PUBLIZIERBARER ENDBERICHT

A) Projektdaten

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B)   Projektübersicht

1 Kurzfassung

Das Vermitteln von Informationen zu Klimawandelfolgen und möglichen Anpassungsmaßnahmen zur Schärfung des Bewusstseins galt lange Zeit als zentrale Empfehlung, um Menschen zu präventivem Handeln zu motivieren. In der Realität sind diese Botschaften aber oft ungehört, ungelesen und somit unwirksam. Informationen müssen zu handlungsleitendem Wissen werden. Die Frage, wie die Wirksamkeit der Vermittlung – im Speziellen hinsichtlich der Motivation und Befähigung der Menschen zum Handeln – erhöht werden kann, bleibt weitgehend offen.

Hier setzte das Projekt CcTalK! an: Es wurde im Rahmen des Projekts untersucht, wie Kommunikation zur Klimawandelanpassung erfolgreich gestaltet werden kann. Ein Praxisbeirat, der sich aus ExpertInnen aus den Bereichen Klimaforschung, Kommunikation, Politik und Wirtschaft zusammensetzt, brachte Expertise aus unterschiedlichen Fachbereichen ein und begleitete die gesamte Arbeit des Projektes.

Ziel von CcTalK! war es, neue Erkenntnisse darüber zu gewinnen, wie Informationen vermittelt werden müssen, um:

- das Bewusstsein für die Auswirkungen des Klimawandels und den damit verbundenen Anpassungsbedarf zu erhöhen,
- die Handlungskompetenz bei den Betroffenen zu verbessern, damit sie angemessene Anpassungsmaßnahmen für die (Eigen-)Vorsorge setzen können,
- zum konkreten Handeln zu motivieren und
- die Akzeptanz für die Anpassungsmaßnahmen anderer AkteurInnen zu erhöhen.

Damit sollte auch der Umsetzungserfolg der Österreichischen Strategie zur Anpassung an den Klimawandel unterstützt werden.

Ein zentrales Produkt von CcTalK! für die Praxis ist ein Leitfaden für die erfolgreiche Kommunikation von Klimawandel und Anpassung. Er enthält Beschreibungen von Erfolgsfaktoren für die Anpassungskommunikation, eine 5-Schritte-Methode für die Entwicklung zielgruppenspezifischer Kommunikationsformate sowie Informationen zu Zielgruppen der Anpassungskommunikation und geeigneten Kommunikationsformaten. Er steht als Download auf der Website www.klimawandelanpassung.at zur Verfügung.

Neben der Entwicklung eines Leitfadens wurden für das Thema „Klimawandel, Hitze und Gesundheit" konkrete Kommunikationsformate (Workshopkonzepte, Animationsvideos, Broschüren und Folder) auf Basis von Zielgruppenbefragungen entwickelt. Ältere Menschen ab 65, pflegebedürftige Menschen und Kleinkinder sind durch Hitze stark gefährdet. Um diese Personengruppen zu erreichen bzw. zu gesundheitsschützendem Verhalten bei Hitze zu motivieren, haben wir Kommunikationsformate entwickelt, die sich vor allem an MitarbeiterInnen von mobilen Pflegediensten und KindergartenpädagogInnen richten. Diese Berufsgruppen haben mit den gefährdeten Personengruppen häufigen Kontakt und sind daher als MultiplikatorInnen der Hitzevorsorge sehr gut geeignet. Vorrangiges Ziel der entwickelten Kommunikationsformate ist, diese Berufsgruppen zum Handeln zu motivieren und sie dabei mit fokussierten Informationen zu unterstützen. Die entwickelten Kommunikationsformate wurden mit Fokusgruppen in unterschiedlichen Regionen Österreichs evaluiert und darauf aufbauend verbessert. Auch die

Kommunikationsformate stehen als Download auf der Website www.klimawandelanpassung.at bereit.

2 Executive Summary

In order to support adaptation to climate change, affected actors need to acquire knowledge based on relevant information, subsequently leading to adaptation decisions and actions. Communication is essential for successful adaptation to climate change, but proves difficult due to its complexity, long term perspective, uncertainties, fragmentation of knowledge base and barriers.

Given missing guidance on how to communicate climate change adaptation effectively, the core objective of CcTalK!, "Communicating climate change adaptation: effective approaches for Austria", was to gain new insights on how to communicate climate change adaptation to be able to:

- increase the awareness for climate change impacts and adaptation needs,

- enhance the individual and collective capacities for adaptation,

- motivate for adaptation action and

- increase acceptance for adaptation measures of others, e.g. governmental adaptation.

Furthermore, the aim was to support the successful implementation of the Austrian Strategy for the Adaptation to Climate Change.

The question on communicating the issue of climate change adaptation cannot be solved by a single scientific discipline and definitively not by science alone. Thus, the research was carried out transdisciplinarily in collaboration with a group of non-scientific and scientific actors in a sounding board. These 17 actors from climate research, media, education, policy making and business own unique knowledge about climate change adaptation and/or communication and thus were able to contribute to effective solutions in adaptation communication.

Thus, within CcTalK! we developed an adaptation communication guideline as a general framework for communication as well as designed, tested and evaluated exemplary communication formats for identified target groups in selected sectors. The communication strategy and formats aim to support adaptation activities at different levels of decision making (from public to private).

The guideline is based on the main outcomes of all work packages carried out. At its core, we propose a 5-steps-methodology for developing effective adaptation communication formats: (1) Target group selection; (2) Target group analysis; (3) Development of communication formats; (4) Pretest of communication formats; (5) Improvement of formats. These five steps are complemented by experiences made within CcTalK! when developing own communication formats. The communication guideline also presents general success factors for effective adaptation communication and shows its applicability by means of examples from real life. In addition, profiles of possible communication formats can be found, helping users to find the most appropriate format for their situation. The guideline also presents maps showing actors which are challenged in communication and target groups for adaptation communication. The guideline is published online at www.klimawandelanpassung.at (in German language).

Within CcTalK! we also developed communication formats for two selected target groups: Nursery teachers for children aged from 1 to 6 years and nurses for the elderly in mobile health care services. These target groups have been selected because they deal with topics that are increasingly impacted by climate change like heat and health. To develop tailor-made communication formats interviews with 30 experts of each target group have been conducted in autumn and winter 2012/13. We have developed videos, brochures, flyers and an outline for an expert workshop, all dealing with the issue of climate change, heath and health. A first draft of created communication formats were tested with focus groups of these target groups and improved based on the feedback. This empirical testing of the efficacy of formats was a distinctive

feature of CcTalK!. Additionally the formats as well as the guideline were discussed within the sounding board. The final communication formats have been made available in the internet under www.klimawandelanpassung.at (in German language).

3 Background and objectives

Background / motivation for the project

According to the literature, efficient and effective dissemination and transfer of knowledge to raise awareness are seen as important first steps towards successful adaptation to the impacts of climate change (Prutsch et al. 2014, EC 2009a and 2009b, EC 2013a and 2013b, IPCC 2014, IPCC 2007, Osbahr 2007, McGray et al. 2007). However, transporting the issue of climate change adaptation and concrete adaptation options in an understandable and tangible way to the general public and to decision makers poses a challenge due to, inter alia, its complexity, long term perspective, inherent uncertainties and cognitive and psychological barriers etc. The provision of information (e.g. via print media, web pages) is an important contribution for awareness raising and enhancing the acceptance for adaptation but definitely not sufficient to motivate all affected groups in society and decision making to take action in adapting to climate change. In this respect, research on this issue (Moser 2007, European Commission and European Parliament, 2008) clearly identifies: while many judge the problem of climate change to be serious, much less find the issue personally concerning.

Therefore, the disparity in the studies` findings – high awareness but low personal concern – embeds one of the biggest challenges of climate change adaptation communication: How to communicate climate change adaptation to be able to relate it to people's daily routines AND to mobilize them to adapt to climate change.

Objectives of the project

Given missing guidance on how to communicate climate change adaptation effectively, the core objective of CcTalK!, "Communicating climate change adaptation: effective approaches for Austria", was to gain new insights on how to communicate climate change adaptation to be able to:

>   …increase the awareness for climate change impacts and adaptation needs,

>   …enhance the individual and collective capacities for adaptation,

>   …motivate for adaptation action and

>   …increase acceptance for adaptation measures of others, e.g. governmental adaptation

Furthermore, the aim was to support the successful implementation of the Austrian Strategy for the Adaptation to Climate Change.

CcTalK! addressed the following tasks within 6 work packages:

- Establish a transdisciplinary partnership (WP 1) and cooperation of scientific and non-scientific experts (transdisciplinary sounding board) with the potential of continuation in further implementation steps of the Austrian national adaptation strategy.
- Review and provide a detailed analysis of existing communication formats in climate change adaptation in various OECD countries (including Austria) (WP 2), study the formats by examining hypotheses on communication developed by the transdisciplinary sounding board.
- Identify target groups for adaptation communication in Austria (WP 3), i.e. those who need to know about the issue; can foster a desired change; move the necessary political levers; or are in a position to influence decisions to take action (target groups include decision makers, interest groups and also parts of the general public, e.g. homeowners). Focus :target groups which play a crucial role in implementing the Austrian NAS. Learn as much as possible about these target groups, e.g. their interests, values, concerns, risk perceptions, adaptation knowledge, the channels, gate keepers and multiplicators through which the groups are likely to receive and trust information, etc.
- Develop a communication guideline for Austria (WP 4) as a framework which supports successful communication. The document includes editorial, technical and strategic guidelines for communication (e.g. how to communicate the difference and similarity of adaptation and mitigation, how to communicate uncertainties but also some general principles for good

communication), good practice examples from other countries and communication formats for different target groups which will support the implementation of measures included in the Austrian NAS.

- Design, test and evaluate communication formats for selected issues (e.g. floods and spatial planning; heat and health; water shortage and agriculture) and certain target groups (e.g. nurses) (WP 5). The selection of the issue and two relevant target groups as well as the design and preparation of the formats were developed in cooperation with the transdisciplinary sounding board. The communication formats for two target groups were tested and their effectiveness systematically evaluated in focus groups for each target group. Based on the evaluation the communication formats were further improved.
- Disseminate results and lessons learned to policy makers, practitioners and the scientific community to enhance visibility of CcTalK! (WP 6).

4 Content and results

The following figure gives an overview of the workflow by work package (WPs). Detailed information is presented below the graph.
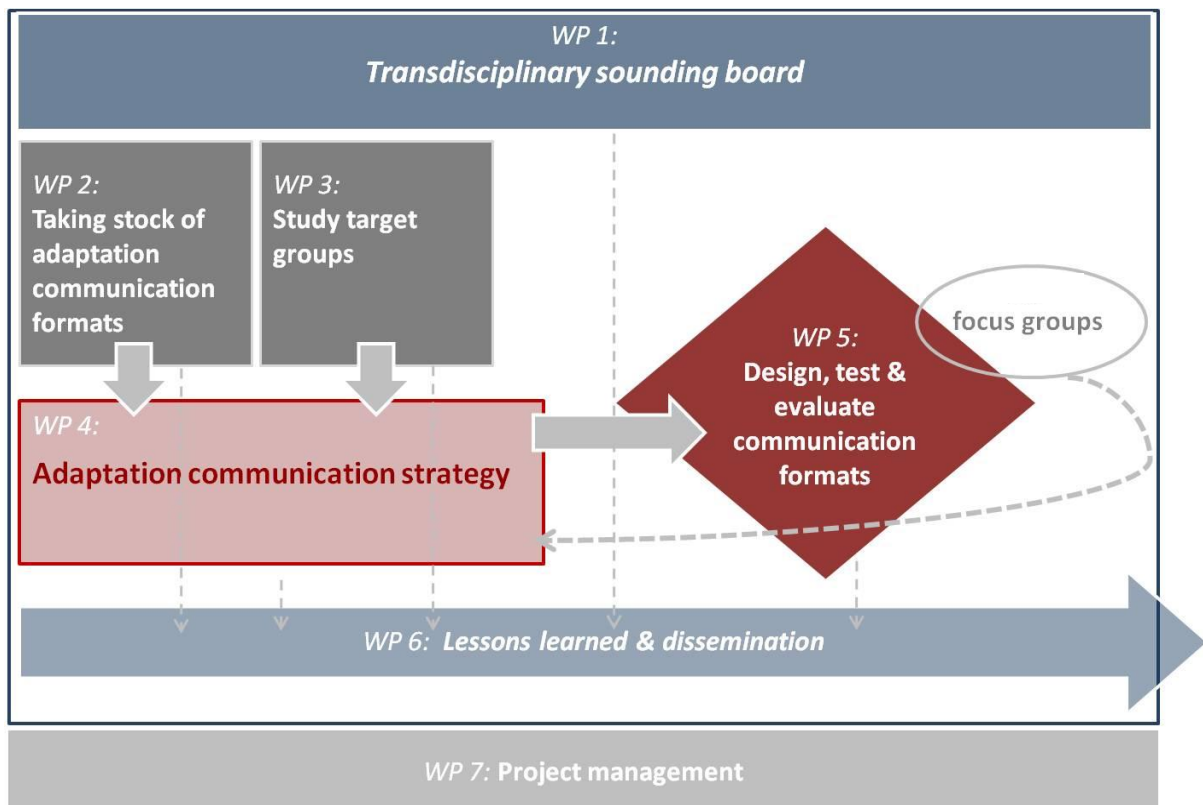

Figure 1: CcTalK! workflow divided by work packages (WPs)

Description of the results

Transdisciplinary sounding board (WP1)

Background

Communication is a complex topic even more when it comes to rather abstract topics like climate change. To ensure that the communication strategy and formats address the target group, a sounding board of members from different professional backgrounds was installed. 17 experts from the fields of communication, journalism, marketing, education, insurance companies were invited to take part in the process. By that, CcTalK! was able to develop communication formats applicable to reality.

Objectives of WP

After the kick-off meeting the sounding board was involved on a regular basis in the research work by participating in six workshops. All workshops had a specific topic following the status of the research work. The objective of the sounding board was to cross-check the results of the research directly with the praxis and to develop different topics collaboratively like hypotheses on communication or ideas for dissemination.

Results

Within this work package, we have successfully developed and integrated the members of the transdisciplinary sounding board to CcTalK!. The meetings were held throughout the whole project.

The challenge of communicating climate change adaptation to various decision makers (for example in the participation process for the Austrian NAS) is high. By doing so the boundaries of disciplinary research were expanded. The sounding board considered key questions, hypotheses, strategies, etc. to guarantee relevance and usability of the results. The overall result was that all methods used and results generated were discussed with the sounding board like the selection of the sector/topic and the target groups as well as the communication formats for reaching these target groups. Due to these discussions the results and products were strongly improved.

Taking stock of adaptation communication in selected OECD countries (WP2)

Background

In Austria as well as in other OECD countries, first adaptation communication formats have been established (e.g. KomPass-Newsletter in Germany, Danish Web-Portal, UKCIP Adaptation Wizard, Decision Support Tools in the Netherlands). Swart et al. (2009), reviewing various NAS in Europe, includes a first compilation focusing on activities to enhance the awareness of the general public in European countries. Nevertheless, little is known about the experiences gained in adaptation communication and especially about the communications impact to motivate people to adapt to a changing climate.

Objectives of WP

Thus, the purposes of the stock taking were (i) to give an overview of adaptation communication formats in place in selected OECD countries (including information such as responsible organisation, target groups, barriers addressed, aim of the communication, communication instruments etc.), (ii) to describe existing communication formats in those countries by using hypotheses developed by the transdisciplinary sounding board as an analysis scheme and (iii) to systematically learn from the experiences gained (mainly regarding barriers and triggers for adaptation communication) and check the transferability of the lessons learned to Austria. The lessons learned from the stock taking provided the basis for the work packages to follow.

Results

This WP provided an overview of existing adaptation communication formats in ten OECD countries and offered recommendations for their successful design. Via online search we identified 278 communication formats on climate change adaptation. Based on a literature review and a consultation process with the transdisciplinary sounding board, a list of 16 success factors for adaptation communication was compiled with regard to communication content, target group adequacy, adaptation motivation and communication evaluation (cf. Table 1).

Using the success factors as evaluation criteria, we analysed the 278 formats. The analysis yielded 13 good practise examples that can inspire future adaptation communication. Reflecting on those success factors that have not yet been sufficiently addressed we propose going beyond the content level and address emotions, norms and values as well as making use of trusted messengers.

The lessons learned from this exercise have been presented in a work package report (Wirth & Prutsch 2014) as well as summarised in a scientific paper (Wirth et al. 2014).

Table 0.1: Success factors for communicating climate change adaptation (literature review and experts' prioritization). (Source: Wirth et al. 2014 in GAIA 1/2014)

Type	Nr.	Success factors for climate change adaptation communication	Referred to in guidelines	Referred to in scientific articles[a]	Experts' prioritization[b]
Content	1	"Translate" what climate change means for everyday's life and what kind of adaptation is necessary	ICLEI 2009, Born et al. 2009, CRED 2009, Grothmann et al. 2009, The Topos Partnership 2009, Futerra 2011	Moser 2006, Regan 2007, Spence and Pidgedon 2010, Biesbroek et al. 2010, Koepfler et al. 2012	17
	2	Explain concepts and terms in comprehensible way	Born et al. 2009, Grothmann et al. 2009, ICLEI 2009, The Topos Partnership	Biesbroek et al. 2010, Moser 2010, Koepfler et al. 2012	15
	3	Suggest possible solutions (possible adaptation measures)	ICLEI 2009, Born et al. 2009, The Topos Partnership 2009, Futerra 2011	Moser 2006, Moser 2007, Biesbroek et al. 2010, Koepfler et al. 2012	12
	4	Use sound scientific data and be technically correct	ICLEI 2009		7
	5	Connect to local/ supporters' identity	Born et al. 2009, The Topos Partnership 2009	Regan 2007	7
	6	Connect to local knowledge	Born et al. 2009		6
	7	Relate to good adaptation examples and actions in the field of climate change adaptation	ICLEI 2009, Born et al. 2009,	Moser 2006, Grothmann 2011	5
Target Group	8	Frame and communicate the issue according to audience	CRED 2009, Born et al. 2009, The Topos Partnership 2009	Moser 2006, 2010, Grothmann 2011, Nisbeth 2012	13
	9	Use accepted and trusted messengers and opinion leaders (for the audience)	ICLEI 2010	Moser 2010	11
	10	Use communication formats and channels that are appropriate for the target group	Grothmann et al. 2009, ICLEI 2009	Moser 2010, Grothmann 2011	6
	11	Attract and keep the audiences attention (e.g. by surprise, use stories, escape routines, novelty)	CRED 2009, ICLEI 2009, Futerra 2011, The Topos Partnership 2009	Moser 2006, 2010	7
	12	Use existing groups and networks	CRED 2009, The Topos Partnership 2009		5
Motivation	13	Use pictures and visualisations (make it possible to experience climate change impacts and adaptation options)	ICLEI 2009, Futerra 2011, Grothmann et al. 2009	Nicholson-Cole 2005, Moser 2010	12
	14	Elicit emotions, e.g. by eliciting feelings of safety from conducting	Born et al. 2009, Grothmann et al. 2009, ICLEI 2009	Moser 2010, Roeser 2012	8
	15	Relate to existing social norms and values, e.g. by relating adaptation to values that motivate the audience (like sustainability, responsibility, prevention)	Grothmann et al. 2009, The Topos Partnership 2009, Futerra 2011	Cialdini 2003, Moser 2006, Moser 2007, Schultz et al. 2007	8
Eval.	16	Evaluate the effects of the communication	ICLEI 2009, Grothmann et al. 2009	Moser 2010	6

[a] mostly peer-reviewed but hardly based on empirical evidence

[b] Number of experts who chose the success factor as most important to motivate people for adaptation to climate change (n=23). The eight factors selected most often are highlighted grey.

Identify & analyse target groups in selected sectors addressed in the Austrian NAS (WP3)

Background
Decision makers and the general public are aware of the climate change issue but generally not much motivated to adapt to its impacts. Climate change adaptation simply does not resonate deeply with most parts of society; it remains disconnected from people's daily lives and decisions and from their more immediate concerns. This suggests that adaptation to climate change has not been communicated effectively in the past and that researchers and communicators have to better understand how to bridge this "gap of meaning". To do so, it is necessary to better understand the target audiences. As mentioned above, in CcTalK! the work on adaptation communication was undertaken in close relation with the Austrian NAS as communication and awareness raising plays a crucial role for its implementation. The Austrian NAS addresses a number of sectors such as agriculture, tourism, electricity, natural hazards, etc. and a number of actors are challenged with the implementation of adaptation measures.

Objectives of WP
The aims of WP3 were (i) to identify target groups (e.g. mayors, house owners, farmers) for adaptation communication based on the adaptation options included in the Austrian NAS and select three key target groups in close cooperation with the transdisciplinary sounding board, (ii) to describe these three key target groups in as much detail as possible (their adaptation knowledge, risk perceptions etc.), (iii) to identify multiplicators for adaptation communication and (iv) to analyse the barriers to adaptation actions and how to overcome them in the key target groups.

Results
As a first step, a list of all actors addressed in the Austrian National Adaptation Strategy was developed. Approx. 100 possible actor groups for climate change adaptation were identified. Based on this list, a criteria-guided selection of three target groups to be assessed in detail was carried out together with the transdisciplinary sounding board (for more detail see Grothmann et al. submitted).

The two themes heat and health as well as construction/housing and climate change were chosen. Qualitative telephone interviews with 30 members of each of the following three target groups were performed:
• Nursery teachers for children aged from 1 to 6 years – theme heat and health
• Nurses for the elderly in mobile health care services – theme heat and health
• Directors or experts in the building authority – theme construction/housing and climate change

The results of the interviews were documented in an Excel file and analysed by content analysis and statistical analyses for small sample sizes. For example, the results indicated that the current adaptation / helping behaviour of the nurses for the elderly in mobile health care services is probably driven by a perception of climate change, high control beliefs, perceived role models for protective behaviour and previous cogitation about heat and health, whereas fatalism and perceived work stress obviously act as barriers to their adaptation / helping behaviour (for more detail see Grothmann et al. submitted). The results of the target group analysis were presented to and discussed with the sounding board.

The work package reports on the results of the target group analyses are available in German (Wirth et al. 2013). In addition, results of the interviews with one of the selected target groups are included in a scientific publication (Grothmann et al, submitted). Based on the lessons learned from the interviews with the target groups, communication formats were designed (see WP5).

Establishing an adaptation communication strategy (WP4)

Background

Prior to the CcTalk! project a guideline for communicating adaptation in Austria was missing. Such a framework is missing should support successful communication (=increasing the level of awareness and acceptance for the need of adaptation and the willingness to take action). It should include editorial, technical and strategic guidelines for communication (e.g. how to communicate the difference and similarity of adaptation and mitigation, how to communicate uncertainties but also some general principles for good communication), good practice examples from other countries and communication formats for different target groups, which could support the implementation of measures included in the Austrian NAS.

Hence, CcTalK! developed such an adaptation communication guideline, based on information gathered from WP1-3, WP5, and research fields such as risk communication.

Objectives of WP

The aim of WP4 was to provide practical and effective communication guideline for authorities in Austria and multiplicators from different sectors to help them (i) improve people's knowledge of the need for climate change adaptation, (ii) increase the acceptance for governmental adaptation measures, and (iii) motivate people to act on climate change adaptation.

Results

The developed adaptation communication guideline (Prutsch et al. 2014) addresses the difficulties in climate change adaptation and its communication and provides guideline on how to communicate climate change adaptation (e.g. how to communicate uncertainties, the difference and similarities with mitigation, how to convey adaptation measures etc.). At its core, we propose a 5-steps-methodology for developing effective adaptation communication formats: (1) Target group selection; (2) Target group analysis; (3) Development of communication formats; (4) Pre-test of communication formats; (5) Improvement of formats. These five steps are complemented by experiences made within CcTalK when developing our target group specific communication formats. The communication guideline also presents general success factors for effective adaptation communication and shows their applicability by practical examples. In addition, profiles of possible communication formats are included, which shall help users to find the most appropriate format for their situation. It also presents good practice examples and shows how various formats have addressed success factors in adaptation communication. The guideline also includes overviews of potential target groups in various sectors and overviews of potential adaptation communicators (i.e. actors in policy, economy and civil society that could communicate the need of and possibilities of adaptation to climate change) for reaching these target groups. All information is tailored to the situation in Austria.

The guideline is written and designed in a way to be easily understandable by a wide audience. The targeted users of the guideline are policy makers, decision makers, scientists as well as persons working in media and education who might be interested in becoming adaptation communicators.

The guideline is made available on the internet in German language (www.klimawandelanpassung.at).

Develop exemplary communication formats for two target groups and test the formats with focus groups (WP5)

Background

Communication of climate change risks and adaptation options – including procedures for education and participation – can play an important role in reducing vulnerabilities to climate change (Grothmann, 2014). Related to the risk of increasing heat waves the most widely documented policy for reducing heat vulnerabilities to date is the adoption of heat warnings and air quality alert systems to trigger emergency responses (Harlan & Ruddell, 2011). Nevertheless, in their review study on the effectiveness of public health interventions in reducing morbidity and mortality during heat episodes Bassil and Cole (2010) conclude that the evidence for a positive impact of communicative public health interventions during heat waves is limited and that the most vulnerable groups are not being adequately reached.

With this in mind, we aimed to develop a more effective communication approach in the project CcTalk! to reduce vulnerabilities of the elderly and infants during heat waves in Austria. Hence, we decided to focus in WP5 on the following two target groups: Nursery teachers for children aged from 1 to 6 years and nurses for the elderly in mobile health care services. This decision was also due to the fact that the third target group identified in WP3, directors or experts in building authorities, turned out in the interviews as inappropriate to reach homeowners to adapt their buildings to climate change. Other groups such as architects or construction engineers are probably more effective to reach homeowners.

Objectives of WP

The aims of this work package were (i) to develop exemplary communication formats for adaptation communication for identified target groups in cooperation with the transdisciplinary sounding board, (ii) to test and evaluate the communication formats with members of the target groups, and (iii) to refine the communication formats by including the evaluation results as well as (iv) include important implications of the results in the general communication guideline.

Results

We developed drafts of the following communication formats regarded as appropriate for reaching the two primary target groups (nursery teachers and nurses for the elderly) and also for reaching the elderly people themselves, their relatives and the parents of children aged from 1 to 6 years: a flyer, two brochures, an outline for an expert workshop and two animated videos.

All draft communication formats were pretested in focus group workshops with members of the target groups. The results of the focus groups indicated that most of the objectives of the communication formats could be reached (see exemplary results for the group of nurses for the elderly in Table 2), but that some modifications to the formats are useful to further improve their effectiveness and practical usability. One of the ideas that was popular amongst many participants for further improvement of the formats related to including a graphical presentation of the sun as an intuitive symbol of heat in the brochure, the flyer and the invitation letter for the expert workshop. Hence, in the revised versions of these formats, a sun symbol was included and acted as a further design element which is present in all formats – thereby contributing to the potential use of different formats in an integrated communication campaign (for more details on the results see Grothmann et al. submitted).

Table 2: Objectives of communication formats and questionnaire results from focus groups

Defined objectives for four communication formats – reformulated for pretest questionnaires *Objectives defined for the respective formats are marked by italics.*	Level of fulfilment of objectives Median values of individual evaluations from 1 = strongly disagree to 4 = agree completely	
	Focus group 1	**Focus group 2**
Objectives for animated videos		
1) The animated videos *encourage* me *to engage even more in the topic of health protection during heat and to seek further information*.	3,3	3,0
2) The animated videos *strengthen* my *motivation to pay particular attention during heat events to the health of the old and high-maintenance people* I care for in my job.	3,3	3,7
3) I think the animated videos are likely to *encourage relatives of old and high-maintenance people to engage even more in the topic of health protection during heat events and to seek further information*.	3,9	3,2
4) I think the animated videos are likely to *strengthen the motivation of relatives of old and high-maintenance people to pay particular attention to their health during heat events.*	3,9	3,5
Objectives for brochure		
1) When I look at the table of contents of the brochure and leaf through it, I think I could *learn something new* from it *on the subject of heat and health*.	3,3	2,6
2) I think the brochure could be *suited for* my *work as a "reference book"*, e.g. to be able to identify heat-related diseases more accurately and treat them competently.	3,0	3,2
3) I think the brochure could *provide important "background information" for* my *work*, e.g. so that I can better assess heat-related hazards, diseases and treatment options.	3,1	3,2
4) I believe that the booklet could also be *useful for relatives of old and high-maintenance people.*	3,4	3,5
Objectives for flyer		
1) I think the flyer is *suitable for old and high-maintenance people to give them important tips for their self-protective behaviour during heat events*.	3,4	3,4
2) I think the flyer might be appropriate to *motivate relatives, friends and neighbours of old and high-maintenance people to care for their health during heat events*.	3,4	3,5
Objectives for expert workshop		
1) The topics described in the invitation flyer for the expert workshop sound interesting to me. I think I would like to participate in it.	3,3	3,5
2) I find it very convincing that the expert workshop shall be led by a medical doctor together with an experienced mobile health care nurse, who has a lot of experience with health protection during heat events.	3,4	3,6

5 Conclusions

Within the project CcTalK!, pioneering work in the field of adaptation communication in Austria has been carried out. When initiating the project, little knowledge was available on what makes adaptation communication successful. Through working transdisciplinarily in close collaboration with a group of non-scientific and scientific actors new knowledge about climate change adaptation and communication was gathered. Empirically testing of communication formats that aim at motivating adaptation actions was another innovation in CcTalK!.

The results of the systematic assessment of existing adaptation communication formats in 10 OECD countries provided new scientific insights into the complex question of how to communicate climate change adaptation in order to stimulate concrete action. One main result of the assessment was to go beyond the content level and address emotions, norms and values as well as trusted messengers for target groups in order to advance adaptation communication.

The results from the interviews with the three target groups revealed for example, that the adaptation / helping behavior of the nurses of the elderly is probably driven by a perception of climate change, high control beliefs, perceived role models for adaptation / helping behavior and previous cogitation about heat and health, whereas fatalism and perceived work stress obviously act as barriers to their behavior.

The pretesting of the communication formats in focus groups showed that our procedure for developing the communication formats building on systematic target group analyses and on creativity in creating appealing texts and visual designs (involving professional graphic and text designers) proved successful, shown by the high evaluations of the developed formats in the focus group workshops. Hence, both – systematic / rational arguments and creative / emotional ideas – are necessary for creating successful communication formats that are able to motivate people to take adaptation action.

We hope that these findings will contribute to effective solutions in adaptation communication in Austria and beyond. Nevertheless, more information is required on communicating climate change adaptation to other target groups not addressed in the CcTalK! project. One first attempt has started within the project AUTreach, looking at communication needs of young people (financed by the Climate and Energy Fund; led by the University of Natural Resources and Life Sciences).

C)   Project details

6 Methods

Taking stock of adaptation communication in selected OECD countries (WP2)

In order to get a comprehensive overview on the status quo of climate adaptation communication we conducted an inventory of communication formats that were developed in 10 OECD countries where several organisations and institutions already had issued such formats. The countries selected are Austria, Germany, Switzerland, France, United Kingdom, Denmark, Netherlands, Spain, USA and Australia as well EU institutions and international organisations. The formats were researched online using the keywords "climate change", "adaptation", "communication", [country] and/or [using native language]. Also literature sources and web portals with a special focus on climate communication (e.g. talkingclimate.org) were consulted. The formats were compiled according to country and type of communication format. 20 European experts in climate change adaptation were asked to add examples. In the online inventory 278 communication formats on climate change adaptation were identified.

To be able to analyse what makes adaptation communication successful we developed a set of success factors. So far there is hardly empirical evidence on communication principles for adaptation and the literature consists mainly of practical guidelines. A new and more valid list of adaptation communication success factors was developed based on literature review and cooperation within the project team, members of the sounding board and additional contacts from the team members. 16 success factors were identified related to content, target group, emotions and evaluation.

We used the identified success factors to analyse the 278 communication formats out of the inventory. In a criteria-based assessment, such formats were chosen as good practise examples that complied with the eight success factors rated as most important. To describe these good practise examples in detail, we used all 16 success factors. Figure 2 shows an overview on approach and methods of this study.

Finally, semi-structured expert interviews were conducted with persons in charge for the identified good practise formats. These persons were contacted by e-mail and received a description of their format based on the success factors. The aim of these interviews was to check our assessment of the format, to resolve open questions and to get additional information on goals, costs and lessons learnt (for more details on the methods see Wirth et al. 2014).
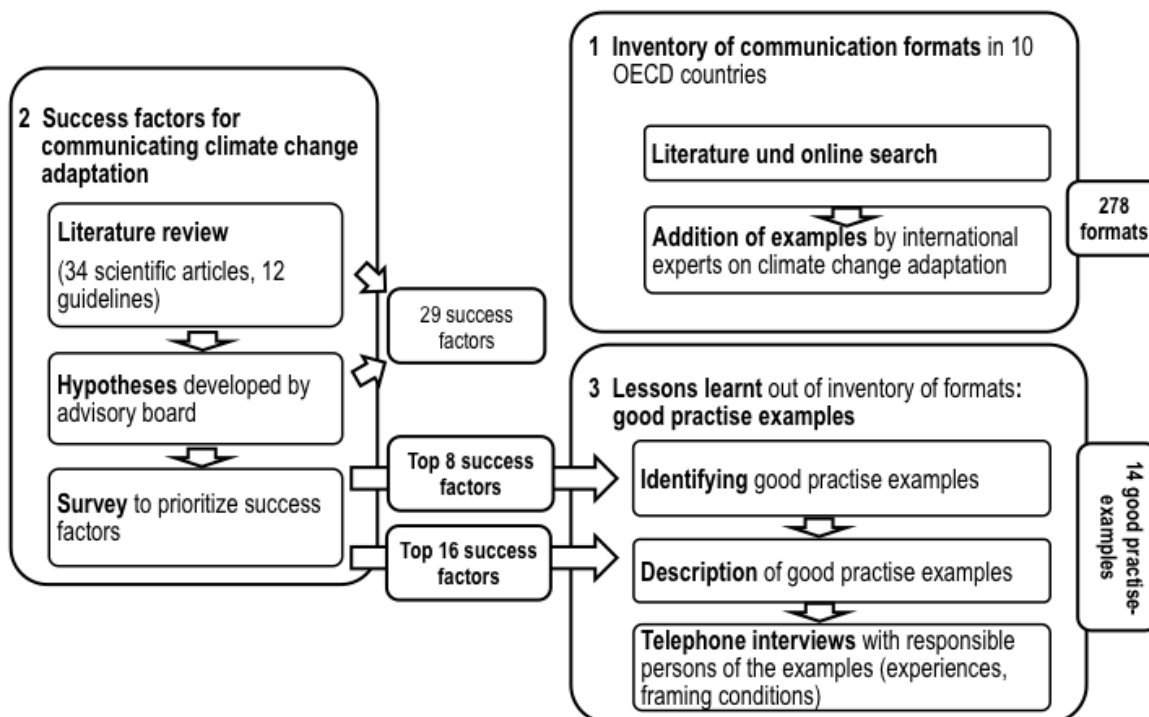
Figure 2: Overview on approach and methods

Identify & analyse target groups in selected sectors addressed in the Austrian NAS (WP3)

As a first step, a list of all actors addressed in the Austrian National Adaptation Strategy was developed. Based on this list, a criteria-guided selection of three target groups to be assessed in detail was carried out. These criteria for target group selection were:

- Negative future impacts of climate change on the group
- Options for adaptation behaviour in the group
- Low level of current adaptation behaviour in the group
- Low probability for future increase of adaptation behaviour in the group without additional measures (like communication measures addressing the group)
- Urgency of adaptation behaviour by the group (because negative impacts have to be expected in the near future)
- Relevance of the group to increase awareness for climate change beyond the group (role as "awareness multiplicators", opinion leaders)
- Relevance of the group to increase awareness for options of adaptation behaviour beyond their group (role as "behaviour multiplicators", behavioural models)
- Reachability of the group by communication measures
- Existing contacts to the group
- Willingness of members of the group to take part in focus group workshops for a pre-test of communication formats (see WP5)

Jointly with the sounding board and based on a rough pre-selection, the list of possible target groups for communicating climate change adaptation within the project CcTalK! was discussed, a strength and weakness analysis collectively performed and finally the target groups selected. First suggestions for interview questions were also discussed.

The two themes 'heat and health' as well as 'construction/housing and climate change' were chosen. In late 2012 and early 2013 qualitative telephone interviews with 30 members of each of the following three target groups were performed:

- Nursery teachers for children aged from 1 to 6 years – theme heat and health
- Nurses for the elderly in mobile health care services – theme heat and health
- Directors or experts in the building authority – theme construction & housing and climate change

For each of the target groups, a interview guidance was developed including similar and comparable questions. Each interview guideline included 22 questions (11 closed-ended and 11 open-ended). The guidelines were pretested and slightly adjusted based on the pre-test results. Similar to target group analyses in marketing research, we asked for information needs of the interviewees and perceived information needs of those affected, their preferred information channels and potential multiplicators for heat and health information. Different from many target group analyses in marketing research we also tried to identify the explanatory factors (risk perceptions, control beliefs, moral beliefs etc.) for the current adaptation behaviour of the target group members. We developed the respective questions mainly from current psychological knowledge regarding potential drivers of - or barriers to - the adaptation behaviour.

The results of the interviews were documented in an Excel file and analysed by content analysis and statistical analyses for small sample sizes. Finally, the results of the target group analysis were presented to and discussed with the sounding board (for more detail on the methods see Grothmann et al. submitted).

Establishing an adaptation communication strategy (WP4)

To make the findings of WP2, WP3 and WP5 available for potential adaptation communicators we developed a guideline for effective adaptation communication. In addition to the named WPs, this guideline builds on information from the fields of climate change adaptation and science communication and includes experiences from risk communication, sustainability communication etc. To address the requirements and needs of potential practice users of the guideline we developed the content and structure of the guideline in close cooperation with the sounding board (WP1).

First drafts of the guideline were developed and discussed in several rounds within the project team. During the 4th meeting of the sounding board the main outline and content of the strategy was presented. Based on the feedback and suggestions by the sounding board, the strategy was further developed and finalized, also taking into account the results of the focus group results of WP5.

Develop exemplary communication formats for two target groups and test the formats with focus groups (WP5)

Based on the analysis of the target groups (WP3) and discussion of results with the sounding board (WP1) drafts of tailor-made communication formats for the two target groups – a flyer, two

brochures, an outline for an expert workshop and two animated videos – were developed until July 2013. These formats were selected as being appropriate to reach the two primary target groups (nursery teachers and nurses for the elderly) on the one hand and on the other hand also reach the elderly people themselves, their relatives and the parents of children aged from 1 to 6 years. These draft communication formats were then discussed in August 2013 with selected members of the sounding board, who committed in the 4th Sounding Board Meeting to contribute to this exercise. Based on the feedback by these sounding board members the drafts were further improved.

Between September and November 2013, we pretested all draft communication formats in focus group workshops with members of the primary target groups. To utilize advantages and compensate for respective disadvantages, we used a combined individual and group survey method in the focus group workshops: closed-ended questionnaires, which were completed individually by the participants (to gather the individual evaluations of the communication formats), and open-ended discussions (to gather the collective evaluations and develop ideas for further improvement of the communication formats), which were led by a professional moderator and observed by two independent observers. Based on the results of the focus group workshops the communication formats were further improved (for more detail on the methods see Grothmann et al. submitted)

7 Work and time schedule

The following Table shows the work plan and time schedule which has been adjusted due to project extension until 31 August 2014.

CcTalk!

Input from Transdisciplinary sounding board (WP1) to all WPs

Results from WP2 and WP3 build the basis for WP4 and WP5

D=deliverables

Results from WP2-WP5

Workpackages (WPs) and Milestones (M)	2012							2013												2014							
Months	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8
WP1: Transdisciplinary sounding board																											
M1.1 to 1.6: Documentation Workshops 1-6	D			D				D		D					D											D	
WP2: Taking stock of adaptation communication in 10 OECD countries																											
M2.1: Detailed analytical framework that guides the stock taking	D																										
M2.2: List of existing adaptation communication formats		D																									
M2.3: Interview guideline, interviews, interview analysis				D																							
M2.4: Workshop presenting results of analyses to project team					D																						
M2.5: WP-Report							D																				
WP3: Identify and analyse target groups																											
M3.1: List of target groups addressed in Austrian NAS				D																							
M3.2: Interview guideline, target group interviews, interview analysis									D																		
M3.3: Workshop presenting results to project team										D																	
M3.4: WP-report on results of target group analyses											D																
WP4: Establishing an adaptation communication framework																											
M4.1: Literature research																											
M4.2: First draft on strategy for further discussion										D																	
M4.3: Workshop presenting draft to project team											D																
M4.4: Communication framework												D													D		
WP5: Concretise some communication formats and evaluate																											
M5.1: Concrete text material on the communication content															D												
M5.2: Organisation of six focus groups and summary of results																	D										
M5.3: Final versions of communication formats																								D			
WP6: Lessons learnt and Dissemination																											
M6.1: Journal publications																		D								D	...
M6.2: Synthesis workshop with project team																										D	
M6.3 Publication in handbooks and guidelines																							D				
M6.4: Dissemination of project results at conferences																											...
WP7: Project Management																											
M7.1: Project administration																											
M7.2: Project implementation plan																											
M7.3: Self-evaluation scheme																											
M7.4: Project dissemination plan																											
M7.5: Project partner kick-off	D																										
M7.6: Midterm report towards funding body	D															D											
M7.7: Final project report towards funding body																											D

8 Publications and dissemination

Final guideline

Prutsch, A., Glas, N., Grothmann, T., Wirth, V., Dreiseitl-Wanschura, B., Gartlacher, S., Lorenz, F., & Gerlich, W., (2014): Klimawandel findet statt. Anpassung ist nötig. Ein Leitfaden zur erfolgreichen Kommunikation. Umweltbundesamt, Wien. (www.klimawandelanpassung.at)

Communication formats developed within CcTalK! (in German language)

Accessible at: www.klimawandelanpassung.at

Conference presentations

An abstract of CcTalK! was submitted to the 14th Austrian Climate Day on April 4th and 5th 2013 in Vienna and was invite to present the Overview and analysis of communication formats in 10 OECD countries[1].

In addition, the results were presented at the 15th meeting of the Interest Group (IG) on 'Climate Change and Adaptation' of the Network of European Environmental Protection Agencies (EPA) on 27th and 28th of August 2012 in Helsinki.

Two presentations were held at the 3-days conference "Adaptation frontiers – European climate change adaptation research and practice conference" in Lisbon, March 2014.

A further presentation on the methodology applied in CcTalk! applied for developing and testing adaptation communication formats was held at the conference 'Resilience 2014 – Resilience and Development: Mobilizing for Transformation', 4-8 May 2014, Montpellier, France.

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Grothmann, T., Glas, N., Leitner, M., Prutsch, A., & Wirth, V. (2014). "We should no more release an untested communication on the public than an untested drug": A methodology to develop and

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[1]

www.ccca.ac.at/fileadmin/00_DokumenteHauptmenue/03_Aktivitaeten/Klimatag/Klimatag2013/Vortraege_14.Klimatag/V29_Wirth.pdf

test education and communication tools for promoting adaptation to climate change. International Conference Resilience 2014 – Resilience and Development: Mobilizing for Transformation, 4-8 May 2014, Montpellier, France.

Scientific papers solely presenting results of CcTalk!

Wirth V., Prutsch A., Grothmann T. (2014). Communicating Climate Change Adaptation: State-of-the-art and lessons learned from 10 OECD Countries. GAIA 23/1: 30–39.

Grothmann, T. Leitner, M., Glas, N., Prutsch, A. (submitted). Increasing health-protective behaviour during heat waves by communication. And an efficient methodology for developing effective communication formats. Submitted to Sage Open.

Scientific publications making use of CcTalk! results

Grothmann, T. (2013). Wahrnehmung des Klimawandels – Erkenntnisse psychologischer Forschung. Beitrag im Online-Dossier "Wahrnehmung des Klimawandels" des Klimanavigators des Climate Service Center (CSC), Hamburg. http://www.klimanavigator.de/dossier/artikel/038715/index.php

Grothmann, T. (2014). Lessons learned for the communication of impacts, vulnerabilities and adaptation options. In A. Prutsch, T. Grothmann, S. McCallum, I. Schauser, & R. Swart (Eds.), Climate Change Adaptation Manual: Lessons Learned from European and Other Industrialised Countries (pp. 114-116). London: Routledge.

Grothmann, T. (2014). How to communicate climate change uncertainties? Recommendations from psychological research. In A. Prutsch, T. Grothmann, S. McCallum, I. Schauser & R. Swart (Eds.), Climate Change Adaptation Manual: Lessons Learned from European and Other Industrialised Countries (pp. 213-223). London: Routledge.

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Rötzel, S., Schaper, J., Grothmann, T. & Anders, K. (2013). Aufklärung und/oder Partizipation. In A. Knierim, S. Baasch & M. Gottschick (Hrsg.), Partizipation und Klimawandel - Ansprüche, Konzepte und Umsetzung (S. 75-81). München: oekom verlag.

Newsletter

In the Newsletter of the Austrian portal of climate change adaptation (www.klimawandelanpassung.at) a specific focus was dedicated in the 6th issue of December 2012 focussing on climate change adaptation and its communication. CcTalK! was presented as the current key project in this field (German language).

The final communication formats were also presented in the Newsletter of the Austrian portal of climate change adaptation (www.klimawandelanpassung.at) and included in the 10th issue of July 2014 (German language).

Flyer

We have designed a project folder in English and German to provide basic information for multiplicators in government, NGOs, business, and the media working in the field of climate change adaptation and thus could be interested in CcTalK!.

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EC – European Commission (2013b) Commission Staff Working Document – Accompanying document to the EU Strategy on adaptation to climate change. Impact Assessment – Part 1. COM (2013) 216 final http://ec.europa.eu/clima/policies/adaptation/what/docs/swd_2013_132_en.pdf

EC — European Commission (2009a): Adapting to climate change: Towards a European framework for action - White paper. COM (2009), 147/4 final, Brussels

EC — European Commission (2009b): Working document accompanying the White paper - Adapting to climate change: towards a European framework for action - Impact assessment. COM (2009), 147 final, Brussels.

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