GoApply - Multidimensional Governance of Climate Change Adaptation in Policy Making and Practice

Mainstreaming of climate adaptation in the Alpine macro-region

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Lesson-drawing from the comparison of selected cases from Austria, Germany, Italy and Switzerland

Transnational Synthesis Report (WP2)

Final Report

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EUROPEAN REGIONAL DEVELOPMENT FUND

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Non-framed adaptation can be good, but there are risks!

1. Background: the project GoApply

This report is a deliverable of the project *GoApply – Multidimensional governance of climate change adaptation in policy making and practice* (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 governance that currently all Alpine countries are facing in their efforts to implement their national adaptation strategies in practice. The project aims at strengthening 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 (WP1)
(2) Supporting effective horizontal integration of climate change adaptation into relevant sector policies (mainstreaming) (WP2)
(3) Strengthening active involvement of public and non-public stakeholders in regions and municipalities and stimulating adaptation coordination structures on sub-national levels (WP3)
(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 (WP4)

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

WP2 of the GoApply project is centred on two main lines of activities:

- Analysing horizontal coordination and governance interfaces of climate adaptation and priority sector policies on the level of national case studies
- Transnational lesson-drawing on mainstreaming of climate adaptation in the Alpine macro-region

The results are delivered in case study reports on country level and in the present transnational synthesis, which contains joint lessons learnt and transferable policy recommendations for advancing the mainstreaming of climate adaptation into sector policies. The report at hand documents the transnational synthesis.

2. Goals of the report

Following the objectives of WP2 of the GoApply project, the goal of this study is to gain and contribute to a deeper understanding of the process of mainstreaming of climate adaptation and of the horizontal governance of climate adaptation by an analytical comparison of selected practice cases of mainstreaming of adaptation in Austria, Switzerland, Germany and Italy. By means of this transnational comparison, we seek to study the most important success factors facilitating and barriers hindering the planning and implementation of climate adaptation across sectors, and on how to overcome barriers and capitalize further on success factors.

There are two main **research questions** at the basis of the analysis carried out in GoApply WP2:

- What triggers and drives policy change in the field of climate adaptation? What are the success factors and hindering factors/barriers for the mainstreaming of climate adaptation into the general policy cycle?
- How do actors and structures at the same governance level, yet dealing with different policy sectors, interact between one another, to integrate adaptation in their policy-making routines? How is this interplay managed and what are the factors that make it successful (or unsuccessful)?

3. Definitions and conceptual framework

The GoApply project provided a definition of **climate adaptation governance**, which we recall first. *Climate adaptation governance* is defined as the structures, processes and interdependencies that determine how actors (from public administration, politics, science, business and civil society) make decisions, share power, carry out responsibilities, and ensure accountability regarding adaptation to climate change. Climate adaptation governance is about the horizontal interplay of sectors and the vertical interplay of policy levels. Climate adaptation governance requires mandatory (formal) and voluntary (informal) cooperation between actors, across sectors and across policy levels and is regionally specific and context-sensitive. The term *climate adaptation governance* in GoApply covers both, adaptation to climate change and to climate variability (Pütz et al., 2018).

Mainstreaming. In the scope of GoApply, the terms "mainstreaming" and "broad policy integration" are used in an almost synonymous way for the same process. In the present document, we formulate the following definition:

> *The process that brings a conceptual object* (namely climate adaptation in the present case) *to actively and substantially contribute to an agenda; a methodology to become part of a standard; a given knowledge to become part of the commonly accepted knowledge base. As a result of the mainstreaming process, those objects, methodologies, knowledge acquire the characteristic of being (part of) a base for future decision-making, policy-making, action.*

In this regard, a definition of mainstreaming climate adaptation could be formulated as the process of horizontal policy integration that aims at incorporating adaptation concerns, goals, measures and knowledge into the policy-making processes of all relevant sectors, encompassing sectoral agendas, strategies, work programs, budgets, instruments, measures, and daily working routines. It thus refers

to the assimilation of adaptation into the sectoral or cross-sectoral policies at various levels of governance.

A broad integration is meant as **continued**, **consolidated**, **pervasive**, **grass-roots** as opposed to *isolated*, *accidental*, *occasional*, *intermittent*.

Horizontal Governance. In the scope of GoApply, we understand *horizontal governance* as the instruments, approaches and mechanisms to achieve mainstreaming / horizontal policy integration, but we also want to suggest a broader definition.

> *Horizontal governance could hint to the idea of "governing horizontally", that is making governance horizontal, "to place some measure of influence in the hands of partners who deliver service" (Ferguson et al. 2009), stakes, interests, knowledge, resources, and/or networking capability.*
>
> *"Interorganizational relations, and also the relationship between politicians and bureaucrats in horizontal governance, are not primarily characterized by command and control, but rather by shared beliefs, interdependency, and cooperation." (Torfing et al., 2012)*

As we will see in the following analysis, the theme of **shared responsibilities** and precise **ownership of the actions** will be one of the most prominent factors of success in the process of mainstreaming.

Adaptation has a strong cross-sectoral quality, and a specific investigation on horizontal governance is needed in order to learn about how to:

- design cross-sectoral interfaces and organise cooperation across sectors;
- minimize conflicts and avoid trade-offs;
- foster synergies among sectors and their policies;
- choose the right instruments and approaches to activate and exploit efficient actions that are coordinated among sectors

by means of positive case studies.

A consideration included in the WP2 Country Report Switzerland *"The cantonal climate strategy of Grisons"* helps us in framing the topic more specifically:

> *"One of the biggest issues regarding adaptation to climate change is the fact that climate change impacts affect many different sectors, calling for responses from many different actors. To ensure the coherency of adaptation plans, strategies and measures and to take optimal advantage of synergies, coordination between these many actors is necessary. Therefore, the question of how to organize this coordination is one of the most common and important barriers to climate change adaptation. On the horizontal level, traditional conflicts between sectors often further impede such coordination. Especially when it comes to questions of leadership, many offices dislike being told what to do by their peers."* (WSL, 2018)

Horizontal governance is of great importance, particularly when exploring bottom-up initiatives: "*given the interactive nature of governance, institutions become less important as carriers of political authority and more important as arenas for interaction."* (Torfing et al., 2012). It is thus an aspect of particular relevance to explore the capacity of formal institutions for integrating and supporting (mainstreaming) bottom-up initiatives and the role of non-institutional actors.

Analytical categories for mainstreaming

It is possible, in our view, to break down the mainstreaming process according to different ranks. Three possible main ranks are:

1. *Political and administrative agendas (at various levels)*
2. *Current sector policies and policy contexts (at various levels)*
3. *Individual backgrounds, of policy and decision makers, administration officers, etc., considered in their institutional context; also, the sets of beliefs of actors and stakeholders involved in in the policy context.*

Discussing the research questions of mainstreaming of climate adaptation into the policy making of sectors, we will use a number of analytical categories that are defined in the following paragraph. These definitions are by no means universal but reflect our own operational understanding as we used them as tools in our investigation.

Three dimensions of mainstreaming are explored:

a. **saliency**: the relevance of climate change adaptation and its priority in relation to other policy issues. Firstly, saliency is usually displayed by explicit mentioning of adaptation as a goal. Secondly, it also refers to the dimension of political relevance, e.g. within a government or in the general political arena.
b. **coherence**: the alignment and harmonisation of different sectoral policies with each other and with climate adaptation goals in order to minimize conflicts, avoid trade-offs, and foster mutual synergies towards achieving common overarching adaptation outcomes.
c. **awareness and capacity:** awareness of the actors of the issues related to climate change and to adaptation as a (cross-)sectoral policy issue. The smaller the institutions engaging in the mainstreaming process, the closer awareness is related to saliency. Capacity refers to the availability of resources needed to successfully engage in adaptation and its mainstreaming. It includes material and immaterial resources; most important are budget, time, workforce, expertise, and skills.

Additionally, we gave particular consideration to the so-called **entry points** in the mainstreaming process: mainly, the most important triggers that put adaptation governance on a sectoral policy agenda or initiate adaptation governance processes across sectors. Starting from the entry points, we tried to sketch "mainstreaming pathways", describing the overall horizontal integration processes in the case studies.

Generally speaking, the analysis offered in the case studies was based on interviews with experts and key actors involved in the investigated processes. Readers are referred to the single case study reports[1] for more detailed information on the specific cases.

[1] https://www.alpine-space.eu/projects/goapply/en/results/project-results

4. An overview of the cases

A brief overview of the case studies analysed will help the general comprehension of the findings in the present report. The project partnership submitted six cases: one from Germany (Lange et al., 2018), one from Switzerland (WSL, 2018), two from Austria (Lexer et al., 2018) and two from Italy (FLA, 2018a; FLA, 2018b). The cases are presented here in alphabetical order according to the country of origin.

§ Austria (1): Mainstreaming of climate adaptation in the federal state of Styria

The administration of Styria, a federal state of Austria, has developed a state-level regional adaptation strategy in a structured participatory process. It was politically adopted in 2015. The policy document is a multi-sectoral, integrated, 'stand-alone' climate adaptation strategy that defines in total 97 measures in 13 sector-related and cross-cutting activity fields. Implementation is ongoing, and a first progress report is in preparation. Moreover, frontrunner experiences with horizontal governance of adaptation on the regional and local level are available in Styria from a number of climate adaptation model regions and project-based pilot municipalities.

§ Austria (2): Working Group on "Self-Responsible Risk Precaution"

In 2015, the Conference of State Environment Ministers (LURK) approved a resolution that prepared the way towards tackling cross-cutting measures of the Austrian NAS by installing issue-specific horizontal and multilevel task forces. In 2017, the first of such inter-organisational working groups was formed: The so-called LURK AG is a temporal, informal, non-public and cross-sectoral cooperation format dedicated to the topic of 'self-responsible risk precaution'. It aligns administrative actors from national and state levels, representing the two policy fields climate adaptation and natural hazard management. In an intense horizontal governance process, the LURK AG has recently produced a tool to assess both climate impacts and natural hazards in municipalities in an integrated way, aiming at strengthening risk preparedness of municipal and private actors. The group has also developed an implementation concept and a governance model for the country-wide launch of the measure.

§ Germany: Communal Flood Audits in Bavaria

The Communal Flood Audit ("Hochwasseraudit") is a comprehensive auditing tool, centred on a dialogue-oriented survey procedure, which is conducted on-site in the municipalities over the course of two days by licensed auditors with representatives of the target group. The official title of the audit in external communications is "Flood Audit – How well are we prepared?" ("Audit Hochwasser – wie gut sind wir vorbereitet"). The instrument is developed and implemented by the German Association for Water, Wastewater and Waste (DWA; "Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall"). The Audit seeks to improve flood risk preparedness of municipalities in Germany and to support municipal administrations in their effort to develop comprehensive, strategic approaches to flood risk management. The audit provides municipalities with a stock-taking of the status of preparedness towards flood risks, analysis of existing gaps concerning prevention and precaution as well as possible options for measures to be taken. The audit primarily addresses municipal administration officials but aims at raising awareness about flood risk and precaution

options among citizens, local businesses and civil society organizations alike. Focus points are existing knowledge and expertise within the municipal administration as well as non-technical measures such as improvements in coordination, cooperation and risk communication.

§ Italy (1): Adaptation to Climate Change in Lombardy

The Case Study analyses the status of mainstreaming (integrating) climate adaptation into the policy instruments of Lombardy Regional Administration. Up until now, Lombardy Region has produced a Regional Strategy (2014) and a Regional Action Document (2016) for Adaptation to Climate Change. Lombardy is still among the few regional administrations in Italy which have developed a climate strategy, in the form of a Regional Strategy (RAS) and Plan (RAP). The analysis shows that the two documents work more towards defining the position on the topic of climate adaptation of the local administration, rather than being consolidated instruments aimed at setting nodes in a strategic pathway or establishing policy actions. Nevertheless, they include quite a strong analytic phase on climate scenarios (though mainly based on literature review) and on sectoral impacts. In fact, they are not integrated in the ordinary scheme of current policies of the Regional Administration and they are not binding instruments, at any level. The documents show a general saliency of the topic in the political scene of the region and are also meant to foster its importance. Also, they are available (and in some cases are already being used) as reference documents in climate-proofing processes of newly developed policies in different sectors (e.g. Regional Landscape Plan; District Plans for Reclamation, Drainage and Irrigation Consortia), either in the scope of SEA processes or as internal assessment procedures. Moreover, the processes that built the documents also produced a thorough mapping of all the sectoral policies and the governance scheme of the regional administration.

A few sectoral and specific initiatives, which have been developed independently from RAS/RAP in Lombardy or by the Regional Administration itself, have been investigated as well.

§ Italy (2): "Upper Adda" River Contract

River Contracts are territorial governance schemes, usually originated from a spontaneous (though regulated by law) initiative of diverse actors, both private and public. The actors should constitute a representative range of the community living and working in the territory of a specific river basin. In the present report, we analyse specifically the case of *Upper Adda Valley River Contract* (UARC, in short).

Like most River Contracts, the one on *Upper Adda* has general goals of environmental protection and territorial sustainable development (see next sections for details), thus making it a most appropriate means for climate adaptation at local scale. Also, it involves several local (municipalities) and intermediate (mountain communities) public administrations, as well as the regional administration and the provincial one, making it an interesting case in terms of multilevel governance.

The process of UARC began in December 2014. Since the beginning, the framework documents mentioned climate adaptation as a necessity and a priority. Approval of the first Action Plan was due on December 2018, and the content was undisclosed at the time the report at hand here was written. Several measures to be included in the plan are likely to be classifiable as "adaptation". Nevertheless, there is no formal "adaptation plan" and no climate scenario data have been directly considered during the design of the Plan, nor during the RC process as a whole.

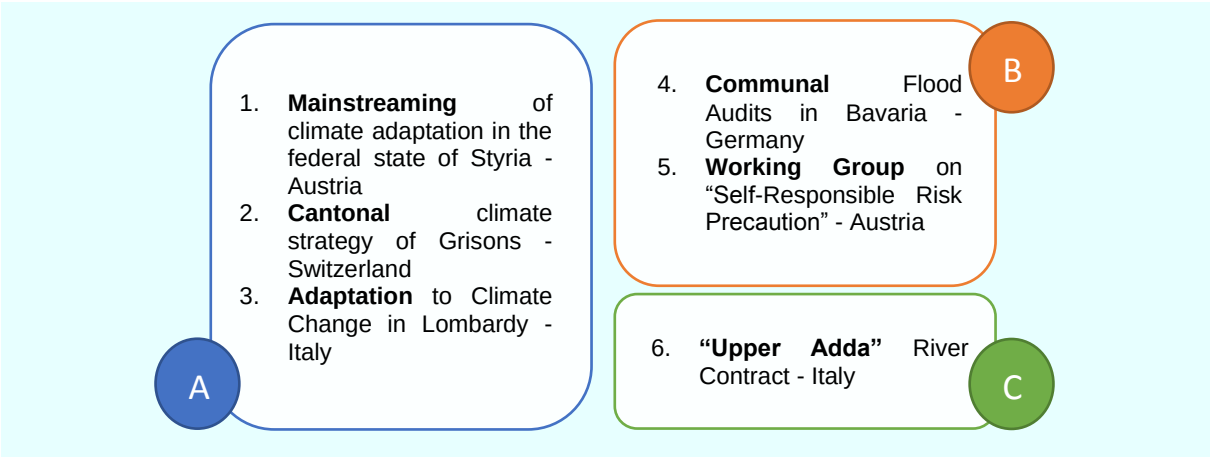
§ Switzerland: The cantonal climate strategy of Grisons

The canton of Grisons was identified as an interesting case because it has taken on a pioneer role for fostering adaptation to climate change on the cantonal level. The canton was among the first to both formulate a multi-sectoral Climate Strategy and include the topic of adaptation to climate change as an equally important addition to climate change mitigation.

The primary goal of the cantonal climate strategy Grisons is to analyse the challenges related to climate change and to bundle and focus the efforts of the 13 involved cantonal offices and departments in the two fields of climate change mitigation and climate change adaptation. The strategy does this by defining several fields of action, determining which cantonal offices are involved in that field and assigning one of those offices to take a leading role. All cantonal offices deliver progress reports to the cantonal climate secretariat and participate in the annual climate forum which is meant to facilitate the exchange between the offices. An executive committee defines primary goals for the implementation of the strategy. It is made up of two members of the cantonal executive and the three directors of the cantonal offices for energy, environment and natural hazards and forests.

5. Mainstreaming pathways in the pool of cases

The cases from the four countries are quite heterogeneous, but it is possible to find similarities and to gather them into three groups.



In Group A, cases no. 1, 2 and 3 are describing processes related to the set-up of a cross-/multi-sectoral, integrated adaptation strategies and the respective implementation processes, in Styria (Austria), Canton Grisons (Switzerland), and Lombardy (Italy), respectively. Styria and Grisons have established the process till the point of the implementation of the measures and the transfer to the local level. Lombardy, although a frontrunner in the Italian setting for what concerns climate adaptation, represents a process still at an earlier stage, compared to the Austrian and Swiss cases.

In Group B, cases no. 4 and 5 refer to two analogue initiatives: audit processes to assess preparedness of local communities to natural hazards and support the integration of self-precaution measures. In a governance context, we understand both audit systems as policy counselling/ sensitisation/ advisory tools for municipalities. Basically, they analyse very similar processes, yet in two different stages of development: the Austrian case, which was inspired by the German method,

describes the elaboration by a national and state pool of actors of the methodology (and the connected policy instruments). The German case instead describes the transfer and application of the audit methodology to municipalities.

Group C coincides with case no. 6, which relates to the spontaneous efforts (that is, not triggered or directly supported by the regional strategy) at integrating climate adaptation into the planning instruments of a River Contract, a generally successful European model of participatory and co-designed policy making and governance, in Italy: the direct integration of adaptation concerns into a planning instrument, designed autonomously at the local level.

A comparative analysis of the mainstreaming pathways retrievable from the cases

In the pages below, we offer a comparative analysis of the cases, in which we highlight in brief what mainstreaming processes the cases are dealing with specifically, what horizontal governance mechanisms and schemes and, finally, what pathways in mainstreaming they outline. The cases are, as above, grouped in the three analogy groups identified.

Table 1: Comparative table of the cases

CASE GROUP A	*What mainstreaming process?*	*What horizontal governance?*	*Case timeline and development trajectory*
Styria	On the level of the state government, Styria pursued the model of adaptation policy integration through developing and implementing a multi-sectoral, integrated adaptation strategy (a regional one, therefore a RAS). The RAS intends to work as a policy instrument that aims at incorporating respective measures into the policy agendas, work programs, operational work streams and day-to-day activities of relevant sector departments. It is expected that the implementation of measures will cascade down across vertical levels, driven and steered to a large extent by the sectors themselves. In addition, the case also approaches the mainstreaming mechanism of the KLAR! funding programme, by which model regions are required to set up an integrated adaptation concept defining a portfolio of sectoral and/or cross-cutting adaptation measures.	The RAS development process acted as a temporary, informal and voluntary cross-departmental coordination mechanism. The participatory quality of the process helped to form a network of knowledgeable actors that are familiar with each other and facilitated formulation of coherent adaptation measures. The mechanism was successful in producing a continued cooperation between sectors and the state adaptation coordinator during the strategy implementation phase. However, after finalization of the strategy document, no permanent central and cross-departmental working group for steering and monitoring implementation of the strategy has been installed in Styria. Steering implementation of measures has to some extent been decentralized to responsible (sectoral) actors in the state administration, and reporting and monitoring depends strongly on voluntary cooperation of sector departments with the state climate coordinator.	In 2010, the national stakeholder participation process for development of the Austrian NAS was launched. The participation of actors from Styrian state administration contributed to setting adaptation on the provincial agenda. In 2012, the Austrian NAS and NAP were adopted. Again in 2012, the Styrian state administration commissioned a study to provide scientific knowledge base for adaptation and create urgency to act (incl. Climate Scenarios for Styria until 2050). In 2013, Styrian Government takes the political decision to develop a RAS (successful lobbying efforts of the Styrian climate coordinator and other state administration actors). An attentively planned and organized coordination mechanism for the development of the RAS is formed. The RAS has been elaborated and finally adopted in 2015. Since 2016, a dedicated national funding programme (KLAR!) is supporting (co-funding) the implementation of adaptation in the country and in Styria as well. The administrations were able to exploit also other financial sources (e.g. LIFE programme).
Grisons	The canton of Grisons is a case of climate change adaptation efforts on a regional level in which the actors try to deal with the broad impacts of climate change by cooperatively developing a common strategy and try to implement it by mainstreaming its goals and guidelines into their day-to-day operations. As such, it is an example of the integration of adaptation goals into regional plans, programs and policies. The timeline analysis of the case suggests that the theme of climate change was	The canton of Grisons developed an integrated Climate Strategy (covering mitigation and adaptation), therefore a broad horizontal integration in several policy sectors was required. The case emphasizes in particular the importance of setting up the process as a work of a partnership of equals (all sectoral offices). The strategy was developed under the lead of the Cantonal Office for Nature and the Environment in cooperation with all 13 relevant cantonal offices and departments. The strategy defined a climate steering	In 2008, the cantonal government program for the period 2009-2012 defines "actively confronting climate change" as one of its guiding principles. The legal basis for addressing climate change in the canton of Grisons is primarily the cantonal energy legislation and the energy ordinance, and indirectly the air hygiene action plan. Climate change is also explicitly addressed in the current and prior government programs. In autumn 2014, the government commissioned the administration to develop a cantonal climate strategy. The strategy was completed in 2015 and subsequently

CASE	*What mainstreaming process?*	*What horizontal governance?*	*Case timeline and development trajectory*
	a relevant topic for the cantonal administration even before the Swiss Federal Strategy was developed. The establishment of a Federal Adaptation Strategy could be a trigger, but not necessarily a crucial one. The cantonal strategy builds as well on the cantonal climate analysis by MeteoSwiss.	committee to ensure its successful implementation.	anchored within the government program. In 2016, the national pilot program adaptation co-financed three pilot projects for climate change adaptation within the canton of Grisons: the cantonal administration exploits this opportunity for the implementation of the cantonal climate strategy.
Lombardy	The development of the Lombardy RAS and RAP qualifies as the mainstreaming type of integration of adaptation into overall and sectoral plans, programmes and policies. It also produced an adaptation-oriented screening of policy measures throughout the sectors of the regional administration. These are the early phases in the setup of a coherent regional strategy and plan. Although the RAS and RAP have already been developed and formally approved, they still do not have a major influence on the day-to-day activities of the administrative sectors. The case covers the analysis of the existing knowledge, the stock-taking and assessment of existing sectoral policies (for the RAS) and activities (for the RAP) regarding climate change mitigation and adaptation, the elaboration of recommendations as well as networking and dialogue activities between sectors and with extra-institutional stakeholders.	The regional government instructed the administration to develop a regional strategy and a plan (action document). A specific unit within the DG Environment was appointed as responsible for the process and granted a budget for external assistance and knowledge development. Consultation loops with referents from other administrative sectors and a broader panel of stakeholders have been conducted. The participatory process involved several Director Generals and offices within the Regional Administration, technical agencies of the regional system, local and intermediate level administrations, and external stakeholders from business community and civil society. Neither the strategy nor the plan defined real policy measures and assigned ownerships on a legal basis: a stocktaking activity identified already existing activities and the respective sectors of reference, and the document offered recommendations on how to proceed with the actions and suggested adjustments.	In 2004, Lombardy launched the project "Kyoto-Lombardy", which addressed climate change at regional level, and in 2012 the "Guidelines for the implementation of the Strategy for Adaptation to Climate Change" were presented. In 2014, Lombardy became the first region in Italy having an adaptation strategy in place. Finally, the "Action Document for Adaptation to Climate Change" was produced by the end of 2016 (RAP). At the national level, the National Strategy (SNACC) was approved in 2015 and a National Adaptation Plan has been developed by the Ministry for the Environment, Land and Sea in 2016. The document, after a public consultation phase, is being discussed by the Conference of State and Regions, a semi-formal governance body of coordination between the national state and the regions in Italy. On neither the national nor the regional level, at least in Lombardy, there is an institutional body, such as an environmental agency, with a clear mandate to develop the reference knowledge framework for climate change. Persistent vagueness of the issue is not in favour of mainstreaming. In Lombardy, the Strategy, as well as the Plan, provided an analysis and stock-tacking of all the sectoral plans and programmes, in order to valorise the numerous good practises and identify "implicit" adaptation efforts, initiatives and policies already implemented or planned.

CASE GROUP B	*What mainstreaming process?*	*What horizontal governance?*	*Case timeline and development trajectory*
DWA Audit	The case is about mainstreaming of climate adaptation into flood protection at the municipal level by means of an "audit" system. The instrument is developed and implemented by the German Association for Water, Wastewater and Waste (DWA). The DWA is an association, therefore a non-institutional actor, promoting sustainable water and waste management. The concept for the audit instrument was developed between 2007 and 2010 by the DWA working group "Indicator system for the assessment of flood prevention". A two-year pilot phase followed, starting in 2011 and conducted nationwide. Audit implementation was financially supported by the German Federal Environmental Foundation, which enabled the implementation of audits with reduced co-financing contributions by municipalities. Since 2016, the audits are subject to financial support granted by the Bavarian State Ministry for the Environment and Consumer Protection.	The audit instrument can be described as an informal, indicator-based check tool which municipalities can implement on a voluntary basis in order to take stock of how well they are prepared against river floods and storm flood events. In developing an effective flood protection policy, horizontal governance is absolutely needed because the topic is intrinsically cross-sectoral and requires broad participation of several sectors and non-institutional stakeholders. In this regard, the audit scrutinizes all the relevant sectors and arranges a communication process which gathers the respective offices. An external facilitator assists the municipality in the process, as an active agent for assessments, communication, awareness-raising and networking.	The original drivers or trigger elements can be identified in the EC flood risk management directive (HWRM-RL), the German Federal Water Act (WHG) and the German National Adaptation Strategy (DAS). Moreover, the State of Bavaria set up an action to incentivize municipalities to uptake and integrate flood protection actions in their policies. Based on the EC directive adopted in 2010, flood risk maps were developed, which, in turn, provided the basis for the development of flood risk management plans. The WHG of 2010 translates the HWRM-RL into national law. The DAS, adopted in 2008, shows a high level of concordance with the HWRM-RL regarding the field of flood protection. The Adaptation Action Plan (APA I) of 2011 elaborates concrete measures for the federal level; emphasis is put on precaution measures which are robust, flexible and adaptive, i.e. that can take future climate developments into account and be supplemented accordingly. Framework conditions at the Federal and State level appear then to be optimal: the need is to foster the uptake of climate adaptation by municipal authorities. The solution in the case is an active agent-driven process, subsidized by dedicated funds. Follow-up activities are foreseen to monitor the progresses.
LURK AG	The overall model of horizontal policy integration in the case can best be characterised as an informal, temporary, cross-sectoral cooperative process format aiming at the development of a tool (and its implementation structure) to empower and support municipalities in the development of measures to tackle risks from natural hazards and climate-driven extreme weather events in an integrated and coherent way. In order to strengthen risk	The members of the LURK AG are administrative experts from federal and state levels, representing in both cases the public policy domains of climate adaptation and natural hazard management. Co-chaired by the Head of Department of Torrent and Avalanche Control of the Federal Ministry for Sustainability and Tourism (BMNT) and the flood risk coordination officer of the Styrian state administration, the 22 members of the group are the	The Austrian NAS and NAP, adopted in 2012, contain several recommendations for action addressing the principle of 'self-responsibility in risk precaution' in the context of several activity fields (natural hazards prevention, disaster risk reduction, spatial planning, economy: insurance industry). In 2015, a resolution of the Conference of State Environment Ministers [LURK] called for intensifying the cooperation between national and provincial administrations to implement complex, cross-cutting measures of the NAS by

CASE	*What mainstreaming process?*	*What horizontal governance?*	*Case timeline and development trajectory*
	preparedness of municipalities and private citizens regarding natural hazards and extreme weather events, 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.	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 and academia. 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.	means of thematic working groups. After a consultation process (2015-2016) between national and state-level climate coordinators, in 2017 the Working Group on "Self-responsible Risk Precaution" [LURK AG] as a cross-sector and multilevel governance format was established and started. The work of the group was inspired by the model of the German flood audit scheme (DWA): the idea and motivation sparked from a joint excursion of LURK AG participants to Bavaria to learn about the German flood audit scheme. An external expert was appointed for the elaboration of the concept in 2018. The tool was delivered and then tested in the field. In 2019, a governance structure and a training programme for country-wide implementation of the check tool will be set up.

CASE GROUP C	*What main streaming process?*	*What horizontal governance?*	*Case timeline and development trajectory*
"Upper Adda" River Contract	The case is hardly comparable to any other in this study, therefore it is not grouped. It shares similarities with the cases in Group A, in that it describes an attempt to a strategic approach to multi- and cross-sectoral adaptation, although at a sub-regional scale. Yet, the institutional framework is very different in this case, compared to the other ones (see 'horizontal governance' to the right). The institutional level puts the case closer to the instances in Group B (German DWA Audit and Austrian LURK AG), because the mainstreaming process is happening also at the municipal level, and flood protection and natural hazards are clearly a priority (but not the only themes) for the River Contract. The mainstreaming case, though, in this case is a spontaneous (the River Contract had no	The River Contract is coordinated, in the case of "Upper Adda", by the Mountain Community of Valtellina – Sondrio. A River Contract is a governance scheme that binds the member municipalities and non-institutional parties to legal obligations to some extent, although the subsidiarity principle leaves ultimate sovereignty to the single municipalities. As regards the actors, the governance scheme includes several municipalities, the Mountain Community, a provincial administration and the regional administration, plus several private actors (from civil society and the business community). It is a voluntary process, but formal once an actor has adhered. The process requires a strong effort in coordination between many institutions at different levels, and between institutions and non-institutional	Directive 2000/60/EC established a framework for Community action in the field of water policy. Regional law 26/2003 identifies River Contracts as participatory development processes, useful for requalification of river basins. The River Contract process in the "Upper Adda" river basin (Valtellina) started in 2014. It allowed the territory to deal with environmental issues at a scale more ecologically sound than administrative limits and to gather all the actors that are in relation to the river, ecologically or economically. In the scope of this less-than-formal governance arrangement, also the theme of climate change soon became a priority, most likely due to the individual awareness and sensibility to the theme of some of the key actors in the process, and thanks to the involvement of experts from the scientific community in the participation process that built the long and the mid-term strategies for the River Contract.

	responsibility or legal obligation for tackling climate adaptation, nor was it urged to do so from the state or the region) integration of climate change knowledge elements (e.g. impact assessments) and adaptation measures into the strategy and the action plan of the River Contract.	stakeholders, in order to develop the strategic objectives and the measures. The River Contract made strong use of participative approaches, facilitated by professionals, also to get experts involved and to inform the process scientifically.	The evidence of impacts in the area, which suffered in the past from major natural catastrophes, surely played an important role in triggering the mainstreaming. In 2015, the River Contract published its "Manifest of Intent", which included climate adaptation. National Decree "Collegato Ambientale" (Environmental Annex) from 2016 enforces the recognition of River Contracts as normative instruments, strengthening the contribution of River Contracts to the definition and implementation of spatial planning instruments at the level of districts, hydrologic catchments and sub-catchments. Strategic objectives for the River Contract were formulated in 2017, and an Action Plan was developed in 2018. Actions should be implemented starting from 2019. There is no formal relation with the Regional Adaptation Strategy and Plan.

Commentary to the mainstreaming pathways analysis

Diversity in the background conditions

Reference environments and background conditions for the mainstreaming processes are diverse in the range of the case studies: on a general level, climate adaptation is, beyond any doubt and at least quantitatively, a far more consolidated process in Switzerland, Austria and Germany, compared to Italy. The respective national strategies and action plans have been in place for a longer time, and governments, administrations and agencies can work on a solid and established knowledge base to inform the policy making processes at different levels. The general level of saliency reached a point from which it is certainly easier to launch processes in the scope of widespread coordinated action.

As for Italy, the situation is evidently more scattered and, in general, the change agents and the policy entrepreneurs in the field of climate adaptation are forced to operate in a less organic, organized and consistent manner, more spontaneously, and less supported by a legitimation descending from an overall policy framework.

Importance of legitimation from a coherent reference environment

Clearly, official or "de facto" positions of governmental or administration bodies at the higher rankings do create this kind of legitimation. Solid and clear stances on climate change create a reference framework that supports individual initiative.

The diversity in the range of cases that have been submitted and analysed is, for the purpose of this study, a positive factor: it allows us to evaluate the dynamics of mainstreaming (or horizontal and broad policy integration) from a wider perspective, ranging from more "primitive" elements in the development of the process to the more specific elements of consolidated situations.

On how to consider implicit or non-framed adaptation: definitions

Yet, when analysing mainstreaming pathways, we need to distinguish explicit and implicit adaptation. We are calling 'implicit' all those measures, policies, actions etc. that are able to bring clear benefits in terms of adaption to climate change, even though they are developed in the framework of fields other than climate change or climate adaptation (for instance, disaster risk reduction, water management, nature conservation, etc.). Further in this document we are going to refer to this type of measures as non-framed adaptation, because they are not developed or integrated in the frame of a strategy. In those cases, either climate adaptation is not mentioned as a specific objective of the measure, or it may be mentioned but not in relation to a reference Adaptation Strategy or Plan. Often these kinds of measures, already in place, are the object of the stock-taking phase

of the development of the strategy or plan. The terms used to point at this distinction are then 'implicit and explicit', 'framed and non-framed', 'formalized and non-formalized'. 'Piggy-backing' is also an expression used to refer to the process of linking measures which have not been directly developed in climate strategy to the field of adaptation. Figure 1 depicts a distinction of the two approaches, framed and non-framed, while describing some main phases in the mainstreaming pathway. The analysis of the cases showed some possible risks related the development of non-framed adaptation: see paragraph "Shortcomings of non-framed adaptation" for details.

In conclusion, we could say that, when all the phased represented in Figure 1 are "framed", then the mainstreaming process is consolidated and complete. Conversely, when no phase is "framed", we may have adaptation, but no mainstreaming. Intermediate situations, between those two extremes, are likely.

Furthermore, we could argue that in some case the mainstreaming process is so advanced that fields such as flood protection are automatically considered climate adaptation, although being pre-existing and autonomous, as in the German case on the DWA Audit.

The idea of implicit or non-formalized adaptation is particularly important in the analysis of the Italian case of Lombardy, where there are many examples of sectoral (or even cross-sectoral) actions formulated and implemented, loosely or not at all in reference to the RAS/RAP and, sometimes, even mentioning climate adaptation among the goals of the action (see the sub-cases in the report on "Adaptation to Climate Change in Lombardy").

Considerations about the definition of mainstreaming and its phases

The diversity of the Italian case on one side, and the Swiss, Austrian and German cases on the other side, interestingly allows us a first consideration about the definition of mainstreaming itself and helps in defining different phases of the mainstreaming process. Particularly, considering Group A (the setting of institutional Adaptation Strategies), it can be noticed that the Swiss ("Canton Grisons") and Austrian ("Styria") cases focus more on the horizontal governance processes to achieve an effective broad policy integration among sectors, whereas the Italian case needs to give attention also on how to raise the general saliency of the topic climate adaptation to trigger a systemic, not isolated, action. Therefore, we could infer that horizontal policy integration is just one phase in a comprehensive mainstreaming process, which most likely follows a "systemic awareness raising" (or "saliency raising") phase.

Systemic saliency raising

Knowledge framework building and legitimation

Furthermore, almost all the cases mention the crucial role of an established comprehensive knowledge framework on climate scenarios and impacts, at least at the national level, and if possible also at the regional level, as a basis for policy development and action (e.g. Austrian Assessment Report Climate Change 2014, Climate scenarios for Austria and regionalised climate scenarios for Styria - ÖKS15, Climate scenarios for the Canton Grisons by MeteoSwiss, etc.). Obviously, a strong and legitimated knowledge base provides relevant information for decision-making and implementation. Also, it allows a certain political neutrality of the topic,

bringing it out of the realm of opinions and positions: this helps avoiding a political polarization, which could considerably hinder the mainstreaming process and the commitment of government and administration officials. Therefore, also the generation of a knowledge base on climate change and adaptation could be seen as another phase of the mainstreaming process, preparatory to the actual policy integration phase.

Again, Canton Grisons (Switzerland) and Styria (Austria) (and this is the case also for the German example, in Group B) have a solid knowledge base available and a fully developed systemic saliency of the topic, at least at the respective national levels. Therefore, their mainstreaming action starts from a need for a well-planned horizontal governance mechanism, allowing the integration into sectoral policies and structures.

The Lombardy case (Italy) suggests instead that stimulus to a prior phase of mainstreaming is needed to reach a systemic level of integration. Yet, it also indicates that effective governance schemes already in place, such as River Contracts and Local Territorial Plans, can be usefully adapted to reach the goals of horizontal integration of climate adaptation, as it becomes clear in the case about the "Upper Adda" River Contract (Group C).

Mainstreaming as a non-linear process

In terms of mainstreaming "pathways", the reality of implemented "non-formalized" adaptation measures entails that mainstreaming can be a non-linear process, whose implementation, as a last phase, does not necessarily follow the earlier phases of saliency raising, knowledge building and policy integration. Possible shortcomings of the "non-framed" type of actions are suggested in the analysis of success factors, barriers and lessons learned below.

Local "audit" approaches as complete mainstreaming processes

In these terms, Cases 4 (German DWA Audit) and 5 (Austrian LURK AG) in Group B present a methodology that could be described to a certain extent as a complete, local, active, agent-driven form of mainstreaming process. The methodology includes in fact a "saliency raising" component (or "awareness raising", at the local level the two factors can be very similar), the establishment of a knowledge framework, a stock-tacking (and gap analysis) process of the existing measures, a participatory process of integration, and recommendations for improvements (although the approach is very careful in the "performance analysis" and in the general judgment of the local situation, to avoid a line of action that could be perceived as hostile). In that, it practically contains all the phases of a mainstreaming pathway.

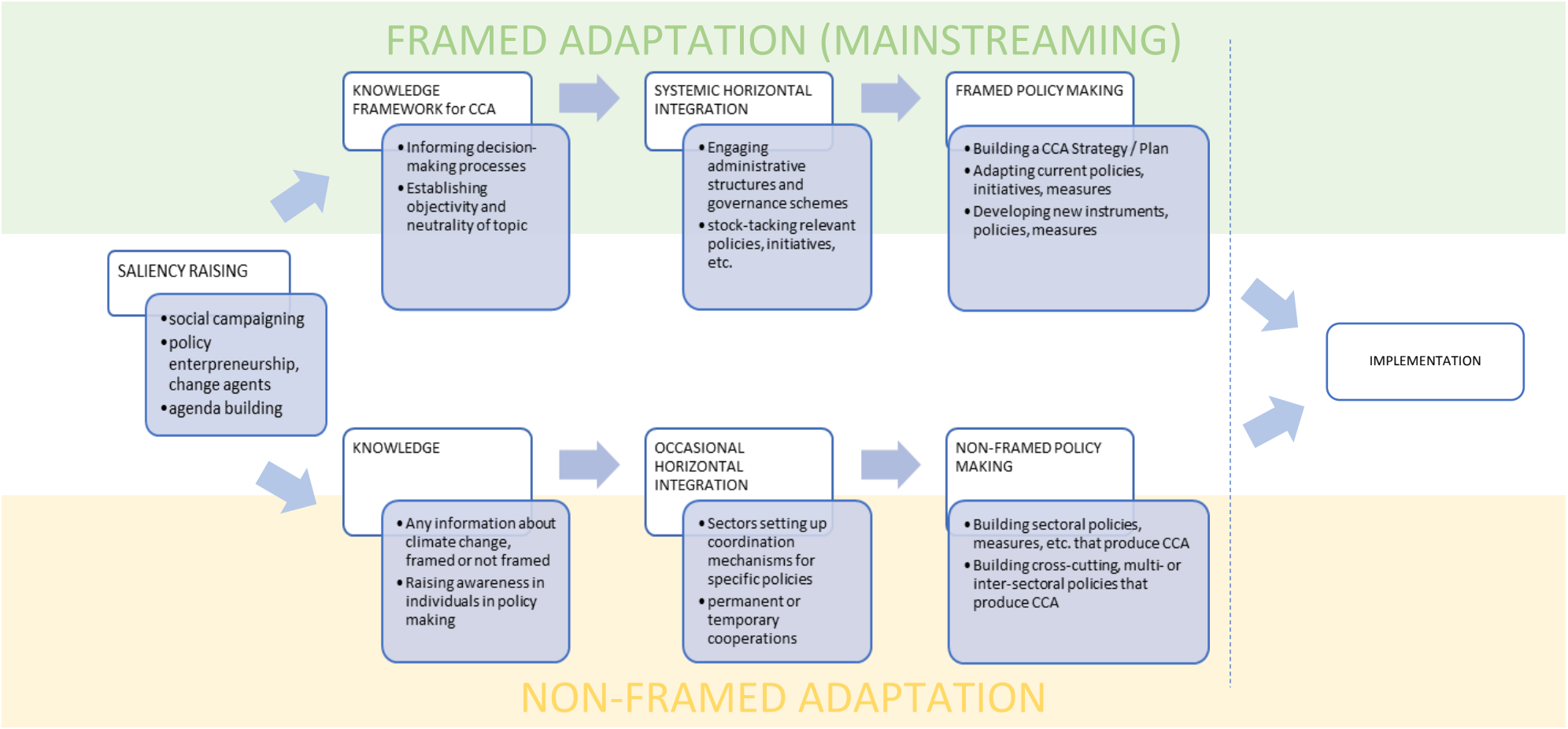


Figure 1 – A simplified representation of the phases of a mainstreaming process, as infered by the comparative analysis of the GoApply case studies. The sequence in which the phases are presented should not be considered rigidly, as in reality the process occurs very likely in a more "fuzzy" way. For the distinction between framed and non-framed adaptation, see *On how to consider implicit or non-framed adaptation: definitions*, page 17.

6. Analysis of success factors, barriers and lessons learned for thematic areas

The methodology for analysis of the cases required to extrapolate success factors and barriers in the mainstreaming process investigated. Moreover, each case offers some lessons learned and recommendations for transferability of the main messages elaborated. Many cases share similar observations; therefore, it was possible to identify analytical themes. In the following paragraphs, we offer a selection and a synthesis of the above-mentioned elements, highlighting when possible to which phase (see Figure 1) the recommendation refers, whether it is applicable to different contexts and, finally, its applicability across sectors.

Many of the factors presented are anyway deeply intertwined in a complex way. The order in which they are presented tries to some extent to follow the same order as the mainstreaming phases (although also the phases are not necessarily in a fixed order, as already noticed). We also tried to pinpoint the main connections between factors.

Sorting out the obvious.

- Every process needs to be well organized, and possibly well and timely planned, in order to be successful and effective.
- A process can hardly work fine without a committed leadership, committed key actors and a good coordination.
- Lack of high-level political relevance, will, and commitment is the greatest barrier to mainstreaming.

Some of these considerations are still necessary and are being repeated often in the case study reports, yet in the synthesis at hand we try to focus on those recommendations that are less obvious and possibly more specific with regards to the topic of *mainstreaming climate adaptation*.

On resources

It is also worth stating an initial consideration about resources. In any process, resources are fundamental: economic, labour, time, and so on. Restricted resources (staff, worktime, budget) limit capacities in any process, to the point of making it impossible: this is true also in knowledge building, horizontal coordination, integration, mainstreaming, etc. We assert here their crucial role and avoid repeating it further in the document. Nevertheless, we will elaborate on specific aspects related to funding and resources in the following paragraphs.

Resources should not be understood only as the funding spent on structural and infrastructural measures; in the field of mainstreaming processes, they should be assumed as means made available in terms of money, personnel, expert knowledge, competences, time, workload for all of the activities needed, including and especially coordination tasks.

On standardization

Finally, but not less importantly, standardization of mainstreaming process formats is not possible: adaptation must be fitted to local needs and conditions.

Active mainstreaming vs Passive mainstreaming

It is obvious that an active approach to the mainstreaming process is, in all phases, more effective than a passive one. More importantly, it should be noticed that relying on a passive approach, even in one phase or certain steps in the process, might create a bottle neck and hamper the whole process.

Looking at the case studies, we collected a few exemplary recommendations:

- Tackling cross-sectoral coordination actively, rather than trying to force mainstreaming *through strategies* as such. It would be left to a great extent to the personal attitude of individuals to take up stimuli from a strategic document, if they are not engaged and involved directly in the integration, policy making or implementation process that the strategy is informing.
- Involve external experts to overcome limitations in capacity, hire dedicated facilitators.
- Installing a permanent horizontal coordination body (steering group, cross-sectoral working group) for the implementation of cross-cutting adaptation strategies.
- The process is best developed with the presence of a main agent or coordinator, who should be generally trusted and have the capacity to deal with a variety of subjects on the given territory, and who can act as a catalyser and facilitator

Agent-drive main-streaming

Cases in Group B (the German DWA "Audit" and the Austrian "LURK AG") might be interpreted in fact as approaches to active agent-driven adaptation mainstreaming. In the application of the respective counselling tools, auditors act as external facilitators of the whole process. Agents can be active in basically every phase of the process, from saliency raising, knowledge production, brokerage, transfer and dissemination to coordination, policy making and implementation.

It goes without saying that active mainstreaming requires dedication of resources and is therefore more costly than a passive approach.

Saliency raising

The saliency of the topic climate adaptation, i.e. climate adaptation being a theme on the political or strategic agenda, is the greatest trigger of subsequent broad policy integration (or action in the private sector). Also, saliency may occur "passively", resulting from the soft pressure of the reference environments (e.g. from the Paris agreement, from the EU Strategy, etc.); or "actively", through the action of change agents (may they be social influencers) or, in a more structured way, through policy entrepreneurs.

When reaching the phase where a political agenda must be translated into integration in the administrative structures and in the policy making cycle, then personal engagement of committed key actors becomes a crucial factor. Efforts in awareness-raising as well as in capacity-building (making use of the appropriate knowledge framework) may prove useful at that time. Again, an active and well-planned (in advance) process of awareness-raising is probably much more effective than a passive one, relying on personal curiosity and attitudes of the individuals involved.

- Soft measures only reach actors who are already somewhat sensitized to the issue: therefore, effort should be put in sensitizing (awareness-raising), especially the key actors in critical positions.
- The more tangentially a sector is (perceived to be) affected by climate change and adaptation, the more the engagement of that sector is dependent on the personal attitudes of decision makers: therefore, the knowledge framework on climate change and impact should be exploited to pinpoint and sensitize actors on how the sectors are affected and on the benefits (even general, cross-sectoral) of taking action.

Communicating the benefits of adaptation

Another key message regarding mechanisms to improve the saliency of climate adaptation at all levels is to change the way we communicate about the issue. Too often, communication about climate adaptation (and climate action, more generally) relies on a "blame & shame game", pointing out what "has not been done" and those who "have done nothing yet". Although this has helped and may support in generating useful "soft-pressure", a more efficient way of communication would require collecting and integrating positive examples of adaptation and disseminate them, to create more affirmative "soft pressure" and creating positive attitudes towards the theme.

Pressure factors (active or passive)

There are several factors that can support the relevance of climate change and climate adaptation as topics and therefore foster mainstreaming. The factors could be categorized into two major types.

Evidence of climate impacts

First, occasions of great exposure of the theme (e.g. the UNFCCC COP of Paris) or major natural events (e.g. disastrous floods, mega-fires), although the latter unfortunate and often tragic, can be "focussing events" and can create "policy windows": critical times when the saliency of the topic is very high and barriers are lowered make it easier to get mainstreaming processes started.

Second, even without major events, though, the evidence of climate impacts can generate a pressure factor for the mainstreaming process. Therefore, it can be useful to give prominence to the results of impact assessments and to valorise the function of environmental monitoring networks, which are collecting observations on the effects of climate change on the territory.

In terms of communication, evidence of impacts and narratives are much more useful in convincing people than are theories and model projections.

Social-, peer-, soft- pressure

Measures that generate social pressure to act, such as a regular exchange between sectors on progress made, may be a method to increase the compliance of reluctant participants that is more politically feasible than trying to introduce measures to generate hard pressure (i.e. obligations, rules, etc.).

Examples of sources of "soft pressure" could be found in practically all the cases analysed and are numerous. They include, among others:

- "soft pressure" provided by international processes, e.g. the UNFCCC Paris Agreement (2015), the EU Green Paper (2007) and White Paper (2009) on adaptation, and the EU Adaptation Strategy (2013);
- provisions and inputs by higher-ranking governmental levels (e.g. the adoption of a NAS) (see also section on 'Reference Environments & background conditions)
- dedicated communication activities, awareness raising and capacity building (e.g. from the national level to regional administrations and governments)
- bottom-up pressure by stakeholders from sectors affected by climate change impacts;
- regular dedicated meetings in an administration keep the topic a priority, foster exchange between offices, generate peer pressure to engage in climate change adaptation and increase awareness and expertise on the topic among the participants.

Knowledge

In the previous analysis (see chapter 5, also schematically represented in Figure 1) we have pinpointed the phase of building the knowledge base on climate change and adaptation as one of the initial stages. This builds the foundation for the mainstreaming process, and under many points of view it is often a necessary pre-condition.

In the first place, a basic comprehension of the phenomenon climate change is necessary in order to accept and take up the topic onto one's agenda. The understanding of the complexity of the theme and of the interrelations with all the other sectors in a policy framework supports the full integration in the policy cycle. On the contrary, an incomplete understanding of the relation between climate change, impacts, adaptation and the current environmental status and policies may hinder drastically any mainstreaming.

The knowledge about climate impacts and effects is not equally developed for all the sectors. Sectors like natural hazard management or agriculture have are already been thoroughly investigated for some time. Also, the background of people involved in the horizontal integration process may be very different. Therefore, adaptation knowledge needs to be prepared and mediated in target group-specific ways in order to be usable and useful to sectoral actors.

A particular and often observed barrier to mainstreaming is the reluctance towards commitment to a theme which is still considered controversial and vague. A comprehensive knowledge framework should also reduce the "vagueness" and the uncertainty associated to the theme, hence facilitating its uptake. Also, if at present the reality of climate change is practically undisputed, the notion of the urgency for action in the field of climate adaptation is not: even when acknowledged, climate change is still perceived by many as something that "will" create problems and "will" require a response in a indistinct amount of time in the future.

Knowledge & legitimation

More importantly, though, a weakness of the knowledge base related to climate change is often related to a lack of legitimation. Such a context (e.g. a national platform on climate change, a regional climate status report, etc.), produced or validated by a superior institution that is officially mandated (e.g. a national environmental agency, a ministry for the environment, etc.) generates legitimation and trust around the theme, reduces controversies, and makes it more neutral from a political point of view, avoiding a polarization of arguments.

Knowledge & capacity building

More obvious is the relation between the knowledge and information available and the capacities required for a full integration of adaptation concepts into normal sectoral policy making. Yet, when dealing with complex structures and governance schemes that are trying to coordinate several sectors, offices and individuals, heterogeneous levels of awareness, saliency and capacity regarding adaptation should be expected and efficiently managed to overcome reluctance and difficulties. Proficiency of the officials and technical levels of the administration is a supporting factor.

Legitimation, reference environments, and background conditions

Upper levels stances

The lack of a strong stance from national or regional level, of an established reference environment which acknowledges climate adaptation as an urgent and important topic, as well as of a consolidated knowledge framework about climate change are all elements that can hinder greatly the mainstreaming process at all levels. Cases in Group A from Switzerland and Austria clearly show horizontal integration policies that started from quite solid background conditions of legitimation for climate adaptation as a topic in political agendas, even at regional level. The case from Lombardy, on the contrary, presents the same attempt to the setup of a regional strategy in much looser background conditions.

Diffusely perceived legitimation

The lack of diffusely perceived legitimation may hamper the process in what we presented as the initial phase of mainstreaming, and yet in fact the effect reverberates in all those interactions of the pathway, where "political weight" of the theme is needed for its uptake and further implementation by individuals or bodies.

Legitimation of key positions

A level of legitimation characterizes not only reference policies, but also specific positions and individuals (e.g. climate coordinators, climate managers, etc.). When these positions are fully recognized and properly mandated by upper administrative and governmental levels, they can be positively empowered in their effort. Yet, as we will see later on, mainstreaming appears to be more effectively developed as a non-hierarchical, participatory process, making "hard" top-down approaches a less desirable approach.

When adaptation reaches the point to be integrated in the established administrative working routines of sectors, the so created reference environment generates momentum and pressure, also in the form of imitation mechanisms, towards other sectors, structures, individuals.

Resources

Clear benefits

Resources are more easily funnelled to measures with direct, clear monetary

and immaterial benefits

benefits. Therefore, a communication that emphasizes the immaterial benefits and the scope of policies where the payback is less visible might help to gather resources for them.

Allocating resources to coordination

Apart from the development and implementation of specific measures, **coordination is crucial**! Resources should not be limited to the implementation phase. If previous phases are not working out properly, especially the coordination phase in the horizontal policy integration process, the implementation of measures is hardly going to materialise. Therefore, funds should be made available for coordination structures, temporary or permanent, and to build coordination capacities. External facilitators could be hired, in particular cases, to overcome constraints in administrative resources. Normally, though, the recommendation would be to strengthen and institutionalise central coordination capacities.

Allocating resources to professional expertise

Many cases, particularly from Group B (German DWA "Audit") and Group C ("Upper Adda" River Contract) show that professional approaches at specific stages of the process can benefit greatly the final outcome (e.g. in the professional process management, moderation of participatory processes, etc.). Therefore, the use of external expertise in crucial stages of the process, although requiring resources, could surely have a positive cost-benefit ratio.

Concreteness, attractiveness of measures, clear benefits

Added values and clear benefits

The key for successful cooperative adaptation governance is the attractiveness of adaptation solutions to the involved sectors. Crucial features of attractiveness include the evidence of added value and benefits from the envisaged product for all involved sectors, and thus the confirmation that the process serves their self-interests. The product, being it a strategy or a single specific measure or initiative, should be compatible with the agendas and work routines of all the concerned structures. If producing a climate strategy, an effective approach would be to keep the strategy concrete enough to serve as a guideline for daily work.

Clear goals and practicable products prepare common ground

Clear goals, attractive ideas and concrete, practicable products motivate participants better than merely political goals or an abstract and product-less 'idea workshop'. Products need to be practicable, concrete and generate clear added value for target groups and all involved sectors. Clear goals and concrete measures can also ease cooperation, because clarity 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.

No concurrence or threat to sectors

Products should generate substantial added value, and not be a concurrence or threat. To avoid questioning the competence of other sectors or 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. To achieve this, key actors from *all relevant* sectors needs to be included early on, best before the official begin of the process, by informal talks.

Adaptation as an opportunity, not as an obligation

It appears to play a positive role if the integration of adaptation in policy instruments is conveyed as a positive message, that is of a process able to create opportunities rather than being a further obligation and burden for the administration or the practitioners involved.

When implementation on the territory at local level is pursued, it may be particularly useful to convey this message to private or semi-private operators (e.g. Reclamation & Irrigation Consortia), who are characterized by more flexibility and a closer presence on the territory.

Trustful atmosphere, good personal relations

Some cases demonstrated that a trustful atmosphere, due to established actors with good personal relations, is often crucial in easing an effective cooperation, especially at the local level.

Coordination

The success of a mainstreaming process appears to depend strongly on the governance scheme put in place to steer the process itself: a coordinated structure and a procedure that appoint responsibilities to all the actors involved and stimulate a real process of policy making appears to be more effective than a simple hierarchical structure with one responsible office and a stakeholder audience.

As mentioned already, an active approach to mainstreaming would require planning and dedicating resources also to the coordination phase of a mainstreaming process. The Swiss and Austrian cases are exemplary in these terms.

Coordination as an active, agent-driven process

Coordination should definitely be an active agent-driven process in the horizontal policy integration process. Installing a permanent (or temporary, if otherwise impossible) horizontal coordination body (e.g. a steering group, cross-sectoral working groups, "care-takers", etc.) for the implementation of cross-cutting adaptation strategies or measures appears to support mainstreaming processes greatly.

Cross-sectoral policies should still be constructed through the normal policy-making processes, either by single sectors or by a coordinated action of more sectors, in which each office maintains its autonomy and responsibility.

Non-hierarchical processes

The mechanisms of horizontal governance to achieve mainstreaming and coherence are predominantly non-hierarchical, collaborative and voluntary, driven by self-interests of sectors, a supportive administrative working culture, coordination and persuasion efforts by the climate coordinator, and some amount of "social peer pressure". Mainstreaming thus cannot be enforced by strong top-down approaches, or let happen, relying passively on the deployment of a strategic document.

Equal partnerships, ownership, responsibility

Equal partnership, ownership, responsibility, leeway are key words.

One of the main messages here is that the cooperation between offices regarding adaptation to climate change should be organized as an equal partnership: one office handles much of the organizational effort, but the different sectors remain individually responsible for organizing and financing measures pertaining to their sector. This approach can prove successful also in avoiding traditional conflicts

between sectors and ensuring the involvement of all relevant sectors. Especially when it comes to questions of leadership, many offices dislike being told what to do by their peers.

Leeway for sectoral actors

Furthermore, the coordination of the horizontal integration phase should follow an approach where sectoral actors are given a sufficient amount of leeway to develop ownership for their measures without sacrificing control over the process by the coordinator. Our case studies show that informal horizontal governance modes can often perform very well, and that the absence of an obligatory framework can also open up leeway for creative solutions and one's own initiative.

Horizontal governance thrives on (informal) networks of established players with individual initiative. If such network does not exist, it needs to be developed before a horizontal adaptation governance process can begin. It is furthermore vital to strive for inclusion of actors from all relevant sectors. Key actors should preferably be involved prior to the start of the process, by means of informal coordination talks. A main goal is to avoid concurrence for thematic leadership between different sectors a priori.

Build on the existent

Also, spontaneous actions of inter-sectoral cooperation (e.g. the case of some measures by the DG Agriculture integrated in the Regional Plan for the Air Quality measures in Lombardy) that lead to efficient synergies are worth to be observed and possibly replicated.

Shortcomings of non-framed adaptation

The lower part of Figure 1 in chapter 5 represents schematically, and in a very simplified way, what we have referred to as non-framed adaptation. Other terms for it have been used both in this report and in the single case studies: non-formalized, implicit, piggybacking, accidental, etc. (see the definitions on page 17).

Some of the case studies clearly show that, in particular conditions, non-framed or semi-framed adaptation can produce positive and concrete outcomes in terms of adaptation. Nevertheless, we ought to remark some important considerations about possible limitations in such approaches.

Lack of overall vision

- It can be inferred that a non-formalized approach to climate adaptation can get through the barriers of institutional inertia and resistance of political commitment easier than the enforcement of an top-down formal adaptation strategy, yet the approach runs the risk of incurring in a lack of overall vision, with undesired risks of "maladaptation", inconsistency between sectors and possibly lack of commitment for dedicated additional funding.

Failure to "fit into the bigger picture"

- This form of adaptation, although it is still able to lead to constructive effects and should probably be considered positively, presents higher risk of incoherency in the scope of an overall strategic vision as well as potential conflicts resulting from the failure to fit into a "bigger picture"; surely, in such case coherence of the actions versus an overall adaptation logic cannot be enforced through the mechanism of compliance to a strategy.

Short perspective

- Non-framed initiatives often do not have the typical adaptation

characteristic of a medium- or long-term perspective, which would be congruous with the scope of climate change, also due to timescale conflicts with traditional policy cycles.

Failure to connect to climate knowledge

- If there is a lack of a relevant high-quality knowledge base on climate change scenarios and impacts, this implies that sometimes the connection between impacts and adaptation measures is just sensed and not necessarily proven by scientific evidence

No overseeing instance on sectors

- Cooperative spontaneous approaches, without any measure of compulsoriness, usually mean that there is no overseeing instance that can force lagging sectors to act. Thus, the individual motives and interests of important stakeholders within the administration remain an important factor.

Risk of independent, incoherent policies

- The more an adaptation strategy process is sector-driven, the higher is also the risk that coordinators lose the overview and the possibility to steer, which may result in independent and uncoordinated sector policies.

Identifying key actors and exploiting existent networks

Good relationships and networks on the field

All cases highlighted the importance of individual commitment and attitude in the mainstreaming processes. An effective integration relies critically on the willingness and the capacity of actors in key positions to take up the task and foster it in their sector, institution, or field of action. Consequently, good personal and/or professional relationships and good networks, especially those well-rooted in the territory, are crucial for integrating adaptation at the local level. Therefore, it is important to identify actors early in the process and to establish formal or informal contacts with them, so to pave the way for all subsequent steps of the mainstreaming process.

Benefits of the informal approach

In fact, informal contacts might prove even more useful than formal ones, at least in a preparatory phase, avoiding the need for official resolutions and hierarchical tracks, keeping the initiative "out of the political spotlight", until it is consolidated.

7. Final remarks

The comparative analysis of transnational case studies allowed to draw a complete picture of the mainstreaming process. It was clear from the cases that mainstreaming builds on different phases, although not necessarily in a strict sequence (see Figure 1). This general mainstreaming pathway can of course take manifold expressions and forms, since a standardization of the process is not possible and local conditions should always be attentively assessed before beginning (or even better, planning) the mainstreaming. We have identified an array of factors that should be considered and that can support an effective uptake and integration of climate adaptation. Thanks to well-picked cases, we have been able to offer positive examples of solutions.

The present document is meant to highlight common threads and to abstract the relevant factors from the specificity of the cases. Nevertheless, we recommend that the readers peruse the single case study reports to find more detailed information and even more useful insights.

8. References

Brown, N. & Deegan, C. (1998) *The public disclosure of environmental performance information—a dual test of media agenda setting theory and legitimacy theory*, Accounting and Business Research, 29:1, 21-41, DOI: 10.1080/00014788.1998.9729564

Ferguson, D., Burlone, N. (2009), *Understanding Horizontal Governance: Research Brief* - Newfoundland and Labrador, Action Research Team, , Connecting the Dots initiative, The Centre for Literacy of Quebec

Lange, A., Ebert, S., Vetter, A. & Drkosch, P. (2018): *Case study reports on the mainstreaming of climate adaptation. Country report Germany (WP2): Communal Flood Audits in Bavaria.* Deliverable of the Interreg Alpine Space project GoApply.

Lexer, W. & Buschmann, D. (2018): *Case study reports on the mainstreaming of climate adaptation. Country report Austria (WP2)*. Deliverable of the Interreg Alpine Space project GoApply.

Mickwitz, P., Aix, F., Beck S., Carss D., Ferrand N., Görg C., Jensen A., Kivimaa P., Kuhlicke C., Kuindersma W., Máñez M., Melanen M., Monni S., Pedersen A. B., Reinert H., van Bommel, S. (2009): *Climate Policy Integration, Coherence and Governance*. PEER Report No 2. Helsinki: Partnership for European Environmental Research.

Mintrom, M., Norman, P. (2009), *Policy Entrepreneurship and Policy Change*, The Policy Studies Journal, Vol. 37, No. 4, 2009

Pregnolato, M., Cetara L., Ballarin Denti, A. (2018): *Case study reports on the mainstreaming of climate adaptation. Case Study Report Italy (WP2): "Upper Adda" River Contract*. Deliverable of the Interreg Alpine Space project GoApply.

Pregnolato, M., Cetara L., Ballarin Denti, A. (2018): *Case study reports on the mainstreaming of climate adaptation. Case Study Report Italy (WP2): Adaptation to Climate Change in Lombardy*. Deliverable of the Interreg Alpine Space project GoApply.

Pütz, M., Braunschweiger, D., Probst, T. & Hohmann, R. (2018): *Methodological framework for WP1 in the GoApply project.*

WSL – Swiss Federal Institute for Forest, Snow and Landscape Research (2018): *Case study reports on the mainstreaming of climate adaptation. Country Report Switzerland (WP2): The cantonal climate strategy of Grisons*. Deliverable of the Interreg Alpine Space project GoApply.

Torfing, J., Guy Peters, B., Pierre J., Sørensen, E. (2012): *Interactive Governance – Advancing the Paradigm* – Oxford University Press

Zhu, J., Boroson, W. (1997), *Susceptibility to Agenda Setting: A Cross-Sectional and Longitudinal Analysis of Individual Differences*, in *Communication and democracy: Exploring the Intellectual Frontiers in Agenda-Setting Theory*, Lawrence Erlbaum Associates Publishers, Mahwah, New Jersey