Planungen für die Umsetzung**?

a) Gibt es konkrete Zeitpläne oder Prioritätensetzungen?

b) Sind Ressourcen dafür vorgesehen, und ist die Umsetzung budgetiert?

**Multilevel Governance, vertikale Kooperation**

4.13 Mit welchen **Verwaltungseinheiten anderer Ebenen** (Bund, Bezirksbehörden, Regionen, Gemeinden) stehen Sie bei der Umsetzung der Maßnahmen der Anpassungsstrategie in ihrem Fachbereich in Kontakt bzw. in Zusammenarbeit?

Jeweils in Bezug auf die Ebenen: Bund, Bezirksbehörden, Regionen (Regionalmanagement, LEADER, etc.), Städte/Gemeinden:

a) **Wer** ist dafür **verantwortlich**, die Zusammenarbeit zwischen den Ebenen zu **organisieren**?

b) Wie sind **Austausch und Zusammenarbeit zwischen den verschiedenen Verwaltungsebenen** im Hinblick auf die Klimawandelanpassung **organisiert**? In welcher Form finden Austausch bzw. Zusammenarbeit statt?

c) **Wie zufrieden** sind Sie mit den bestehenden Interaktionsformen? Was verläuft besonders positiv? Wo gäbe es noch Verbesserungsbedarf?

4.14 Welche Rolle spielen bei der Umsetzung der KWA-Strategie übergeordnete Politiken, Strategien, Instrumente oder Prozesse der **Bundesebene**?

a) Nationale Klimaanpassungsstrategie, diesbezügliche Umsetzungsaktivitäten und -prozesse?

b) Sektorpolitiken, -strategien, Instrumente oder Prozesse?

4.15 Welche Rolle spielen aus Ihrer Sicht folgende **Gremien / Organe** bei der Umsetzung der Strategie?

a) LURK

b) LKRK

c) NKK

4.16 Welche **Unterstützung** erhalten Sie im Hinblick auf Ihre Aufgaben bei der Klimawandel-anpassung von Seiten der **Bundesebene**?

a) Fühlen Sie sich von Seiten der Bundesebene ausreichend unterstützt?

b) Wo würden Sie sich mehr Unterstützung wünschen?
4.17 Mit welchen Akteuren außerhalb der öffentlichen Verwaltung, insbesondere auf der regionalen und lokalen Ebene (z.B. Verbände, Mittler- und Transferorganisationen, NGOs, Private), stehen Sie bei der Umsetzung von Anpassungsmaßnahmen in Kontakt, Austausch oder Zusammenarbeit?

a) Wie erreichen Sie diese Akteure, und wie motivieren Sie diese zur Zusammenarbeit?

b) Wie sind Kommunikation und Zusammenarbeit organisiert? Wie sind diese Akteure in die Umsetzung von Maßnahmen eingebunden?

c) Was verläuft besonders positiv? Wo sehen Sie Verbesserungsmöglichkeiten?

4.18 Gibt es von Ihrer Seite Kontakte zu steiermärkischen Klimawandelanpassungs-Modellregionen des KLAR!-Förderprogramms des Bundes (KLIEN)?

a) Falls ja: Wie verläuft konkret die Kommunikation bzw. Zusammenarbeit mit den Verantwortlichen in den KLAR!-Regionen? In welcher Beziehung stehen die Inhalte der Anpassungsstrategie des Landes mit den vorgesehenen Maßnahmen in diesen Regionen?

4.19 Welche Unterstützung bzw. Angebote (z.B. Förderung, Information, Beratung etc.) stellt die Klimakoordination bei der Umsetzung von Maßnahmen der Landesstrategie den betroffenen Verwaltungseinheiten auf anderen Ebenen (Bezirksbehörden, Regionen, Gemeinden) sowie nicht-öffentlichen Akteuren zur Verfügung?

a) Welche Unterstützungsleistungen werden von Seiten des Landes konkret für die fünf steirischen Gemeinden erbracht, die am Projekt LIFE LOCAL ADAPT teilnehmen?

b) Welche Unterstützungsleistungen werde von Seiten des Landes konkret für die steirischen KLAR!-Regionen erbracht?

4.20 In welchem Ausmaß werden die Anpassungsmaßnahmen der KWA-Strategie Steiermark mittels bereits bestehenden Instrumenten, Methoden oder Mechanismen umgesetzt? In welchem Ausmaß ist die Einführung neuer Vorgangsweisen notwendig bzw. vorgesehen?

4.21 In welchem Ausmaß werden die Ziele und Maßnahmen der Strategie mit eher „weichen“ (freiwilligen) Instrumenten (z.B. Information, Bewusstseinsbildung, Forschung) umgesetzt? In welchem Ausmaß mit eher „harten“ Instrumenten (z.B. Gesetze, Steuern, Gebühren, Genehmigungen, Sanktionen)?

a) Welche Vorteile und welche Nachteile sehen Sie in Bezug auf den angewandten Mix aus „harten“ und „weichen“ Interventionen?

b) Inwiefern halten Sie neue bzw. geänderte Gesetze und Verordnungen für notwendig, um die Anpassung an den Klimawandel wirkungsvoll weiter voran zu bringen? Bitte erläutern Sie Ihre Antwort.

5. Erfolgsfaktoren und Hemmfaktoren (Treiber und Barrieren)

5.1 Welche Faktoren haben die Entwicklung der Anpassungsstrategie vorangetrieben? Welche Faktoren haben die Entwicklung behindert?

a) Welche dieser Faktoren waren aus Ihrer Sicht besonders wichtig, und warum?

b) Können Sie ein konkretes Beispiel nennen?

c) Wie konnten bzw. könnten diese Faktoren optimal genutzt bzw. überwunden werden? Welche Lehren ziehen Sie daraus für die Zukunft?

5.2 Welche Faktoren haben die Umsetzung von Maßnahmen der Anpassungsstrategie vorangetrieben? Welche Faktoren haben die Umsetzung behindert?
a) Welche dieser Faktoren waren aus Ihrer Sicht besonders wichtig, und warum?
b) Können Sie ein konkretes Beispiel nennen?
c) Wie können diese Faktoren optimal genutzt bzw. überwunden werden? Welche Lehren ziehen Sie daraus für die Zukunft?

6. Ausblick

6.1 Wie wird sich Ihrer Einschätzung nach der Strategieprozess weiterentwickeln? Welche langfristigen Auswirkungen erwarten Sie sich daraus?

6.2 Wenn Sie mit der Entwicklung der KWA-Strategie Steiermark bzw. mit der Organisation des Umsetzungsprozesses noch einmal von vorne beginnen könnten: was würden Sie anders machen? Welche zentralen Empfehlungen würden Sie anderen KoordinatorInnen auf ähnlichen Ebenen mitgeben, die beim Thema Klimawandelanpassung erst am Beginn stehen?
9.3 Interview guide Case 2 – LURK AG (sample)

Fallstudien GoApply – Fallstudie 2: LURK AG Eigenvorsorge

Interviewleitfaden

0. Begrüßung, Vorstellung, Einleitung

- Vorstellung des Interviewers (1 Satz)
- Vorstellung des Projekts (1 Satz) und Anliegen des Interviews (1 Satz)
- Rahmenbedingungen des Interviews: Verwendung der Daten, Datenschutz, Einwilligung zur Audio-Aufzeichnung, Angebot zur Durchsicht des Fallstudienberichts
- Kurze Vorstellung von Interviewablauf und -dauer
- Erwartungen an die Antworten: kein richtig oder falsch; kein Zwang zu kurzen Ja-/Nein-Antworten; Hintergründe, Prozesse und Erfahrungen sind interessant
- Haben Sie noch Fragen zum Interview?

1. Rolle / Aufgabenbereich der interviewten Person

1.1 Wann und wie kamen Sie beruflich mit dem Thema Klimawandelanpassung zum ersten Mal in Kontakt?

1.2 Was war/ist ihre Aufgabe bzw. Rolle bei der Initiierung und Einrichtung der AG?

1.3 Was war/ist Ihre Aufgabe bzw. Rolle im (bisherigen) Prozess der AG?

2. Ziele des Kooperationsformats-/gremiums LURK AG

2.1 Welche konkreten Ziele werden mit der AG verfolgt?

2.2 Welche konkreten Ziele werden mit dem entwickelten Produkt „Klimacheck Naturgefahren“ verfolgt?

2.3 Inwieweit konnten diese Ziele (bereits) erreicht werden?

3. Initierung, Entwicklung und Vorbereitung des Formats

3.1 Was waren Ihrer Einschätzung nach die entscheidenden Faktoren (Motivationen, Treiber, Anstöße) dafür, dass in Reaktion auf den LURK-Beschluss eine gemeinsame, kompetenzübergreifende Arbeitsgruppe von Bund und Ländern gerade zum Thema „Eigenvorsorge“ eingerichtet wurde (und nicht bzw. nicht auch zu anderen Handlungsempfehlungen der NAS, wie ursprünglich von unterschiedlicher Seite beabsichtigt war)?

3.2 Wer waren aus Ihrer Sicht die Schlüsselakteure bei Initiierung, Entscheidung und Entwicklung der AG zum Thema „Eigenvorsorge“? Was waren Ihrem Wissens- oder Einschätzungsstand nach deren Hauptinteressen?

3.3 Wie kam es - betreffend die Auswahl von Personen sowie deren Zugehörigkeit zu Fach-/Kompetenzbereichen, zu konkreten Organisationseinheiten und zu Ebenen (Bund, Land) der Verwaltung - zur konkreten Zusammensetzung der AG? Was waren Ihrer Einschätzung nach die
entscheidenden Gründe (Motivationen, Auslöser, Treiber) dafür, dass sich Verwaltungsbehörden bzw. -akteure von Bund und Ländern aus den naturgefahrenrelevanten Kompetenzbereichen (Schutz)Wasserwirtschaft, Wildbach- und Lawinenverbauung, Geologie und Klimawandelanpassung aktiv an der AG beteiligt haben?

a) Was waren die wesentlichen Interessen (Ziele, angestrebter Nutzen) von beteiligten Akteuren aus dem Bereich Klimawandelanpassung (NAS-Koordination Bund, KlimakoordinatorInnen Länder)?

b) Was waren am Beginn die wesentlichen Interessen (Ziele, angestrebter Nutzen) von beteiligten Akteuren aus dem Bereichen Naturgefahren- und Hochwasserschutz (WLV Bund, zuständige Fachabteilungen Länder)?

c) Haben sich die Ziele, Interessen und Positionen von Akteuren dieser beiden fachlichen Gruppen im Prozessverlauf verändert? Falls ja, inwiefern?

d) Aus welchen Kompetenz-/Fachbereichen stammten die Akteure seitens der Landesverwaltungen, die in der AG vertreten sind? Wie erfolgte die Nominierung / Entsendung der beteiligten Akteure und ihrer Organisationseinheiten? Was waren Ihrer Meinung nach die Gründe, warum sich gerade bestimmte Abteilungen aus den Landesverwaltungen beteiligt haben und andere nicht?

e) Wie ist es gelungen, die Akteure und ihre entsendenden Organisationseinheiten zur aktiven Beteiligung zu motivieren?

f) Wie ist es gelungen, dass sich acht Bundesländer beteiligen?

g) Was waren die Gründe, nicht-öffentliche Akteure (Versicherungswirtschaft, Universität, ÖWAV) in den Prozess einzubeziehen? Wie leicht oder wie schwierig ist dies gefallen?

3.4 Was war Ihrer Erfahrung nach das größte Hindernis dafür, dass die AG eingerichtet werden und ihre Arbeit beginnen konnte, und wie konnte es überwunden werden?

4. Durchführung des Formats

4.1 Wie war der Arbeitsprozess der AG organisiert?

a) Wer hatte die Leitungs- und Koordinationsverantwortung? Welche Aufgaben umfasste die Koordinationsrolle?

d) Was waren die Aufgaben der Steuerungsgruppe, was die Aufgaben der gesamten Arbeitsgruppe? Wie war die Rollenteilung zwischen den Mitgliedern in beiden Gruppen?

e) Welche Vereinbarungen gab es zu Kommunikation, Arbeitsmodus und Entscheidungsfindung?

f) Welche Rolle spielten informelle und ad-hoc Interaktionen zwischen Teilnehmern in den Zeiträumen zwischen den Arbeitstreffen?

4.2 Wie bewerten Sie den Prozess und die Arbeitsweise der AG im Hinblick auf folgende Kriterien:

a) Klarheit über Mandat und Ziele der AG

b) Teilhabe an Entscheidungsfindungen, Einfluss- und Mitbestimmungsmöglichkeiten der TeilnehmerInnen

c) Transparenz und Offenheit (klare und offene Kommunikation betreffend Regeln, Entscheidungsfindung, Rolle der TeilnehmerInnen; Informationsfluss; Prozessdokumentation; Nachvollziehbarkeit von Entscheidungen)

d) Professionalität von Prozessorganisation und –management
e) Repräsentativität (Einbeziehung aller relevanten Stakeholder)

f) Respektvoller Umgang, Vertrauen (in AG-Leitung)

g) Effizienz (Verhältnis von Zeitbedarf/Aufwand zum Ergebnis; Vermeiden von Beteiligungsüberforderung)

h) Flexibilität (gegenüber neuen Inputs oder Veränderungen bei externen Rahmenbedingungen)

i) Angemessenheit (der Methoden und der Informationen gegenüber den Bedürfnissen und Fähigkeiten der Teilnehmer)

j) Wie zufrieden sind Sie in Summe mit dem Prozess und der Arbeitsweise der AG? Was war ansonsten noch besonders positiv? Wo hätte es noch Verbesserungspotenzial gegeben?

4.3 Welchen *Einfluss* hatte Ihrer Meinung nach die *Prozessqualität* (auf Basis Ihrer vorangegangenen Einschätzungen) auf das soweit vorliegende *Ergebnis* der AG? Wie, glauben Sie, könnte die Prozessqualität den *weiteren Umsetzungsprozess* beeinflussen?

4.4 Wie ist es gelungen, sich auf ein *konkretes gemeinsames Arbeitsziel* in der AG zu einigen? Was waren die Schwierigkeiten in diesem Prozessabschnitt, und was war schließlich für die erfolgreiche Verständigung entscheidend?

4.5 Welche weiteren *kritischen* oder *entscheidenden Phasen* gab es im Prozessverlauf?

   a) Wie ist es gelungen, Schwierigkeiten zu überwinden? Wie hat dies den Erfolg der gemeinsamen Arbeit beeinflusst?

   b) Könnten Sie konkrete Beispiele nennen?

4.6 Sind im Prozessverlauf bedeutendere *Konflikte* aufgetreten?

   a) Falls ja: Könnten Sie ein Beispiel dafür nennen, und wie wurde der Konflikt gelöst?

4.7 Gab es in Zusammenhang mit dieser *Rückkoppelung von TeilnehmerInnen mit ihren entsendenden Organisationen* Herausforderungen oder Hürden im AG-Prozess?

4.8 Welche Einfluss hatten bestehende *fachpolitische bzw. -planerische Vorgaben, Instrumente oder Prozesse* (wie z.B. das Hochwasser-Risikomanagement in Umsetzung der EU Hochwasser-RL) auf die Arbeit der AG und das Produkt?

5. **Arbeitsergebnis, Produkt**

5.1 Wie würden Sie den *Prozess* / das vorliegende *Produkt* „Klimacheck Naturgefahren“ im Hinblick auf folgende *Kriterien* einschätzen? Bitte begründen Sie jeweils Ihre Einschätzung.

   a) Bewusster Ansatz, um Klimawandelanpassung und Naturgefahrenvorsorge integriert und kohärent zu behandeln?

   b) Prozess / Produkt stärken gemeinsame, abgestimmte und integrierte Bewältigung von Klimawandelfolgen und Naturgefahrenrisiken?

   c) Prozess / Produkt erbringen Mehrwert und Nutzen für beide Handlungsfelder?

   d) Langfristige Perspektiven (zukünftige Klimaänderung) und Unsicherheiten, die beide mit dem Klimawandel in Zusammenhang stehen, sind berücksichtigt?

   e) Der im Hochwasser- und Naturgefahrenmanagement etablierte Risikomanagementzyklus ist berücksichtigt?
5.2) **Wie zufrieden** sind Ihrer Einschätzung nach die TeilnehmerInnen an der AG mit dem Produkt (soweit vorliegend)? Sehen die VertreterInnen **beider Handlungsfelder** – Klimawandelanpassung und Naturgefahrenvorsorge – Ihre **Interessen erfüllt**? Haben diese aus ihrer jeweiligen Perspektive das Gefühl, dass das Instrument „Klimacheck Naturgefahren“ zur Erreichung fachpolitischer Ziele beiträgt und Nutzen erbringt?

a) Gibt es Unterschiede in der Wahrnehmung des Nutzens zwischen den beiden (oder anderen) Gruppen?

b) Wie zufrieden sind Sie selbst mit dem Ergebnis? Womit sind Sie nicht so zufrieden?

6. **Erfolgsfaktoren und Hemmfaktoren (Treiber und Barrieren)**

6.1 Welche **Faktoren** haben zum **Erfolg** des kooperativen Prozessformats „LURK AG Eigenvorsorge“ beigetragen?

   a) Welche dieser Faktoren waren aus Ihrer Sicht besonders wichtig, und warum?
   b) Können Sie ein konkretes Beispiel nennen?
   c) Wie konnten diese Faktoren optimal genutzt werden? Welche Lehren ziehen Sie daraus für die Zukunft (z.B. für zukünftige ähnliche Arbeitsgruppen, für zukünftige Kooperationen zwischen KWA und NGM)?

5.2 Welche **Faktoren** haben den AG-Prozess **behindert**?

   a) Welche dieser Faktoren waren aus Ihrer Sicht besonders wichtig, und warum?
   b) Können Sie ein konkretes Beispiel nennen?
   c) Wie konnten bzw. könnten diese Faktoren überwunden werden? Welche Lehren ziehen Sie daraus für die Zukunft (z.B. für zukünftige ähnliche Arbeitsgruppen, für zukünftige Kooperationen zwischen KWA und NGM)?

7. **Ausblick**

7.1 Zum jetzigen Zeitpunkt gibt es noch einige **offene Fragen** betreffend die Fertigstellung des Instruments „Klimacheck Naturgefahren“, die österreichweite Anwendung, dessen Institutionalisierung und Verstetigung.

   a) **Welche offenen Fragen** sind dies?
   b) Wie wird Ihrer Einschätzung nach der Prozess zur Lösung dieser Fragen weiter gehen?
   c) Welche Lösungsansätze für die angesprochenen Fragen würden Sie präferieren, und warum?

7.2 Welche **langfristigen Auswirkungen** erwarten Sie sich von den Ergebnissen der LURK AG „Eigenvorsorge“?

   a) Von einer möglichst breiten Anwendung des „Klimachecks Naturgefahren“ in österreichischen Gemeinden?
   b) Im Hinblick auf mögliche zukünftige Kooperationen zwischen den beiden Fachbereichen „Klimawandelanpassung“ und „Naturgefahrenvorsorge“?
   c) Im Hinblick auf mögliche zukünftige Bund-/Länder-Arbeitsgruppen zur sektorübergreifenden Umsetzung von Teilbereichen der österreichischen Anpassungsstrategie?
7.2 Wenn Sie mit der Bearbeitung des Themas „Eigenvorsorge“ im Rahmen einer vergleichbaren Arbeitsgruppe noch einmal von vorne beginnen könnten: was würden Sie anders machen?

a) Welche Empfehlungen würden Sie anderen vergleichbaren Arbeitsgruppen mitgeben, die gemeinsam im Kontext Klimawandelanpassung an Umsetzungslösungen arbeiten wollen?

b) Welche Empfehlungen würden Sie generell für die Organisation zukünftiger Kooperationen von Akteuren aus dem Bereich Klimawandelanpassung mit Akteuren aus anderen spezifischen (Verwaltungs)Bereichen geben?
9.4 Analytical matrix for evaluation of interviews
### GoApply – Step 6: Country Reports

#### Draft Auswertungstabelle

**Factors of Policy Change**

(see Clar/Steurer 2017)

- F1: Ideas & proposed solutions
- F2: Actors
- F3: Governance
- F4: Framework Conditions

**Case #1**

Social barriers to CCA (see Biesbroek et al. 2011)

- B1: conflicting timescales
- B2: uncertainty
- B3: instit. void/crowdedness
- B4: fragmentation
- B5: lack of awareness/comm.
- B6: motives to act
- B7: resources

**Interview #1 “Example” (date)**

<table>
<thead>
<tr>
<th>Guiding question</th>
<th>horizontal perspective (mainstreaming)</th>
<th>vertical perspective (multilevel gov.)</th>
<th>agenda-setting &amp; development</th>
<th>implementation</th>
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</thead>
<tbody>
<tr>
<td>(0) Role of the interviewee</td>
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<td>(1) Which CCA goals? F1</td>
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<td>A) In how far achieved?</td>
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<td>B) How (in future) evaluated?</td>
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<td>(2) Agenda-setting &amp; Development</td>
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<td>C) How &amp; why were measures developed?</td>
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<td>C1) How triggered? F3</td>
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<td>C2) Role of time frames &amp; resources? F4</td>
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<td>C3) Who in support/opposition &amp; why? F2</td>
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<td>C4) Which instruments? F1</td>
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<td>C5) Which knowledge base? F3</td>
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<td>C6) Motivation/roles of actors, sectors, levels</td>
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<td>(3) How measures selected &amp; prioritized? F1</td>
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<td>D1) Role of tade-offs? F1</td>
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<td>(4) Which supportive factors?</td>
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<td>E) How do private actors/NGOs participate?</td>
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<td>E1) How is the cooperation organized?</td>
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<td>(5) Which barriers?</td>
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<td>F) New regul./instrum. necessary? Which?</td>
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<td>F1) If not, which role for fed./reg. State?</td>
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<td>F2) Which role does instit. context play? F2</td>
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<td>F3) How are path-dependencies handled? F4</td>
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<td>(6) Which enhancement options?</td>
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<td>G) Interaction with ppl. of other sect./adm.?</td>
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<td>G1) How was it realized?</td>
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<td>G2) Who interacts with whom in what ways?</td>
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<td>G3) Was it satisfying? What went (not) well?</td>
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<td>G4) How were conflicts managed? F2</td>
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<td>H) Who is responsible to organize interact.?</td>
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<td>H1) How realized? Where enhancement?</td>
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<td>H2) Who were change agents? F2</td>
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<td>(7) Which lessons learned? (general)</td>
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<td>I) Which factors were relevant &amp; why?</td>
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<td>J) Example</td>
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<td>K) Lessons learned?</td>
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<td>L) How do these factors affect the choice of a measure?</td>
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<td>(8) Which barriers?</td>
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<td>(9) Which lessons learned? (general)</td>
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<td>P) How will project proceed? Which consequences intended?</td>
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<td>Q) What would you change in future?</td>
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<td>Q1) Recommendations for others?</td>
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