Publizierbarer Endbericht

Gilt für Studien aus der Programmlinie Forschung

A) Projektdaten

Allgemeines zum Projekt	
Kurztitel:	GOAL
Langtitel:	Governance of local climate adaptation: agenda-setting pathways and implementation modes in municipalities
Zitiervorschlag:	Lexer, W.; Stickler, T.; Buschmann, D.; Steurer, R. & J. Feichtinger (2020): Governance of local climate adaptation. Publishable final report of the ACRP project GOAL.
Programm inkl. Jahr:	ACRP 8th Call for Proposals (2015)
Dauer:	01.05.2016 bis 28.02.2020
KoordinatorIn/ ProjekteinreicherIn:	Wolfgang Lexer, Umweltbundesamt GmbH
Kontaktperson Name:	Wolfgang Lexer
Kontaktperson Adresse:	Umweltbundesamt Gmbh [Environment Agency Austria – EAA], Spittelauer Lände 5, 1090 Wien
Kontaktperson Telefon:	(0043) 01 31304-3480
Kontaktperson E-Mail:	wolfgang.lexer@umweltbundesamt.at
Projekt- und KooperationspartnerIn (inkl. Bundesland):	P1: University of Natural Resources and Life Sciences Vienna, Institute of Forest, Environmental and Natural Resources Policy (BOKU-InFER) P2: Centre for Social Innovation (ZSI, Zentrum für Soziale Innovation) P3: Climate Alliance Austria (CAA, Klimabündnis Österreich)
Schlagwörter:	Climate change adaptation, governance, municipalities, agenda setting, implementation
Projektgesamtkosten:	301.887,80 €
Fördersumme:	297.995,00 €
Klimafonds-Nr:	B567133
Erstellt am:	30.05.2020

B) Projektübersicht

1 Kurzfassung

Wie gelangt das vergleichsweise junge Politikfeld Klimawandelanpassung auf die kommunalpolitische Agenda? Wie kann die langfristige Umsetzung und Verstetigung von vorausschauender Anpassung in den vielen kleinen österreichischen Gemeinden gelingen? Das Projekt GOAL hat diese Fragestellungen aus unterschiedlichen Blickwinkeln untersucht, Einflussfaktoren identifiziert und Empfehlungen zur Unterstützung von kommunaler Anpassung entwickelt.

Gemeinden sind eine zentrale Ebene bei der Klimafolgenbewältigung, denn hier trifft die direkte Betroffenheit durch den Klimawandel mit konkreten Handlungsmöglichkeiten und dem Wissen über lokale Vulnerabilitäten zusammen. Insbesondere in kleineren bis mittelgroßen Gemeinden (90% aller österreichischen Gemeinden haben weniger als 5.000 Einwohner, 99% weniger als 30.000 Einwohner) ist die Anpassung an den Klimawandel jedoch noch kaum auf der kommunalen Agenda angekommen. Erfahrungen und Kapazitäten, wie vorausschauende Klimaanpassung in Gemeinden thematisiert, in kommunale Entscheidungsprozesse und Strukturen integriert und auf strukturierte Weise umgesetzt werden kann, fehlen nach wie vor weitgehend.

Das Projekt GOAL hat deshalb untersucht, i) ob, warum und wie sich Gemeinden in anderen Ländern an den Klimawandel anpassen (internationale Literaturauswertung, qualitative empirische Fallstudien) sowie ii) welche Erfahrungen mit der lokalen Integration von anderen, bereits länger etablierten umweltpolitischen Handlungsfeldern in Österreich gemacht wurden (Literaturauswertung, Experteninterviews, Fokusgruppendiskussionen), um iii) hieraus Lehren und Schlussfolgerungen für die Klimawandelanpassung in kleinen österreichischen Gemeinden abzuleiten. Basierend auf der Analyse und systematischen Zusammenschau der Teilergebnisse wurden Einflussfaktoren für die Agendasetzung und langfristige institutionelle Verankerung identifiziert sowie gemeinsam mit Stakeholdern unterschiedlicher Ebenen Handlungsempfehlungen für die kommunale Anpassung unter spezifisch österreichischen Rahmenbedingungen entwickelt.

Insgesamt wurden aus einer Governance-orientierten Perspektive 18 Hemmfaktoren und 23 Erfolgsfaktoren für die kommunale Klimawandelanpassung identifiziert. In Abhängigkeit vom spezifischen lokalen Kontext werden die Agendasetzung und Umsetzung in der Regel durch unterschiedliche Kombinationen von Einflussfaktoren, die miteinander interagieren, gehemmt oder gefördert. Besonders häufig auftretende und sich besonders stark auswirkende Faktoren sind nachstehend hervorgehoben.

Besonders relevante Erfolgsfaktoren	**Besonders relevante Hemmfaktoren**
Akuter bzw. wachsender Problemdruck +	Begrenzte Gemeindekapazitäten

Möglichkeitsfenster durch sonstige externe Ereignisse	
Engagierte, aktive AkteurInnen in der Gemeinde	Fehlende oder nicht eindeutige Zuständigkeiten
Institutionalisierte Zuständigkeit in Gemeindeverwaltung + Unterstützender und steuernder Governancerahmen seitens übergeordneter Ebenen (Land, Bund)+ Staatliche finanzielle Förderung von Klimawandelanpassung in Gemeinden	Schwere Diffundierbarkeit des neuen Themas Klimawandelanpassung
Professionelle externe Unterstützung	Geringe politische Relevanz und fehlender kommunalpolitischer Wille
Pragmatische Ansätze, schrittweise Umsetzung, Einstieg über Einzelprojekte	Abhängigkeit von einzelnen engagierten AkteurInnen

Auf Basis der Erfolgs- und Hemmfaktoren wurden Empfehlungen für die Agendasetzung (Thematisierung) und die Umsetzung (Verankerung, Verstetigung, Institutionalisierung) ausgearbeitet. Der Fokus liegt dabei auf den Governance-Dimensionen von kommunaler Klimawandelanpassung, d.h. den Prozessen, Strukturen und Interaktionen innerhalb der Gemeinde, nach außen und zu anderen Ebenen von Regierung und Verwaltung. Die insgesamt 14 Empfehlungen lassen sich je nach den unterschiedlichen lokalen Kontextbedingungen zu gemeindespezifischen Anpassungspfaden kombinieren. Die Empfehlungen richten sich vorwiegend an Gemeinden, Mittler- und Beratungsinstitutionen sowie die Verwaltung von Ländern und Bund. Ein großer Teil der Empfehlungen kann durch Akteure auf Gemeindeebene selbst eigenverantwortlich in Angriff genommen werden, jedoch kann keine Ebene allein erfolgreich handeln.

Übersicht über Empfehlungen für kommunale Klimawandelanpassung

1	Kommunikation von Vorteilen und Nutzen von Anpassungsmaßnahmen für Gemeinden	8	Übergang von reagierender zu vorausschauender Anpassung organisieren
2	Problemdruck und Extremwettereignisse als „Möglichkeitsfenster" nutzen	9	Verankerung von Anpassung in Instrumenten der Gemeindeplanung
3	Unterstützung von politischen Schlüsselakteuren sichern und Grundsatzbeschluss herbeiführen	10	Bildung von regionalen Gemeindenetzwerken für interkommunale Kooperation
4	Klare Zuständigkeiten für Anpassung schaffen und Ressourcen zuweisen	11	Lokale Bewusstseinsbildung und Einbindung der Öffentlichkeit
5	Organisation der Kooperation zur Anpassung innerhalb der Gemeinde und nach außen	12	Unterstützender Rahmen durch Land, in Kooperation mit Mittler- und Beratungseinrichtungen
6	Einbeziehung professioneller externer Expertise	13	Staatliche Förderung für kommunale Klimawandelanpassung kombiniert mit „sanftem Zwang"
7	Einstieg über kleinere, wenig aufwändige Maßnahmen mit in jedem Fall positiver Wirkung	14	Evaluierung, Nachjustierung, Weiterführung und Inwertsetzung des KLAR!-Programms

Alle Einflussfaktoren und Empfehlungen sind detailliert im Synthesebericht des Projekts dargestellt. Der Bericht und weitere Ergebnisse sind am österreichischen Portal für Klimawandelanpassung verfügbar.

2 Executive Summary

How can the comparatively young policy field of climate adaptation be set on municipal policy agendas? How can the long-term implementation and institutionalisation of anticipatory adaptation succeed in the many small Austrian municipalities? Investigating these questions from different angles and by pursuing complementary research streams, GOAL has identified and analysed influencing factors and developed policy recommendations to support municipal climate adaptation.

When it comes to coping with climate change, municipalities are a crucial level, because here immediate and directly tangible climate change impacts converge with concrete opportunities for action and local knowledge about vulnerabilities. However, especially in small to medium-sized municipalities (90% of all Austrian municipalities have less than 5,000 inhabitants, 99% less than 30,000 inhabitants) adaptation to climate change has rarely arrived at local agendas. Experiences and capacities regarding how to make an issue of anticipatory adaptation in municipalities, how to integrate it in municipal decision-making processes and structures, and how to implement adaptation in a structured way are still largely missing.

That is why the project GOAL has researched: i) whether, why and how municipalities in other countries are adapting to climate change, ii) which experiences have been made with integrating and implementing more mature environmental policy fields at the local level in Austria, and iii) what lessons and conclusions can be drawn for climate adaptation in small Austrian municipalities. GOAL has tackled these questions by (i) learning from municipalities active in adaptation in other countries (international literature review, qualitative empirical case studies) and (ii) learning from the diffusion and local integration of climate mitigation and sustainable development policies in Austria (literature review, expert interviews, focus group discussions). Analysing and synthesizing the respective findings (iii) has allowed identifying influencing factors for agenda setting and long-term institutional anchoring as well as developing – in a joint co-design approach with multi-level stakeholders - policy recommendations for municipal climate adaptation under specific Austrian context conditions.

Altogether, 18 barriers hindering and 23 success factors facilitating municipal climate adaptation have been identified from a governance-oriented perspective. Depending on the specific local context, agenda setting and implementation are usually inhibited or facilitated by varying combinations of factors, which often interact with each other. The table below highlights influencing factors that occur most frequently and are exhibiting especially strong effects.

Most relevant success factors	**Most relevant barriers**
Acute or growing problem pressure + Windows of opportunity by other external events	Limited municipal capacities

Committed, active actors in the municipality	Missing or unclear responsibilities
Institutionalised responsibility in municipal administration + Supportive and coordinating governance framework by higher-ranking levels + Public financial incentives for climate adaptation in municipalities	Difficult diffusion ability of the new topic climate adaptation
Professional external support	Low political relevance and missing local political will
Pragmatic approaches, incremental implementation, entry through single projects	Dependency on single committed actors

Based on thorough analysis of the influencing factors, structured recommendations for agenda setting and implementation (continuation, institutionalisation, anchoring) have been derived and elaborated. The focus is on the governance dimensions of municipal climate adaptation, i.e. on the processes, structures and interactions within municipalities, to external actors and to other levels of government and administration. Depending on the varying local context conditions, it is possible to combine the altogether 14 recommendations into pathways specific to each municipality. The recommendations address primarily municipalities, transfer and advisory agencies, and administration on the federal and state level. The majority of recommendations can be tackled in a self-responsible way by municipal actors themselves. However, no level alone is sufficient to act successfully.

Overview of governance recommendations for municipal climate adaptation

1	Communication of advantages and benefits of adaptation measures for municipalities	8	Organising transition from reactive to anticipative adaptation
2	Using 'windows of opportunity' created by problem pressure and extreme weather events	9	Integrating adaptation in instruments of municipal planning
3	Securing support from political key actors and working toward fundamental decision	10	Creating regional networks of municipalities for inter-municipal cooperation
4	Establishing clear responsibilities for adaptation and allocating resources	11	Local awareness-raising and involvement of the public
5	Organising internal and external cooperation on adaptation	12	Supportive framework by the state government, in cooperation with transfer and advisory agencies
6	Involving professional external expertise	13	Public funding for municipal adaptation combined with 'soft coercion'
7	Entry through smaller, low-cost measures with positive effects in either case	14	Evaluating, re-adjusting, continuing and capitalising on the KLAR! programme

The barriers, success factors and structured recommendations are described and presented in detail in the synthesis report of the project. Along with further project results (policy briefs, presentations, target group-specific communication products), it is available at the Austrian climate adaptation portal.

3 Hintergrund und Zielsetzung

Background

When it comes to coping with climate change, municipalities are a crucial level, because here immediate climate change impacts converge with concrete opportunities for action. The effects of climate change are being felt on the local level in a direct and increasing way and are causing growing adaptation needs. At the same time, municipalities own important competencies relevant to adaptation, both as part of their statutory and their optional tasks, as well as the local knowledge necessary to implement adequate measures. Moreover, the advantages of effective adaptation measures benefit directly the respective municipality. Policy making on adaptation has made considerable progress on the national and state level in Austria, but implementation on the local level is still scarce and patchy. Especially in small to medium-sized municipalities (90% of all Austrian municipalities have less than 5,000 inhabitants, 99% less than 30,000 inhabitants), adaptation to climate change has rarely arrived at local agendas, certainly not outside of the small number of municipalities participating in the recently established KLAR! program. Experiences and capacities regarding how to make an issue of anticipatory adaptation in municipalities, how to integrate it in municipal decision-making processes and structures, and how to implement adaptation in a structured, pro-active and anticipatory way are still largely missing. This is aggravating implementation of adaptation strategies of the national state and the provincial governments and inhibiting the emergence of local bottom-up initiatives.

Although small municipalities are widely acknowledged as key actors in adaptation, they are yet insufficiently researched. International scholars have researched the significance of local adaptation mainly in large cities such as Rotterdam, London, and New York, but small municipalities fall through the cracks of rather coarse-meshed local adaptation research. Thus, little is known about whether, why, and how they adapt to climate change. Only a few studies investigate adaptation in small municipalities, and they usually cover only a few cases. Consequently, Vogel and Henstra (2015: 111) note: "research that analyses and compares adaptation policies and policy-making at the local level is warranted".

The policy fields of climate mitigation and sustainable development are closely connected to important municipal development themes, have a rich track record in Austrian municipalities over years and represent natural interfaces to adaptation issues. They are known to have been drivers or triggers for local integration of adaptation policies in other countries and have often been recommended as suitable entry points for mainstreaming adaptation at local levels. Analysing the diffusion and implementation of these policy fields at the local level in Austria thus holds learning potential for the municipal policy integration of adaptation.

Objectives and research questions

The overarching objective of the project was to gain a better understanding of the barriers and success factors of local climate adaptation in small municipalities, to explore practicable governance options for municipal adaptation, and to develop - jointly with stakeholders - policy recommendations for agenda setting and long-term implementation of local adaptation in Austrian municipalities. Table 1 below gives a structured overview of the goals and research questions:

Table 1: Project goals and research questions

Goals	***Research questions***
Learning from municipalities active in climate adaptation in other countries	*Why and how did municipalities in other countries implement adaptation? What lessons can Austrian municipalities learn from their experiences?*
Learning from Austrian experiences with diffusion and local policy integration in other environmental policy fields	*In how far, why and how has policy diffusion of climate mitigation and sustainable development occurred at the local level in Austria and induced policy change? Which lessons can be drawn for municipal climate adaptation?*
Supporting action on local climate adaptation in Austria	*What success factors, barriers and recommendations can be derived from the synthesis of findings for climate adaptation in small Austrian municipalities?*
Raising awareness, increasing capacities and motivating municipal actors to tackle climate adaptation	*How can the lessons learnt from the project be best communicated and transferred to local target groups?*

4 Projektinhalt und Ergebnis(se)

4.1 Projektinhalte, Arbeitspakete, Aktivitäten

Comparing local adaptation policy making in different countries (WP2)

To answer the question whether, why, and how small municipalities in other countries adapt to climate change, we conducted three main research steps: (1) literature review, (2) exploratory interviews with international experts, and (3) qualitative case studies on selected German municipalities, building on an external quantitative survey of climate action in small Bavarian municipalities.

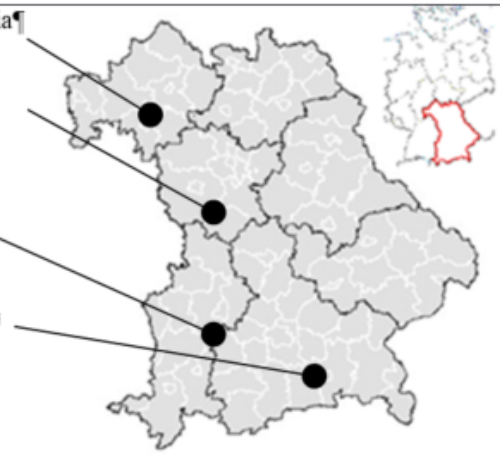
(1) Literature review: Altogether, we analysed eleven comparative case studies from 9 OECD countries (UK, BR, NO, SE, FI, IS, CA, IT, DE), each covering from two to several hundreds of municipalities, plus about 70 particularly relevant publications on theoretical and methodological issues of investigating local adaptation policies. The analysis of literature allowed assessing the state-of-the-art regarding facilitating and constraining factors for agenda setting and implementation of municipal adaptation, and it informed refinement of the analytical framework and development of the interview guide for our own empirical case studies.

(2) Exploratory expert interviews: When conducting our analysis of adaptation in small municipalities we quickly learned why most studies ignore them as study objects: It is almost impossible to find municipalities with less than 20 - 30,000 inhabitants that have concrete adaptation measures already in place that go beyond informational activities. First, we consulted the GOAL international advisory board and more than a dozen international adaptation experts from six European countries to identify such communities, but none of them was able to identify respective adaptation frontrunners. We intensified our search in Germany by conducting six exploratory expert interviews via telephone with representatives of federal and regional ministries, environmental agencies, and national research institutions. They reported that small municipalities usually do not participate in adaptation research or funding programs "because they are not interested, they think they are not affected, and most of all they simply lack local capacities", as a German ministry official put it. At this point, we encountered an ongoing survey at Munich University of Applied Sciences (MUAS) through which we were able to identify our case studies (see section 6 on methods).

(3) Qualitative case studies: The municipalities responding to the quantitative survey of MUAS are representative for small Bavarian municipalities in terms of location and size. To better understand adaptation in small municipalities in Germany, we conducted case studies on 11 of the surveyed municipalities that have been identified as adaptation frontrunners. In contrast to the other municipalities that took part in the survey, all 11 municipalities reported about adaptation measures they have already implemented. Table 2 provides basic information about our 11 case municipalities.

Table 2: Case municipalities

Code	Population	Area km²	Type	Region of Bavaria	Location
M1	10,000	10	sub-urban	Lower Franconia	
M2	7,500	35	rural	Middle Franconia	
M3	3,000	1	sub-urban		
M4	17,000	50	rural	Swabia	
M5	14,500	55	rural		
M6	18,000	30	sub-urban	Upper Bavaria	
M7	13,000	35	sub-urban		
M8	12,000	40	rural		
M9	7,000	25	rural		
M10	4,000	25	rural		
M11	2,000	45	rural		



Source: Own work, based on TUBS 2009: "Locator map of Bavaria in Germany", Wikimedia Commons, CC 3.0. Bayrisches Staatsministerium für Arbeit und Soziales, Familie und Integration 2017: "_bay".

Our aim was to conduct two interviews per municipality, one with the mayor and one with the person responsible for climate change issues. Because adaptation is a cross-cutting topic, these responsibilities varied. Overall, we interviewed ten mayors, six municipal Climate Change Managers (CCM), two spatial planning officers, one building authority officer, and two representatives of local climate initiatives.

Further methodological details about the interviews and case study analysis are provided in section 6 of this report.

Understanding local adaptation policy making in Austria (WP3)

To investigate the question in how far and how policy diffusion of climate mitigation (CM) and sustainable development (SD) has occurred at the local level in Austria and induced policy change, WP3 conducted the following research steps: (1) analysis of literature and documents, (2) qualitative expert interviews, (3) focus group discussions, and (4) refinement and application of the analytical framework to data analysis.

(1) Literature and data analysis: In a first step, we analysed and drew lessons from previous local policy diffusion experiences in Austria by conducting a meta-analysis of relevant literature, analysing documents (e.g., existing evaluation reports, policy documents) and evaluating statistical data about participation of Austrian municipalities in support programs, including their process dynamics, overlaps and status of activity. In the next steps, we verified, complemented and engrossed the findings from desk research by conducting interviews and focus group discussions.

(2) Expert interviews: To gain in-depth insights into influencing factors for local policy diffusion, diffusion patterns and policy outcomes, in a second step we

conducted qualitative, semi-structured interviews with 13 Austrian mitigation (n=7) and sustainable development (n=6) experts from fields such as policy-making, administration, program coordination, transfer agencies, and NGOs at federal, regional and local level. The interviews took place from September 2016 to February 2017 and covered categories such as agenda setting, process start, state of implementation, coordination, actors, impacts, process dynamics over time, influential factors, and diffusion mechanisms.

(3) Focus group discussions (FGD): Building on the results of steps (1) and (2) and on a stakeholder analysis, WP3 conducted three focus group discussions with altogether 33 participants (8 to 14 stakeholders per group) in different federal states during May 2017. All participants had an active role in CM and SD processes over periods of 10 years and more. One FGD was composed of representatives of funding programs and the related institutional framework at the national and state level, while two FGDs involved actors at the regional (e.g., transfer agencies, municipality advisors, regional managers) and local level (e.g., mayors, municipal administrators). The FGDs yielded in-depth insights into triggers, drivers, barriers, attitudes, governance frameworks at higher-ranking levels, support needs, learning experiences and recommendations related to local CM and SD processes.

4) Analytical framework for data analysis: Data from interviews and FGDs were analysed by means of MaxQDA through qualitative content analysis. In order to analytically capture and understand municipal CM and SD processes, the theoretical concepts of policy diffusion and policy transfer were applied in WP3. Please refer to section 6 of this report for further information about the conceptual and theoretical rationales for development of the analytical framework.

Co-designing pathways and frameworks for governance of local adaptation in Austria (WP4)

Based on dossiers, analysis extracts, and input papers from preceding work streams, WP4 analysed, compared and blended together the research findings on i) experiences and lessons on municipal climate adaptation in other countries (WP2) and ii) Austrian experiences with local diffusion of CM and SD policies (WP3). The integration aimed at identifying and synthesizing influencing factors (success factors, barriers) for local adaptation in Austrian municipalities and at developing policy recommendations for agenda setting and implementation in a multi-level governance context. The major approaches used to synthesize were (1) analytical desk research and (2) co-design approaches with Austrian stakeholders.

(1) Cross-analysis and synthesis: For comparing and cross-analysing preceding findings (WP2-3) in a systematic way, we used analytical matrices applying categories that benefitted from the concept of 'factors of policy change' (Clar & Steurer, 2017; based on Kristof 2010, Jänicke & Weidner 1995, and others). Analysing commonalities, analogies and differences for the investigated policy fields allowed identifying the most relevant - and in that sense 'universal' -

facilitating and constraining factors influencing local agenda setting and implementation of both, climate adaptation and CM/SD policies, to a similar extent. Factors detected primarily in the CM and SD policy fields were considered as well, if well-grounded assumptions suggested similar mechanisms for climate adaptation. The transferability of WP2 and WP3 findings to the adaptation policy field under specific Austrian context conditions was assessed along two main dimensions: i) applicability of the Bavarian case study results to municipalities in Austria, and ii) applicability of results on the local policy diffusion of CM and SD to the adaptation policy field. As regards i), current and expected climate change impacts as well as the political-administrative system, structure, organisation and responsibilities of municipalities in Bavaria and Austria are largely comparable. As for ii), the policy fields of adaptation and CM/SD share important similarities in terms of the problem structure as well as the characteristics of the respective policy innovation, which are both known to significantly influence diffusion rates. All examined policy fields tackle complex, long-term, difficultly solvable problems cutting across many fields of municipal responsibilities, and they require problem solutions that are equally complex, cutting across sectors and levels, involve long-term implementation processes and need forward-looking and partly transformative interventions. Although differences definitely do exist and have been considered in our analysis, the challenges regarding agenda setting and institutionalisation show significant commonalities and occur within the same multilevel and cross-sectoral governance context.

(2) Stakeholder interactions and co-design: To integrate non-scientific practical and experiential knowledge, verify the identified success factors and barriers and develop recommendations for the governance of municipal adaptation, we applied participatory co-design approaches. Especially in the context of social and technological innovation research, co-design is an established transdisciplinary concept that fosters creativity and social learning to develop innovative and fit-for-practice solutions in a cooperative way (Steen et al. 2011; Newman et al., 2012; Paulos et al., 2008). We applied citizen science-based 'science-policy lab' formats to discuss, design and re-arrange governance pathways for local adaptation in a playful and experimental setting. Together with project researchers, policy makers, administrators, funding bodies, regional coordinators, and transfer and multiplier agencies from multiple governance levels participated in these interaction formats. From May to November 2018, we conducted three science-policy labs with altogether approx. 65 stakeholders in different federal states. Depending on the specific context of the setting, different methods were applied, including a range of techniques from the portfolio of Design Thinking (e.g., emphatic interviews, role plays, brainwriting, story boards).

Further interactions with domestic and international stakeholders that contributed to the definition of influencing factors and the development of recommendations included international conferences, work meetings of EU working bodies, training and networking workshops of Austrian adaptation actors as well as exchange with the International Advisory Board to the project, including in one physical meeting.

Dissemination, transfer and capitalisation of results (WP5)

The main objective of WP5 was to transform overall results of GOAL into target group-specific key messages and recommendations, to develop awareness-raising, capacity-building and knowledge transfer products customized to communication profiles of key user groups, and to disseminate them to practitioner and policy making communities. These include, firstly, municipal stakeholders, local political decision makers, administrative officers at multiple levels, and transfer and advisory agencies. Secondly, an additional focus was on dissemination to the scientific community, both at domestic and international level.

Based on a literature review, capitalisation of findings from previous projects (CC-Talk!, CC-Act, C3-Alps), interviews with experts in the field of public relations and media work in municipalities, and the wealth of experiences with municipal target groups of GOAL partner CAA, we conducted an analysis of communication and information requirements of municipal actors, multipliers and transfer agents. The key findings and conclusions for the communication products, as regards content, format, and design, as well as for dissemination pathways have been compiled in a dossier. This dossier provided guidance and orientation for the development of all dissemination products (see section 8), the policy briefs of WP2-4, and the choice of communication modes and formats (see section 8).

The target group communication dossier and findings of work packages WP2-4 informed the decisions regarding key communication products. On the one hand, a plethora of printed information material is available; on the other hand, municipal actors perceive an overload of information on climate change and adaptation and use them rarely, because these offers meet upon severe limitations in municipal capacities as regards qualified staff, work time and assimilation abilities. To overcome these barriers, GOAL recommends preparing more usable information that i) emphasizes the immediate advantages and multiple benefits of adaptation measures for municipalities, ii) adequately considers local contexts and decision-making situations, iii) is presented in a digestible, compact way, and iv) employs visual formats as well as trustable testimonials. Moreover, v) our research has shown that awareness raising among the municipal population and public participation in local adaptation processes is a success factor for local adaptation. There is thus a demand by both, committed municipal decision makers and multipliers, for communication products and pathways that facilitate reaching the citizens.

In response to these results, the project team decided to concentrate on low-threshold key dissemination products able to reach all relevant local target groups. In order to avoid another ineffective print product, we abandoned the initial idea to prepare a booklet in favour of a short film about concrete regional and local impacts of climate change in Austria and showcases of good practice examples of local adaptation measures [M5.3].

To overcome the omnipresent barrier of lacking municipal capacities of qualified staff and know-how, and building on the identified key success factor of

committed, active actors in municipalities, we developed a curriculum for a one-day training programme that targets municipal representatives, such as local climate officers [M5.4]. As a starting point, we conducted an internet and literature research on existing training programmes and courses for climate adaptation in German-speaking countries in the first project year. The outcomes of WP2-WP4 as well as findings of discussions with municipal stakeholders and local policy diffusion experts were integrated into the design and content of the curriculum. To maximize synergies, GOAL coordinated the programme with recent policy implementation initiatives supporting adaptation at regional and local levels in Austria, i.e. the KLAR! climate adaptation model region programme and the establishment of adaptation advisory services for municipalities. Delivered by partner CAA, the programme aims at increasing the understanding of local climate change challenges and at building expertise on how to approach and implement local adaptation.

Although originally not planned in the project application, partner CAA developed 15 online sets of recommendations for climate-resilient behaviour for citizens ['Klimatipps für alle'] as an additional dissemination product, complementing milestone M5.3. By addressing the local population, we respond to the project findings that local adaptation is currently impeded by a lack of public participation and problem awareness, and that support by citizens is required to increase the relevance of adaptation on municipal policy agendas and to enable anticipatory and more transformative adaptation measures. The 'Klimatipps' are distributed by channels that are most likely in reaching local citizens, including the Climate Alliance website, advertisements in municipal newspapers, newsletter articles for regional and local recipients, direct mailings to municipalities, and online articles for municipal websites.

Beyond abovementioned key deliverables, WP5 produced a portfolio of complementary and accessory communication outputs and disseminated them by a variety of distribution modes and communication channels, making extensive use of the institutional communication infrastructure of project partners. These products and activities are listed in section 8 of the present report.

4.2 Ergebnisse

Comparing local adaptation policy making in different countries (WP2)

In WP2 we analysed adaptation to climate change in small municipalities. Small municipalities are important actors in this regard, but insufficiently researched yet. Understanding whether, why and how they adapt is important to better understand their vulnerability and resilience. Based on a quantitative survey and 11 qualitative case studies on small municipalities in Bavaria/Germany that have been identified as adaptation frontrunners in the survey, we aimed at answering two questions: (1) What is the status quo of climate change adaptation in small municipalities in Germany? (2) Why and how do adaptation frontrunners in Bavaria implement adaptation measures and what lessons can be learned from their experience?

The survey (Bausch & Koziol, 2017) revealed that in 80% of all Bavarian municipalities with less than 20,000 inhabitants, climate change is a concern, and about 60% reported to feel affected by climate change. While 90% of the concerned municipalities are active in mitigating and/or adapting to climate policy making, 64% of the municipalities that do not feel affected address the topic as well. Concerning the triggers of a local debate about climate policies, the survey found a variety of factors, above else leadership by one person or a small group of stakeholders (see also Schröder/Walk 2013). However, the survey also found a significant gap between discussing climate change on the one hand, and taking concrete actions on the other: only about half of the municipalities discussing the issue also implemented concrete mitigation and/or adaptation measures. By means of a correlation analysis, the population size was identified as a key factor for the number of local adaptation activities in place. In other words: while adaptation in small municipalities with less than 20,000 inhabitants is generally rare, it becomes even rarer in the smallest municipalities. Again, the role of mayoral leadership has been identified as important. While larger municipalities split the responsibility for the implementation of adaptation measures between the city administration (87%), the council (61%), and civil society (57%), adaptation in the smallest municipalities relies mostly on the mayor. Other governmental levels (e.g. federal ministries) and external experts (such as architects or non-governmental organizations) have been involved often by municipalities of all sizes. However, co-decisional participation of the civil society took place only in a few larger municipalities. The types of measures reported by the municipalities suggest that European and/or national/federal funding programs can promote local adaptation. Apart from this, motivations behind the few adaptation measures implemented in small municipalities remained unclear.

This brings us to the 11 in-depth case studies we conducted. They enabled us to dig deeper by building on the survey findings. The most significant findings of the case studies can be summarized as follows.

It is difficult to find out how active small municipalities are in terms of adaptation for at least two reasons: first, we had problems with identifying and accessing the frontrunners in the field because little is known about them, and they are scarce.

Second, when a survey helped us to identify and analyse a few small Bavarian municipalities active in adaptation, we soon learned that they either implement measures of disaster prevention but do not recognize them as adaptation, or that many of them cannot distinguish systematically between adaptation and mitigation.

We synthesized facilitating factors and constraints for adaptation in small municipalities (see Table 3). One of these aspects deserves attention because it seems particularly relevant for small municipalities: limited adaptive capacities turned out to be an essential constraint. We can confirm that local governments are generally constrained by scarce resources of authority, financing, time and administrative capacity (Vogel/Henstra 2015, Baard et al. 2012, Juhola et al., 2012). While larger municipalities "have more than one 'leg to stand on' in their climate adaptation work" (Dannevig et al. 2012: 607, see also EEA 2016: 116), small municipalities have no or only sparse resources for activities that go beyond everyday duties (Dannevig et al. 2012; Amundsen et al. 2010).

Our findings confirm that small municipalities are generally reluctant to adaptation. If they adapt to climate change at all, their measures are reactive, incremental, and usually water-related. Thus, small municipalities usually adapt to immediate threats with small-scale measures that usually do not cost much and do not stir political conflicts. Surprisingly, and in contradiction to the literature on local adaptation, our case study municipalities neither regard uncertainties nor a lack of guidance as important constraints, mainly because they limit their actions to already obvious threats. Since small municipalities usually lack problem awareness for anticipatory adaptation as well as respective adaptive capacities, they frame adaptation pragmatically as an occasional necessity of daily administrative business. Although these pragmatic approaches to adaptation can have positive effects, the long-term transformative potential of anticipatory adaptation (Allen et al. 2018: 73, de Coninck et al. 2018: 322, Pelling et al. 2015, O'Brien 2012) remains untapped.

Table 3: Facilitating factors and constraints in local adaptation

facilitating factor	category	constraint
• acute or increasing problem pressure ("focussing event") • synergies with & possible integration in existing structures	**external conditions**	• small size of municipality • lacking adaptive capacity
• engaged individuals, 'change agents' • climate change managers • external experts • funding for local capacity-building • municipal networks	**support**	• lacking mayoral support • lacking public interest • institutional resistance inside municipality
• self-interest, immediate benefit • pragmatism • non-politicised, technical approach • small, cheap 'no-regret' solutions • political prestige	**values**	• lacking problem awareness • low political relevance of adaptation • adaptation as experts' discourse • focus on 'long hanging fruits'

Regarding lessons learned and recommendations, the diversity of local contexts renders one-size-fits-all solutions as inadequate. Nevertheless, among the most promising approaches are the following two, both targeting local adaptation capacities. First, national funding for municipal adaptation coordinators is a promising way to improve expert capacities at the local level. Second, sub-regional municipal networks on adaptation can counterbalance the lack of adaptive capacity through mutual learning. In the best case, local networking helps to tailor standardized adaptation approaches to local contexts.

Apart from dossiers and input papers to WP4, the findings of WP2 are presented in larger detail in a journal paper manuscript (Buschmann et al., 2020) and summarized in a policy memo for decision makers (Buschmann et al., 2019).

Understanding local adaptation policy making in Austria (WP3)

Local diffusion of CM/SD programs in Austria: On local level in Austria, climate mitigation (CM) and sustainable development (SD) are mainly pursued with four distinctive programs, the Local Agenda 21 (LA21), the Climate Alliance (CA), Climate and Energy Model Regions (KEM) and the European Energy Award (e5). Table 4 provides an overview of the CM/SD programs in Austria and their diffusion rate.

Context information on the programs offer some explanations for the specific diffusion rates (see journal paper manuscript in Annex 3.8). The Climate Alliance is framed and set-up as an introductory program and is open for all municipalities, individually. This is mirrored in the relatively high degree of diffusion; almost half of all Austrian municipalities are members within this network (46%, see table 1). The KEM program targets regions and reaches through that a relatively high number of municipalities; however, according to interview partners, the levels of activity differ strongly between the municipalities. In contrast to the 'first-time user' programs CA and KEM, the e5 program and the LA21 program were clearly set up and framed as "elite programs" in Austria, which means that these programs are deliberately reserved to frontrunners and thus not considered by the vast majority of municipalities.

Table 4: Overview of programs targeting SD or CM on local level in Austria

Sustainable development

Programme	Coverage	Access	No./municipalities	Percent	Duration & other information
Local/Regional Agenda 21	not all federal states (*Länder*) (Carinthia stopped activities)	restricted	480 (302 active)	23% (14%)	diverse duration (several months up to a few years), topics and quality of processes differ

Climate mitigation

Programme	Coverage	Access	No./municipalities	Percent	Duration & other information
Climate Alliance	all nine *Länder*	open, low threshold	975	46%	long term; different levels of activities, varies over times
e5	7 *Länder*	restricted	217	10%	synonymous for European Energy Award
E-GEP/E-GEM	Upper Austria	Open, low level	182	9% (in AT)	E-GEM ended Dec 2016; currently E-GEP, similar to e5, (41% in Upper Austria, which has 440 municipalities)
KEM (Climate and Energy Model Regions	8 from 9 *Länder* (not Vienna)	restricted	772 (organised in 91 KEM regions)	36%	2 years, extension up to 5 years

The data were also analysed with regard to overlaps or the involvement of municipalities in more than one program (see figure 1). The data show that 29% of the Austrian municipalities have never been engaged in and reached by any of the four programs. 18 % of all Austrian municipalities have been active in both, SD and CM, 6% of the Austrian municipalities have been exclusively active in SD, and 47% have been active in CM but not in SD programs. 65% of all municipalities in Austria have been involved in at least one program-based CM project. 76% of all municipalities in Austria have never been reached by the Local Agenda 21. Figure 2 provides an overview of local diffusion in the nine federal states of Austria. It shows that the federal states have a strong influence on local diffusion, depending on their political and financial support.

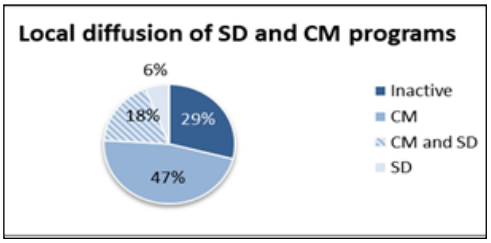


Figure 1 : Overlap of SD or CM programs on the local level in Austria

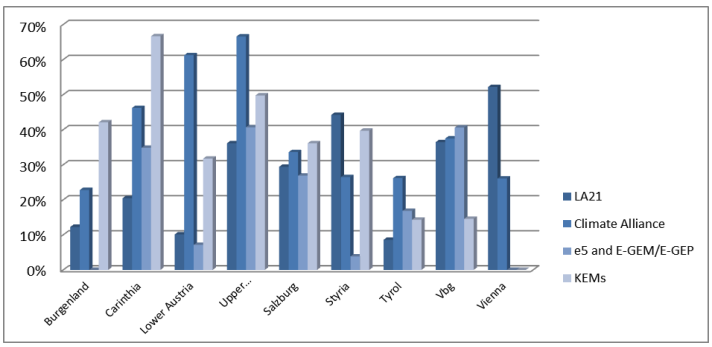


Figure 2 : Overview of federal states and their diffusion rate in the SD or CM programs

Influencing factors and diffusion patterns: Table 5 provides an overview of the influential factors and the diffusion patterns. Both are described in more detail in the journal paper manuscript.

Table 5: Outline of influencing factors and local diffusion patterns

Influencing factors		
Static factors	problem	complex, diffusion slower
	policies	complex, though programs and measures are often narrowed down ('picking the low hanging fruits')
Local factors	local starting points	diverse (size, location, number of inhabitants, etc.)
	role and capacities of local actors	diverse capacities, small circle of actors as driving forces in municipalities, lack of institutionalised capacities and resources
	motivation	diverse problem pressures and expected benefits (economic, social, political)
Local diffusion patterns		
Top-down diffusion	*Länder* level	setting incentives: programs and funding, regular personal contact with actors from municipalities, important role
	national state level	setting incentives: programs and funding, hardly direct contact to local level
Horizontal diffusion	between municipalities	some networks exist, not common
	role of transfer agencies	important role for eye-level exchange and diffusion; mainly information, support of processes/projects
Bottom-up diffusion	from individual projects to the political agenda ("grassroots")	some examples exist, not significant

Policy outcome and political change: Although the adoption of CM and SD programs can be regarded as evidence for policy diffusion, the number of participating municipalities says little about the effect of their activities. Leaning on the work of Marsh and Sharmann (2009), effectiveness and political change are discussed along procedural, political and programmatic effects in the respective WP3 outputs (see journal paper manuscript and policy briefs). The following table 6 provides an overview.

Table 6: Outline of policy outcome and political change

Effectiveness and political change		
Procedural dimension	coordination deficits	parallel structures, conflicts mostly avoided through close collaboration
	information structure	municipalities called for clear, pooled and quality assured information systems, implemented in some federal states
	set up of new networks	transfer agencies build up networks and support exchange between (some) municipalities
Political dimension	political commitment	insufficient, dependent on individual conviction, missing political role models on all levels
	political coherence	not satisfying, lack of coherent political decisions, contradictions between policies, strategies and activities
	financial support	insufficient, fragmented, complicated application and controlling, not flexible, short-term
Programmatic dimension	changes in focus	CM: in the early phase social justice and development cooperation were more in focus, currently energy and technical solutions are the main focus SD: in the early phase focus on environmental aspects, currently a tendency towards social aspects
	perceived effects	low diffusion rate, taking up 'easier' measures, niches and technical solutions, not transformational (not changing or challenging current structures and practices)

Interim results have been fed into WP4 in the form of dossiers, analysis excerpts and successively progressing drafts of the paper manuscript [M3.2 – M3.4]. The overall findings and lessons learnt are discussed and presented in a publishable journal paper manuscript (Feichtinger et al., 2020) [M3.5] and condensed into a policy brief (Feichtinger et al., 2018) [M3.6], putting forward influencing factors, requirements, preconditions and recommendations for successful local policy

diffusion in Austria. In conjunction with the results of WP2, the analytical findings and lessons were applied to the adaptation policy case in Austria in WP4.

Co-designing pathways and frameworks for governance of local adaptation in Austria (WP4)

Based on the cross-analysis and integration of research findings on i) municipal adaptation in other countries and ii) local diffusion of CM/SD policies in Austria, we identified altogether 18 barriers (constraining factors, obstacles) and 23 success factors (facilitating factors, drivers) for agenda setting and implementation of municipal climate adaptation in small Austrian municipalities from a governance-oriented perspective. Rarely a single factor determines success or failure, but rather varying combinations of factors crucially facilitate or constrain municipal adaptation, depending strongly on specificities of the local context. Due to the diversity of local context conditions there is no 'one-size-fits all' solution. Barriers and success factors often relate to the same aspects, which thus often exhibit a certain degree of ambivalence. For instance, municipal capacities are an inhibiting factor if they are lacking, whereas influences that increase capacity are a facilitating factor. Both types of influencing factors partly occur in one distinct phase of the adaptation policy cycle, but more often, they may be relevant for both, the agenda setting and implementation stage. Almost all influencing factors have theoretical interdependencies with other factors, i.e. they may be causally connected, overlap or exacerbate each other.

As becomes visible also from the density of interdependent relations, some factors regularly have a larger impact and are more relevant than others are. The following barriers have been found to be particularly relevant: i) 'difficult diffusion ability of the new topic of climate adaptation; ii) 'limited municipal capacities'; iii) 'missing or unclear responsibilities'; iv) 'low political relevance and missing local political will'; and v) 'dependency on single committed actors'. The most important success factors are: i) 'acute or growing problem pressure', in combination with 'windows of opportunity by other external events'; ii) 'committed, active actors in the municipality'; iii) 'institutionalised responsibility in municipal administration', combined with 'supportive and coordinating governance framework by higher levels' and 'public funding of climate adaptation in municipalities'; iv) 'professional external support'; and v) 'pragmatic approaches, incremental implementation, entry through single projects'.

The following tables 7 and 8 provide overviews of all identified barriers and success factor for adaptation in small municipalities, including their overriding relevance in the agenda setting and implementation phase as well as interdependencies with other factors of the same category. All influencing factors as well as their interdependencies are described in detail in the published WP4 synthesis report (Lexer et al., 2020).

Table 7: Overview of barriers (Bn) for municipal adaptation, including their relevance for stages of the policy cycle (AS … agenda setting; IMP … implementation) and interdependencies with other barriers

BARRIERS (B)		Phase		Interdependencies
Code	**Brief description**	**AS**	**IMP**	
B1	Difficult diffusion ability of the new topic climate adaptation	**X**		B5, B6, B17, B18
B2	Small size of municipalities	**X**	**X**	B3, B4, B6, B13, B14, B15, B16
B3	Limited municipal capacities	**X**	**X**	B2, B4, B6, B7, B13, B14, B15, B16
B4	Missing or unclear responsibilities	**X**		B2, B3, B5, B6, B7, B8, B13, B14, B15, B16
B5	Low problem pressure and lacking problem awareness	**X**		B1, B4, B6
B6	Low political relevance and missing local political will	**X**		B1, B2, B3, B4, B5, B8, B9, B10, B16, B17, B18
B7	No consistent distinction between mitigation and adaptation	**X**	**X**	B3, B4, B13, B16, B17
B8	Legally non-binding character of climate adaptation	**X**		B4, B6, B9, H16
B9	Institutional resistance and desire for municipal autonomy	**X**		B6, B8, B12
B10	Rarity of public participation in municipal climate adaptation	**X**	**X**	B6, B14, B17, B18
B11	Incoherent central provisions	**X**	**X**	B6
B12	Lack of wide-spread effects of diffusion pathways via established environmental policy fields	**X**		B9, B15
B13	Perceived information overflow vis-a-vis little usage of information	**X**	**X**	B2, B3, B4, B7
B14	Dependency on single committed actors	**X**	**X**	B2, B3, B4, B10, B15
B15	Difficult access to funding programs of higher levels (state governments, federal government)		**X**	B3, B4, B9, B12, B14
B16	Lack of financing: lacking eligibility of adaptation measures and specific personnel in funding programs		**X**	B4, B6, B8, B10
B17	Absence of anticipatory, conscious adaptation	**X**	**X**	B1, B3, B4, B6, B7, B10, B18
B18	Lacking transformative effects on the overall system		**X**	B1, B6, B10, B17

Table 8: Overview of success factors (SFn) for municipal adaptation, including their relevance for stages of the policy cycle (AS … agenda setting; IMP … implementation) and interdependencies with other success factors.

SUCCESS FACTORS (SF)		Phase		Interdependencies
Code	**Brief description**	**AS**	**IMP**	
SF1	Acute or growing problem pressure from extreme weather events	**X**	**X**	SF2, SF3, SF4, SF7, SF14, SF16, SF20, SF21
SF2	Windows of opportunity created by other external events	**X**		SF1, SF3, SF4, SF5, SF7, SF14, SF16, SF20, SF21
SF3	Strategies and political provisions for climate adaptation at higher-ranking levels (national, federal state)	**X**		SF1, SF2, SF4, SF7, SF20, SF21
SF4	Information and problem awareness	**X**		SF1, SF2, SF3, SF18, SF20, SF23
SF5	Direct advantages and benefits for the municipality	**X**	**X**	SF7, SF8, SF13, SF14, SF18
SF6	(Political) prestige	**X**		SF8, SF18, SF19
SF7	Committed, active actors in the municipality	**X**	**X**	SF1, SF2, SF3, SF4, SF5, SF6, SF8, SF9, SF10, SF13, SF14, SF15, SF16, SF17, SF18, SF19, SF20
SF8	Leadership and support from mayor and municipal council	**X**	**X**	SF5, SF6, SF7, SF9, SF10, SF16, SF17, SF18, SF19
SF9	Institutionalised responsibility in municipal administration		**X**	SF7, SF8, SF10, SF11, SF13, SF14, SF16, SF17, SF18, SF19, SF20, SF21, SF22, SF23
SF10	Professional external support	**X**	**X**	SF7, SF17, SF18, SF19, SF20, SF21, SF22
SF11	Attaching to well-established existing structures and processes related to mitigation of climate change and sustainable development	**X**		SF7, SF8, SF12, SF16, SF17
SF12	Transfer and advisory agencies and networks operating close to municipalities	**X**	**X**	SF4, SF10, SF11, SF18, SF19, SF20, SF22
SF13	Attractive, connectable, accurately tailored adaptation solutions	**X**	**X**	SF5, SF7, SF9, SF14, SF15, SF16, SF17
SF14	Pragmatic approaches, incremental implementation, entry through single projects	**X**	**X**	SF1, SF2, SF5, SF7, SF9, SF13, SF15, SF21

SF15	Municipal adaptation as still unpoliticized, administrative and technical topic with low conflict potentials	**X**	**X**	SF1, SF7, SF13, SF14, SF18
SF16	Synergies with other problems of municipal development	**X**	**X**	SF1, SF3, SF5, SF7, SF8, SF9, SF11, SF13, SF17, SF18
SF17	Integration in existing instruments and on-going planning processes for municipal development		**X**	SF7, SF8, SF9, SF10, SF11, SF13, SF16, SF18
SF18	Public participation and awareness raising in the municipality	**X**	**X**	SF4, SF5, SF6, SF7, SF8, SF9, SF10, SF12, SF14, SF15, SF16, SF17
SF19	Regional networks of municipalities	**X**	**X**	SF6, SF7, SF8, SF9, SF10, SF12, SF20
SF20	Supportive and coordinating governance framework by higher-ranking levels (national, state level))	**X**	**X**	SF1, SF2, SF3, SF4, SF7, SF9, SF10, SF12, SF19, SF21, SF22, SF23
SF21	Public funding of climate adaptation in municipalities	**X**	**X**	SF1, SF2, SF3, SF7, SF9, SF10, SF14, SF20, SF22, SF23
SF22	Low-threshold access to funding programs	**X**	**X**	SF9, SF10, SF12, SF20, SF21, SF23
SF23	Legal obligations for climate adaptation by municipalities	**X**	**X**	SF4, SF20, SF21, SF22

Based on the success factors and barriers, recommendations for agenda setting and implementation (continuation, institutional anchoring) have been derived and elaborated in a structured way. These recommendations for the governance of local climate adaptation in small Austrian municipalities represent the final policy support output of the project. They are thus represented in section 5 of the report at hand.

Dissemination, transfer and capitalization of results (WP5):

Dossier about communication and information requirements of target groups [M5.1]: The results of analysing communication requirements of target groups are summarised in a dossier and provided the groundwork for the design of concrete communication activities and products. Building on experiences of partner CAA and from previous ACRP projects, we identified rationales that are particularly important for the practice of communication toward municipal actors, and which guided our design of concrete communication products.

Short films 'Climate adaptation in my municipality' [M5.3]: The film features interviews by local actors in Austrian forerunner municipalities, illustrates local experiences and good practice examples, conveys key recommendations of the GOAL project, and offers concrete tips on how to implement long-term adaptation

measures. It has a length of 10 minutes and is available in an extensive version and in three shorter mutations, focussing on adaptation in municipalities from different parts of Austria: the municipality of Ober-Grafendorf in Lower Austria, the KLAR! model region Vorderwald-Egg in Vorarlberg, and the KLAR! model region Ennstal in Styria. The film is suitable to be shown in training courses and at stakeholder events, and it has successfully been applied in different contexts. It is accessible online (www.klimabuendnis.at/aktuelles/goal-kurzfilm-klimawandelanpassung-und-meine-gemeinde) and is disseminated via a variety of communication and public relations channels of project partner CAA as well as of other partners.

Curriculum for a training programme [M5.4]: The curriculum for a one-day training module on municipal climate adaptation addresses the following target groups: graduates of the Climate Alliance course for Municipal Climate Protection Officers, municipal administrative staff and employees, regional and local multipliers, and interested citizens. The contents cover relevant aspects of the knowledge base for local climate adaptation and incorporate the findings of the GOAL project, in particular the recommendations on how to overcome barriers and make use of success factors.

Practical recommendations for climate-resilient behaviour of citizens [M5.3]: This additional dissemination product aims at promoting individual adaptation of the local population. They cover issues such as water saving, rainwater management, coping with hot spells, preparing for extreme weather events, etc. Altogether, 15 thematic sets of tips for private adaptation ['Klimatipps für alle'] are available online (https://niederoesterreich.klimabuendnis.at/goal-klimatipps-fuer-alle) for citizens of Austrian municipalities and distributed via municipal newspaper advertisements, direct mailings, and short articles for digital newsletters and websites.

Covering also M5.1 and M5.2, GOAL produced and disseminated a portfolio of complementary communication outputs addressing stakeholders at multiple levels, in particular at the local level. These activities and products are listed in section 8 of the present report and summarized in the following paragraph; minimum numbers are mentioned in brackets. Additional products include policy briefs (n=3), articles and information for digital distribution mechanisms (n=17), presentations (n=21) and print products (n=20) for non-scientific user groups. Distribution made use of the following pathways: electronic means of dissemination, such as online platforms, websites, mailings, digital newsletters, and social media (n=17); municipal newspaper advertisements (n=13) in Austrian Climate Alliance municipalities; externally organised target group events (n=15); project events (focus group discussions, science policy labs) (n=6); teaching and capacity-building activities (applying the curriculum in the frame of trainings of partner CAA); and oral face-to-face communications (for non-exhaustive list see Annex 5.1). In accordance with project findings, a particular focus was put on direct, personal interaction formats, including in particular such aligning the project to on-going climate adaptation policy and implementation processes (e.g.,

KLAR! networking events, training program of CAA for municipal climate officers, project LIFE LOCAL ADAPT).

Scientific target groups at international and domestic level are addressed by two journal paper manuscripts [M2.3, M3.5] and scientific conference presentations (n=5), including at two international ECCA conferences and two Austrian Climate Day events [M5.5].

5 Schlussfolgerungen und Empfehlungen

Local adaptation policy making in other countries (WP2):

The main findings and conclusions from researching why and how small municipalities adapt in other countries are summarized in section 4. Our findings are representative for small Bavarian municipalities active in climate change adaptation. Since we selected frontrunners in adaptation, based on a quantitative survey, it is reasonable to assume that most other municipalities do even less, inter alia because they don't think they are affected by climate change. While we don't see how researching them would lead to interesting findings, it would be interesting to explore how small municipalities address adaptation in direct comparison with larger cities on the one hand, and in comparison with municipalities from other countries. Since local adaptation is up to now mostly reactive, we recommend focussing future research on countries and regions that are already experiencing more serious climate change impacts than those in Bavaria.

Local climate change mitigation and local sustainable development in Austria (WP3):

Two aspects seem to be paramount when looking at the local diffusion of SD and CM in Austria and its effectiveness. First, despite the long time period and efforts taken, the local diffusion remains rather low. With regard to SD, 77% of the Austrian municipalities have never been involved in the LA21 and 86% or more are currently not active. In CM the diffusion rate is somewhat higher, still 35% of Austrians municipalities have never been active in any of the CM programs and 34% of the municipalities are involved in only one of the two programs with a low-threshold (CA and KEM) pursuing merely awareness raising and small projects. 31% of the municipalities are active in e5/E-GEM or in two of the three programs and with that probably more serious about pursuing CM. Second, when looking beyond the sheer number towards the agenda setting of the programs, Austrian municipalities seem more open to activities such as awareness raising and to the implementation of 'easier' projects which stop short of profoundly tackling structural change. Measures taken often pursue short-term targets and hardly affect or challenge the current practices. Considering the fact that both SD and CM have long been on the political agenda, these results are not very encouraging.

In contrast to the high expectations regarding the role of municipalities in transitioning towards sustainability and climate friendly practice, they appear not to have the competencies and capacities to implement far-reaching, system-changing measures at their own. In any case, municipalities will have to play an essential role in the transition process, but the problem of limited local capacities must be considered and solved through appropriate support. Unless the commitment and support from higher levels is considerably strengthened, the current situation will most likely not change, and local climate and sustainability policies will continue to be restricted to a few front-runner municipalities and isolated singular light-house projects. In a larger context, these run danger to remain in their niche and to deliver merely symbolic contributions to the global quest for sustainability and reducing GHG emissions (Aall et al., 2007).

An important recommendation is that the political commitment must be enhanced on all levels to support courageous and coherent political decisions to increase leverage towards sustainability. Eventually, successful CM/SD must turn its attention away from short-term prioritizations towards measures that pursue long-term goals and initiate transformation processes. This means that decision makers and actors involved need to obtain and embrace a specific 'culture of the future', including long-term thinking and planning, into daily decisions.

Co-designing pathways and frameworks for governance of local adaptation in Austria (WP4):

Based on the success factors and barriers, recommendations for agenda setting and implementation (continuation, institutional anchoring) have been derived and elaborated in a structured way. The focus is on the governance dimensions of municipal climate adaptation, i.e. on the processes, structures and interactions within municipalities, to external actors and to other levels of government and administration. The policy recommendations are designed as to contribute to coping with barriers and exploiting success factors. Depending on the varying local context conditions, it is possible to combine the altogether 14 recommendations into adaptation pathways specific to each municipality. They thus do by no means represent a linear, sequential course of action. The recommendations intend to support and inspire actors relevant to adaptation and to provide building stones for paving the way toward climate resilient municipalities. They address primarily municipalities, transfer and advisory agencies, and public administrations on the federal and state level. Municipal actors themselves can tackle most recommendations in a self-responsible way. However, in most cases no level alone is sufficient to act successfully. Table 9 below gives an overview of the recommendations for local adaptation to climate change in small Austrian municipalities, complemented with short key messages. All recommendations are elaborated in a structured way in the synthesis report (Lexer et al., 2020), which is available online at https://klimawandelanpassung.at/goal/.

Table 9: Overview of policy recommendations (PRn) on the governance of climate adaptation in small Austrian municipalities with key messages for implementing actors

No.	Title of recommendation	*Key message*
PR1	Communication of advantages and benefits of adaptation measures for municipalities	*Emphasize advantages!*
PR2	Using 'windows of opportunity' created by problem pressure and extreme weather events	*Use windows of opportunity!*
PR3	Securing support from political key actors and working toward fundamental decision	*Get key actors on board!*
PR4	Establishing clear responsibilities for adaptation and allocating resources	*Define responsibilities!*
PR5	Organising internal and external cooperation on adaptation	*Organise cooperation*
PR6	Involving professional external expertise	*Involve external experts!*
PR7	Entry through smaller, low-cost measures with positive effects in either case	*Small, immediately beneficial measures first!*
PR8	Organising transition from reactive to anticipative adaptation	*Plan in a forward-looking way!*
PR9	Integrating adaptation in instruments of municipal planning	*Anchor in local planning!*
PR10	Creating regional networks of municipalities for inter-municipal cooperation	*Create municipal networks!*
PR11	Local awareness-raising and involvement of the public	*Talk about adaptation!*
PR12	Supportive framework by the state government, in cooperation with transfer and advisory agencies	*Offer support, and use it!*
PR13	Public funding for municipal adaptation combined with 'soft coercion'	*Offer funding, and use it!*
PR14	Evaluating, re-adjusting, continuing and capitalising on the KLAR! programme	*Learn from good practice examples!*

The cross-analysis, synthesis and engagement of Austrian policy makers from various levels yielded barriers, success factors and structured recommendations for agenda setting and implementation of climate adaptation in small municipalities in Austria. These key results addressed specifically to Austrian target groups contain the main findings and conclusions of the overall project. They are elaborated in detail in the synthesis report of the project. The policy recommendations for the governance of local adaptation take up, and work with the identified success factors and barriers and translate them to pathways for setting adaptation on municipal agendas and anchoring implementation in the institutional framework of municipalities.

It is important to understand and handle the 14 recommendations and their respective bundles of suggested implementation steps as a flexible, context-sensitive and interdependent framework, rather than a linear sequence of steps. In that regard, our results also show that agenda setting and implementation are not distinct and sequential phases of the policy process, but densely interwoven and interdependent. Ten out of fourteen recommendations are, in principle, equally relevant in both phases, whereas only one recommendation primarily supports agenda setting and only four recommendations are relevant mainly in the implementation phase. This underlines that the policy cycle concept is a helpful analytical tool, but that real-world adaptation processes are much more blurry, iterative, and intermittent, with many overlaps and interconnections between ideal types of stages in policymaking. In response, the final recommendations of the GOAL project represent building blocks that allow flexible combining and re-combining of courses of action, depending on local context conditions and resulting in adaptation pathways specific for each municipality.

Another important overall conclusion is that municipal adaptation is an eminent multi-level governance task. As becomes evident when looking at the actors needed to implement the recommendations, municipal actors themselves have much leeway for action and can play a lead role in implementing ten out of fourteen recommendations. However, actors on other levels of governance are often needed on equal footing or as cooperation partners. At least in the frame of the Austrian governance system, transfer and advisory agencies acting at intermediate levels as well as government and administration at national (federal) and sub-national (state) levels play important and often indispensable roles in supporting and leveraging municipal adaptation activities. A further conclusion is that none of these mentioned levels alone is sufficient to trigger and sustain local adaptation processes.

Main roles of higher-ranking levels (federal and state-level governments) encompass: i) policy inputs (adaptation strategies and action plans), political commitment, rhetorical and symbolical support; ii) non-monetary support and 'soft' governance (communication and awareness raising, knowledge generation and provision, capacity-building, advisory services, informal and institutionalized cross-level cooperation formats and coordination arrangements; etc.); iii) public funding and (co-)financing of local adaptation (especially for strengthening local and/or regional coordination capacities, professional external expertise, adaptation concepts and plans, implementation of adaptation measures on the ground), combined with 'soft coercion' through binding funding requirements; iv) supportive legal framework, incl. possible obligations for municipalities to deal with adaptation as part of their statutory responsibilities.

While large cities may have sufficient resources and capacities to tackle adaptation in a largely independent way, local adaptation in small municipalities thus depends strongly on the supportive and collaborative roles of other actors in a multi-level governance setting.

Overall, the GOAL project has shown that municipal climate adaptation policies are currently still rare, predominantly reactive or isolated, tend to stop at first small-scale, uncostly, easy-to-implement measures, lack anticipatory, planned and pro-active approaches, and are thus often inadequate for the scope of the climate crisis. Therefore, more profound adaptation approaches are required. From further GOAL findings we learned that adaptation policies would gain in effectiveness if they are systematically connected to socio-economic challenges of municipalities, resulting from ongoing global transformations. We conclude that research on transformative adaptation is required, tackling synergies between policies that deal with local responses to socio-economic challenges and municipal adaptation policies. This will require future projects integrating climate research and (social) transformation research.

C) Projektdetails

6 Methodik

Overall analytical frame (WP2-WP4)

The overarching analytical frame followed a simplified version of the policy cycle (Jann/Wegrich 2003: 75), focusing on the two stages of agenda setting and implementation. We regard these stages as relevant because little is known about whether and why small municipalities adapt to climate change, and how far formally adopted measures go beyond the formulation stage of policymaking. Agenda setting is the process that puts an issue on a political agenda. An agenda is "the list of subjects to which people in and around government are paying serious attention" (Kingdon 2003: 166). If an issue succeeds in becoming the focus of political attention, this may result in policy formulation and/or respective resolutions that create the basis for action on adaptation. Implementation of local adaptation policies means that concrete actions or measures on adaptation are put into practice. From a governance perspective, we particularly add to the definition arrangements for continuation and institutionalization of long-term implementation processes in municipal structures and processes.

Comparing local adaptation policy making in different countries (WP2)

Literature review: To find international comparative case studies on local adaptation, we used the following criteria for selecting scientific publications: i) highest possible thematic matching with the key words 'climate change adaptation', 'municipalities', 'local', 'governance', 'multilevel', 'case study' in established scientific search engines; (ii) political, economic and social framework conditions comparable to Austria, which meant that the search grid was narrowed to (European) OECD countries. Moreover, approximately 70 further particularly relevant publications about theoretical and methodological issues of investigating local adaptation policies have been analysed during the research work, some of them proposed by the consortium and by the international advisory board to the project. The analysis of literature allowed assessing the state-of-the-art regarding facilitating and constraining factors for agenda setting and implementation of municipal adaptation, and it informed refinement of the analytical framework and development of the interview guide for our own empirical case studies.

Qualitative case studies: Field access to our case study was facilitated by an ongoing survey at Munich University of Applied Sciences (MUAS). The quantitative survey was conducted by MUAS in autumn 2015 among all Bavarian municipalities with less than 20,000 inhabitants (n=1,840). The survey aimed to get an idea about and enhance climate change adaptation and mitigation in the long-term planning of small municipalities. It consisted of 43 open and closed questions that have been answered by 401 respondents (21%) by using LimeSurvey (cf. Schmitz

2012). The responding municipalities are representative for small Bavarian municipalities in terms of location and size.

Based on our analytical frame introduced above, we structured the interview guide into two parts, i.e. agenda setting and implementation. For each part, we asked between six and 11 questions about facilitating and hindering factors of climate change adaptation. After the initial two and five interviews we adapted the interview guide to account for new insights. The 21 interviews were conducted via telephone between 12th January and 17th February 2017, and they lasted between 35 and 75 minutes, with an average duration of 50 minutes.

All interviews were recorded, transcribed and analysed according to categories in line with our research questions, the quantitative survey preparing our field-access, and the literature review summarised in section 2. Such incremental theory-building leaves space for empirical evidence to unfold theory rather than vice versa (Vogel/Henstra 2015, Eisenhardt/Graebner 2007, Eisenhardt 1989). We transferred the categories into an interpretation matrix filled with anonymized data and quotes from our interviews (see annex). In addition to these within-case analyses we performed a cross-case analysis that compared the 11 cases. The in-depth study and comparison of multiple similar cases is particularly well-suited to investigate emerging policy fields such as local climate change adaptation (Vogel/Henstra 2015: 116).

Understanding local adaptation policy making in Austria (WP3)

In addition to section 4 of this report, which summarizes the main aspects of the methods applied in WP3, we provide in the following supplementary information on conceptual considerations for developing the analytical framework for data.

Analytical framework for data analysis: Data from interviews and FGDs were analysed by means of MaxQDA through qualitative content analysis. In order to analytically capture and understand municipal CM and SD processes, the theoretical concepts of policy diffusion and policy transfer were applied in WP3. Scholars of international relations trace the spreading of policy innovations under the term policy diffusion (Bui, 2015; Maggetti and Gilardi, 2016; Shipan and Volden, 2008). The underlying contagion processes can take different forms and are in literature usually specified as 'mechanisms'. Policy diffusion studies are mostly quantitative studies with a large number of cases assessing the existence of policy spread. They treat diffusion mainly as dichotomous outcome (adopted/not adopted) and explain what favours or hinders the diffusion of policy innovations (Marsh and Sharman, 2009; Tews, 2005). Policy transfer studies on the other side are generally qualitative in orientation. They are based on a low number of cases and focus on describing the process of policy innovation diffusion, including 'process-tracing', agency and how transfer relates to policy outcomes (Bender et al., 2014; Marsh and Sharman, 2009). Studies dealing with policy transfer perceive the spread much more likely as a matter of degree and not as an dichotomous outcome (Marsh and Sharman, 2009). Both research streams mainly focus on the

spread on national level and not on the local level. Diffusion and transfer studies are usually considered separately from each other, although they provide complementary methodologies and explanations for policy innovation spread (Bender et al., 2014). In WP3 we included aspects from both approaches when tracing and explaining the local spread of policy innovation. We analysed quantitative data on diffusion and combined them with process-oriented, qualitative results, relating the diffusion processes also to political change and policy outcomes.

With the term political change, we referred to institutional changes such as changes regarding interactions between actors in the policy field of climate mitigation and sustainability. Political change and policy outcomes are analysed along three distinctive dimensions, namely the procedural, the political and the programmatic dimension (Marsh and Sharman, 2009). The first dimension put its focal point on procedural aspects of policy implementation, focussing on processes, means and tools of management, cooperation and interactions within and beyond existing administrative borders. The political dimension aimed at analysing and explaining the commitment and support the policy innovations received from politicians and policy makers as well as the coherence with other policies and political decisions. The programmatic dimension dealt with the content of the policies and its change over time, as well as perceived outcomes regarding effectiveness and efficiency.

Co-designing pathways and frameworks for governance of local adaptation in Austria (WP4)

As explained in section 4 of the report at hand, the main approaches applied to cross-analyze and synthesize the findings from WP2 and WP3 were i) analytical desk research and ii) co-design approaches with Austrian stakeholders.

In desk research, we developed and used analytical matrices for systematical comparison and analysis of commonalities, analogies and differences for the policy fields investigated in preceding WPs. The analytical framework applied categories that benefitted from the concept of 'factors of policy change' (Clar & Steurer, 2017; based on Kristof 2010, Jänicke & Weidner 1995, and others).

For the co-design of recommendations for agenda setting and implementation of municipal climate adaptation, w applied citizen science-based 'science-policy lab' formats to discuss, design and re-arrange governance pathways for local adaptation in a playful and experimental setting. Especially in the context of social and technological innovation research, co-design is an established transdisciplinary concept that fosters creativity and social learning to develop innovative and fit-for-practice solutions in a cooperative way (Steen et al. 2011; Newman et al., 2012; Paulos et al., 2008). Together with project researchers, policy makers, administrators, funding bodies, regional coordinators, and transfer and multiplier agencies from multiple governance levels participated in these interaction formats. From May to November 2018, we conducted three science-policy labs with

altogether approx. 65 stakeholders in different federal states. Depending on the specific context of the setting, different methods were applied, including a range of techniques from the portfolio of Design Thinking (e.g., emphatic interviews, role plays, brainwriting, story boards).

Table 10 gives an overview of the three science-policy lab formats, the context situations, the participating stakeholder groups and their governance levels as well as methodical elements applied.

Table 10: Overview of science-policy labs (WP4)

Date	Place, context	Stakeholder groups	no persons	Methods
08.05.2018	Bad Schallerbach (Upper Austria), 26th Upper Austrian Climate Alliance Conference	State administration of Upper Austria (climate coordination), Upper Austrian Climate Alliance municipalities, local adaptation advisors, model region adaptation managers	approx. 25	facilitated workshop with group work
17.09.2018	Office of the Styrian federal state government, Graz (Styria)	State administration of Styria (climate coordination), adaptation coordinators of Styrian pilot municipalities participating in the project LIFE LOCAL ADAPT, local advisors of regional agencies	9	Design-Thinking process
16.11.2018	Municipality of Kottes-Purk (Lower Austria), Networking workshop of the funding program KLAR!	Climate and Energy Fund, regional adaptation managers of 20 model regions, external experts	approx. 30	Design-Thinking process

In order to elaborate of our final policy recommendations, we developed a template following a common structure and applying the following content categories to each recommendation:

Title of policy recommendation

- Key message
- Objective
- Success factors
- Coping with barriers
- Relevance, rationale, context
- Implementation: measures, steps, tips, preconditions
- Implementing actors
- Cooperation partners and involved actors
- Interrelations to other recommendations
- Voices of practitioners (stakeholder quotes from the project)

7 Arbeits- und Zeitplan

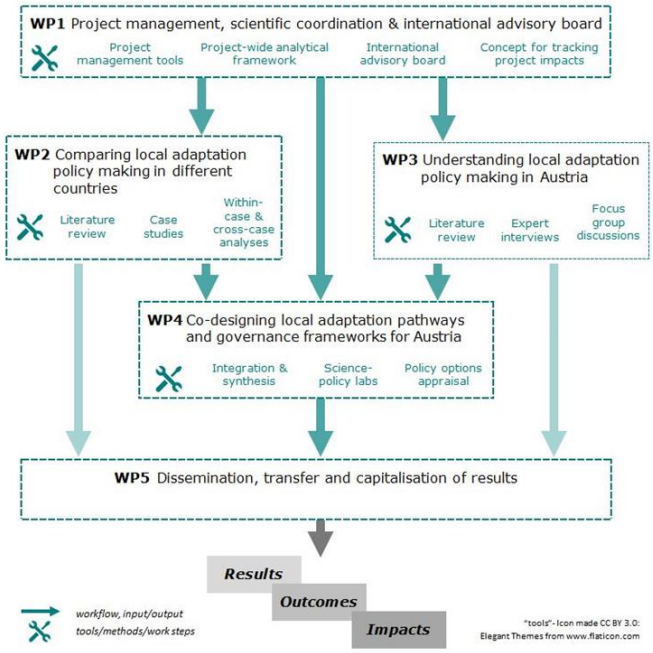


Figure 3: Project structure and workflow of the GOAL project

Table 11 below shows the updated final time schedule of the project. Due to external framework conditions and delayed formal administrative closure of the project, the entire runtime has been extended until 02/2020, while the eligible project period ended already in 03/2019.

Table 11: Updated final work and time schedule

GOAL - Updated final project workflow plan

Calendar year	2016		2017				2018				2019				2020	
Quarter	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Workpackages (WPs) and Tasks (T)																
WP1: Project management, scientific coordination and international advisory board	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
T1.1: Project management, administration, financial controlling (incl. consortium meetings)	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
T1.2: Overall scientific coordination (incl. project-wide analytical framework)	X	X	X	X	X	X	X	X	X	X	X					
T1.3: Coordinating advisory board	X	X	X	X	X	X	X	X	X	X	X					
T1.4: Evaluating project results and monitoring of impacts			X	X	X	X	X	X	X	X	X	X	X	X	X	X
T1.5: Interim and final reports (incl. all outputs & deliverables) to funding body	X			X								X	X	X	X	X
WP2: Comparing local adaptation policy making in different countries	X	X	X	X	X	X	X	X								
T2.1: Literature review (desk research)	X	X														
T2.2: Operational analytical framework (incl. case study design and interview guide)		X	X													
T2.3: Case studies and within-case analyses for 6 to 9 cases			X	X	X											
T2.4: Two comparative cross-case analyses (within same country, cross-country)					X	X										
T2.5: Summary of case studies and literature review in journal paper manuscript						X	X	X								
T2.6: Policy brief with conclusions for policymakers								X								
WP3: Understanding local adaptation policy making in Austria	X	X	X	X	X	X	X	X	X	X						
T3.1: Operational analytical framework	X	X														
T3.2: Literature review (meta-analysis)		X	X													
T3.3: Operationalising empirical research design (stakeholder anlysis, interview guides, focus groups)			X													
T3.4: Expert/stakeholder interviews (10-14)			X	X												
T3.5: Focus group discussions (3-4 FGD)				X	X											
T3.6: Summarizing findings and lessons learnt in journal paper manuscript						X	X	X	X	X						
T3.7: Policy brief with conclusions										X						
WP4: Co-designing local adaptation pathways and governance frameworks for Austria					X	X	X	X	X	X	X					
T4.1: Integrating findings (WP2-3); assessing applicability of lessons to local adaptation in Austria					X	X										
T4.2: Deriving barriers and success factors; preparing input for science-policy labs						X	X	X	X							
T4.3: Science-policy labs (≥ 3) for co-designing adaptation pathways and governance frameworks								X	X	X						
T4.4: Consolidating results, developing structured recommendations for governance of local adaptation										X	X					
T4.5: Policy brief with recommendations											X					
WP5: Dissemination, transfer and capitalisation of results		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
T5.1: Analysing communication requirements of target groups			X	X	X											
T5.2: Shaping key messages						X	X	X								
T5.3: Producing and disseminating short films 'Adaptation in my municipality'								X	X	X						
T5.4: Training programme (curriculum) for municipal officers									X	X						
T5.5: Active dissemination of results to users (external events, face-to-face briefings, publishing)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
T5.6: Scientific conference presentations, scientific publishing					X	X	X	X	X	X	X	X	X	X	X	X
T5.7: Capitalising results for NAS policy process								X	X	X	X	X	X	X	X	X

8 Publikationen und Disseminierungsaktivitäten

The main publications resulting from the GOAL project and addressed to the scientific community as well as to policy makers are highlighted below:

WP4 Synthesis Report of the GOAL project:
W. Lexer; T. Stickler; D. Buschmann; R. Steurer & J. Feichtinger (2020): Klimawandelanpassung in kleinen österreichischen Gemeinden: Agendasetzung und Verstetigung. Synthesebericht: Hemmfaktoren, Erfolgsfaktoren und Empfehlungen für die Governance kommunaler Anpassung. https://klimawandelanpassung.at/goal/

Journal paper manuscript:
Buschmann, D.; Bausch, T.; Koziol, K. & Steurer, R. (2020): Adaptation to climate change in small German municipalities: sparse knowledge, weak adaptive capacities *(submitted to Environnmental Policy and Governance)*.

Journal paper manuscript:
Feichtinger, J.; Stickler, T.; Schuch, K. & Lexer, W. (2020): Sustainable development and climate change mitigation at municipal level in Austria: Tracing diffusion, process dynamics and political change *(submitted to GAIA; in revision)*.

Policy brief:
D. Buschmann; T. Bausch; K. Koziol & R. Steurer (2019): 'Adaptation to climate change in small municipalities in Bavaria/Germany'.

Policy brief:
J. Feichtinger; K. Schuch; W. Lexer & T. Stickler (2018): 'Sustainable development and climate mitigation programs in Austria's municipalities: status, effects and recommendations'

Policy brief, German edition:
W. Lexer; T. Stickler; D. Buschmann; R. Steurer & J. Feichtinger (2020): Klimawandelanpassung in kleinen österreichischen Gemeinden: Einflussfaktoren und Empfehlungen für Agendasetzung und Verstetigung

Policy brief, English edition:
W. Lexer; T. Stickler; D. Buschmann; R. Steurer & J. Feichtinger (2020): Adaptation to climate change in small Austrian municipalities: influencing factors and recommendations for agenda setting and implementation

The following table 12 gives an overview of the publications, communication products and dissemination activities delivered by the project. It includes further scientific contributions (e.g. presentations at international and national conferences) as well as products and activities that represent an integral part of other content-related work packages (WP2-WP4), but serve at the same time communication functions.

Table 12: List of publications, communication products and dissemination activities

No.	Product / publication / activity	Category	Mile-stone	Source, link (if applicable)
1	Dossier on adaptation-related communication and information requirements of Austrian municipalities	Internal project deliverable		
2	Session with WG on Adaptation to Climate Change at International Climate Alliance Conference, Krems, Austria	Non-scientific target group event	M5.1	http://www.climatealliance.org/events/international-conference/2016-conference/2016-programme.html
3	Session and presentation at International Climate Alliance Conference, Krems, Austria	Non-scientific presentation at target group event	M5.1	http://www.climatealliance.org/events/international-conference/2016-conference/2016-programme.html
4	Session and presentation at International Climate Alliance Conference, Krems, Austria	Non-scientific presentation at target group event	M5.1	http://www.climatealliance.org/events/international-conference/2016-conference/2016-programme.html
5	Information stand with leaflet on support offers and activities of Climate Alliance at series of events	Non-scientific print product at target group events	M5.1	https://www.klimabuendnis.at/gemeinden-angebote/niederoesterreich-gemeinden-angebote
6	Presentation at expert workshop at Munich University of Applied Sciences, Munich, Germany	Non-scientific presentation at target group event	M5.1	
7	Presentation at expert workshop at Munich University of Applied Sciences, Munich, Germany	Non-scientific presentation at target group event	M5.1	
8	Session with Working Group on Climate Change Adaptation on municipal climate adaptation at International Climate Alliance Conference 2017, Essen, Germany	Non-scientific target group event	M5.1	http://www.climatealliance.org/events/international-conference/2017-conference/2017-programme.html?page=542
9	Presentation on interim project findings at session D1-Governance at the 18th Austrian Climate Day, Vienna, Austria	Scientific conference presentation	M5.5	https://ccca.ac.at/dialogformate/oesterreichischer-klimatag/archiv-fruehere-klimatage/klimatag-2017/vortraege/poster
10	Presentation at the European Climate Change Adaptation Conference 2017 (ECCA 2017), Glasgow, UK	Scientific conference presentation	M5.5	http://ecca2017.eu/conference/
11	Focus Group Discussion no 1, Kremsmünster, Austria	Project event	M3.4	
12	Focus Group Discussion no 2, St. Pölten, Austria	Project event	M3.4	
13	Focus Group Discussion no 3, Vienna, Austria	Project event	M3.4	

No.	Product / publication / activity	Category	Mile-stone	Source, link (if applicable)
14	Training programme for municipality adaptation advisors [Lernwerkstatt Klimawandelanpassung], Module 3, State Government of Styria, Graz, Austria	Non-scientific presentation at target group event / Teaching, training	M5.1	https://klimawandelanpassung.at/goal/
15	Training programme for municipality adaptation advisors [Lernwerkstatt Klimawandelanpassung], Module 3, State Government of Styria, Graz, Austria	Non-scientific presentation at target group event / Teaching, training	M5.1	https://klimawandelanpassung.at/goal/
16	Workshop-series for communities "Gemeinde.Umwelt.Innovations forum" Topic: Climate change adaptation in communities, Grabern, Austria	Non-scientific presentation at target group event	M5.1	
17	Workshop-series for communities "Gemeinde.Umwelt.Innovations forum" Topic: Climate change adaptation in communities, St. Egyden am Steinfeld, Austria	Non-scientific presentation at target group event	M5.1	
18	Workshop-series for communities "Gemeinde.Umwelt.Innovations forum" Topic: Climate change adaptation in communities, Rabenstein a.d. Pielach, Austria	Non-scientific presentation at target group event	M5.1	
19	Workshop-series for communities "Gemeinde.Umwelt.Innovations forum" Topic: Climate change adaptation in communities, Groß-Schönau, Austria	Non-scientific presentation at target group event	M5.1	
20	Workshop-series for communities "Gemeinde.Umwelt.Innovations forum" Topic: Climate change adaptation in communities, Oed-Öhling, Austria	Non-scientific presentation at target group event	M5.1	
21	Presentation at Dialogue Event on Climate Adaptation in Lower Austria, Austria	Non-scientific presentation at target group event	M5.1	
22	Meeting of the regional managers of Climate Alliance Austria, Vienna, Austria	Non-scientific presentation at target group event	M5.1	

No.	Product / publication / activity	Category	Mile-stone	Source, link (if applicable)
23	Meeting on climate adaptation activities at MD-KLI (townhall Vienna) with climate coordination officers of Vienna, Environment Agency Austria and Climate Alliance Vienna, Vienna, Austria	Face-to-face briefing, oral communication	M5.2	
24	Presentation and workshop on climate adaptation for municipalities at the University of Applied Sciences Wieselburg, Austria	Non-scientific presentation at target group event, oral communication	M5.1 M5.2	
25	Presentation and workshop on climate adaptation for municipalities, Eggenburg, Austria	Non-scientific presentation at target group event, oral communication	M5.1 M5.2	
26	Dialogue event "Climate change adaptation in Vienna", Vienna, Austria	Face-to-face briefing, oral communication	M5.2	
27	Award ceremony "Kirchlicher Umweltpreis 2018", Vienna, Austria	Face-to-face briefing, oral communication	M5.2	
28	Meeting between Climate Alliance Lower Austria and the climate coordinatorsof the state government of Lower Austria, St. Pölten, Lower Austria	Non-scientific presentation at target group event, face-to-face briefing	M5.1 M5.2 M5.3	
29	Meeting of the coordination group for climate change adaptation of Climate Alliance Austria, Linz, Austria	Non-scientific presentation at target group event	M5.1 M5.3	
30	Conference call with German Federal Environment Agency in the context of the Alpine Space project GoApply	Face-to-face briefing, oral communication	M5.2	
31	1st General assembly of Climate Alliance Austria, Krems, Austria	Face-to-face briefing, oral communication	M5.2	
32	Workshop about climate change adaptation with multiplicators, St. Pölten, Austria	Face-to-face briefing, oral communication	M5.2	
33	KLAR! Networking workshop with model region managers on the topic of "climate change adaptation in schools", Kottes, Lower Austria, Austria	Face-to-face briefing, oral communication	M5.2	
34	1st summit meeting of KLAR! climate adaptation model regions, Inzersdorf-Getzersdorf, Austria	Face-to-face briefing, oral communication	M5.2	

No.	Product / publication / activity	Category	Mile-stone	Source, link (if applicable)
35	Video for municipalities	Movie	M5.3	https://www.youtube.com/watch?v=6R_CVVp5RvY&t=27s
36	Video for municipalities	Movie	M5.3	https://www.youtube.com/watch?v=1cVmHTzKwOw&feature=youtu.be
37	Video for municipalities	Movie	M5.3	https://www.youtube.com/watch?v=k216Vnj1LKM&t=3s
38	Video for municipalities	Movie	M5.3	https://www.youtube.com/watch?v=Aa-Ce0gpVCM
39	Compilation of online advises on climate resilient behaviour for citizens on the homepage of Climate Alliance Austria	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	https://niederoesterreich.klimabuendnis.at/goal-klimatipps-fuer-alle
40	Templates for advertisements in municipality periodicals on the homepage of Climate Alliance Austria	Non-scientific print publication/product	M5.3	https://niederoesterreich.klimabuendnis.at/goal-klimatipps-fuer-alle
41	Online articles at homepage of Climate Alliance Austria	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	https://niederoesterreich.klimabuendnis.at/aktuelles/klimawandelanpassung-und-meine-gemeinde https://niederoesterreich.klimabuendnis.at/gemeinden-klimawandelanpassung/goal-kurzfilm-klimawandelanpassung-und-meine-gemeinde
42	Online articles at homepage of Climate Alliance Austria	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	https://niederoesterreich.klimabuendnis.at/goal-klimatipps-fuer-alle https://wien.klimabuendnis.at/gemeinden-klimawandelanpassung/goal-klimatipps-bezirke
43	Newsletter Climate Alliance Vienna	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	
44	Newsletter Climate Alliance Austria	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	
45	Newsletter Climate Alliance Lower Austria	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	
46	Mailing to multiplicators & Climate Alliance member municipalities in Lower Austria	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	

No.	Product / publication / activity	Category	Mile-stone	Source, link (if applicable)
47	Mailing to multiplicators & Climate Alliance member districts in Vienna	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	
48	Posting on Facebook	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	
49	Online article at homepage of CAA	Electronic dissemination (website, mailing, digital newsletter, social media)		
50	Online article at homepage of ZSI	Electronic dissemination (website, mailing, digital newsletter, social media)		https://www.zsi.at/de/object/project/4178
51	Online adaptation project database at the Austrian national adaptation web portal	Electronic dissemination (website, mailing, digital newsletter, social media)		http://www5.umweltbundesamt.at/klimawandel/abfrage/show/073482b1-e1cb-1034-8987-4d073c17bf78
52	Online presentation of GOAL project results at the Austrian national adaptation web portal, section 'guidance for municipalities'	Electronic dissemination (website, mailing, digital newsletter, social media)	M5.3	https://klimawandelanpassung.at/goal/
53	Science-Policy Lab no. 1, 26th Upper Austrian Annual Climate Alliance Meeting, Session "Kommunale Klimawandelanpassung: von der Thematisierung zur Umsetzung", Bad Schallerbach, Upper Austria, Austria	Project event, embedded in target group event	M4.2 M5.1	https://klimawandelanpassung.at/fileadmin/inhalte/kwa/bilder/03_ANPASSUNGSPRAXIS/08-2_Fotoprotokoll_und_Transkript_gesamt_final.pdf
54	Science-Policy Lab no. 2, in cooperation with LIFE LOCAL ADAPT, State Government of Styria, Graz, Austria	Project event, embedded in implementation of LIFE project	M4.2 M5.1	https://klimawandelanpassung.at/fileadmin/inhalte/kwa/bilder/03_ANPASSUNGSPRAXIS/09_GOAL_LLA_Stakeholder_Lab_Graz_17092018_Fotoprotokoll_Transkript.pdf
55	Science-Policy Lab no. 3, KLAR! networking workshop, Kottes-Purk, Lower Austria, Austria	Project event, embedded in implementation process the KLAR! model region program	M4.2 M5.1	https://klimawandelanpassung.at/fileadmin/inhalte/kwa/bilder/03_ANPASSUNGSPRAXIS/10-5_Fotoprotokoll_Transkript.pdf
56	Input presentation at status quo workshop of the KLAR! model region programme	Non-scientific presentation at target group event	M5.1	https://klimawandelanpassung.at/goal/

No.	Product / publication / activity	Category	Mile-stone	Source, link (if applicable)
57	Presentation at ECCA 2019, Lisbon, Portugal	Scientific conference presentation	M5.5	https://www.ecca2019.eu/ https://klimawandelanpassung.at/goal/
58	Abstract for presentation at 21st Austrian Climate Day 2020, Leoben, Austria	Scientific conference presentation	M5.5	https://ccca.ac.at/dialogformate/oesterreichischer-klimatag/klimatag-2020/programm
59	Digital Austrian climate adaptation newsletter, issue no 40	Electronic dissemination (website, mailing, digital newsletter, social media)		https://klimawandelanpassung.at/ms/klimawandelanpassung/de/kwa_allgemein/newsletter/
60	Curriculum for module of training programme for municipal climate officers	Teaching, training Project output	M5.4	
61	Article for Austrian Municipality Newspaper 'Public'	Non-scientific print publication for target groups		http://www.gemeindemagazin.at/
62	WP4 synthesis report of the GOAL project	Project output	M4.1 M4.3	https://klimawandelanpassung.at/goal/
63	Policy brief with conclusions (WP2)	Project output	M2.4	https://klimawandelanpassung.at/goal/
64	Policy brief with conclusions (WP3)	Project output	M3.6	https://klimawandelanpassung.at/goal/
65	Policy brief with recommendations - German version (WP4)	Project output	M4.4	https://klimawandelanpassung.at/goal/
66	Policy brief with recommendations - English version (WP4)	Project output	M4.4	https://klimawandelanpassung.at/goal/
67	Journal paper manuscript WP2	Scientific journal publication Project output	M2.3	
68	Journal paper manuscript WP3	Scientific journal publication Project output	M3.5	

Diese Projektbeschreibung wurde von der Fördernehmerin/dem Fördernehmer erstellt. Für die Richtigkeit, Vollständigkeit und Aktualität der Inhalte sowie die barrierefreie Gestaltung der Projektbeschreibung, übernimmt der Klima- und Energiefonds keine Haftung.

Die Fördernehmerin/der Fördernehmer erklärt mit Übermittlung der Projektbeschreibung ausdrücklich über die Rechte am bereitgestellten Bildmaterial frei zu verfügen und dem Klima- und Energiefonds das unentgeltliche, nicht exklusive, zeitlich und örtlich unbeschränkte sowie unwiderrufliche Recht einräumen zu können, das Bildmaterial auf jede bekannte und zukünftig bekanntwerdende Verwertungsart zu nutzen. Für den Fall einer Inanspruchnahme des Klima- und Energiefonds durch Dritte, die die Rechtinhaberschaft am Bildmaterial behaupten, verpflichtet sich die Fördernehmerin/der Fördernehmer den Klima- und Energiefonds vollumfänglich schad- und klaglos zu halten.