STAGE
scientists and public engagement

Science Communication Toolkit for Scientists

R1
Version 1.0

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Project Consortium

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Summary

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Introduction

The STAGE Project

The main goal of STAGE is to equip scientists and science communicators with the skills and knowledge necessary to increase public engagement in science. The STAGE project was conceptualized as an approach to address the current and urgent needs of European countries:

- ➔ the decline of interest in science
- ➔ a developing science distrust
- ➔ the need to tackle the climate change crisis

To address these needs, STAGE adopts a gender-inclusivity approach by targeting women scientists' engagement in training and designing gender-inclusive materials for public engagement with science. The project promotes the underlying objective of the European Education area through training the future generations in co-creating knowledge for a resilient, inclusive and sustainable society and addresses the priority of developing STEM in higher education and, in particular, women's participation in STEM.

Through the implementation of the project, we aim to train scientists, especially females who are currently underrepresented in science and in science communication, to communicate science effectively and engage the public in climate change action.

By adopting a gender-inclusive approach to public engagement with science, the project aims to address the following objectives:

- ➔ Train scientists, especially women, to engage the public with scientific issues, concepts, and actions related to climate change
- ➔ Build the capacity of scientists, especially women, to reflect critically on the social, historical, cultural, and ethical dimensions of science, particularly in the field of climate change
- ➔ Develop scientists', especially women', writing and oral skills needed to engage with the public in various spaces: popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals, etc.
- ➔ Improve scientists' understanding of the factors causing distrust towards scientists and disengagement with science
- ➔ Develop scientists', especially females', understanding how public engagement can benefit their careers.

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- ➔ The project objectives include developing and implementing professional development training for scientists on public engagement with science, precisely climate change issues, following a STEM approach and a gender-inclusive approach, and promoting the participation of women in STEM fields. Toward this goal, we present the first version of our toolkit, which will be used as the basis for the project's future professional development activities.

Public Engagement with Science Toolkit

This toolkit can contribute to successful climate action by giving scientists and science communicators the tools to practice effective public engagement on climate change. As a project's first deliverable, this toolkit includes a literature review, good practices, and resources focused on providing scientists and science communicators with the necessary tools to engage with the public with issues, concepts, and actions related to climate change and female representation in STEM.

The key readings, practical resources, and best practices about public engagement concerning climate change were collected by implementing a systematic mapping protocol. Mistrik et al. (2016)[1] defined a systematic mapping study as "the process of identifying, categorizing, and analyzing existing literature relevant to a certain research topic." The resources were collected through a systematic examination and evaluation of existing materials and products as part of projects in different parts of the world. These selected resources had to meet all of the inclusion criteria:

- ➔ Topic of the resource should be related to the climate crisis
- ➔ Topic of the resource should be related to public engagement
- ➔ Resource should be accessible online
- ➔ Resource is preferably available for free

Additionally, when choosing the elements that compose this toolkit, we sought to cover three essential criteria for a systematic evaluation: innovation, impact, and transferability.

[1]Mistrik, I., Ali, N., Kazman, R., Grundy, J., & Schmerl, B. (2016). Managing Trade-offs in Adaptable Software Architectures. Elsevier Gezondheidszorg.

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Innovation

This toolkit goes beyond science communication to address goals related to public engagement. Public engagement implies a more democratic, bottom-up, and complementary relationship between scientists and the public and requires an understanding of how non-scientists engage (or not) with science, how trust in science is developed, and how views and behaviours might be influenced.

Unlike adopting a general approach to public engagement with science, this toolkit adopts a contextualized approach and focuses on issues related to climate change with the ultimate goal of supporting the public to engage in climate action.

This toolkit incorporates resources related to gender inclusivity in science and science communication. It aims to address the issue of the underrepresentation of women in science through practices such as the positive recognition and enhanced visibility of women in science.

Impact

Using this toolkit, scientists and science communicators can improve their practices and acquire new skills in science communication and public engagement with science, integrating cutting-edge technology tools. This design will ensure that the toolkit will have a continued impact in the future and a strong potential for transferability to many areas and target groups.

Transferability

This toolkit was developed, reviewed, and will be piloted by scientists with support from the STAGE committee. Its adaptability emphasizes the potential for further sustainability within the partner countries and beyond.

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Literature Review on Public Engagement with Science

Numerous survey studies have shown extensive concern and awareness amongst the public about climate change, and public engagement can further improve citizens' knowledge and involvement in its mitigation (Carvalho, 2016)[2]. The broad definition of public engagement, as adopted by the Centre for Public Impact in their 2021 review, is "any intervention aimed at communicating with or mobilizing the public, or changing their behaviours, choices or attitudes to positively contribute to reducing emissions."

Communication, intervention, and collaboration are the main focus areas for understanding public engagement in climate change (Centre for Public Impact, 2021)[3]. Thus a coordinated effort of both scientific and regulatory solutions, as well as public understanding and engagement, is necessary to make real and sustainable change possible. Therefore it is essential to understand effective ways to engage the public. Implementing relevant, meaningful, and inclusive public engagement strategies can aid the delivery of the message's urgency and desired behavioural change and assist the drive toward large-scale adoption of climate change mitigation solutions and policies (Centre for Public Impact, 2021).

Science communication and public engagement practices can be beneficial aids and methods that can benefit the involvement of the public in deciding the outcomes of these societal choices. Public engagement was given the following definition by Nabatchi and Amsler (2014)[4]: "Public engagement refers to a variety of in-person and online methods for bringing people together to address issues of public importance."

Large-scale public engagement has become more feasible and productive in recent years because of the advancements in information and communication and technological developments. Nowadays, the question has shifted from "should public engagement be utilized in the progress of societal choices" to "how extensive should

[2]Carvalho, A., Van Wessel, M., & Maeseele, P. (2016). Communication Practices and Political Engagement with Climate Change: A Research Agenda. Environmental Communication, 11(1), 122–135. https://doi.org/10.1080/17524032.2016.1241815

[3]Centre for Public Impact. (2021, April). Public Engagement for Net-Zero: A literature review. https://www.centreforpublicimpact.org/assets/documents/cpi-cgf-public-engagement-net-zero-lit-review.pdf

[4]Nabatchi, T., & Amsler, L. B. (2014, February 12). Direct Public Engagement in Local Government. The American Review of Public Administration, 44(4_suppl), 63S-88S. https://doi.org/10.1177/0275074013519702

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we utilize the possibilities that public engagement offers us" (Nabatchi & Amsler, 2014).

The American Association for the Advancement of Science (AAAS, 2016)[5] has identified five types of public engagement. The first type, 'Deliberative,' is often focused on addressing issues at the intersection of science and society, with which mainly policy matters and policy actions are addressed and determined. The second type, 'Dialogue,' has a more significant focus on interactions, and the purpose of this type of public engagement is to influence changes on a personal level, such as a person's interests, affect, or knowledge. The third type, 'Knowledge Co-Production,' is more focused on the scientific process and either on building the public's scientific skills or gaining the public's perspective on research topics. The fourth type, ' University-Led Cooperative,' is focused on the consultation and collaboration of university researchers with professional communities. The fifth type, 'Informal,' contains one-on-one interactions between the public and scientists in daily life. Informal public engagement is the least researched type out of the five (AAAS, 2016).

A deeper discussion of this theme can be found in the following selected works:

- Armstrong, J. H. (2021). People and power: Expanding the role and scale of public engagement in energy transitions. Energy Research & Social Science, 78, 102136. https://doi.org/10.1016/j.erss.2021.102136
- Buckley, P. J., Pinnegar, J. K., Painting, S. J., Terry, G., Chilvers, J., Lorenzoni, I., Gelcich, S., & Duarte, C. M. (2017). Ten Thousand Voices on Marine Climate Change in Europe: Different Perceptions among Demographic Groups and Nationalities. Frontiers in Marine Science, 4. https://doi.org/10.3389/fmars.2017.00206
- Carvalho, A., Van Wessel, M., & Maeseele, P. (2016). Communication Practices and Political Engagement with Climate Change: A Research Agenda. Environmental Communication, 11(1), 122–135. https://doi.org/10.1080/17524032.2016.1241815
- Hess, D. J., & Sovacool, B. K. (2020). Sociotechnical matters: Reviewing and integrating science and technology studies with energy social science. Energy Research & Social Science, 65, 101462. https://doi.org/10.1016/j.erss.2020.101462
- MacArthur, J. L. (2015). Challenging public engagement: participation, deliberation and power in renewable energy policy. Journal of Environmental Studies and Sciences, 6(3), 631–640. https://doi.org/10.1007/s13412-015-0328-7

[5]American Association for the Advancement of Science (2016, September 15). Theory of Change for Public Engagement with Science. Retrieved September 22, 2022 from https://www.aaas.org/sites/default/files/content_files/2016-09-15_PES_Theory-of-Change-for-Public-Engagement-with-Science_Final.pdf

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- Micklethwaite, P., & Knifton, R. (2017). Climate Change. Design Teaching for a New Reality. The Design Journal, 20(sup1), S1636–S1650. https://doi.org/10.1080/14606925.2017.1352687
- Moser, S. C., & Pike, C. (2015). Community engagement on adaptation: Meeting a growing capacity need. Urban Climate, 14, 111–115. https://doi.org/10.1016/j.uclim.2015.06.006
- Mulyasari, F., Harahap, A., Rio, A., Sule, R., & Kadir, W. (2021). Potentials of the public engagement strategy for public acceptance and social license to operate: Case study of Carbon Capture, Utilisation, and Storage Gundih Pilot Project in Indonesia. International Journal of Greenhouse Gas Control, 108, 103312. https://doi.org/10.1016/j.ijggc.2021.103312
- Painter, J., Ettinger, J., Doutreix, M. N., Strauß, N., Wonneberger, A., & Walton, P. (2021). Is it climate change? Coverage by online news sites of the 2019 European summer heatwaves in France, Germany, the Netherlands, and the UK. Climatic Change, 169(1–2). https://doi.org/10.1007/s10584-021-03222-w
- Paolisso, M., Prell, C., Johnson, K. J., Needelman, B., Khan, I. M. P., & Hubacek, K. (2019). Enhancing socio-ecological resilience in coastal regions through collaborative science, knowledge exchange and social networks: a case study of the Deal Island Peninsula, USA. Socio-Ecological Practice Research, 1(2), 109–123. https://doi.org/10.1007/s42532-019-00010-w
- Pidcock, R., Heath, K., Messling, L., Wang, S., Pirani, A., Connors, S., Corner, A., Shaw, C., & Gomis, M. (2021). Evaluating effective public engagement: local stories from a global network of IPCC scientists. Climatic Change, 168(3–4). https://doi.org/10.1007/s10584-021-03230-w
- Salmon, R. A., & Roop, H. A. (2019). Bridging the gap between science communication practice and theory: Reflecting on a decade of practitioner experience using polar outreach case studies to develop a new framework for public engagement design. Polar Record, 55(4), 297–310. https://doi.org/10.1017/s0032247418000608
- Teodoro, J. D., Prell, C., & Sun, L. (2021). Quantifying stakeholder learning in climate change adaptation across multiple relational and participatory networks. Journal of Environmental Management, 278, 111508. https://doi.org/10.1016/j.jenvman.2020.111508

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Key-readings

The key readings were selected and analyzed. They focus on (i) public engagement with science that range from an understanding of how people make decisions to how to develop trust in science and (ii) understanding the underrepresentation of women in science and the value of enacting gender-inclusive practices in public engagement with science. The authors, type, data released, organization, purpose and aim, summary, an overview of the points relevant to the project, and evaluation were analyzed for each of the key readings.

Key-reading 1: Public Engagement for Net-Zero: A literature review

Authors	Martin King, Chandrima Padmanabhan, and Katie Rose
Type	Literature review
Data released	April 2021
Institution	CPI Europe (Centre for Public Impact Europe) and Calouste Gulbenkian Foundation UK branch
Aim	An analysis of public engagement models on climate change that highlights how *communication*, *collaboration* and public engagement around climate *interventions* can be made more effective. This source covers the understanding of the factors causing distrust towards scientists and disengagement with science and climate action. Target audience: Both inexperienced and experienced professional science communicators can use this source as practical guidance.
Summary	An overview of the principles of the public engagement models is given, and guidance is offered for setting up new projects. **Part 1: Challenge of communication:** The effectiveness of communication is affected by the source of information (the messenger), the message, and by the audience. Public engagement can be linked effectively to behaviour change by including people's values and identities in communication strategies. This encourages public involvement with climate change and empowers them to take action. **Part 2: Challenge of intervention:** Interventions are needed to realize urgent and fundamental behavioral change. Interventions can be designed around individual choices, social practice, and on a systems level. Interventions that encourage sustainable consumption and pro-environmental behavior are covered and evaluated. **Part 3: Challenge of collaboration:** A greater collaboration with the public is important and creative spaces need to be created in order to facilitate this collaboration. The public can either be involved in the decision-making on

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	climate policy or be involved through a process of co-governance with a focus on public goods and the implementation of interventions.
Overview of the points relevant to STAGE	**Part 1: Challenge of communication:** *The messenger:* The source of information needs to be credible and trustworthy. The trust of the audience in the messenger depends on perceptions of the messenger's authority, messenger expertise and on how well the audience can relate to the values and identity of the messenger. There should be greater diversity in the messengers that communicate about climate change to counter the marginalization of certain groups and communities. Class, race, and gender are important factors to take into account. *The message:* Climate change messages should use effective language, framing, and narratives that the audience will relate to. As an issue is understood through certain broad frames of thought and the audience can be appealed to through their values and identity. The message should draw on the emotion of the audience. Negative emotions (fear of grabbing people's attention) and positive emotions (efficacy and co-benefits) should be drawn on in messages, ensuring that the audience finds both components of the message credible and relatable. The judgment of the credibility and relatability of the message is also dependent on the target audience. Visual imagery can be used to encourage the audience to relate to the topic and get involved. Images of real people should be shown, and the impact should also be shown through local examples. The target audience should relate to the images that are shown. *The audience:* Effective communication should take literacy, numeracy, and the timing of communication into account. Different groups have different values and identities. The language, farming of information, and narrative or stories should be tailored to the values and identity of each group. At the same time, it is important to prevent the polarization of the message. Thus the message should both be the most effective and least polarising with a certain audience. **Part 2: Challenge of intervention:** Social psychology and behavioral economics models focus on individual behavior and choices. These models assume that individuals change their behavior and make choices based on their knowledge, attitudes, values, or beliefs. Thus these interventions use, among others, the limitation and restriction of choices, monetary incentives, and social norms and change the message and physical environment to guide the individuals. Whereas the sociological approach focuses on social practices. Actions can be explained by social practices, according to this model. These social practices are subject to and influenced by meanings (symbols, identity, norms, and discourse), skills (competencies), and materials (technology, infrastructure, environment, artefacts). These interventions are designed to

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	provide training or education, practical activities, infrastructure, and access to resources. The timing of an intervention is also important. Interventions can be more effective if they are implemented at certain moments, for example, when paired with life changes that already disrupt existing habits. **Part 3: Challenge of collaboration:** Public engagement through the collaboration method can be applied with two purposes. The first purpose is to let the public inform decision-making and inform climate policy by collaborating as a deliberative space. Deliberative mini-publics (also known as citizen assemblies), consisting of a representative population microcosm, are a format of particular interest. The literature review lists many relevant examples and gives an overview of the most important aspects of this type of public engagement. The second purpose is to deliver public goods by collaborating in forms of co-governance. The literature review discusses a range of grassroots initiatives and community engagement projects. These smaller-scale initiatives and projects could be successfully expanded into a bigger scale and support bigger changes. Inclusivity is an important factor to take into account to prevent the prevalence of inequalities and disadvantages in the bottom-up processes. Furthermore, governments and organizations could also play an important role in the stewardship or even facilitation of these types of projects, especially when these programs can use more support in order for them to succeed. Expanding on this, in the literature, there is a special focus on procedural justice and the movement towards a *Just Transition* because the most vulnerable groups to climate change and adaptation processes should be able to participate in both the process of decision-making and delivery of goods.
Evaluation	**Part 1: Challenge of communication:** Most of the research was conducted in the US; thus, this cultural context should be taken into account and is a limiting factor for the generalisability of the information. Also, messages have different short-term and long-term effects, which should be considered when the effects are measured. The behavioral changes focus on getting people to care about climate change and getting people to relate to the calls for more action. The biggest limitation is the scope of the literature, as the topics of changing day-to-day behavior and necessary changes for government policy and business practices are not taken into account and are outside of its scope. **Part 2: Challenge of intervention:** Interventions should incorporate multiple tactics that simultaneously affect the individual, social, economic, and political barriers. However, the interventions that encourage more sustainable consumption and behavior vary a lot. The nature and quality of the evidence on which the interventions are based also vary a lot.

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	Methods based on social psychology and behavioral choice models focus too much on individual behavior and choices. These methods are limited in their usefulness because they do not take the responsibilities of the other stakeholders into account. The social practice approach can be used as a diagnostic tool by creating a framework that combines the responsibilities of individual consumers, governments, and other actors. However, this framework can not yet guide interventions. The legitimacy, rightness, and practical implementation of the interventions should be determined through collaborative engagement with the stakeholders that will be affected by the interventions to circumvent resistance. **Part 3: Challenge of collaboration:** The collaborative methods are very complex processes and contain a variety of design choices. It should be noted that the evaluation approaches of these methods also vary a lot; e.g., the focus can be on the legitimacy of the internal process, the impact and outcomes, and the relationship of the collaboration to the wider system. In order for the collaborations to be successful, the organizations and governments should be willing and able to open up the decision-making and should also be able to empower the newly formed collaboration and act effectively.
Weblink	https://www.centreforpublicimpact.org/assets/documents/cpi-cgf-public-engagement-net-zero-lit-review.pdf

Key-reading 2: Media and scientific communication: a case of climate change

Authors	Maxwell T. Boykoff
Type	Theoretical paper
Data released	January 2008
Institution	Environmental Change Institute, Oxford University Centre for the Environment, University of Oxford, England
Aim	To demonstrate how science communication and the relationships of scientists, policy actors and the public affect the mass-media coverage of climate change. **Target audience:** Scientists, professional science communicators, and others with interest in science communication in mass media with a focus on climate change. **Key-competences:** This article will improve understanding of the factors causing distrust towards scientists and disengagement with

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	science and climate action. It also aids in developing an understanding of how public engagement can benefit a scientist's career.
Summary	It explains how journalistic, political, cultural, and economic norms and pressures influence journalistic decision-making and also shape mass-media coverage through influencing media 'framings' of climate science. Uncertainty in climate science and the different factors that shape its translation in mass media are also covered. Furthermore, public understanding of scientific issues and public engagement with scientific issues can be improved by increasing the visibility of these issues in the mass media. More interactions and collaborations between science and media communities should be developed in order to accomplish more visibility of scientific issues.
Overview of the points relevant to STAGE	Media reporting and public understanding are shaped by climate-change science, policy, and ecological-meteorological events. Inversely journalism and public concern also shape climate science and policy decisions. Mass media sources can be used to shape perceptions of environmental issues. Thus actors, both collective and individuals, will try to utilize these mass-media sources in order to promote their perspectives and interests. Uncertainty in the climate change discourse can be strategically deployed in both science and media to invalidate the public concern, for example, by reframing uncertainty as scientific incompetence or by certain word choices to emphasize the uncertainty. This disinformation should be addressed and countered. It is also very important for scientists to learn how to translate and effectively communicate the uncertainty in their research into ordinary language. Reward systems within science and academia should also be altered. Media outreach, grant funding, and publishing should all be deemed important in academia. Scientists should be taught how to communicate effectively, time should be made available for media outreach, and there should also be positive rewards for communication efforts to the public. More interactions between science and media communities should also be promoted because this will increase the visibility of scientific issues with the public.
Evaluation	**Desirability:** Teaching scientists to communicate effectively and strengthen their self-efficacy will aid in facilitating connections between science and media. **Feasibility:** Some examples of workshops and conferences are given in the paper. Such as bringing scientists together to discuss science communication issues (the Aldo Leopold Leadership Program) and bringing scientists and journalists together (US National Science Foundation-funded projects). Maybe such a workshop or conference science communication with a focus on climate change can be developed with the most important resources for scientists.

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	Viability: The information in this paper about media and scientific communication with a focus on climate change can serve as an important overview of the different challenges in science communication. **Challenges and limitations:** This paper researched the subject of communicating climate science through mass media by analyzing 'climate change and 'global warming coverage in 40 English-language world newspapers from 1987 until 2008. Thus the time period and the singular focus on world newspapers as a type of mass media are limitations of the research scope. However, the conclusion covers other types of arenas of science and science communication about climate change and its opportunities.
Weblink	https://sp.lyellcollection.org/content/305/1/11

Key-reading 3: Shifting public engagement: How media coverage of climate change conferences affects climate change audience segments

Authors	Wonneberger, A., Meijers, M.H.C., & Schuck, A.R.T.
Type	Research paper
Data released	February 2020
Institution	Amsterdam School of Communication Research, University of Amsterdam, The Netherlands
Aim	The aim is to research the climate change-related mobilization effects in the five identified segments of the Dutch population (Alarmed, Concerned, Cautious, Disengaged and Doubtful) in response to the media attention for the UN Climate Change Conference held in Paris in 2015 and the possible influences of this media attention on public opinion. **Target audience:** Scientists and professional science communicators. **Key-competences:** This article will improve understanding the factors causing distrust towards scientists and disengagement with science and climate action. It also explains the theory of motivated reasoning and provides insight into the level of audience engagement with climate change within the identified audience segments.
Summary	This article explains the effects of media attention on the public opinion of climate change audience segments (Alarmed, Concerned, Cautious, Disengaged and Doubtful) in the Netherlands regarding the Climate Change Conference in Paris 2015. The audience segments were identified based on a two-wave online panel survey amongst a representative group of the Dutch population. Climate change beliefs, involvement, policy preferences, and relevant behavioral intentions were the four factors that were weighted to subdivide the group into different audience segments.

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	Previous research has shown that the degree of public engagement with global climate change, as well as the public's perceptions on the severity of global climate change, the urgency and effectiveness of taking action differs per country. Some parallels could be drawn between the countries, but also cultural differences should be taken into account, so the results of segmentation studies can not simply be generalized. The theory of motivated reasoning describes how information selection and processing are influenced by individual tendencies, such as their previously formed attitudes or beliefs and the tendency to default to defensive motivations or accuracy motivations. The researchers argue that the extent of media effects differs for audience segments depending on their level of engagement and have substantiated this argument with the theory of motivated reasoning. Their findings indicate segment-specific media effects and also have found that defensive motivations are the main evoked response to exposure to event-specific media coverage. Furthermore, a bimodal relationship between the engagement factors and media effects was found. These findings could be used to better understand how public opinion and public engagement concerning climate change are affected by media coverage and other messages. So, this segmented audience format can be very useful when communicating about climate change.
Overview of the points relevant to STAGE	Public opinion is an important factor to take into account when it comes to successful climate change mitigation and the implementation of adaptation strategies. However, changing public opinion about climate change, possible actions that should be taken, and the responsibilities have proven to be a challenge. It is important and necessary to tailor messages to effectively reach the desired audience segments because the information is selected and processed differently in each audience segment. A broader societal impact can be realized, particularly when the communication is successfully targeted at the lower engagement segments.
Evaluation	**Desirability:** The target audience practices are different for each climate change audience segment, so the science communication practices should be tailored specifically to each segment. For example, the Cautious or Alarmed segments generally tend to lower their engagement when media exposure is increased. This tendency could be countered by giving more specific information about possible solutions so that their individual and governmental efficacy beliefs will be reinforced. Also, more inclusion of the least engaged segments could be realized by focusing less on factual information and more on how to make the message more engaging. Messages can become more engaging by using narratives and by enabling the target audience to discover or learn something for themselves or by making the messages easier to process. **Feasibility:** Intensifying media coverage surrounding public debates by journalists, educators, and climate change campaigners might be an effective

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	way to change public opinion. In other words, the intensity and reach of a public engagement events should be extended. In general, social media has increased trust in science, and social media might also be more efficient than traditional media in reaching younger generations. Therefore, showcasing the best practices of social media might be an interesting avenue. Researchers could also contribute by further studying how the climate change segments respond in different contexts and public engagement projects. **Viability:** Creating an overview in which the different characteristics of each audience segment are explained and categorized is viable and should be a useful aid for researchers and science communicators to better understand what the communication preferences will be for each audience segment. However, this should be done for each country because, as stated before, the audience segments can not be generalized and depend on cultural factors. **Challenges and limitations:** Climate change-related attitudes and behaviors are not only influenced by people's news exposure but are influenced by their whole social networks, such as direct social contacts and social media usage. The researchers did not include these factors in this study. Moreover, only the change in public opinion of the different audience segments was researched for one type of climate change event. This should be taken into account when these findings are extrapolated to and interpreted for other types of public engagement projects.
Weblink	https://doi.org/10.1177/0963662519886474

Key-reading 4: People and power: Expanding the role and scale of public engagement in energy transitions

Authors	John H. Armstrong
Type	Original research paper
Data released	11 June 2021
Institution	Seattle University (Environmental Studies), Seattle - USA
Aim	The paper explores the relation between science and technology studies (STS) and public engagement in issues related to energy and climate change. In particular, it assesses the limitations of primary STS perspectives and approaches to researching public engagement in energy transitions. **Target audience:** Although the paper focuses primarily in the general public and people's role in energy transitions (especially transformative one), it suggests recommendations for researchers to adopt new approaches and avenues for the incorporation of holistic analysis of public engagement.

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	Key-competences: this article improves readers' understanding on how STS considers public role in leading and shaping energy transitions, for example addressing climate change globally.
Summary	The article aimed to explore how STS considers public engagement and disparities between project-specific issues and broader energy objectives, and examines how the STS lens of analysis ensures that the public's role in energy transitions is assessed and reflected. The article is especially relevant to the Toolkit, as it engages with topics relevant to public engagement with science.
Overview of the points relevant to STAGE	The paper identifies an important gap that is not adequately explored – the STS field, which focuses on the public's technical accuracy, risk perceptions, and efficacy engaging with experts and government agencies conducting policy reviews, in relation to transformative energy transitions. Based on the paper, the public's engagement with technical issues have been subjects of assessment in various energy transition matters.
Evaluation	**Desirability** Exploring the way STS is related to public engagement in energy transitions sheds light to an important correlation, which is valuable for researchers when examining science communication. **Feasibility** The paper provides an important overview regarding the way STS is relevant to public engagement with energy transitions. **Viability** The results of this paper – which examined the relation between STS and the public's role in energy transitions – are important in terms of science communication and how the public can be adequately engaged in energy-related issues. **Challenges and limitations** While the paper assessed an important gap not adequately explored until now (i.e. the STS field and its relation to science communication), the author also stressed that more research should be done in fully assessing the public's role in energy transition, by extending the analysis to incorporate public engagement focused on broader scale goals and change.
Weblink	https://linkinghub.elsevier.com/retrieve/pii/S2214629621002292

Key-reading 5: What is Public Engagement and How Does it Help to Address Climate Change?

Authors	Ville Kumpu
Type	Original research paper
Data released	05 April 2022
Institution	University of Helsinki (Faculty of Social Sciences, Media, and Communication Studies), Helsinki – Finland
Aim	The paper aimed to review ways public engagement helps address climate change, by focusing on the concept of communication. **Target audience**

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	The target audience are scientists, science communicators, psychologists, and sociologists interested in exploring the relation between public engagement and public communication with climate change. **Key-competences** The paper improves readers' understanding in the way communication is approached as a tool to address climate change.
Summary	The paper examined the conceptualization of public engagement in research, focusing on climate communication. Specifically, it focused on the definition of public engagement and the way it is related to societal change and communication. The article concludes that all the above three concepts are approached mainly from a psychological perspective that focuses on personal engagement with climate change, while communication is conceived as a pragmatic tool that is used to address climate change.
Overview of the points relevant to STAGE	The article focuses on three main dynamics: i) public engagement & societal change, ii) public engagement & communication, iii) public engagement & climate change. A comprehensive review was conducted to examine these relations. The results indicated that communication is used as a tool to strengthen public engagement with climate change. However, the paper also concludes that public engagement is often left unidentified and very broadly termed; while it is assumed that the public has a predominant role in achieving the necessary societal change to address climate change, the way this happens is rarely elaborated. Finally, the paper suggests the development of theories and concepts related to the social dimension of public engagement, in way that can be empirically applicable.
Evaluation	**Desirability:** Understanding the dynamics between public engagement and communication regarding climate change are important in the science communication discipline. **Feasibility:** The paper examines the correlation between public engagement and societal change and communication, which are important aspects of science communication overall. The paper also stresses out the lack of a universal definition of "public engagement", which is a crucial observation for academics and researchers. **Viability:** The results of this paper provide a new perspective on how communication is perceived (i.e. as a pragmatic tool) and used to address climate change issues with the public; it is a valuable insight that will help understand better the concept of science communication. **Challenges and limitations:** While no severe limitations were identified, the present paper concludes with an open invitation for more sociologically-oriented research to be conducted on climate communication, and especially, research that examines public engagement and communication as social forces that are not reducible to the intentions of climate communicators or to the observed changes in individual attitudes and behaviours.
Weblink	https://doi.org/10.1080/17524032.2022.2055601

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Key-reading 6: Ten Thousand Voices on Marine Climate Change in Europe

Authors	Paul J. Buckley[1], John K. Pinnegar[1, 2], Suzanne J. Painting[1], Geraldine Terry[2], Jason Chilvers[2], Irene Lorenzoni[2], Stefan Gelcich[3] and Carlos M. Duarte[4 1]
Type	Original research paper
Data released	11 July 2017
Institution	**1** Centre for Environment, Fisheries and Aquaculture Science, Lowestoft, United Kingdom **2** University of East Anglia (School of Environmental Sciences), Norwich - United Kingdom **3** Pontificia Universidad Catolica de Chile (Laboratorio Internacional en Cambio Global and Centre of Applied Ecology and Sustainability, Departamento de Ecologia), Santiago - Chile **4** King Abdullah University of Science and Technology (Red Sea Ecology, Biological and Environmental Science and Engineering Division), Thuwal - Saudi Arabia
Aim	The paper aimed to examine the established levels of awareness, concern, and trust among different demographic groups and nationalities, regarding scientific understanding and management of impacts of climate change in the marine environment. **Target audience**: 10,000 European citizens from 10 countries. **Key competences:** the article aims to increase readers' knowledge concerning varying perceptions of marine climate change among different EU citizens.
Summary	This particular paper offered an insight to the way marine climate change is perceived by different European citizens from different countries. Most concerns regarding climate change in the seas and ocean were common across all 10 countries examined, and specifically, marine pollution, melting sea-ice, coastal flooding, and rise in the sea levels. The paper also highlighted the way climate change issues are framed as well as individuals' personal values (e.g. emotions, empowerment) are important factors influencing the extent to which individuals are concerned about them.
Overview of the points relevant to STAGE	The paper conducted primary research to examine the levels of awareness, concern and trust in regards to marine climate change. Results showed that citizens from Germany, Italy, and Spain were the most informed on marine climate change issues, while citizens from the Czech Republic, Netherlands, and Estonia were the least informed. Different sources are used by European citizens to be informed about this issue, namely television and the internet, however, trust in the various media sources varied among countries and demographic groups. Also, it was found that respondents trusted academics or those working for environmental NGOs more than scientists working for the government or an industry. At policy level, most respondents focused on measures to mitigate the issue as a whole, as opposed to local-scale adaptation.

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Evaluation	**Desirability** Better understanding the factors influencing EU citizen's knowledge and concern regarding climate change issues will help to introduce effective mechanisms to increase public engagement, as well as develop policy action to mitigate climate change impact. **Feasibility** The results of the study open possibilities for further research to be conducted by academics and scientists. **Viability** The paper draws on primary research (survey with 10,000 responses from European citizens) to examine the level of awareness and concern of EU citizens in relation to marine climate change. The results, and the fact that responses were collected from citizens of different EU countries, provide an important insight that can be used by other researchers for further research. **Challenges and limitations** The study was based almost entirely on quantitative data. While this method provides valuable insights in relation to the levels of awareness and concern of EU citizens in terms of marine climate change, the study lacked the collection of more in-depth data. This could be achieved through conducting interviews and focus groups with selected participants in order to better understand, for example, the different perspectives of each country and social group. Lack of financial provision as well as logistical issues contributed to this limitation.
Weblink	https://www.frontiersin.org/articles/10.3389/fmars.2017.00206/full

Key-reading 7: Communicating Climate Change: Why Frames Matter for Public Engagement

Authors	Matthew C. Nisbet
Type	Review
Data released	2009
Institution	American University, School of Communication, United States of America
Aim	The paper describes frames used for public engagement and historical development of these approaches. The paper helps to think about writing and oral skills needed to communicate science, mainly issues related to climate change. Moreover, it can improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action. **Target audience:** scientists, science communicators **Key competence:** develop writing and oral skills needed to communicate science, mainly issues related to climate change; reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	This paper deals with procedure of addressing climate change to public with possibilities of public engagement. The specific moments and factors impacting the level of presentation of the issue related to climate change are

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	step-by-step introduced so the paper is important to understand these complex circumstances.
Overview of the points relevant to STAGE	The text is useful in the understanding how people make decisions and how people develop trust in science. Moreover, the politic and economical background is introduced. The reader can become familiar with specific moments in the discussion about climate change.
Evaluation	Paper could be use as the supportive material included in the toolkit to get common sense about the problematics and better insight into the different approaches. Material could be use for a longer time and it could be also supported by other papers.
Weblink	• https://doi.org/10.3200/ENVT.51.2.12-23

Key-reading 8: Bridging the gap between science communication practice and theory: Reflecting on a decade of practitioner experience using polar outreach case studies to develop a new framework for public engagement design

Authors	Rhian A. Salmon, Heidi A. Roop
Type	Research Article
Data released	2019
Institution	Victoria University of Wellington, Centre for Science in Society, New Zealand
Aim	The paper proposes three foci for increasing the professionalization of practitioner approaches to Education, Outreach and Communication related to polar research. **Target audience:** scientists, science communicators.
Summary	The paper introduces four polar case studies and evaluate their impact. Each study is described in detail (objectives, outreach and outputs, author involvement and attempts at assessment, insights) and the common themes are identified from the case studies.
Overview of the points relevant to STAGE	The paper is very interesting as it can be connected to the previous paper (10 years after its publication) and it presents different framing. Very interesting is a new framework for planning and improving public engagement design, including graphical representation. The text is useful in the understanding how people make decisions and how people develop trust in science.
Evaluation	Paper could be use as the supportive material included in the toolkit to get common sense about the problematics and better insight into the different approaches. Material could be use for a longer time and it could be also supported by other papers.
Weblink	• https://doi.org/10.1017/S0032247418000608

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Key-reading 9: Humour and sarcasm: expressions of global warming on Twitter

Authors	Hande Eslen-Ziya
Type	Research Article
Data released	2022
Institution	University of Stavanger, Norway
Aim	The paper presents interesting analysis of tweets related to the climate change. Target audience: scientists, science communicators Key competence: develop writing and oral skills needed to communicate science, mainly issues related to climate change; reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	The increasing popularity of Twitter as a medium for sharing and debating scientific information brings forth questions about the type of narratives emerging around environmental/climate change and global warming. This article maps the landscape of narratives of how Twitter is used to communicate about environmental issues in Turkey. It displays how these actors can play a crucial role in constructing and/or de-constructing such crisis.
Overview of the points relevant to STAGE	The paper is very interesting as it connects climate change with social media presentations. Twitter is used very often so analysis of tweets as well as their understanding is very important. This paper can help readers to understand the power of social media and the approaches how to present topics to the public. The text is useful in the understanding how people make decisions and how people develop trust in science.
Evaluation	Paper could be use as the supportive material included in the toolkit to get common sense about the problematics and better insight into the different approaches. Material could be use for a longer time and it could be also supported by other papers.
Weblink	• https://doi.org/10.1057/s41599-022-01236-y

Key-reading 10: Public engagement with climate change: what do we know, and where do we go from here?

Authors	Lorraine Whitmarsh, Saffron O'Neill, Irene Lorenzoni
Type	Theoretical
Data released	March, 2013
Institution	School of Psychology, Cardiff University, UK Tyndall Centre for Climate Change Research, University of East Anglia, UK

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	Geography, Colleg of life and Environmental Sciences, University of Exeter, UK School of Environmental Sciences, University of East Anglia, UK
Aim	The target audience of the paper are communicators lacking experience in science communication Key competence: **Develop writing and oral skills needed to communicate science, mainly issues related to climate change** *and the gender gap in STEM, in various spaces (popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals etc.)*
Summary	Initially, the paper outlines what is meant by public engagement and provides a brief review about public engagement with climate change. Afterwards, it summarizes what should be taken into account when trying to communicate and stimulate behavioral and social change regarding climate change. Finally, it provides a typology of forms of engagement and a conceptual framework for understanding and promoting public engagement with climate change. The paper is important for our toolkit because it points out important general aspects - *based on literature analysis* - that should be taken into account when developing forms of public engagement with climate change.
Overview of the points relevant to STAGE	The paper gives insights into understanding how people make decisions as well as on the factors that influence individuals' engagement with climate change. In particular, it stresses: - That public engagement should be manifested in multiple forms (not emphasis just on the consumer role of individuals but also on the civic / community based activities they can participate) - The multiple motivations and barriers to individual engagement which are connected with personal, phycological, social aspects. - The diverse methods and scales of public engagement - The appropriate content of the engagement messages - The need for evaluating the engagement process, the outcomes and the context
Evaluation	**Desirability:** The key reading can be useful for science communicators and policymakers because it provides a framework with some basic factors that should be taken into account when designing strategies for individuals' engagement with climate change. **Feasibility:** The paper provides a specific typology of climate change engagement activities. In particular, it describes the aim, format, strategy and evaluation of indicative activities. **Viability:** An overview of the factors that should be taken into account and of the features that the strategies of public engagement should have is viable and really useful especially for science communicators lacking experience in the field. **Challenges and limitations:** The paper reveals some crucial research gaps that should be addressed in order to deepen our understanding in climate change engagement.
Weblink	https://www.ingentaconnect.com/contentone/intellect/mcp/2013/00000009/00000001/art00002

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Key-reading 11: Net zero public engagement and participation

Authors	**Net zero public engagement and participation**
Type	Christina Demski
Data released	Report
Institution	March, 2021
Aim	UK government
Summary	The target audience of the paper are climate policy makers Key competence: **Develop writing and oral skills needed to communicate science, mainly issues related to climate change** *and the gender gap in STEM, in various spaces (popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals etc.)*
Overview of the points relevant to STAGE	Initially, the report defines what is meant by public engagement and describes the three main public engagement and participation rationales (instrumental, substantive, normative). It is also emphasized that every public engagement strategy should be as inclusive as possible while finally the different forms of public engagement are analyzed. The report is important for our toolkit because it points out important general - introductory aspects regarding public engagement and participation in climate change.
Evaluation	The report gives emphasis on the role of public engagement, the necessity for inclusivity in public engagement strategies and the diverse forms of public engagement. These aspects are relevant to the project because they provide an initial framework that should be developed and delivered to scientists and science communicators.
Weblink	**Desirability:** The key reading can be useful for science communicators and policymakers because it provides the rationales and forms of public engagement with climate change and action. It provides key – general aspects of public engagement that can function as a starting point when designing strategies for public engagement. **Feasibility:** The report is an overview of recent evidence and key concepts relating to net zero and public engagement. This overview can be used to develop climate policy across government and shape the future direction of research. **Viability:** The overview is viable and useful especially for science communicators lacking experience in the field. **Challenges and limitations:** The report has not been peer reviewed.
	https://www.gov.uk/government/publications/net-zero-public-engagement-and-participation

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Key-reading 12: Is it climate change? Coverage by online news sites of the 2019 European summer heatwaves in France, Germany, the Netherlands, and the UK

Authors	James Painter, Joshua Ettinger, Marie- Noëlle Doutreix, Nadine Strauß, Anke Wonneberger & Peter Walton
Type	Research paper
Data released	November 2021
Institution	Reuters Institute for the Study of Journalism, University of Oxford, UK ICOM, Université Lyon 2, France. Department of Communication and Media Research, University of Zurich, Switzerland. Amsterdam School of Communication Research, University of Amsterdam, The Netherlands
Aim	The target audience of the paper are science communicators on climate change. Key competence: Develop writing and oral skills needed to communicate science, mainly issues related to climate change *and the gender gap in STEM, in various spaces (popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals etc.)*
Summary	The paper provides insights into whether and how extreme weather events are connected to climate change through online media coverage. In particular, it is mentioned that there are strong variations between countries and media outlets in how much journalists pay attention to links between climate change and the heatwaves. Moreover, the political ideology seems to play an important role given that in general the left-wing online sites include more connections than right-wing sites. Finally, in the media outlets that were analyzed, climate scientists working for universities, Met Offices, and research institutions were quoted frequently and far more than politicians and NGOs while possible solutions or climate actions were not included.
Overview of the points relevant to STAGE	Understanding of the features of media coverage around climate change issues. Investigation on media coverage trends around climate - related phenomena provides a deeper understanding of public concerns and perspectives that can subsequently lead to more well organized public engagement strategies.
Evaluation	**Desirability:** The key reading can be useful for science communicators as it provides the features of the media coverage regarding climate change issues. **Feasibility:** The ways climate change is covered through media has implications beyond a better understanding of journalism practice as media coverage can also provide important opportunities to engage the public on the risks of climate change. **Viability:** The results of the paper can be useful in order to better understand the challenges in the science communication field when it is connected with online media. **Challenges and limitations:** There are some limitations regarding the results. For example, the researchers analyzed some indicative media outlets, they have not analyzed the visualizations etc.
Weblink	https://link.springer.com/article/10.1007/s10584-021-03222-w

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Key-reading 13: Public engagement with climate change: the role of human values

Authors	Adam Corner, Ezra Markowitz, Nick Pidgeon
Type	Review
Data released	2014 (may/june)
Institution	Understanding Risk Research Group, Tyndall Centre and Climate Change Consortium of Wales, School of Psychology, Cardiff University, Cardiff, UK Climate Outreach & Information Network (COIN), Oxford, UK Trustee of the Public Interest Research Centre (PIRC), Plas Dr, Machynlleth, Powys SY20 8ER, UK Earth Institute & Center for Research on Environmental Decisions, Columbia University, New York, NY, USA Princeton Institute for International and Regional Studies, Princeton University, Princeton, NJ, USA
Aim	Are there certain values on which public engagement with climate change is (or should be) predicated? The paper reviews the growing body of literature that explores the role of human values (and the closely related concept of cultural worldviews) in public engagement with climate change. Target audience: scientists. Key competences: Reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	The degree of political polarisation that has developed around climate change reflects the fact that disagreements about climate change are more likely to be about values than about the underlying science. Research has started to move beyond simply documenting how values correspond with attitudinal variables such as levels of concern about climate change, and to adopt more explicitly normative goals.
Overview of the points relevant to STAGE	An explicit reflection on values involved in climate change storytelling needs to be taken into account to understand how messages about climate change might be framed to appeal to citizens who do not identify with traditionally 'proenvironmental' ideas, or how more substantive behavioural engagement can be promoted among the general public.
Weblink	https://wires.onlinelibrary.wiley.com/journal/17577799

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Key-reading 14: Communication Practices and Political Engagement with Climate Change: A Research Agenda

Authors	Anabela Carvalho, Margit van Wessel & Pieter Maeseele
Type	Review paper
Data released	October 2016
Institution	Department of Communication Sciences, University of Minho, Braga, Portugal; Sub-department Communication, Technology and Philosophy, Centre for Integrative Development, Chair Group Strategic Communication (COM), Wageningen University & Research, Wageningen, The Netherlands; Department of Communication Studies, University of Antwerp, Antwerp, Belgium
Summary	In this article, authors call for a refocusing of research on citizens' political engagement with climate change. The paper argues that communication practices not only help create the conditions for political engagement but they also comprise the modes of such engagement. Starting from the lack of attention regarding the political, the authors focus on research on political engagement in CC by explaining how the notion of political subjectivity helps us to understand the relation between communication practices and engagement with the politics of climate change.
Overview of the points relevant to STAGE	The role of political dimension in climate change public engagement; how CC knowledge, info, communication practices, etc. inform political engagement;
Weblink	https://www.tandfonline.com/doi/abs/10.1080/17524032.2016.1241815?journalCode=renc20

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Key-reading 15: Quantifying stakeholder learning in climate change adaptation across multiple relational and participatory networks

Authors	Jose Daniel Teodoro, Christina Prell, Laixiang Sun
Type	Empirical paper
Data released	October 2020
Institution	Department Geographical Sciences, University of Maryland—College Park, MD, 20740, United States Department of Cultural Geography, University of Groningen, Groningen, the Netherlands
Summary	This study employs social network analysis (SNA) to investigate how social relations among stakeholders, which emerge as a result of participation, are associated with stakeholder learning, as changes in perceptions of climate change. The authors hypothesised that reciprocal ties of understanding, respect, and influence can predict changes in perceptions of climate change. This approach was applied to a case study in Deal Island Peninsula, Maryland (USA) where local residents, scientists, and government officials met from 2016 to 2018 to collaboratively manage the impacts of sea-level rise in their communities. The authors found that social relations based on mutual understanding, respect, and influence are positively associated with perceptions of climate change. Target audience: Science communicators, scientists, policy-makers
Overview of the points relevant to STAGE	Not centrally but it is recognizable: (i) understanding how people make decisions, (ii) how people develop trust in science.
Weblink	https://www.sciencedirect.com/science/article/pii/S030147972031433X

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Practical resources

The practical resources that aim at skills development, from writing for popular science magazines to giving public talks and engaging with social media in the context of climate change, were identified and analyzed. The type, data released, organization, purpose and aim, summary and description, skills, an overview of the points relevant to the project, and evaluation were analyzed for each practical resource.

Practical resource 1: UNESCO-UNFCCC Webinar Series

Type	Webinar Series
Institutions	United Nations Educational, Scientific and Cultural Organization (UNESCO) United Nations Framework Convention on Climate Change (UNFCCC) The Webinar Series is part of the Action for Climate Empowerment (ACE) Hub of UNESCO-UNFCCC and is promoted by the German regional government of North Rhine-Westphalia.
Aim	This webinar series fosters education, raises public awareness, and increases participation in climate change action. The target audiences include youth and science communicators and science educators with interest in climate change action and education.
Summary	This is an educational webinar series about climate change action that explores a wide range of topics in eight different episodes about climate change education and its importance for society.
Skills	This series will allow science communicators to use their knowledge about climate change education in their communication.
Overview of the points relevant to STAGE	The topics that will be covered in the webinar series are the following: 1. Why climate change education for social transformation? 2. How climate change knowledge can become action 3. Education for post-carbon green economics 4. Now or never: Adapting teaching and learning in a changed climate 5. Our future starts with you: How to become a climate change champion 6. The ancient futures: Un-learning and re-learning our way towards a post-carbon future 7. Getting ready to scale up climate change education at COP27 8. Post-COP27 climate change education: Where do we go from here?
Evaluation	**Transferability:** The knowledge, core skills, values, and actions that can be learned with this webinar series are transferable to many areas and target groups. This material can also be used by other partner countries and beyond. **Desirability:** Climate change action and education are important topics for science communicators to learn about. **Feasibility:** The webinar series is already developed and can be accessed for free. From the 29th of November 2022, all eight webinars will be available online because each month, a webinar will be released from the 26th of April 2022 onwards. **Viability:** The webinar series can be accessed for free, thus, this practical resource is financially viable.
Weblink	UNESCO-UNFCCC Webinar Series | UNFCCC

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Practical resource 2: Climate Communications Training

Type	Webinar (online workshop)
Data released	July 2021
Institutions	Climate Action Network (CAN)
Aim	Aid NGOs and grassroots organizations to effectively communicate their objectives and goals. The communications training is directed to people that work in Third Sector organizations and is also interesting for people that want to learn how to clearly communicate their objectives and goals.
Summary	This is an online workshop on climate communications training with a focus on developing effective communications approaches and strategies in this age of digital transformation.
Skills	Participants will develop a communications toolkit, and communicating on social media will also be covered. Participants will also learn how to create effective narratives on renewable energy.
Overview of the points relevant to STAGE	Participants will learn the best communication strategies for public engagement on the topic of climate change. There is a special focus on how to reach grassroots-level communities so that these Third Sector organisations can advocate their goals and inspire action.
Evaluation	**Transferability:** The material can be transferred to many areas and target groups. **Desirability:** This course focuses on how to increase the efficiency, productivity, and connectivity of communication with digital technologies. **Feasibility:** The climate communications training is available online and takes one hour to complete. The slide deck is also available online. **Viability:** The webinar can be accessed for free, thus, this practical resource is financially viable.
Weblink	Climate Communications Training - Climate Action Network (climatenetwork.org)

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Practical resource 3: Principles for effective communications and public engagement on climate change

Type	Handbook
Data released	August 2017
Institutions	Climate Outreach
Aim	The handbook provides guidance on how to communicate more effectively about climate change through engaging the public by using impactful, effective and evidence-based communication. The target audience are IPCC scientists, but the handbook will also be useful to other scientists.
Summary	This handbook on engaging audiences with climate change is a resource for IPCC authors and the broader scientific community, such as science communicators. Readers learn six principles that can be used in public engagement and are illustrated with practical examples and situations.
Skills	How to be a confident communicator that can connect with the audience. The Climate Visuals project offers a set of tools for effective communication in the visual medium.
Overview of the points relevant to STAGE	This handbook explains why it is important to talk about the real world and why to avoid abstract ideas in order to better connect with the audience. In short, this resource aids scientists in better understanding their audience.
Evaluation	**Transferability:** The focus of this material is on the target audience of scientists. Apart from this limiting factor, these lessons can be transferred to other areas of interest besides the main area of focus, namely climate change. **Desirability:** Scientists will want to learn the best communication practices about climate change. The resource gives very practical advice and useful examples. **Feasibility:** This handbook will take a day to complete and will be very useful as reference work. Especially the Climate Visuals principles part of the handbook are very practical. **Viability:** The handbook can be accessed for free, thus this practical resource is financially viable.
Weblink	Climate-Outreach-IPCC-communications-handbook.pdf

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Practical resource 4: Engagement toolkit

Type	Handbook
Data released	March 2021
Institutions	European Food Safety Authority (EFSA) EFSA | Trusted science for safe food (europa.eu)
Aim	This resource will aid the reader to find the best solutions to design effective participatory processes. It can be used by the European Food Safety Authority and also by other target audiences, such as science communicators, to find a wide array of examples of different engagement methods and also a lot of best practices of these engagement methods.
Summary	This engagement toolkit contains methods, tips and practices to design effective participatory processes. It was created as a 'Relationship Management Project' by the European Food Safety Authority.
Skills	Design effective participatory processes.
Overview of the points relevant to STAGE	This toolkit provides an overview of the different types and different levels of engagement activities and introduces appropriate tools and channels depending on different target audiences.
Evaluation	**Transferability** The main focus of the material is not on climate change. However, the handbook gives a lot of examples of engagement methods, examples of the best practices of these engagement methods, and also explains different methods on how to identify the target audience. **Desirability** Users will desire to design a participatory process, for which this handbook is very useful. **Feasibility** This handbook contains almost 200 pages; therefore, it will take a long time to read the contents of this toolkit. It might be necessary to point the readers to the most useful sections of the toolkit. **Viability** The handbook is available for free, so this resource is financially viable.
Weblink	engagement-toolkit.pdf (europa.eu)

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Practical resource 5: RRI Tools – fostering Responsible Research and Innovation

Type	Toolkit collection and practical guide
Data released	2017
Institutions	Responsible Research and Innovation (RRI) About RRI - RRI Tools (rri-tools.eu) European Consortium; 26 institutions that cover 30 European countries
Aim	The search engine of RRI Tools contains the resource types Tools, Inspiring Practices, Projects, and Library Elements. RRI provides tailored information for policymakers, the research community, the education community, civil society organizations and businesses and the industry.
Summary	There are sources on ethics, gender equality, governance, open access, public engagement and science education. The provided toolkits on public engagement can aid scientists and science communicators in setting up their own public engagement activities about climate change.
Skills	This resource is a collection of useful resources that can be used to develop many different skills. One example is learning to design public engagement activities about climate change.
Overview of the points relevant to STAGE	RRI Tools is a toolkit collection and also contains a practical guide on how to best use the RRI Tools. The goal is to aid the user in developing responsible research and innovation. The practical guide contains Responsible Research and Innovation (RRI) Showcases and also clarifies the RRI Toolkit structure.
Evaluation	**Transferability:** Responsible research and innovation practices have a broad focus and applicability and as such can be transferred to many areas of research. Therefore the material has the potential for further sustainability within the partner countries and beyond. **Desirability:** The practical guide of the toolkit collection is very succinct and elaborate and will thus appeal tot he target-audience. **Feasibility:** This toolkit collection can be used for many different applications and is versatile in its use. However this also means that it will take the target-audience some time to go through all the material. **Viability:** The toolkit collection and handbook are available online for free, so this resource is financially viable.
Weblink	Search engine - RRI Tools (rri-tools.eu) Public Engagement - RRI Tools (rri-tools.eu) RRI+Tools.+A+practical+guide+to+Responsible+Research+and+Innovation.+Key+Lessons+from+RRI+Tools (rri-tools.eu)

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Practical resource 6: Engage2020 Action Catalogue

Type	Online decision support tool and digital Anthology
Data released	2015
Institutions	Engage2020 project Funded by the European Commission (DG Research)
Aim	The Engage2020 Action Catalogue aims to provide scientists, science communicators and communicators with various methods that will help them to facilitate public engagement in order to enhance involvement and inclusion.
Summary	The Engage2020 Action Catalogue consists of 57 research methods with a focus on involvement and inclusion. Science communicators and researchers can select 32 different criteria and weigh the importance of the criteria in order to get a prioritized list of the methods that fit the research the best. Furthermore, the Engage2020 Anthology eBook provides an introduction to doing inclusive research and will assist the researcher in using the Engage2020 Action Catalogue.
Skills	The target audience will learn how to set up and do inclusive research by providing information on a wide array of public engagement.
Overview of the points relevant to STAGE	The online decision support tool assists the target audience in selecting the method that will fit best with their needs for performing inclusive research. The digital Anthology provides the readers with multimedia content (for example, videos) and an e-book with information about engagement.
Evaluation	**Transferability:** Many different methods for the implementation of public engagement in research and innovation activities are provided in this resource. These methods will also be useful in other research areas than climate change. **Desirability:** This resource is very useful for a target audience that wants to design engagement research and innovation activities. The digital Anthology is a great aid for the members of the target audience that have less experience. **Feasibility:** The digital Anthology is a great addition to the online decision support tool, as it offers a very detailed explanation of the different engagement methods and also offers access to other multimedia contact (such as videos). Using this resource will be technologically and organisationally feasible for the target-audience. **Viability:** The online decision support tool and digital Anthology are available online for free, so this resource is financially viable.
Weblink	ActionCatalogue - methods Engage2020 Anthology eBook: engage2020.eu/media/Engage2020_withVideo.pdf

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Practical resource 7: Education and Training on climate change: Good Practices

Type	Various types of good practices on website
Institutions	United Nations Framework Convention on Climate Change (UNFCCC) UNFCCC
Aim	Inspiring scientists, educators and professional science communicators with local and regional stories and examples of education and training on climate change.
Summary	Compilation of good practices about education and training on climate change by governments, local councils, civil society organizations and other stakeholders.
Skills	This resource gives examples about good practices in action for climate empowerment, how to develop educational material on climate change and about how to include climate change education and media outreach in the curriculum.
Overview of the points relevant to STAGE	Ten examples of good practices for education and training about climate change are given in this resource. Public awareness, public participation and public access to information are themes that are covered, as well as education for sustainable development.
Evaluation	**Transferability:** These materials are specifically focussed on the topics of climate change and climate empowerment. However the examples of good practices might be transferable to other education and training topics closely related to the themes that are covered. **Desirability:** Scientists and communicators can get inspired by these good practices examples by diverse stakeholders on how to strengthen education and training on climate change. **Feasibility:** This resource can be explored online by individuals and gives very concrete examples. It will be technologically and organisationally feasible to make this resource available to the target-audience. **Viability:** These good practices in education and training align with the target audience goal to learn about how to best communicate about climate change. Furthermore, this resource is available online for free, therefore this resource is financially viable.
Weblink	Education and Training:Good Practices | UNFCCC

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Practical resource 8: UNFCCC Science Resources

Type	Various resources on website
Institutions	United Nations Framework Convention on Climate Change (UNFCCC) UNFCCC
Aim	This resource provides information portals and sources of scenario data on the topic of climate change. Furthermore a list of climate services and policy support is provided. Both of these compilations are of interest for scientists and professional science communicators.
Summary	The UNFCCC has created a compilation of resources on climate change related to science. Information portals and sources of scenario data are provided as well as climate services and policy support.
Skills	The information portals and sources of scenario data can be used by scientists and science communicators to substantiate their articles and socials on the topic of climate change with up-to-date data and information.
Overview of the points relevant to STAGE	The scenario data can be used to inform people about climate change and assist people to develop trust in science. The climate services and policy support that are provided by the UNFCCC are compiled in a (non-exhaustive) list. This list can aid the people to develop trust in science.
Evaluation	**Transferability:** This material can not be easily transferred to many areas, because the provided data and information are specifically on climate change. The material does however have the potential for further sustainability within the partner countries and beyond. **Desirability:** The target-audience can use this compilation of resources to get the most recent scenario data, which can be easily accessed and analyzed. **Feasibility:** The provided list is very extensive. It will take the users a long time to explore all the different sources. **Viability:** This resource is available online for free, therefore using this resource is financially viable. The target audience will be interested in learning more about the different available climate services and policy support.
Weblink	UNFCCC Topics | UNFCCC Information portals and sources of scenario data | UNFCCC Climate services and policy support* | UNFCCC

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Practical resource 9: Climate Change Knowledge Hub

Type	Knowledge hub
Institutions	Food and Agriculture Organization of the United Nations (FAO) Home | Food and Agriculture Organization of the United Nations (fao.org)
Aim	The aim of the Climate Change Knowledge Hub (CC-Hub) is to aid countries in delivering on their climate and sustainable development goals by enhancing their knowledge and capacity. The target audience is everyone that is involved in or interested in gaining knowledge to deliver on those goals.
Summary	The Climate Change Knowledge Hub (CC-Hub) contains knowledge and resources on climate change focused on agriculture and land use sectors. The CC-Hub has a wide collection of different resources, such as learning materials, brochures, tools, webinars and infographics.
Skills	Knowledge on migration, agriculture and climate can be obtained.
Overview of the points relevant to STAGE	The Climate Change Knowledge Hub provides of collection of the following types of resources: Studies and reports; Methodologies and guidelines; Policy analyses/briefs; Websites/platforms/portals; Country experiences; Brochures; Learning materials; Tools; Webinars; Infographics
Evaluation	**Transferability:** The main focus of the material is on food and agriculture in relation to climate change. The CC-hub also provides networks and communities of practice to connect people so that they can share their experiences, knowledge and ideas. **Desirability:** The target-audience desires data, learning materials and activities, guidelines, policy advice and tools and can find these in the CC-hub. **Feasibility:** There is a lot of information on the CC-hub, which the target-audience can explore by themselves. However it might be useful to give some examples for the users, so they have a clear idea about all the resources that this CC-hub provides. **Viability:** The CC-hub and its resources can be accessed online and are available for free.
Weblink	Knowledge Hub | Climate Change | Food and Agriculture Organization of the United Nations (fao.org) Collections - Resources on Climate Change (fao.org) Learning corner | Climate Change | Food and Agriculture Organization of the United Nations (fao.org)

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Practical resource 10: CARE Climate & Resilience Academy

Type	Online Courses, Learning Journeys and Trainer Packs
Institutions	CARE Climate Justice Center CARE Climate Change Civil society organization
Aim	The aim of CARE Climate & Resilience Academy is to take action on the climate crisis and to build knowledge for global change mainly by empowering poor and marginalized people. The target audience are scientists, science communicators and also employees of organizations that are involved with climate change and resilience.
Summary	The CARE Climate & Resilience Academy provides free online courses, free trainer packs and paid learning journeys. The online courses take 1 to 2 hours to complete and will aid in acquiring knowledge on climate change and resilience, which includes the topic climate justice and gender justice. The trainer packs focus on increasing resilience and becoming a Climate-Smart Organization.
Skills	This resource will aid the user to better understand the climate crisis. The user will also learn how to perform climate vulnerability assessments in order to be able to develop and implement climate-sensitive policies, plans or programs.
Overview of the points relevant to STAGE	This academy will aid you in developing knowledge about climate change mitigation, adaptation and how gender plays a role in this arena. The value of enacting gender-inclusive practices in public engagement with science is featured in the online courses Gender #1 - The Basics and Gender #2 - Climate Justice and Gender Justice.
Evaluation	**Transferability:** The material is transferable to many target groups that are interested in learning about climate change and also has the potential for further sustainability within the partner countries and beyond **Desirability:** The online courses are self-paced courses with very clear descriptions of the contents, needed time investment and the difficulty level of the material. **Feasibility:** The resources of the CARE Climate & Resilience Academy are technologically available to the users and can be accessed without any additional organizational effort. **Viability:** The online courses are available for free. There are also paid learning journeys available that consist of interactive online training with coaching and peer to peer exchanges.
Weblink	CARE Climate & Resilience Academy - CARE Climate Change

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Practical resource 11: Designing Effective Science Communication

Type	Online course
Institutions	Coursera (www.coursera.org) University of Colorado Boulder (www.colorado.edu)
Aim	The aim of this course is to provide the necessary knowledge and skills in order to effectively communicate science to diverse audience and, particularly, the general public. **Target audience**: scientists, science educators, science communicators. **Key competences**: the course aims to improve and enhance participants' understanding on the basic principles of science communication, as well as their capacity to design and implement effective methods of science communication.
Summary	This online course offers the basic principles of science communication, and explores various methods that scientists can use to effectively inform the public regarding science-related topics
Skills	The content of the course intents to achieve the following objectives in terms of participants learning: - consider principles of human learning when designing science-related outreach activities - compare and contrast modalities for science communication -identify common pitfalls when designing and implementing science communication activities - practically design a science communication activities based on the principles learned by taking the course.
Overview of the points relevant to STAGE	The topics covered by the course include: 1. basics of human learning, cognitive processes that underline learning, major educational psychology theories 2. oral presentations for communicating science, creating visual supports, media interviews 3. written communication, writing mechanics 4. technology-based communication, educational technologies, learning analytics 5. artistic forms of science communication (e.g. photography, music, etc.)
Evaluation	**Transferability**: Since the content of the course focuses on effective methodologies for science communication, the participants will be able to use the knowledge and skills developed to communicate effectively their science-related to topics to any audience. **Desirability**: The course offers knowledge, skills, and insights for effective science communication, which is the core scope of the STAGE project. **Feasibility**: The course is delivered 100% online and is design as a self-paced course, meaning that learners can schedule their own learning process and schedule to complete it. Overall, the course requires 11 hours to complete. **Viability**: interested participants can enroll for Free
Weblink	https://www.coursera.org/learn/designing-effective-science-communication

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Practical resource 12: BRITEC – Citizen Science Toolkit

Type	Toolkit
Institutions	**Project partners:** 1) Institute of Geophysics PAS (Poland) 2) Universidad Autónoma de Madrid (Spain) 3) Open Technologies Alliance (Greece) 4) Ibercivis (Spain) 5) European Schoolnet (Belgium) 6) KU Leuven (Belgium)
Aim	This online and freely available toolkit contains various examples of IT tools and resources that can be used to engage students in research and science during class. The toolkit was developed in the framework of the BRITEC project, funded by the Erasmus+ programme, which aimed to train and support school teachers to introduce new ways of engaging students in science during classroom, as well as motivate students to increase their interest in STEM subjects.
Summary	The toolkit specifically addresses schools, teachers, universities, and research institutions, and can be used as a practical instrument to reflect on possible ways to engage schools and researchers in co-designing citizen science projects, so as to increase students' interest and engagement with science.
Skills	The Toolkit contains various tools, which addresses core aspects for deigning a citizen science project: ● Co-creation ● Data collection ● Data transfer ● Data analysis ● Presentation of results ● Sharing information ● communication
Evaluation	**Transferability**: Interested readers can use the knowledge and examples included in the Toolkit to effectively design citizen science projects. **Desirability**: The course offers knowledge, skills, and insights for effective science communication and engagement, which is the core scope of the STAGE project. **Feasibility**: The Toolkit is designed in a way that can be used at any time by any interested user, adjusting its content based on students' needs. **Viability**: the Toolkit is available for free, in digital form.
Weblink	https://britec.igf.edu.pl/?page_id=407

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Practical resource 13: Science Communication Toolkit: Telling the Story of Science

Type	Toolkit
Institutions	British Council Ireland FameLab Ireland
Aim	This toolkit aims to engage Transition Year Students in Ireland (*i.e. students who take an optional one-year school programme, as part of a three-year school cycle*) in science, through communication and sharing of knowledge. **Target audience**: Teachers and Transition Year Students. **Key competences**: the Toolkit introduces the concept of science communication to students and aims to increase their knowledge and passion for science.
Summary	The Toolkit focuses on various methods and ways to effectively engage students with science, so that they do not view science as merely a school subject that has no relevance to their lives. Through the Toolkit, the developers aim to: a) introduce the concept of science communication b) provide students with tools and confidence to develop core skills for effective science communication c) demonstrate the diversity of the science communication field d) help increase engagement and inspire passion for science communication
Skills	The Toolkit comprises six units, targeting both teachers and students, each containing practical activities, reading materials, videos, and additional resources. The six units focus on: 1) storytelling; 2) humor; 3) body language; 4) audience participation; 5) language tricks; 6) creativity
Overview of the points relevant to STAGE	The Toolkit targets students and teachers, providing them with resources, tools, and activities to increase their knowledge and understanding in science communication. It contains not only theoretical/reading materials, but also "icebreaker" activities for students, practical examples, and assessment activities to assess students' learning process.
Evaluation	**Transferability**: Interested readers can use the knowledge and examples included in the Toolkit to effectively engage students in science communication. **Desirability**: The course offers knowledge, skills, and insights for effective science communication and engagement, which is the core scope of the STAGE project. **Feasibility**: The Toolkit is designed in a way that can be used at any time by any interested user, adjusting its content based on students' needs. **Viability**: the Toolkit is available for free, in digital form.
Weblink	https://www.britishcouncil.ie/famelab/sci-com-toolkit

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Practical resource 14: Communicating Science: GIVING TALKS

Type	Guide
Institutions	BURROUGHS WELLCOME FUND
Aim	This comprehensive guide aims to provide advice and practical insights for preparing and delivering talks focusing on scientific topics. **Target audience**: Scientists, science communicators **Key competences**: the guide aims to improve and enhance scientists' capacity to deliver effective talks and develop conversations with the audience, on a given scientific matter.
Summary	The guide provides a set of practical insights, tips, and information regarding the preparation and delivery of structured and effective talks and presentations.
Skills	The guide offers the opportunity for scientists and science communicators to improve their capacity in preparing and delivering engaging talks and presentations regarding their chosen scientific topic. The topics covered in the Guide include: the art of speaking, developing structured presentations, preparing talks, speaking skills, using technology as an asset, handling audiences' questions, managing unexpected occurrences during the talk/presentation, promoting one's work during the talk/presentation.
Overview of the points relevant to STAGE	The Guide focuses on the art of communicating science in an effective, engaging, and entertaining manner, which is a core aspect of the STAGE project.
Evaluation	**Transferability**: Interested scientists/communicators can use the knowledge and advice included in the Guide to effectively engage their audience and develop an effective conversation with them. **Desirability**: The Guide offers practical advice for effective science communication and engagement, through the delivery of talks and presentations. **Feasibility**: The Guide is designed in a way that can be used at any time by any interested scientist/communicator, adjusting its content based on audiences' needs. **Viability**: the Guide is available for free, in digital form (requires sign in)
Weblink	https://www.scribd.com/doc/34887738/Communicating-Science-Giving-Talks-Second-Edition?_ga=2.240285827.1635854875.1665384006-1108978688.1665140785#download

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Practical resource 15: Soph talks science

Type	Online Blog
Data released	2016
Aim	Soph talks science is an online blog created by a former molecular biologist and science communicator. **Target audience**: general public. **Key competences**: the blog aims to inspire, educate, and entertain interested readers in various science topics, thus increasing their understanding about research and science and engage them effectively through online communication.
Summary	The blog contains various articles, resources, news, and information about events, in order to engage the public in various topics related to science. The blog focuses particularly in STEM education. Moreover, the blog offers a "Scicomm Toolkit Podcast", which introduces various tools, insights, and resources for scientists and researchers to communicate their science.
Overview of the points relevant to STAGE	The blog targets all interested readers, regardless of occupation or knowledge in science, providing them with basic knowledge and insights in various science-related topics, thus increasing their engagement with these topics and enhancing their interest in learning more about science.
Evaluation	**Transferability** The blog is mainly informative, as interested readers can increase their knowledge and understanding of various science topics. **Desirability** The blog mainly offers information, tips, and insights in relation to science and STEM. **Feasibility**: The blog is designed in a user-friendly way and can be accessed at any time by any interested user. **Viability**: the blog can be accessed for free.
Weblink	https://sophtalksscience.com/scicommtoolkit/

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Practical resource 16: Women in Science

Type	Podcast
Data released	2014-2016
Institutions	University of Oxford OxFEST (Oxford Females in Engineering, Science, and Technology)
Aim	"Women in Science" is a series of podcasts, provided by the University of Oxford in collaboration of OxFEST, aiming at promoting and empowering women in their scientific careers.
Summary	The podcasts provide information and resources to aid women and young girls in pursuing their career in relevant scientific field. Each podcast focuses on a specific field or topic, where speakers are invited to talk and convince women motivate women to succeed in science
Skills	Each podcast deals with a different subject or topic, specifically: ● women in engineering ● ambition for leadership ● gender gap in STEM ● creativity ● confidence
Overview of the points relevant to STAGE	Women in Science deals with women's empowerment and engagement in scientific disciplines, which is a core aspect of the STAGE project.
Evaluation	**Transferability** The podcasts are mainly informative and inspirational, as they aim to empower women in pursuing careers in science disciplines. **Desirability** Each podcast offers knowledge, insights, and lessons learn regarding female representation in science. **Feasibility**: The podcasts are designed a user-friendly way, in the form of a video, speech or promotional film. **Viability**: the podcasts can be accessed for free.
Weblink	https://podcasts.ox.ac.uk/series/women-science

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Practical resource 17: Lost Women of Science

Type	Podcast
Institutions	1) Public Radio Exchange 2) Scientific American 3) Barnard College
Aim	Lost Women of Science Initiative is a non-profit educational organization with two missions: a) to share the personal stories of women who made groundbreaking scientific achievements, and b) inspire girls and young women to pursue a career in the STEM field. **Target audience**: general public **Key competences:** the organization aims to inspire and increase public's knowledge regarding women's achievements in science, and especially STEM.
Summary	To achieve the above goals, the organization develops **podcasts**, focusing in storytelling and the personal lives of women scientists who made scientific achievements but did not receive the recognition they deserved.
Overview of the points relevant to STAGE	Lost Women of Science deals with women's empowerment and engagement in scientific disciplines, which is a core aspect of the STAGE project.
Evaluation	**Transferability** The podcasts are mainly informative and inspirational, as they aim to increase awareness regarding successful female scientists. **Desirability** Each podcast introduces a personal story of women scientists and their achievements in their fields of work. **Feasibility**: The podcasts are user-friendly way and interactive. A full transcript is also available for each podcast. **Viability**: the podcasts are available through the organization's website, as well as various channels (e.g. Apple Podcasts, Amazon, Google Podcasts, Spotify, Castbox).
Weblink	https://www.lostwomenofscience.org/

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Practical resource 18: The uncertainty handbook

Type	Handbook
Data released	January 2018
Institutions	1) Climate Outreach 2) University of Bristol
Aim	This handbook aims to offer practical and easy-to-apply principles for smarter communication about climate change. The handbook was developed by Climate Outreach, a group of leading specialist in climate change communication, which aims to bridge the gap between research and practice. **Target audience**: science communicators focusing on climate change, campaigners, policy-makers. **Key competences:** increase the capacity of science communicators to deal with climate change uncertainties and climate sceptics.
Summary	The Handbook compiles various research findings and expert advice regarding uncertainties around climate change, so as to offer the targeted readers ready-to-use principles and tools to communicate more effectively around climate change issues. The Handbook is also accompanied by a relevant webinar on its content and value (available on YouTube)
Skills	The Handbook offers 12 practical principles that science communicators, campaigners, and policy-makers can apply in order to deal with climate change uncertainties: 1) Managing audience's expectations 2) Starting with the things you know 3) Be clear about scientific consensus 4) Shift from 'uncertainty' to 'risk' 5) Be clear about the type of uncertainty you are communicating 6) Understand the divers behind people's views about climate change 7) The most important question for climate impacts is 'when', not 'if' 8) Communicate through images and stories 9) Highlight the 'positives' of uncertainty 10) Communicate effectively about climate impacts 11) Engage in conversations, not arguments 12) Tell a human story, not a scientific one
Overview of the points relevant to STAGE	Through the 12 principles and techniques offered, the handbook offers strategies for closing the gap between people's intuitions and the scientific implications caused by the climate change debate and the uncertainties around this issue.
Evaluation	**Transferability**: The principles included in the Handbook can be practically applied by the Interested readers in order to communicate more effectively various uncertainties and misconceptions about climate change.

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	Desirability: The Handbook focuses on delivering tips, insights, and advice on communicating climate change. **Feasibility**: The Handbook is designed in a way that can be used at any time by any interested science communicator, adjusting its content based on their audience's needs. **Viability**: the Handbook is available for free, in digital form in English, German, French, Chinese, Portuguese, Hungarian, Dutch, Spanish and Indonesian.
Weblink	https://climateoutreach.org/reports/uncertainty-handbook/

Practical resource 19: Communicating on Climate Change

Type	Guidelines
Institutions	United Nations Department of Global Communications; United Nations Climate Change; United Nations Environment Programme; World Meteorological Organization; ACT Climate Labs; Climate Action Against Disinformation; The Conscious Advertising Network (CAN); TED Countdown; Yale Program on Climate Change Communication.
Aim	The United Nations has published a set of guidelines for effectively communicating climate change. **Target audience**: science communicators focusing on climate change. **Key competences:** the guidelines aim to increase communicators' capacity to mobilize and educate audiences regarding climate change action.
Summary	These guidelines include tips and insights for science communicators in order to effectively create communications product (e.g. podcast, written articles, visual materials) for climate change.
Skills	The guidelines focuses on a set of 4 main principles: **1) Use authoritative scientific information,** my double-checking resources and relying on accurate and valid information. **2) Convey the problem and the solutions,** through sharing stories and empowering people **3) Mobilize action,** through conveying the urgency to take action, engaging youth, and communicating issues relevant to communities.
Evaluation	**Transferability**: The Guidelines offer practical solutions and applicable advice for communicators to design commutations product for the public, based on the topic of focus and targeted audience **Desirability**: The Guidelines focus on delivering tips, insights, and advice on communicating climate change action. **Feasibility**: The Guidelines appear is the form of an online article, and can be accessed at any time by any interested science communicator. **Viability**: the Guidelines can be accessed online, and are available in the English language.
Weblink	https://www.un.org/en/climatechange/communicating-climate-change#:~:text=Communicating%20on%20climate%20change%20is,cultural%20contexts%2C%20and%20underlying%20values

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Practical resource 20: The Debunking Handbook

Type	Handbook
Data released	2020
Institutions	The Handbook was co-authored by scientists and experts coming from different Universities. The list of all universities and authors is available on page 2 of the Handbook.
Aim	This handbook aims to counter misinformation and debunk myths about any field or area, through focusing on research findings and expert advice. **Target audience**: communicators **Key competences:** the Handbook increases communicators' capacity to address myths that reinforce popular opinions and increase their knowledge on the backfire effects misinformation can cause, and ways to avoid them.
Summary	The handbook was published and co-authored by a team of 22 researchers with experience in misinformation, who summarized the science of debunking and its harmful effects.
Skills	The Handbook contains information on a variety of topics, categorized in 4 parts: **Part 1:** Misinformation can do damage; Where does misinformation come from?; Misinformation can be sticky; Sticky myths leave other marks **Part 2:** Prevent misinformation from sticking if you can; Simple steps to greater media literacy; The strategic map of debunking; Who should debunk? **Part 3:** The elusive backfire effects; Role of worldview in belief confirmation **Part 4:** Debunk often and properly; Collective action: Debunking on social media.
Overview of the points relevant to STAGE	This handbook deals with ways to counter scientific and non-scientific misinformation, by focusing on the science of communication, which is a core aspect of the STAGE project.
Evaluation	**Transferability**: The information included in the Handbook can be practically used by communicators in order to effectively counter misinformation and debunk myths. **Desirability**: The Handbook focuses on delivering tips, insights, and advice on countering misinformation, myths, and fake news. **Feasibility**: The Handbook is designed in a way that can be used at any time by any interested communication, adjusting its content based on their audience's needs. **Viability**: The Handbook is available for free, in digital form in English and various languages (available here)
Weblink	https://www.climatechangecommunication.org/wp-content/uploads/2020/10/DebunkingHandbook2020.pdf

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Practical resource 21: Communicating the climate crisis

Type	Website
Institutions	State Climate Policy Network (SCPN). Frontline communities, unions, teachers, students, executive branch and municipal officials, and industry leaders in Maryland and Massachusetts (USA). Cooperation with media partners, legislators, and business leaders to push carbon pollution pricing bills across the finish line.
Aim	The website tries to empower state and local policy makers, business leaders, and advocates with the information, resources, and networks they need to make these policies a reality in the climate crisis. Media shaped public discourse in this issue so the website counters their influence by engaging the public with creative, science-based information. **Target audience:** scientists, science communicators, communicators lacking experience in science communication **Key competence:** reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills needed to communicate science, mainly issues related to climate change and the gender gap in STEM
Summary	The resource contains page related to challenges in climate communication. This page includes 6 TEDx talks and each of the following points is discussed in detail: Spatial and Temporal Dissonance, Language Barriers, Logical fallacies and a dichotomized perception of climate action, Informational deficit model. This resource could be very helpful in improving writing and oral skills needed to communicate science.
Skills	Skills in writing and oral presentation, making videos for social media and YouTube and engaging the public.
Overview of the points relevant to STAGE	Page: Communicating the Climate Crisis - Climate-XChange presents approaches to climate change communication and the relevant challenges. Each month there is a webinar exploring a climate policy in depth (experts conversations, previous webinar are available on the website). The material can help to understand how people make decisions and how people develop trust in science.
Weblink	https://climate-xchange.org/ https://climate-xchange.org/communicating-the-climate-crisis/

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Practical resource 22: Engaging the Public on Climate Change

Type	Website
Institutions	Engaging the Public on Climate Change
Aim	The resource can introduce the approach of building public engagement, **The target audience:** scientists, science communicators, **Key competences:** develop writing and oral skills needed to communicate science, improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action
Summary	This practical resource provides literature review as well as case studies and webinar focused on the problematics of engaging the public around climate change. It contains interesting and important information and good be understood as an inspiration for further public engagement.
Skills	The resource could be an inspiration for building public engagement on climate change. The various case studies are presented and can help to understand how to involve public as well as how to present the findings.
Overview of the points relevant to STAGE	There is publication for download (Public Engagement for Net-Zero: A Literature review) which is focused on the ways of understanding public engagement around climate change as well as further considerations affecting impact of public engagement methods. It deals with points related to understanding how people make decisions and how people develop trust in science. A webinar *How to engage the public around climate change* is also available on the website.
Evaluation	This resource is very important and interesting, mainly the publication (link below) would be importat part of toolkit to get sense of the problematics. The literature review in the publication would be for project very useful.
Weblink	https://www.centreforpublicimpact.org/europe/engaging-the-public-on-climate-change

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Practical resource 23: Project Curious: Explore the art of science

Type	Website
Data released	2021
Institutions	Co-funded by European Union, Italy, Belgium, Serbia, Bulgaria
Aim	Using art as the tool to foster the understanding of science and believe in it. **The target audience:** public. **Key competences:** reflect critically on the social, historical, cultural and ethical dimensions of science; improve understanding of the factors causing distrust towards scientists and disengagement with science.
Summary	Project team tries to improve the understanding of science and the scientific procedures via art. They try to do collaborative performances between scientists and artists.
Overview of the points relevant to STAGE	Procedures used by project team could be helpful in the way of argumentation of scientific findings as well as the description of cooperation between art/culture and science (cultural and heritage aspects – they are not often mentioned).
Evaluation	The processes and know-hows transferable to our purposes as well as to attract people who are not primary interested in science but they like culture or arts.
Weblink	https://www.projectcurious.eu/

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Practical resource 24: Fakta o klimatu (in Czech language – „Facts about climate“)

Type	Website
Institutions	„Independent scientists, data analytics“ – established association (https://faktaoklimatu.cz/o-nas)
Aim	The resource will be helpful to present the topic to people in the Czech Republic because it is in Czech language and it presents very objective, scientifically based findings. **The target audience:** scientists, science communicators, students, public, stakeholders **Key competences:** develop writing and oral skills needed to communicate science, improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action, reflect critically on the social, historical, cultural and ethical dimensions of science
Summary	This practical resource provides a lot of data related to climate change. It is locally important because the readers do not focus on translation and the website contains a lot of materials (graphs, spreadsheets, analysis etc.). The independent researchers add the comments to data and explain them in very accessible way.
Overview of the points relevant to STAGE	The resource could be an inspiration for building public engagement on climate change. As mentioned above it is important mainly in Czech society. We included this source because it is often used by teachers at schools to get data (e.g., graphs) as well as analysis from it.
Evaluation	Useful for Czech readers to understand easier the problematics and gain the important Czech word power. As it is often used by teachers at schools to get data (e.g., graphs) as well as analysis from it it could be very interesting to see the ways of dealing with information.
Weblink	https://faktaoklimatu.cz/ (in Czech)

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Practical resource 25: Science Communication

Type	Website
Institutions	Technion - Israel Institute of Technology
Aim	**The target audience:** very broad (all groups of audience) **Key competences:** Reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills needed to communicate science in various spaces; develop an understanding of how public engagement can benefit scientists careers.
Summary	On-line course related to science communication. Project team uses cases to demonstrate the effective approaches and examples from different fields.
Overview of the points relevant to STAGE	Very important source to be included in the toolkit. It deals with the issues how to communicate the science to the public and it is relevant to the whole audience. It is interesting for the teachers too.
Evaluation	All findings and approaches are easy transferable and the course is available for free.
Weblink	https://www.edx.org/course/science-communication

Practical resource 26: Hello SciCom

Type	Website
Institutions	Science communication company (comercial one)
Aim	Hello SciCom combines science communication and comedy to help science and tech-oriented people get their message across. Hello SciCom is dedicated to furthering scientific literacy by making science and technology fun, engaging, and accessible.
Summary	The interesting resource, maybe to get sense of different approach. They work with institutions and foundations or companies so the way to address audience could be interesting.
Overview of the points relevant to STAGE	Examples of papers, interviews performed in the relation of the company's philosophy of connecting science and fun. There are also links to other pages (some of them dealing with climate change topics).
Weblink	https://www.hellosci.com/

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Practical resource 27: Online deník Alarm (in Czech language)

Type	Newspaper webpage
Institutions	https://a2larm.cz/tema/klima/
Aim	The resource will be helpful to present the topic to people in the Czech Republic because it is in Czech language and it presents very objective, scientific based findings. **The target audience:** public, science communicators. **Key competences:** develop writing and oral skills needed to communicate science, improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action
Summary	This practical resource provides papers related to climate change. It is locally important because the readers do not focus on translation. The independent papers and discussion are included in this web. It contains interesting and important information and good be understood as an inspiration for further public engagement.
Overview of the points relevant to STAGE	The resource could be an inspiration for building public engagement on climate change. As mentioned above it is important mainly in Czech society (the papers are not only from Czech scientists but they work with translations, mostly done by scientists).
Evaluation	Useful for Czech readers to understand easier the problematics and gain the important Czech word power. There is possibility to compare Czech translation with the original paper and focus on relevance of the presented data (after the translation). From this perspective the source could be very interesting for science communicators.
Weblink	https://a2larm.cz/tema/klima/

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Practical resource 28: Is climate change actually being taken seriously?

Type	Podcast
Data released	5 January 2021
Institutions	Cambridge University - YouTube
Aim	**The target audience:** public, science communicators **Key competences:** develop writing and oral skills needed to communicate science, improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action
Summary	This podcast is focused on the interpretation of stories about climate change and the podcast is also aimed on the narration of stories in the various countries around the world.
Overview of the points relevant to STAGE	The style communication of climate change in mainstream media. Concernment of tribal stories.
Weblink	Is climate change actually being taken seriously? - YouTube

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Practical resource 29: Gender Equality and Human Rights in Climate Action and Renewable Energy

Type	e-learning (on-line course)
Institutions	UN CC:Learn, UN Women
Aim	**The target audience:** very broad (all groups on the stakeholder level) **Key competences:** develop writing and oral skills needed to communicate science.
Summary	There are 3 parts of this course and they connect climate change, energy issues, human rights as well as gender equality. From this perspective it is very helpful source because it provides tools and approaches for better implementation of ideas related to gender equality as well as climate crises.
Overview of the points relevant to STAGE	There are 3 parts of this course and they connect climate change, energy issues, human rights as well as gender equality. From this perspective it is very helpful source because it provides tools and approaches for better implementation of ideas related to gender equality as well as climate crises. Important mainly for stakeholders.
Evaluation	Important for stakeholders – skills how to deal with gender equality in climate change. Very important source for the toolkit! The whole course could be important part of the toolkit as everyone can go through it on their own.
Weblink	https://unccelearn.org/course/view.php?id=142&page=overview

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Practical resource 30: The Climate Question BBC World Service

Type	Podcast
Data released	14 March 2022
Institutions	BBC
Aim	**The target audience:** public and science communicators **Key competences:** develop knowledge about evolution of species in present time; develop writing and oral skills needed to communicate science
Summary	This podcast is presenting the visit of the Galapagos, where evolution was first discovered by Charles Darwin. The science communicators speak about the behavior and physiology of animal species in connection with the impact of climate change on their evolution.
Weblink	BBC World Service - The Climate Question, Can animals evolve to deal with climate change?

Practical resource 31: Gender Equality and Human Rights in Climate Action and Renewable Energy

Type	MOOC (online course)
Institutions	The e-course is jointly developed by UN CC:Learn, UN Environment Programme (UNEP) and UN Women under the project EmPower: Women for Climate Resilient Societies, with the support of the Swedish International Development Cooperation Agency (SIDA).
Aim	The target audience: - policymakers, - government officials, - renewable energy service providers and officials of financial institutions in renewable energy entrepreneurship - other stakeholders/ individuals working/ interested in the fields of climate change, renewable energy and gender equality Key-competence: **Develop writing and oral skills needed to communicate science, mainly issues related to climate change and the gender gap in STEM,** *in various spaces (popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals etc.)*

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Summary	The practical resource refers to an online course of 3 modules regarding the interconnection among gender equality, human rights, renewable energy, and climate change. It provides participants with tools and approaches for the development and the implementation of gender-responsive, human rights-based climate change actions and renewable energy policies, entrepreneurship and programs. The practical resource is important for our toolkit because it provides stakeholders with knowledge and skills of how to address gender equality and human rights in climate change policies and actions.
Skills	- Use of tools and approaches for gender equality in renewable energy and climate action - Identify and promote opportunities and funding sources for addressing gender representation in the renewable energy sector - Identify and promote opportunities for women's participation in climate change decision – making and action - Appy tools and techniques to develop, implement and monitor a gender action plan, turning policy objectives into implementable action
Overview of the points relevant to STAGE	The practical resource points out the value of enacting gender-inclusive practices in public engagement with science and in particular with climate change and renewable energy. More specifically: - It describes the nexus between gender equality, human rights, renewable energy, and climate change - It focuses on the need for taking into account gender and human rights in renewable energy and climate policy and action - It provides tools and approaches for the promotion of human rights-based and gender responsive climate action
Evaluation	**Desirability:** The online course provides stakeholders with knowledge and skills of how to address gender equality and human rights in climate change policies and actions. Thus, it is useful for the STAGE toolkit. **Feasibility:** The online course is in English and self – paced while its duration is 6 hours. **Viability:** The online course can be accessed for free, thus this practical resource is financially viable.
Weblink	https://unccelearn.org/course/view.php?id=142&page=overview

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Practical resource 32: TILclimate Podcast

Type	Podcast
Institutions	The podcast is offered by MIT.
Aim	The target audience: *non expert audience* Key-competence: *Reflect critically on the social, historical, cultural and ethical dimensions of science*
Summary	TILclimate is an award-winning MIT podcast that gives insights into the science, technologies, and policies behind climate change, how it's impacting us, and what actions can be taken. In a 10-minute conversation with real scientists, the key concepts of climate change are discussed, in small episodes that are easy to listen to.
Skills	Use of a different way of science communication (podcast).
Overview of the points relevant to STAGE	The topic of the podcast is about Climate Change. The science communicators could use it, in order to inform a non expert audience about Climate Change, in which the project focuses on.
Evaluation	**Transferability** This practical resource can be transferred to many areas and target groups and it also presents the connection between science and action, proposing specific actions. **Desirability** This podcast is a conversation with real scientists and its topic is about key concepts of climate change and possible actions. Thus, it is really useful for the STAGE toolkit and it would be interesting in the target audience. **Feasibility** The TILclimate Podcast is accessible online for the target audience and is also promoted on different types of media and streaming apps, which makes this practical resource technologically and organisationally feasible. **Viability** The podcast can be accessed for free, therefore it is financially viable.
Weblink	https://climate.mit.edu/tilclimate-podcast

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Practical resource 33: Climate Change Education, Science, and Action

Type	Online course
Data released	September 3 – October 15, 2019
Institutions	This course is offered in partnership with Cornell Institute for Climate Smart Solutions, Cornell Cooperative Extension, and the Civic Ecology Lab.
Aim	The target audience: *Cooperative Extension Educators, Master Volunteers, state and local government, land-trusts and other non-profits, and others interested in an introduction to climate change science and in how to communicate effectively about this important topic.* Key-competence: *Reflect critically on the social, historical, cultural and ethical dimensions of science; Improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action*
Summary	This course refers to action - taking regarding limiting greenhouse emissions as being part of a network of professionals and students from around the world. It launches into climate change actions, from what individuals can do at home to global policy agreements. The course helps in the focus on a climate action that someone can achieve during the course, and then provides a framework to help you plan continuing, post-course climate engagement.
Skills	This online course provides opportunities to participants to take part and reflect on climate change actions.
Overview of the points relevant to STAGE	This practical resource points out the necessary action in order to address the problem of Climate Change. More specifically: - Increase their understanding of the basics of climate change science and communication and action strategies. - Make new connections and share resources as part of an online network of Extension educators, master volunteers, university students and employees, and other professionals, volunteers, and interested individuals. - Take climate change action during the course. - Reflect on their action and create a plan for future action.
Evaluation	**Transferability** This practical resource can be transferred to many areas and target groups and it also presents the connection between science and action, proposing specific climate change actions. **Desirability** The target audience will want to learn the key concept of Climate Change science, as well as some communication and action strategies. Thus, it is really useful for the STAGE toolkit and it would appeal to the target audience.

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	Feasibility This course is accessible online for the target audience. It is hosted on edX Edge platform, where there are all videos, readings, assignments etc. In addition, the communication groups can be in various social media. Thus, this practical resource is technologically and organisationally feasible. Moreover, the duration of this course is about 20 hours. **Viability** The fee of this online course is about 60$, but if someone can not pay, he/she could ask for a scholarship. Thus, this online course has this financial limit, but it could be overcome in many cases, making it financially viable.
Weblink	https://www.civicecology.org/course-cc

Practical resource 34: Climate Change 2022: Impacts, Adaptation & Vulnerability

Type	Animation video
Institutions	The animation video is offered by the AJ+.
Aim	The target audience: *non expert audience* Key-competence: *Reflect critically on the social, historical, cultural and ethical dimensions of science*
Summary	The video presents the devastating effects on how climate change is already affecting every continent and every ocean on the planet, based on the most definitive report compiled by the United Nations. Hundreds of leading scientists from all over the world worked over 5 years researching the impacts and the challenges ahead for the UN Intergovernmental Panel on Climate Change.
Skills	This practical resource could be used as a means of informing a specific target group about the effects of Climate Change.
Overview of the points relevant to STAGE	The science communicators have to raise awareness about Climate Change, showing to people how it affects different aspects of the world, even their daily lives.
Evaluation	**Transferability:** This practical resource can be transferred to many areas and target groups and it also presents information about the devastating effects of Climate Change. **Desirability:** This animation video can be used as a means of informing the non-expert audiences about the devastating effects of Climate Change. It can also be an inspiration for science communicators, who could make their animation videos. Thus, it can be useful for the STAGE toolkit.

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	Feasibility: The animation video is uploaded to Youtube and everyone can access it. The information of the animation video is based on the most definitive report compiled by the United Nations. It is a technologically and organisationally feasible practical resource. It lasts about 3 minutes and can be watched many times. **Viability**: This video can be accessed for free, therefore it is financially viable.
Weblink	https://www.youtube.com/watch?v=S7jpMG5DS4Q&ab_channel=AJ%2B

Practical resource 35: Gender inequality is showing up... in climate change

Type	TEDx Talk
Institutions	The video is made by TED.
Aim	The target audience: *non expert audience* Key-competence: *Develop writing and oral skills needed to communicate science, mainly issues related to climate change and the gender gap in STEM, in various spaces.*
Summary	The video helps us clearly see social inequality during the world's climate events. Climate is also a powerful backdrop to see the often under-valued importance of farm women. Dr. Amber Fletcher is an Assistant Professor in the Department of Sociology and Social Studies, University of Regina and presents part of her research with this video. She examines how climate change and major policy changes affect women in agriculture.
Skills	Science communicators could use this practical resource to show how climate change and major policy changes affect women in agriculture.
Overview of the points relevant to STAGE	The practical resource presents inequality between men and women in agriculture in case of Climate Change. It could be used by the science communicators to inform non expert audiences about the gender inequality and gap.
Evaluation	**Transferability:** This practical resource can be transferred to many areas and target groups. **Desirability:** Watching this TEDx Talk, non-expert audiences can be informed on how climate change and major policy changes affect women in agriculture. In addition, it could be an example of how expert people have to share and communicate knowledge. Thus, it can be useful for the STAGE toolkit.

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	Feasibility: This TEDx Talk is about is uploaded to Youtube and everyone can access it, therefore it is a technologically and organisationally feasible practical resource. It lasts about 18 minutes and can be watched many times. **Viability**: The TEDx Talk can be accessed for free, thus it is financially viable.
Weblink	https://www.youtube.com/watch?v=iPigdDzBDOE

Practical resource 36: From Climate Science to Action

Type	MOOC
Data released	27th September 2022.
Institutions	The online course is offered by the World Bank Group.
Aim	The target audience: *non expert audience* Key-competence: *Reflect critically on the social, historical, cultural and ethical dimensions of science; Improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action*
Summary	This action-oriented MOOC gives participants the opportunity to learn about regional climate change impacts and sector-specific strategies to increase resilience and move towards a low-carbon future.
Skills	This online course provides opportunities to participants to realize that they have to take action both on an individual and in societal level.
Overview of the points relevant to STAGE	This practical resource points out the importance of taking action against Climate Change phenomenon. It focuses on: - Climate Change in the 21st Century - Sectoral and Regional Impacts - Action taking
Evaluation	**Transferability :** This course aims to develop skills and attitudes, which could also be useful in different cases apart from the Climate Change field. Thus, can be transferred to many areas and target groups. **Desirability:** The participants of this course desire to learn more about regional climate change impacts and sector-specific strategies, in order to increase resilience and take action for a low-carbon future. In addition, they will realize the importance of the cooperation between scientists and policymakers in taking action.

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	Feasibility: It is a free 4-week course, which takes approximately 15 hours in total to complete. **Viability:** This course can be accessed for free, which makes this practical resource financially viable.
Weblink	https://www.coursera.org/learn/climate-science?action=enroll

Practical resource 37: Impacts of Climate Change (UCAR)

Type	Site
Institutions	The video is made by the UCAR (University Corporation for Science Education) .
Aim	The target audience: *non expert audience* Key-competence: *Reflect critically on the social, historical, cultural and ethical dimensions of science; Improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action*
Summary	There is information in order to examine the current and potential impacts of climate change (such as rising sea level). The site also provides information regarding the effects of Climate Change on Ecology and the water cycle.
Skills	Everyone has access to this site and can study different aspects of Climate Change. It provides specific data about the phenomena, which could be studied. The data derives from research. So the science communicators could use this practical resource, in order to help and show to non expert audiences to understand this type of information.
Overview of the points relevant to STAGE	Through this practical resource, science communicators could engage public with data and research on Climate Change and its impacts.
Evaluation	**Transferability** The site's information focuses mainly on the current and potential impacts of Climate Change in various sectors. It doesn't focus only on a specific area or target group. It can be transferred to various target groups, which consist of an expert or/and non-expert audience. **Desirability** This practical resource will appeal to the target group, because it presents information about the impacts of Climate Change in a simplified way, without dismissing the scientific part of the explanation (like data, graphs). **Feasibility** Everyone can access to site's information, which is online.

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	Viability The site's information is free accessible for everyone.
Weblink	https://scied.ucar.edu/learning-zone/climate-change-impacts

Practical resource 38: Climate Action (United Nations)

Type	Site
Institutions	The content of the site is organized by the United Nations.
Aim	The target audience: *non expert audience* Key-competence: *Reflect critically on the social, historical, cultural and ethical dimensions of science*
Summary	There is information about what climate change is. There are also climate reports and key findings. Causes and effects of Climate Change are also mentioned.
Skills	Through this site, someone could have access to information about Climate Change phenomenon.
Overview of the points relevant to STAGE	The science communicators could use this site, because there is a large amount of information related to the Climate Change phenomenon and its causes and effects.
Evaluation	**Transferability:** The site's information is about the Climate Change phenomenon, which concerns everyone. Thus, can be transferred to various target groups, which consist of an expert or/and non-expert audience, but also to many different areas. **Desirability:** This practical resource will appeal to the target group, because it presents information about the impacts of Climate Change in a simplified way, without dismissing the scientific part of the explanation (like data, graphs). Science communicators could also use it as an inspiration for how to structure this type of site to communicate knowledge to non-expert audiences. **Feasibility:** Everyone can access to site's information, which is online. **Viability:** The site's information is free accessible for everyone.
Weblink	ttps://www.un.org/en/climatechange/what-is-climate-change

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Practical resource 39: Network Climate Action: Scaling Up Your Impact

Type	Online course
Data released	February 22 – March 28, 2021
Institutions	The online course is offered by Cornell University.
Aim	The target audience: *Environment, climate, and education professionals, volunteers, university students, or other climate concerned citizens from any country.* Key-competence: *Reflect critically on the social, historical, cultural and ethical dimensions of science; develop an understanding of how public engagement can benefit scientists careers.*
Summary	The online course provides approaches and tools regarding scaling up our individual actions through social networks. Through the online course, participants choose a greenhouse gas mitigation action and apply social influence research to persuade others to also take action regarding the climate crisis. More specifically, it: - Describes the feasibility and effectiveness of actions to mitigate greenhouse gases across different countries and contexts. - Calls participants to implement an action for reducing greenhouse gases themselves and diffuse their action among their social network. - Calls participants to critically reflect on the results of their network climate action and write a one-page report of their action and reflections. - Calls participants to participate actively in a global online community of climate-concerned citizens.
Skills	This online course provides opportunities to the participants for taking climate change actions focused on the reduction of greenhouse gases and for reflecting on these actions. In addition, participants can acquire skills regarding engaging more people in such actions.
Overview of the points relevant to STAGE	This practical resource points out the need for action taking in order to address the problem of Climate Change, caused by greenhouse gases rising and especially for public engagement in such actions.
Evaluation	**Transferability:** This practical resource can be transferred to many areas and target groups and it also presents the connection between science and action.

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	Desirability: The target audience will want to learn about how they can take climate change actions and acquire skills regarding engaging more people in such actions. Thus, it is really useful for the STAGE toolkit. **Feasibility:** It is a free 5-week course, which takes approximately 4-5 hours of work per week to complete. This course is accessible online for the target audience. It is hosted on edX Edge platform, where there are all videos, readings, assignments etc, which can be studied asynchronously. In addition, the communication groups can be in various social media. Thus, this practical resource is technologically and organisationally feasible. **Viability:** The fee of this online course is about 60$, but if someone can not pay, he/she could ask for a scholarship. Thus, this online course has this financial limit, but it could be overcome in many cases, making it financially viable.
Weblink	https://www.civicecology.org/nca

Practical resource 40: The Climate Animation Explorer

Type	Data animation
Institutions	Oxford Hack 2019 Team: David Simon Tetruashvli, Sijmen Huizen, Milan Kloewer, Tommy Lees
Summary	Clim-EX (Climate Animation Explorer) is a tool for visualising and viewing meteorological data and weather forecasts which will help understanding African droughts. This tool bridges the gap between the layperson and scientific meteorological experts making the viewing of this data enjoyable and aesthetically pleasing.
Weblink	https://devpost.com/software/clim-ax-5shq09

Practical resource 41: The climate question

Type	Podcast
Data released	2020, November 2nd
Institutions	BBC (UK, Canada)
Aim	In the podcast, the authors investigate why the climate crisis is happening, what we can do about it, and what is holding us back from taking action. Target audience: non-expert audience. Key-competences: Reflect critically on the social, historical, cultural and ethical dimensions of science
Summary	"The climate question" is a global programme that, through interviews with several experts, reflects the variety of takes on climate change, how best to understand it and the world's attempts to avert it, temper it or adapt to it. Instead of questioning whether climate change is happening, the podcast takes this for granted and discusses the best ways to respond to it. It

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	includes stories from across the world on why we find it so hard to save our own planet, and how we might change that.
Skills	This resource can be useful to develop skills of science communication, journaling (because the podcasts are basically interviews to experts), and engagement with social media.
Overview of the points relevant to STAGE	Through the involvement of several experts from different backgrounds, the episodes of this podcast point out, among the others, issues related to human decision-making at different levels (personal, institutional, political), as well as the reasons behind trust and distrust toward climate studies.
Weblink	https://www.bbc.co.uk/programmes/w13xtvb6

Practical resource 42: Science Communication MOOC

Type	MOOC
Institutions	IsraelX https://www.edx.org/school/israelx The online learning modules were developed following a course taught for over a decade at the Technion - Israel Institute of Technology.
Aim	The course explains the importance of science communication and provides tools to acquire or improve communication skills in the field of science. **Target audience**: scientists, professional or beginners science communicators, educators, anyone interested in the relationship between science and society in the 21st century (no prerequisites). **Key-competences**: Reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills needed to communicate science in various spaces; develop an understanding of how public engagement can benefit scientists careers.
Summary	This online course, lasting 10 weeks, teaches basic concepts and fundamental skills to master science communication. Through interviews with several experts, “Science Communication” explains how to design effective methods to better collaborate with colleagues from other disciplines, gain the attention of decision-makers funders and donors and improve communication with the media in a diverse audience.
Skills	This resource can be useful to develop and improve science communication skills and writing skills.
Overview of the points relevant to STAGE	The course will address the issues of how to engage the public through citizen science and community science, and how to communicate effectively with journalists, decision-makers, and the public, promoting mutual understanding between the scientific community and other groups in society. There will also be a focus on how to incorporate contemporary science in the classroom.
Evaluation	**Transferability**: the knowledge and skills which can be acquired during this course are transferable to many areas and target groups.

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	Desiderability: anyone interested in developing their science communication skills would benefit from this course. **Feasibility**: the course lasts 10 weeks, 2-4 hours per week, and it is self-paced. Once a session ends, it will be archived and most of the course material remains available. **Viability**: the course can be accessed for free.
Weblink	https://www.edx.org/course/science-communication

Practical resource 43: Toolkit for science communicators and trainers

Type	Presentation
Data released	2021, May 11
Institutions	H2020 QUEST project, Venice International University Authors: Jacopo Pasotti, Ilda Mannino, Alessandra Fornetti Funding from European Union's Horizon 202 research and innovation programme.
Aim	The purpose of this project is to support scientists in delivering their message and improving their communication skills. **Target audience**: scientists, science communicators **Key competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills needed to communicate science in various spaces; improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action; develop an understanding of how public engagement can benefit scientists careers.
Summary	This resource provides scientists with a range of tips and guidance on how to effectively convey the results of their research and make their presentations engaging. The checklist was developed from the literature (studies on the perception of scientists and available guidelines on science communication) and from interviews with scientists from different fields of study and with professional science communicators.
Overview of the points relevant to STAGE	This can be a key tool to make communication effective and engaging even for a non-expert audience, increasing interest and awareness on important issues such as climate change and gender gap in STEM.
Evaluation	**Desiderability**: this resource can be useful for scientists who want to improve and fine-tune their communication skills. **Feasibility**: the resource, a 25 slides long checklist available at the link indicated, can be used to better plan and organise a presentation. **Viability**: the toolkit can be consulted for free.
Weblink	https://questproject.eu/download/presentation-toolkit-for-science-communicators-and-trainers-pdf/?wpdmdl=17551&refresh=632b31d0717d31663775184

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Practical resource 44: Diversity, Equality, and Inclusion in the Museum Space

Type	Poster - Checklist
Data released	2021, April 26
Institutions	H2020 QUEST project Funding from European Union's Horizon 2020 research and innovation programme.
Aim	**Target audience**: museum communicators **Key-competences**: develop an understanding of how public engagement can benefit scientists (predominantly female scientists) careers.
Summary	This resource is a poster providing information on the issue of DEI in Museum Space. It explains the concepts of Diversity, Equality and Inclusion and lists a series of steps to follow in order to create a more inclusive space.
Skills	Inclusive skills (active listening, openness)
Overview of the points relevant to STAGE	The guide suggests a series of tips, including listening to marginalised people and setting up policies to keep people safe and enforce them.
Evaluation	**Transferability**: the tips suggested in this poster are transferable to many areas and target groups. **Desiderability**: this resource can serve as a starting point to bring DEI issues in museum space to the attention, and to deepen them.
Weblink	https://questproject.eu/download/checklist-diversity-equality-and-inclusion-in-the-museum-space/?wpdmdl=15928&refresh=632b32027d2411663775234

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Practical resource 45: Science Communication on Social Media

Type	Guide
Data released	2021, February 4
Institutions	H2020 QUEST project, Ca' Foscari University of Venice (Italy), Tallinn University (Estonia). Contributors: Enrico Costa, Ana Lucìa Schmidt, Roberto Villa, Fabiana Zollo, Arko Olesk, Berit Renser. Funding from European Union's Horizon 2020 research and innovation programme.
Aim	This guide aims to provide scientists and science communicators with practical advice on how to use social media as a tool for spreading knowledge. **Target audience**: scientists, science communicators **Key-competences**: develop an understanding of how public engagement can benefit scientists careers.
Summary	The recommendations in the guide were developed through careful research: the authors of the guide have identified patterns that could be associated with greater user engagement on social media and some controversial topics. Then a list of tips was developed to help science communicators work on the quality of their content and its impact in terms of engagement. The guide was finally tested and refined according to the feedback from communication professionals.
Skills	Engaging with social media
Overview of the points relevant to STAGE	This resource offers practical advice on how to communicate about science effectively on social media. It can be useful for reaching a wider audience and talking about important issues also on social media.
Evaluation	**Transferability**: the knowledge and skills which can be acquired through this guide are transferable to many areas and target groups. **Desiderability**: the guide is useful for scientists and science communicators who want to promote their research and messages on social media. **Feasibility**: social skills can be acquired relatively quickly by consulting the guide. **Viability**: the guide can be consulted online at any time for free.
Weblink	https://questproject.eu/download/science-communication-on-social-media-good-practices/?wpdmdl=4720&refresh=632b32537595c1663775315

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Practical resource 46: New Rules: New Game

Type	Guide
Data released	2010
Institutions	Futerra - sustainability communications
Aim	The purpose of this resource is to change attitudes of people towards climate change. **Target audience**: scientists, science communicators **Key-competences**: develop writing and oral skills needed to communicate science, mainly issues related to climate change, in various spaces; improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action.
Summary	The document provides 25 brief rules of communication technique, elaborated through psychological, sociological and marketing studies, which can be used strategically for encouraging people to modify their behaviour.
Overview of the points relevant to STAGE	This guide provides tips to and communication techniques to maximise the effectiveness of the transmission of a message, particularly in relation to climate change.
Evaluation	**Transferability**: the knowledge and skills which can be acquired during this course are transferable to many areas and target groups. **Desiderability**: anyone interested in improving their science communication skills would benefit from this guide. **Feasibility**: this guide can be used while planning a specific communication work. **Viability**: the guide is available online at the link, for free.
Weblink	https://futerra-assets.s3.amazonaws.com/documents/New_Rules_New_Game.pdf

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Practical resource 47: Mainstreaming Gender in Mitigation and Technology Development and Transfer Interventions

Type	Guidelines, capacity-building package
Data released	2015, November
Institutions	UNPD Gender Team (under Global Gender Responsive Climate Change Programme). Funding from: Low Emission Capacity Building (LECB) Programme, Ministry for Foreign Affairs of Finland, European Commission (EC), German Federal Ministry for the Environment Nature Conservation (BMUB), Building and Nuclear Safety, Australian Government.
Aim	The purpose of this resource is to raise awareness among policymakers on gender mainstreaming in climate change actions. **Target audience**: policymakers, practitioners working on integrating gender into climate change. **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills, mainly issues related to climate change and gender.
Summary	UNPD has been collaborating with governments to integrate gender equality and women's empowerment into climate change policies. This resource demonstrates the links between gender and climate change in the key areas of transport, waste management, energy, water and housing and highlights policies and shows strategies that are demonstrating results. In the last section the document provides an example taken from UNPD's work with gender mainstream in Cambodia.
Skills	This document can be useful to guide in the writing of climate change and gender policies.
Overview of the points relevant to STAGE	The document provides tools and strategies useful for policymakers to integrate gender in climate change action and presents some of the key tools and concepts related to incorporating gender in reporting.
Evaluation	**Desiderability**: this document can be useful to those who need tools and strategies to implement climate change and gender policies and programs. **Viability**: the guidelines can be downloaded for free.
Weblink	https://www.undp.org/sites/g/files/zskgke326/files/publications/Mainstreaming%20Gender%20in%20Mitigation%20FNL2.pdf

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Practical resource 48: Communicating climate change: A practitioner's guide - Insights from Africa, Asia and Latin America

Type	Manual and Guideline
Data released	2019, June 2
Institutions	Climate & Development Knowledge Network (CDKN)
Aim	The purpose of this manual is to offer practical advice on communicating climate change. **Target audience**: climate change communication practitioners. **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills, mainly issues related to climate change; improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action.
Summary	This guide tries to fill a gap in sharing communicators' experiences about climate communications in developing countries, where the problem is not to convince people of the evident existence of climate change, but to help them understand the experience they live from a scientific point of view and possible solutions. Many case studies are also reported, including experiences in using performance art and high school competitions to engage new audiences around climate change solutions.
Skills	Communication skills
Overview of the points relevant to STAGE	Among the topics addressed in the guide, there are: making climate communications more creative, using citizen science effectively to build awareness and understanding of climate issues, encouraging discussions on climate change impacts and solutions.
Evaluation	**Transferability**: the knowledge and skills which can be acquired from this manual are transferable to many areas and target groups. **Desiderability**: anyone interested in developing their science communication skills would benefit from this guide. **Viability**: the guide is available at the link for free.
Weblink	https://cdkn.org/sites/default/files/files/CDKN-Communicating-Climate-Change-guide-2019-revised-version.pdf

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Practical resource 49: Gender and Urban Climate Policy

Type	Handbook
Data released	2015
Institutions	UN-HABITAT, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, gender cc women for climate justice. Federal Ministry for Economic Cooperation and Development
Aim	The purpose of this handbook is to provide examples and resources useful for drafting inclusive climate policies. **Target audience**: policy decision-makers, consultants, practitioners in climate change. **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills, mainly issues related to climate change and gender.
Summary	This manual provides suggestions on how to take effectively into account all gender dimensions of climate change in the context of urban climate policy. It also provides a checklist, step by step, to develop these kinds of policies and includes tools and case studies to assist policy decision-makers and practitioners to tackle climate change in a gender-sensitive manner.
Skills	This handbook can be useful to guide in the writing of climate change and gender policies.
Overview of the points relevant to STAGE	Main topics discussed: the gender dimensions of climate change and the integration of a gender-sensitive approach into local climate policy.
Evaluation	**Desiderability**: this handbook can be of interest to anyone interested in deepening the relationship between climate change and gender. **Viability**: the handbook can be downloaded as pdf for free.
Weblink	https://gendercc.net/fileadmin/inhalte/dokumente/8_Resources/Publications/Guidebook_Gender_and_Urban_Climate_Policy_June_2015.pdf

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Best-practice examples

The best practices on climate change that promote public understanding of the causes (e.g., human behaviours), effects (e.g., heat waves, sea level rising), and public engagement with solutions in line with the SDGs of the UN were identified and analyzed. In addition, the type, data released, organization, purpose and aim, summary and description, overview of the points relevant to the project, evaluation, and kind of public engagement were analyzed for each of the best practices.

Best-practice 1: Climate Action Blog

Type	Blog
Institutions	United Nations Framework Convention on Climate Change (UNFCCC)
Aim	The aim of the 1.5 Degrees: A Climate Action Blog is to inspire great climate action by showcasing the work that is undertaken by the UN Climate Change secretariat and its stakeholders. Climate action that is taken around the world is highlighted in the blog. The target audience is very broad, namely from the general public and communities to scientists and science communicators.
Summary	The Climate Action Blog covers a lot of different topics and relates them to climate change. From arts, for example, 'Netflix and Chill? - Do our streaming habits damage the climate?' and 'Imaging 2050 – Send us your designs of a world free form climate change' to climate education and training 'Climate change education – What should we be teaching'. The blog entries can be selected on the topic of your preference.
Overview of the points relevant to STAGE	"The ongoing story of climate change cannot be told by numbers, statistics and science alone," said UN Climate Change Executive Secretary Patricia Espinosa. "At its heart, climate change is about *people*; about how communities, families, and lives have been impacted by it, and the resilience, strength and solutions many have built to address it. This blog provides a meeting point; a forum where we will explore this complex and fascinating mix of stories with the ultimate purpose of inspiring compassion, sharing experiences, motivating change and driving the transformative climate action we must see on a global scale."
Evaluation	**Transferability:** Multiple formats are used in the blog, such as interviews and videos. The platform wants to be engaging and accessible. **Desirability:** This Climate Action Blog sets a great example of modern communication about climate action with reliable information. **Feasibility:** The blog is available on the web, so no extra steps need to be taken for the users to be able to access this source. **Viability:**The blog can be accessed for free, thus the blog is a financially viable resource of information. This blog serves as a professional example of how to set up a blog for the target audience.

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Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	Blog | UNFCCC

Best-practice 2: It's Possible Podcast

Type	Podcast
Data released	November 2021 - present
Institutions	United Nations Framework Convention on Climate Change (UNFCCC) UNFCCC
Aim	The UN Climate Change launches the "It's Possible" Podcast with the intent to inspire positive change, explain the emergency of climate change and to connect science and action. The target audience is the general public, but the podcast is also interesting as a best practice example for scientists and science communicators.
Summary	As of the 30th of September 2022 the It's Possible Podcast has released three episodes. The first episode was released a few days before the COP 26 in Glasgow and the third episode was released to mark the UNFCCC's 30th Anniversary. The organization also encourages others to shares their stories of climate action on social media with the hashtag #ItsPossible.
Overview of the points relevant to STAGE	The It's Possible Podcast is a best practice resource that is produced and developed by the UNFCCC. The initiative also promotes the involvement of the audience by encouraging them to send their questions and comments to an email address and by incorporating the hashtag #ItsPossible for sharing on social media.
Evaluation	**Transferability:** This material can be transferred to many areas and target groups and showcases a great execution of connecting science with action. **Desirability:** This podcast is an interesting example of how you can use a podcast to bring the topic of climate change to the general public and how you can encourage interaction with the general public. **Feasibility:** The It's Possible Podcast is accessible online for the target audience, which makes the material technologically and organisationally feasible. **Viability:** The podcast can be accessed for free, thus the podcast is a financially viable resource of information.

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Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	Welcome to UN Climate Change's It's Possible Podcast | UNFCCC

Best-practice 3: The Climate Pod

Type	Podcast
Institutions	The Climate Pod by co-hosts Brock Benefiel and Ty Benefiel Climate Change Podcast | The Climate Pod
Aim	The aim of The Climate Pod podcast is to converse the latest news and actualities about climate change with experts with different professional backgrounds, such as journalists, academics and artists. The target audience is the general public and also professionals that are interested in the topic of climate change.
Summary	The Climate Pod releases a podcast episode every week and the format is a conversation on environmental and climate issues. Co-hosts Brock Benefiel and Ty Benefiel discuss the news on the climate crisis with experts of different fields, such as on justice, science, politics, culture and activism.
Overview of the points relevant to STAGE	The news on the climate crisis is discussed with experts of different fields in this weekly podcast. The Climate Pod als has a website 'theclimatepod.com' and promote their podcast on Twitter under the title 'The Climate Pod' (@climatepod). The podcast is also available on their YouTube channel 'The Climate Pod' which includes videos of the conversations.
Evaluation	**Transferability:** This material can be transferred to many areas and target groups and has the potential for further sustainability within the partner countries and beyond. **Desirability:** This podcast will appeal to the target-audience because of the various backgrounds of the guests and the format of dialogue. **Feasibility:** The Climate Pod podcast is accessible online for the target audience and is also promoted on different types of media, which makes the material technologically and organisationally feasible. **Viability:** The podcast can be accessed for free, which makes the podcast a financially viable resource of information.
Type of public engagement	**Dialogue** – somewhat more process-based, with the act of interaction driving its definition; outcomes tend toward more personal-level changes in interest, affect, or knowledge.
Weblink	Climate Change Podcast | The Climate Pod

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Best-practice 4: Climate Change Animation

Type	Animation
Data released	March 2022
Institutions	NASA's Scientific Visualization Studio Home - NASA Scientific Visualization Studio Animation made by Ed Hawkins who is a professor of Climate Science at the University of Reading
Aim	The aim of the Climate Change Animation is to effectively and clearly illustrate how climate change is spiraling out of control. The target audience of this animation is the general public, scientists, and professional (science) communicators.
Summary	The Climate Change Animation shows how global temperatures spiral out of control. The animation is based on data from NASA's GISS Surface Temperature Analysis and was designed by scientist Ed Hawkins.
Overview of the points relevant to STAGE	The Climate Change Animation is a great example of how data can be used to illustrate the climate crisis in a simple and stark manner. This animation can be used to communicate with the general public in a comprehensible way.
Evaluation	**Transferability:** Climate Change Animation can function as an inspiration for other types of animation in other areas. These types of animation can effectively reach many target groups, which could lead to further sustainability within the partner countries and beyond. **Desirability:** Users could be inspired to create their own animations or could find similar animations to aid them in conveying their message to the general public. **Feasibility:** The Climate Change Animation is accessible online for the target audience. Furthermore, the data on which the animation is based is available as part of NASA's GISS Surface Temperature Analysis dataset. Other useful datasets are also available. **Viability:** The datasets and the animation are financially viable resources of information because they can be accessed for free.
Type of public engagement	**University-Led Cooperative** – focuses on professional communities and how university researchers can provide expert consultation and collaboration to support their efforts.
Weblink	Watch Global Temperatures Spiral Out of Control in New Climate Change Animation : ScienceAlert Data.GISS: GISS Surface Temperature Analysis (GISTEMP v4) (nasa.gov)

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Best-practice 5: European Climate Data Explorer

Type	Interactive access to data of climate indices
Institutions	Climate Adapt (European Union) Copernicus Climate Change Service (C3S)
Aim	The aim of the European Climate Data Explorer is to provide indices on the climate which can be divided in six areas of interest, namely health, agriculture, forestry, energy, tourism and coastal. Scientists and professional science communicators can use these indices for research purposes and to aid in their communication to the general public.
Summary	The European Climate Data Explorer provides interactive access to data of climate indices from the Copernicus Climate Change Service.
Overview of the points relevant to STAGE	Climate Adapt provides an overview list of all the indices that are provided by the Copernicus Climate Change Service. All the indices are climate-related hazard indices for Europe. The overview list of all indices contains the topics 'heat and cold', 'wet and dry', 'snow and ice', 'coastal' and 'other'. These indices can be used by scientists and communicators to aid in developing trust in science.
Evaluation	**Transferability:** The indices can be used to promote sustainability within the partner countries and beyond. The material can be used to better reach the general public and the scientific and political communities. **Desirability:** The users can use the indices to communicate about the climate-related hazard indices for Europe. Making the intricacies of these indices known to the different stakeholders that are involved in climate change adaptation and mitigation will be useful in promoting sustainability. **Feasibility:** It might be useful to explore some of the indices together with the target audience, which becomes more technologically and organisationally feasible by drawing on the expertise of the Copernicus Climate Change Service. **Viability:** The indices are available online and can be accessed for free.
Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common;
Weblink	European Climate Data Explorer intro — Climate-ADAPT (europa.eu) Overview list of all indices — Climate-ADAPT (europa.eu)

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Best-practice 6: European Climate and Health Observatory

Type	Platform with a resource catalogue
Institutions	European Climate and Health Observatory (europa.eu) Home — Climate-ADAPT (europa.eu) Partnership between the European Commission, the European Environment Agency and several other organisations
Aim	The aim of the European Climate and Health Observatory is to provide easy access to resources related to human health and climate change. The provided resources catalogue is of particular interest for science communicators, as it provides categorised resources that can be of use when the goal is to communicate clearly about climate change with the public or other stakeholders.
Summary	The European Climate and Health Observatory is a platform that contains publications, tools, websites and other resources related to climate change and health. The main topics and tools of the observatory are 'impacts on mental health', 'indicators', 'country profiles' and the 'resource catalogue'.
Overview of the points relevant to STAGE	This platform focuses their attention on the topic of human health in relation to climate change. The resource catalogue contains close to 500 resources, such as case studies, guidance, indicators, information portals, publications and reports, research and knowledge projects, tools and videos. The European Climate and Health Observatory links to resources that already exist, but also develops its own resources.
Evaluation	**Transferability:** The resources on this platform comprise a wide array of areas and target groups. Exploring these resources can aid the sustainability efforts within the partner countries and beyond. **Desirability:** This platform is of particular interest to users that are interested in human health and the influence of climate change on human health. A lot of trustworthy resources can be explored, which emphasize the importance of the health of the general public and their overall welfare in the midst of climate change. **Feasibility:** European Climate and Health Observatory platform and accompanying resources are accessible online for the target audience. **Viability:** The platform and resources can be accessed for free, which makes this best practice financially viable.
Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	European Climate and Health Observatory (europa.eu) Health Observatory Resource Catalogue (europa.eu)

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Best-practice 7: Science Communication course

Type	MOOC
Institutions	edX | Free Online Courses by Harvard, MIT, & more | edX Institution IsraelX by experts from the Israel Institute of Technology
Aim	The aim of this self-paced Science Communication course is to teach scientists and communicators lacking experience in science communication the basics about science communication.
Summary	This MOOC is an intermediate course about science communication. It explains the importance of science communication and teaches the basic concepts and fundamental skills that science communicators need to succeed at effective communication.
Overview of the points relevant to STAGE	The course explains the importance of science communication. Public engagement through citizen science and community science is also covered, as well as diversity, equity, and inclusion.
Evaluation	**Transferability:** The skills and knowledge that are taught in this Science Communication course can be transferred to other research areas. Effective communication will be taught to different target groups, such as journalists, decision-makers, and the public. **Desirability:** Participants of this course desire to learn more about science communication. Effective science communication about climate change with the stakeholders is essential for climate change mitigation and adaptation. **Feasibility:** It is a free 10-week course that is self-paced and takes 2-4 hours a week to complete. **Viability:** The Science Communication course can be accessed for free, which makes this best practice financially viable.
Type of public engagement	**University-Led Cooperative** – focuses on professional communities and how university researchers can provide expert consultation and collaboration to support their efforts.
Weblink	Science Communication | edX

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Best-practice 8: Local Governments for Sustainability

Type	Website with activities, publications and webinars
Institutions	Local Governments for Sustainability (ICLEI) ICLEI – Local Governments for Sustainability
Aim	The Local Governments for Sustainability (ICLEI) has a website that provides activities, publications and webinars with the aim to facilitate integrated sustainable urban development. These initiatives can serve as best-practice examples for communicators.
Summary	ICLEI is a global network of both local and regional governments that want to create systemic change for urban sustainability. The website contains an extensive collection of their activities, publications and webinars.
Overview of the points relevant to STAGE	Climate change mitigation and adaptation initiatives with a focus on sustainable urban development are promoted on the website of ICLEI. The ICLEI publications are of particular interest for communicators because these publications contain newsletters, regional updates on activities, case studies, training guides and fact sheets. For example their report 'ICLEI's Climate Neutrality Framework - Accelerating integrated climate action for sustainable urban development'.
Evaluation	**Transferability:** The material focuses mainly on facilitating integrated sustainable urban development. **Desirability:** The provided examples could show communicators how to best communicate about these complex topics. **Feasibility:** The materials of ICLEI are accessible online for the target audience. **Viability:** Most of the materials of ICLEI can be accessed for free, which makes this best practice financially viable.
Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	Featured activities – ICLEI Publications – ICLEI Webinars – ICLEI

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Best-practice 9: The climate & society game

Type	Training game
Institutions	Home | Climate & Development Knowledge Network (cdkn.org) Resources | Climate & Development Knowledge Network (cdkn.org)
Aim	The aim of the training game 'The climate & society game' is to explore gender and social inclusion on the topic of climate change by putting the participants in someone else's shoes. This is an example of public engagement by role play which will be interesting for scientists, professional science communicators and communicators lacking experience in science communication to explore.
Summary	The game 'The climate & society game' is an interactive training exercise which is set in South Asia. Eight different characters were developed to explore how gender, age, health and physical and mental abilities will affect someone's response to climate-related problems.
Overview of the points relevant to STAGE	Participants that play this game will learn to understand how people's background and circumstances will affect their decision-making. The participants are challenged to put themselves in character and then have a conversation about the characters' vulnerabilities to the climate and think of solutions that might solve these vulnerabilities.
Evaluation	**Transferability:** The material focuses on the themes 'adaptation and resilience and 'gender approaches'. This concept could be transferred and adapted to different areas and target groups. The concept of the game has the potential for further sustainability within the partner countries and beyond. **Desirability:** Participants of the general public might be interested in figuring out different reasonings for the behaviour and uncertainties of people with a different background than themselves. The game sets a great example for the possibilities or role play games when discussing difficult topics with people from different backgrounds. **Feasibility:** The game has been adapted to play in Asia, Africa, Latin America and the Caribbean. The game can be accessed online, however is not yet adapted to European participants. It will probably take a month to adapt the game to a European setting or to adapt the game to a different scenario. Before the game can be adapted, the production rights to the game should also be checked. **Viability:** The game can be accessed for free, which makes it a financially viable best-practice example.
Type of public engagement	**Dialogue** – somewhat more process-based, with the act of interaction driving its definition; outcomes tend toward more personal-level changes in interest, affect, or knowledge.
Weblink	Resource: Training game on 'Climate and Society' explores gender and social inclusion | Climate & Development Knowledge Network (cdkn.org)

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Best-practice 10: Three strategies for effectively talking about climate change

Type	TED talk
Data released	22th of April 2021
Institutions	Technology, Entertainment, and Design (TED platform) TED talk by John Marshall
Aim	The aim of the TED talk 'Three strategies for effectively talking about climate change' is to explain in an actionable talk how language adjustments can get people to more intuitively understand and care about climate change. This TED talk is of interest for scientists, professional science communicators and communicators lacking experience in science communication.
Summary	Environmental advocate and communications strategist John Marshall shares three strategies for effectively talking about climate change in this TED talk.
Overview of the points relevant to STAGE	The TED talk 'Three strategies for effectively talking about climate change' will explain how science communication can be applied to understand how people make decisions and how people develop trust in science.
Evaluation	**Transferability:** The three strategies that are discussed in the TED talk can be transferred to many areas and target groups. These strategies can also be used to further sustainability within the partner countries and beyond. **Desirability:** The users should desire to get more knowledge on useful strategies to effectively talk about climate change. These strategies can aid the users to better communicate with the target-audiences. **Feasibility:** The TED talk 'Three strategies for effectively talking about climate change' is accessible online for the target audience. **Viability:** The TED talk can be accessed for free, which makes this best-practice financially viable.
Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	John Marshall: 3 strategies for effectively talking about climate change | TED Talk

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Best-practice 11: Animation video about sea rise

Type	Animation video
Data released	19th of July 2022
Institutions	NU - Het laatste nieuws het eerst op NU.nl
Aim	The aim of the animated video is to explain a phenomenon behind 'sea level rise' that relates to climate change to the general public. This TED talk is of interest for scientists, professional science communicators and communicators lacking experience in science communication.
Summary	This animation video about sea rise explains why melting Arctic sea ice from the north pole doesn't contribute to sea level rise. It is a short informative animated video from Dutch news outlet NU.nl.
Overview of the points relevant to STAGE	The Dutch news outlet NU.nl asks a relatively simple question that is related to climate change to the audience and explains the answer in a short animated video with Dutch audio and Dutch subtitles.
Evaluation	**Transferability:** The concept of the material has the potential to be transferred to many areas and target groups. It also has the potential for further sustainability within the partner countries and beyond. **Desirability:** The short animated video showcases how this type of communication can be used to explain a very short and simple question to the general public. **Feasibility:** The animated video is accessible online for the target audience. However the audio of the video is in Dutch, as well as the subtitles. An English translation or English subtitles would make this a more feasible best-practice. **Viability:** The animated video can be accessed for free, which makes this best-practice financially viable. However adding English subtitles would cost money and time, which makes this best-practice example less ideal to showcase.
Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	Waarom smeltend zee-ijs van de Noordpool niet bijdraagt aan de zeespiegelstijging | NU.nl

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Best-practice 12: KNMI Climate Explorer

Type	Tool
Data released	November 2005
Institutions	Koninklijk Nederlands Meteorologisch Instituut (KNMI) KNMI - Koninklijk Nederlands Meteorologisch Instituut
Aim	The aim of the KNMI Climate Explorer is to provide a tool that lets users investigate the climate. This tool is of interest for scientists, professional science communicators and communicators lacking experience in science communication and also for the general public.
Summary	The KNMI Climate Explorer is a tool to investigate the climate. A class of climate data can be selected, by selecting a time series or a field. The climate data can be investigated, and correlated to other data and also derived data can be generated from the selected data.
Overview of the points relevant to STAGE	The user can first select the climate data of interest. The climate data can be investigated, and correlated to other data and derived data can also be generated by the user. This tool allows the user to investigate the climate.
Evaluation	**Transferability:** The tool can not be transferred to many areas, however it can be used by many target groups. Sustainability can be influenced by the tool if the users can include their findings in their communication. **Desirability:** Users of the tool need to be interested in investigating the climate. This tool provides up-to-date datasets, which can be used to communicate climate scenarios with the target-audience. Or, alternatively, can be used by the general public to investigate the effects of climate change themselves. **Feasibility:** The KNMI Climate Explorer tool can be accessed online by the target audience. **Viability:** The KNMI Climate Explorer tool can be accessed for free, which makes this best-practice financially viable.
Type of public engagement	**Knowledge Co-Production** – emphasis on the process of science; outcomes relate to building scientific skills in publics and bringing non-expert perspectives to research.
Weblink	Climate Explorer: Starting point (knmi.nl)

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Best-practice 13: Kurzgesagt animated video 'We WILL Fix Climate Change!'

Type	Animated video - educational YouTube channel
Data released	5th of April 2022
Institutions	Educational YouTube channel 'Kurzgesagt' founded by Philipp Dettmer Kurzgesagt – In a Nutshell - YouTube
Aim	The aim of YouTube science channel Kurzgesagt (In a nutshell) is to make a positive impact on the world and share knowledge. The Kurzgesagt animated video 'We WILL Fix Climate Change!' is added as an example of a best-practice about science communication on climate change. The science channel Kurzgesagt reaches an audience of millions of people and is of interest for the general public, scientists, professional science communicators and communicators lacking experience in science communication and also for the general public.
Summary	Kurzgesagt is German for 'in a nutshell'. This educational YouTube channel is founded by Philipp Dettmer and creates minimalistic animated videos. Kurzgesagt creates videos about a broad range of topics.
Overview of the points relevant to STAGE	The animated video 'We WILL Fix Climate Change!' by Kurzgesagt explains the risks of climate change and also gives a roadmap with possible solutions. The animated video is backed up by scientific sources. Furthermore the scientific sources are provided in the description along with a short introduction of the main takeaways of the video.
Evaluation	**Transferability:** The material can be transferred to many areas and target groups, as shown by the fast collection of animated videos that have already been produced by Kurzgesagt. The material has the potential for further sustainability within the partner countries and beyond because of the broad reach of the YouTube science channel. **Desirability:** Science channel Kurzgesagt takes the scientific facts and tells an alluring story which is accompanied by attractive and minimalistic animated videos. The videos are fun and entertaining to watch and also relatively easy to understand. **Feasibility:** The animated videos of Kurzgesagt are available on their YouTube channel. For updates on new videos the users can subscribe to their channel. **Viability:** The animated videos of Kurzgesagt can be accessed for free, which makes this best-practice financially viable.
Type of public engagement	**Informal** – informal one-on-one interactions in daily life between scientists and publics; primarily neglected in the literature, this category represents (likely) the most frequently experienced and least studied type of engagement.
Weblink	We WILL Fix Climate Change! - YouTube Sources – Can WE Fix Climate Change? (google.com)

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Best-practice 14: ‘Fossil of the day’ day blog

Type	Day blog
Data released	November 2009 - present
Institutions	Climate Action Network (CAN) Climate Action Network – Home (climatenetwork.org)
Aim	The aim of the ‘Fossil of the day’ day blog is to assess the actions of countries when it comes to their efforts on climate change mitigation and adaptation. The day blog is of interest to the general public, politicians, scientists, professional science communicators and communicators lacking experience in science communication.
Summary	The ‘Fossil of the day’ day blog is an opinionated, critical and informative blog. It gives awards by the Climate Action Networks to the countries that are “doing the most to achieve the least" about climate change progress.
Overview of the points relevant to STAGE	This day blog by the Climate Action Network (CAN) serves as a critical voice and watchdog that assesses the efforts of countries when it comes to climate change mitigation and adaptation. Their day blog posts are informal but also informative at the same time.
Evaluation	**Transferability:** The concept of the material can be transferred to many areas and target groups by communicators. It also has the potential for further sustainability within the partner countries and beyond. **Desirability:** The users desire adequate and critical information about the promises of countries when it comes to climate change mitigation and adaptation. **Feasibility:** The ‘Fossil of the day’ day blog posts are available online. **Viability:** The day blog posts can be accessed for free, which makes this best practice financially viable.
Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	Fossil of the Day Archives - Climate Action Network (climatenetwork.org)

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Best-practice 15: How empowering women and girls can help stop global warming

Type	TED talk
Data released	16th of January 2019
Institutions	Technology, Entertainment, and Design (TED platform) TED: Ideas Worth Spreading Project Drawdown Project Drawdown TED talk by Katharine Wilkinson
Aim	The aim of the TED talk 'How empowering women and girls can help stop global warming' is to emphasize the importance of equity for women and girls and how this relates to climate change. This TED talk is of interest to scientists, professional science communicators, communicators lacking experience in science communication and the general public.
Summary	Inspiring TED talk by Katharine Wilkinson, a writer and environmentalist, about how empowering women and girls can help stop global warming.
Overview of the points relevant to STAGE	In the TED talk 'How empowering women and girls can help stop global warming' three key ways are shared in which equity for women and girls can help stop global warming.
Evaluation	**Transferability:** The content of the material is important knowledge, but this type of knowledge is not easily transferable to other areas and target groups, other than the responsibility to teach others about this knowledge. **Desirability:** Users desire information about gender equity and how this relates to climate change mitigation and adaptation. **Feasibility:** The TED talk 'How empowering women and girls can help stop global warming' is available online. **Viability:** The TED talk can be accessed for free, which makes this best-practice financially viable.
Type of public engagement	**Deliberative** – usually tied to policy and directly addressing issues at the intersection of science and society; outcomes directly tied to policy action are most common.
Weblink	Katharine Wilkinson: How empowering women and girls can help stop global warming | TED Talk

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Best-practice 16: Act Now: Bridging the Gap between Climate Change Science and Public initiatives for Action

Type	European-funded project (Erasmus+)
Data released	2020-ongoing
Institutions	CARDET (Cyprus); ACCION LABORAL (Spain); CRE.THI.DEV (Greece) ITTI (Bulgaria); PROGEU (Italy); CROMO (Hungary)
Summary	ACT NOW is a European project, funded by the Erasmus+ Programme, which aims to train youth workers and educations to integrate climate change and sustainable development topics into formal and non-formal education systems. **Specifically, the project will:** a) develop the knowledge, skills, and attitudes of youth workers and young people to critically reflect on climate change as a serious environmental challenge; b) build the capacity of youth workers, professionals, and educators to use Augmented Reality and Simulation Games to address the issue of climate change; c) Develop tools and methodologies to help youth workers/youth professionals to assess key competences of young people in regards to climate change and sustainable development; d) make use of AR and Simulation Games platforms to build the technical knowledge of youth workers to create their own content; **Outcomes:** to achieve the above objectives, the project will develop the following resources/tools: 1) Augmented Reality Training Package and Trainers' Manual 2) Simulation Game 3) MOOC for Climate Action 4) Policy & Practice Recommendations for living a more sustainable lifestyle **Target groups**: The project is addressed to youth workers, professionals, environmental experts, and educators.
Weblink	www.actnow-europa.eu

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Best-practice 17: SciCo Cyprus

Type	Non-profit organization
Data released	Established in 2015
Institutions	SciCo Cyprus was funded by a team of academics & experts: Dr Theo Anagnostopoulos, Dr Katerina Kaouri, Dr Nikos Konstantinou, Dr Myrtani Pieri, and Michalis Stangos)
Summary	SciCo Cyprus is a non-profile, education organization which aims to engage individuals with science, technology, and innovation through organizing interactive and entertaining activities. The organization has developed into a large community, engaging scientists, science communicators, educators, artists, and business people with a common interest in science and technology. In 2015, SciCo co-organized the 1st Mediterranean Science Festival (in collaboration with the Research and Innovation Foundation and Youth Board of Cyprus), attracting more than 9000 visitors and children.
Weblink	www.facebook.com/SciCoCyprus

Best-practice 18: The Art of Communicating Science

Type	TED talk
Data released	06 July 2022
Institutions	TEDxVanderbiltUniversity Ted talk by Beth Malow
Summary	This TED talk focuses on how science can be communicated more effectively through exercising empathy and building trust with the interlocutor. The talk makes a strong point about the importance of communicating science effectively towards the public, by drawing on the example of COVID-19 vaccination.
Weblink	https://youtu.be/oTvRlbIOMzg

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Best-practice 19: Terra Cypria

Type	NGO-foundation
Data released	Founded it 1992
Institutions	The Foundation's main funding derives from an annual grant provided by the A.G. Leventis Foundation, grants from projects, and contributions from people who participate in educational programmes provided by the Cyprus Centre for Environmental Studies (operated by Terra Cypria).
Summary	Terra Cypria is a non-profit, charitable organization which was established in order to promote environmental awareness and sustainability, through education and programmes focusing on research, environmental protection and promotion of conservation. The Foundation has 3 main objectives: a) **policy action**: the foundation actively promotes policy-level changes for better environmental protection; this is achieved through publications, seminars, exhibitions, and meetings with key policy-makers and governmental representatives. b) **awareness-raising & training**: the foundation offers courses, and other educational/training opportunities, especially for students of primary, secondary, and tertiary education, to engage them in environmental issues and increase their capacity to better manage natural resources. c) **implementation:** the foundation implements programs focusing on the preservation and protection of the environment, promotion sustainable living and practices, improvement of the urban environment, as well as promotion of sustainable urban mobility.
Weblink	www.terracypria.org

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Best-practice 20: Cyprus Centre of Environmental Research and Education

Type	Environmental Centre
Summary	CYCERE is the first independent environmental centre established in Cyprus, and is located in the area of Akrotiri Peninsula, in Limassol. CYCERE aims to contribute to environmental conservation through: a) **environmental education** (development of education programs for students, young people, visitors of the Akrotiri Peninsula) b) **environmental research** (collaboration with research institutions and universities, preparation of scientific publications) c) **environmental information** (organization of events, workshops, conferences, and campaigns) The centre particularly targets young people and students interested in learning about the natural ecosystems of Cyprus. At the same time CYCERE cooperates with researchers and young scientists to promote environmental research in Cyprus.
Weblink	www.kykpee.org

Best-practice 21: Energy, Environment and Waste Research Center

Type	Research Center
Data released	2007
Institutions	Massachusetts Institute fo Technology (USA) Max Planck Institute for Chemistry (Germany) Research & Innovation Foundation (Cyprus) + various national institutions and organizations in Cyprus
Summary	EEWRC is the first non-profit research center and educational institute of the Cyprus Institute focusing on science and technology. The research work conducted mainly emphasizes in Renewable Energy, Environmental Research and Monitoring, Atmosphere, Climate Change Impact, Water Management, Natural Resources, and Low carbon economy.
Weblink	https://bit.ly/3RIGCW4

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Best-practice 22: FameLab Cyprus

Type	Competition
Data released	annual
Institutions	British Council
Summary	FameLab Cyprus (based on the FameLab UK model) is a national talent competition which aims to locate new talents in science communication. It encourages scientists, engineers, technologists, and mathematicians to find and propose new and innovative ways to engage public in modern science. To compete, the entrants are provided three minutes to prepare an original idea to communicate a scientific phenomenon to judges and a non-scientific audience. The idea behind the competition is to encourage young people to share their enthusiasm and knowledge about science with the general public.
Weblink	www.famelabcy.com

Best-practice 23: Cyl Women and Girls in Science

Type	Public Event
Data released	11 February 2022
Institutions	-
Summary	To celebrate the International Day of Women and Girls in Science, and in the contexts of promoting Gender Equality in research, the Cyprus Institute organized a public event, where a number of women scientists were invited to present their work of field, expertise, and identify the various challenges women face when it comes to engage in science. The event's overall goal was to increase visibility of women working in STEM-related professions in Cyprus, and encourage young women to become involved in those fields. The event also highlighted the importance of women's participation in science as a way to promote female empowerment and gender equality.
Weblink	https://youtu.be/uEKGgiH9jKk

Best-practice 24: Girls in STEAM Academy

Type	Non-profit organization

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Data released	21
Institutions	Founders: Panayiota Polykarpou & Anastasia Liopetriti
Summary	Girls in STEAM aims to empower and inspire girls to pursue a career in the STEAM disciplines (Science, Technology, Engineering, Arts, Mathematics). To achieve this, Girls in STEAM implements a number of free educational programs to provide the necessary tools, practical activities, and opportunities to engage women and girls in the STEAM fields.
Weblink	www.steamacademycy.org

Best-practice 25: #ClimateofChange

Type	Campaign
Data released	2020-ongoing
Institutions	The project is funded by the European Union, under the DEAR programme **Partners**: ActionAid Hellas, WeWorld, European Environmental Bureau, FINEP, OXFAM, European Association for Local Democracy, Südwind, Alianza, Instituto Marquês de Valle Flôr, Slovenian Global Action, Hungarian Baptist Aid, Buy Responsibly Foundation, BEPF, University of Nicosia Research Foundation, University of Bologna, City of Bologna.
Summary	The #ClimateOfChange pan-European campaign launched in the framework of the European-funded project "End Climate Change, Start Climate of Change", which aims to raise the awareness and understanding among young EU citizens, concerning climate change induced migration. The project aims to highlight the various local and global inequalities emerging due to climate change and empower citizens to bring about change and advocate on global justice.
Weblink	www.climateofchange.info

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Best-practice 26: The Climate Coalition

Type	Non-profit organization
Data released	17 February 2022
Summary	The Climate Coalition is the largest organized group of people in the UK dedicated to take active action on climate change. The organization launched various campaigns to mobilize the public to take action and bring about social and policy-level change.
Weblink	www.theclimatecoalition.org

Best-practice 27: GoGreen.cy

Type	Community/Website
Summary	GoGreen.cy is a website dedicated to shed light on important matters relevant to sustainable development and the environment, as a way to keep the public informed about various green practices and policies, as well as urgent issues and crises that need to draw the public's attention.
Weblink	https://gogreen.cy/

Best-practice 28: Science Unfold

Type	Competition
Data released	2022
Institutions	Research & Innovation Foundation
Summary	The Research & Innovation Foundation in Cyprus announced "Science Unfold", a science communication competition targeting students of secondary education. The competition aims to challenge Interested contestants to come up with ways to communicate a science-related topic of their choice, which has attributed to upgrading society's quality of life. Each contestant has three minutes to present the topic to judges and the general audience.
Weblink	https://bit.ly/3Ep6PWT

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Best-practice 29: SciFUN: Making Learning Science Fun

Type	European-funded project (Erasmus+)
Data released	Project duration: 2016-2018
Institutions	Group for European Integration (Romania); Louth Meath Education and Training Board (Ireland); University of Pitesti (Romania); CARDET (Cyprus); University of Peloponnese (Greece); University of Lodz (Poland); INNOVADE LI (Cyprus)
Summary	SciFUN was a European project funded by the Erasmus+ programme, which aimed to address the challenge of engaging in science through introducing innovative approaches to science teaching and learning for students. The project increased students' motivation and achievement in science and improved the capacity of educators to engage students in science education. **Outcomes:** to achieve the above objectives, the project developed the following resources/tools: a) Toolkit with practical tips for educators, digital literacy tools, case studies, and ideas for learning activities b) e-Learning platform with free teaching materials, resources, and assessment tools to evaluate students' performance. **Target Groups:** The project targeted educators, students, schools, and policy makers.
Weblink	www.scifun.eu

Best-practice 30: Women in STEM

Type	Scholarship
Data released	Academic year 2022-2023
Summary	Frederick University in Cyprus offers scholarships to all girls (secondary school graduates) regardless of their nationality, academic performance, or socioeconomic status. In specific, the scholarships cover 50% of the tuition fees and are valid for the first academic year. The provision of scholarships was an initiative offered by Frederick University in the framework of promoting gender equality and empowering women's representation in Science, Engineering, and Technology.
Weblink	www.frederick.ac.cy/women-in-STEM/el/home-en

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Best-practice 31: 10 Actions Companies Can Adopt to Fight Climate Change

Type	Online news
Data released	September 2017
Institutions	10 actions that companies can put in place to fight climate change (youmatter.world)
Aim	Involvement of large companies in the area of climate change
Summary	We know that due to climate change outcomes, many companies are and will be in the future, greatly affected in many different ways. Yet, many do not know what they can do to help fight it. Here are 10 actions that all companies can put in place to do their part in the fight against global warming
Overview of the points relevant to STAGE	The "Youmatter" is an online media news about planet, climate change and the next many areas. The ambitions of "Youmatter" is provide citizens with better tools and information so they can understand and take action in our constantly-changing world.
Evaluation	Transferability: This material can be transferred to many areas and target groups. Desirability: This online news can be an interesting example of how can use the extension of knowledge about climate change. Feasibility: The news is online on websites and it can be accessible for the target audience. Viability: The news is accessed for free.
Type of public engagement	Deliberative – usually tied to policy and directly addressing issues at the intersection of science and society.
Weblink	10 actions that companies can put in place to fight climate change (youmatter.world)

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Best-practice 32: Tackling Climate Change in Cities: the Role of Best Practices

Type	Article
Data released	May 2014
Institutions	International Center for Climate Governance (ICCG)
Aim	The ability of cities to respond of climate change
Summary	In recognition of their capacity to respond to climate change, cities around the world have engaged in best practices such as Green Infrastructure and integrated transportation policies to mitigate climate change impacts. Whilst, these common best practices that are discussed have benefits for human health, climate change is increasingly posing a greater risk to human health.
Overview of the points relevant to STAGE	Some cities have make effort to develop policy that responds to human health impacts of climate change. As cities progress in the formulate of climate policy, it will be important for policy makers to understand the local context and how global scientific recommendations can be adapted to meet the present and future needs of the city.
Evaluation	Transferability: This material can be transferred to many areas and target groups. Desirability: This article can be a good source of information for politics in head of cities. Feasibility: The article is online on websites and it can be accessible for everyone. Viability: The download of this article is for free.
Type of public engagement	Science article with overlap to public engagement.
Weblink	The Think Tank Map is an observatory which aims to provide a complete overview of the think tanks active in the field of climate change governance

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Best-practice 33: The profound link between the climate crisis and the ocean – in pictures

Type	The news article – pictures set
Data released	October 2022
Institutions	The Guardian
Aim	Is necessary to show the proof about climate change.
Summary	Ahead of Cop27 as part of a drive to increase the diversity of imagery showing the impact of climate change of sea environments. Climate Visual has released a new collection of evidence-based images.
Overview of the points relevant to STAGE	Through the pictures it is possible to show how climate change modifies our world.
Evaluation	Transferability: These pictures can be shared to many areas and target groups. Desirability: These pictures show that our world is modified. Feasibility: The article is online available on websites.
Weblink	The profound link between the climate crisis and the ocean – in pictures | Environment | The Guardian

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Best-practice 34: Ensuring Urban Water Security

Type	Article
Data released	October 2022
Institutions	Mark and Focus – Medium
Aim	Protect of ecosystems, habitats and source of water.
Summary	The concept of 'water security' was first introduced in the Ministerial Declarations of the Second World Water Forum in the Hague in 2000. The declarations stated water is vital for the health of humans and ecosystems and a basic requirement for the development of countries; however, water resources and related ecosystems are under threat from pollution, unsustainable use, land- use changes, climate change and other forces
Overview of the points relevant to STAGE	For each human it is necessary to protect our water sources because at this time we hear very often that the water is contaminated.
Evaluation	Transferability: This article can be transferred to many areas and target groups. Desirability: This article shows how important water is, especially drinking water. Feasibility: This article is accessible on websites. Viability: This article is for free.
Weblink	Ensuring Urban Water Security. By Robert C. Brears | by Robert Brears | Mark and Focus | Oct, 2022 | Medium

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Best-practice 35: Resilient Cities With Nature-based Solutions

Type	Article
Data released	September 2022
Institutions	Mark and Focus – Medium
Aim	Nature-based Solutions (NbS) are natural or semi-natural systems that utilise nature's ecosystem services to manage water resources and associated risks.
Summary	In many cities, the most common means of mitigating the risks from climatic extremes has been increasing investment in conventional — or "grey" — infrastructure, especially dams and levees.
Overview of the points relevant to STAGE	Green roof and frotage can be a simple solution compared to the grey infrastructure.
Evaluation	Transferability: This article can be transferred to many areas and target groups. Desirability: This article shows how important a simple solution is. Feasibility: This article is accessible on websites.
Weblink	Resilient Cities With Nature-based Solutions | by Robert Brears | Mark and Focus | Sep, 2022 | Medium

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Best-practice 36: Looking to a circular water economy in Europe

Type	Article
Data released	August 2022
Institutions	Green Policy
Aim	Ensure the water resources management in Europe follows a circular economy approach.
Summary	International institutions, governments, local authorities, water utilities and water-intensive industries are all important for ensuring a safe and adequate water supply chain. But when it comes to achieving UN Sustainable Development Goal 6 on clean water and sanitation, there has been little to no progress in the European Union over the past five years.
Evaluation	Transferability: This article can be used in many areas, especially in school lessons. Desirability: Without water recycling the society can´t exist. Feasibility: This article is possible to read on websites.
Weblink	Looking to a circular water economy in Europe | Green Growth Knowledge Platform

Best-practice 37: Scientists welcome ‘enormous’ US climate bill — but call for stronger action

Type	Article
Data released	August 2022
Institutions	www.nature.com
Summary	Several US agencies, including the National Oceanic and Atmospheric Administration (NOAA) and the Department of Energy (DOE), will see a significant influx of cash from a massive climate and tax bill that US President Joe Biden signed on 16 August. Scientists around the world welcome the legislation, called the Inflation Reduction Act, which pledges US$369 billion in climate investments over the next decade — while acknowledging that more work is needed to counter global warming.
Overview of the points relevant to STAGE	For the betterment of environment is necessary the cooperation of politics, scientists and public. The money can make this cooperation simpler.

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Evaluation	Transferability: The content of this article can be transferred to the target audience Desirability: This article can be a chance for better times.
Weblink	Scientists welcome 'enormous' US climate bill — but call for stronger action (nature.com)

Best-practice 38: Deep dive: Investment in carbon capture rises as CO2 spikes

Type	Article
Data released	June 2022
Institutions	Business chief
Aim	Climate crisis means carbon removal is now necessary
Summary	Simply curbing emissions is no longer enough. Climate scientists now say in order to prevent dangerous rises in global temperatures, we must also remove carbon dioxide from the air that's already been released.
Overview of the points relevant to STAGE	Various studies have found that by mid-century the world may need to remove billions of tons of carbon dioxide from the air each year.
Evaluation	Transferability: The content of this material will be important in school lessons. Desirability: The concentration of CO2 is the theme, which must be discussed. Feasibility: This article is possible to read on websites. Viability: The material is for free.
Weblink	Deep dive: Investment in carbon capture rises as CO2 spikes | Business Chief North America

Best-practice 39: Covering Climate Now

Type	Dialogue and best suggestions of climate change
Data released	March 2021
Institutions	Covering Climate Now

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Aim	We have a responsibility to get the climate story right.
Summary	In this dialogue is described how progress in the right story of climate change. In this material are ten tips to give our news outlet a fighting start.
Overview of the points relevant to STAGE	This manual can be very beneficial to make some podcasts, websites or public lectures.
Evaluation	Transferability: This manual can be important also in school lessons or lectures Feasibility: This manual is possible to read on websites. Viability: The material is for free.
Weblink	Best Practices — Covering Climate Now

Best-practice 40: The impact of climate change on mental health and emotional wellbeing: current evidence and implications for policy and practice

Type	Science article
Data released	May 2021
Institutions	Imperial College London INSTITUTE OF GLOBAL HEALTH INOVATION
Aim	Extreme weather and climate events lead to severe psychological trauma
Summary	Climate change and mental health are two of the most significant and pressing challenges facing societies across the world. Yet, growing awareness of these global issues has not been met with sufficient action to mitigate their impacts. Mental illness – or the disabling effects of distress – already affects around a billion people globally while the effects of climate change are increasingly apparent.
Overview of the points relevant to STAGE	Climate change poses an under-appreciated threat to mental health and emotional wellbeing.
Evaluation	Transferability: This article is possible to use in whole target audience Desirability: This article can be a good source of information for scientists or science communicators to use it in public lectures. Feasibility: This

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	article is possible to read on the link below. Viability: An article is downloaded for free.
Weblink	Lawrance, e.a.,The impact of climate change on mental health and emotional wellbeing - current evidence and implications for policy and practice (1).pdf (psychotraumanet.org)

Best-practice 41: Turning climate risks into opportunities

Type	Article
Data released	March 2019
Institutions	SAFETY4SEA
Aim	Decrease of emissions
Summary	While Maersk has announced its plans on becoming a carbon neutral company by 2050, Port of San Diego planned future installation of a renewable, solar-powered microgrid at one of the Port's marine cargo terminals. Several organizations, in and out of the shipping industry are proving, day after day, that they do not remain blind to the biggest challenge of our times; the rising risk of severe climate change.
Overview of the points relevant to STAGE	Decrease of emissions is important in the connection with global warming
Evaluation	Transferability: This article is possible to use in whole target audience Desirability: This article can be used for example in lectures for big companies. Feasibility: This article is possible to read on the link bellow. Viability: An article is for free.
Weblink	Best practices: Turning climate risks into opportunities - SAFETY4SEA

Best-practice 42: Climate Solutions from Cities in the People's Republic of China - Best Practices from Cities Taking Action on Climate Change

Type	Publication
Data released	November 2018

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Institutions	CAREC INSTITUTE
Aim	Taking actions on climate change
Summary	The world is undergoing the largest wave of urban growth in history, with more people living in cities now than in rural areas. This is nowhere more visible than in developing Asia, where new and existing cities and towns are growing with incredible speed. Asian cities are expected to contribute to two-thirds of the world's urban population growth by 2020.
Overview of the points relevant to STAGE	Greenhouse gas (GHG) emissions, especially carbon dioxide, are growing alongside the trend of urbanization. GHG emissions have a significant impact on health, water resources, agriculture, fisheries, and tourism. The region is particularly exposed to climate risk due to its geography.
Evaluation	Transferability: The issues of big cities and agglomeration are transferable to other geographical areas. Desirability: This publication can be used for head politics of big cities and agglomerations. Viability: The publication is possible download on the link below.
Weblink	50 Climate Solutions from Cities in the People's Republic of China – Best Practices from Cities Taking Action on Climate Change – CAREC Institute

Best-practice 43: How climate change disrupts fall foliage

Type	Environment news article
Data released	October 2022
Institutions	NATIONAL GEOGRAPHIC
Aim	Fall is getting warmer as a result of climate change.
Summary	From 2014 to 2021, the Northern Hemisphere experienced its eight warmest Octobers on record. And the Northeast, which is most famous for fall foliages, is warming faster than the rest of North America. From Vermont to North Carolina, fall foliage has been appearing behind schedule—continuing a long-term trend that, according to one recent study of maples by researchers at George Mason University, has pushed the appearance of fall colors back more than a month since the 19th century. Temperature is not the only driver; precipitation or the lack of it, extreme weather, and insect infestations also play a role. As climate change affects all those factors, it's making the timing of peak foliage harder to predict.

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Overview of the points relevant to STAGE	Climate-related delays in leaf coloration are disrupting annual cycles of growth and rest that trees undergo.
Evaluation	Transferability: This news can be transferred to many areas and target groups. Desirability: This article shows how important is the contemplation of the environment. Feasibility: This article is accessible on websites.
Weblink	How climate change disrupts fall foliage (nationalgeographic.com)

Best-practice 44: Your plastic-free guide to back-to-school season!

Type	Poster
Institutions	NATIONAL GEOGRAPHIC KIDS
Aim	Learn kids to reduce of plastic materials
Summary	This guide teaches kids to reduce plastic materials in three different locations in the school - Cafeteria, Classroom and Backpack.
Overview of the points relevant to STAGE	This simple guide can be helpful for kids and also for adults. Because the upbringing of kids is very important for other generations.
Evaluation	Transferability: This poster can be used for many subjects in school. Feasibility: The poster is accessible on websites. Viability: The material is for free.
Weblink	plastic-free-school.pdf (nationalgeographic.com)

Best-practice 45: 2022 International Women's day

Type	Webinar (online conference)
Institutions	The webinar is jointly developed by Hosted by Self Help Africa.
Aim	The target audience: non expert audience Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science

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Summary	Women across the globe, who are taking action and are leading voices in the campaign to combat climate change, are contributing to an online conference regarding the role of women in climate change actions.
Overview of the points relevant to STAGE	This best practice points out the necessary action from the female population in order to face the problem of Climate Change. The webinars can be used as a tool to help the female population to obtain skills and be encouraged to participate in actions.
Evaluation	**Desirability:** The webinar is useful especially for the women population in order to be informed about projects, initiatives and personal stories regarding women action for climate. **Feasibility:** The webinar is in English and the duration is about 1h and 30min. **Viability:** The webinar can be accessed for free, thus this best practice is financially viable.
Weblink	https://selfhelpafrica.org/ie/2022-iwd/

Best-practice 46: Gender-responsive climate action

Type	Site
Data released	2019
Institutions	The content of the site is made by the United Nations.
Aim	The target audience: science communicators Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science
Summary	The site includes activities and reports about a rights-based, gender responsive approach to climate action. In particular, the site includes the results of an analytical study on the integration of a gender-responsive approach into climate action at the local, national, regional and international levels. In addition, it includes the report of a panel discussion on women's rights and climate change which gives emphasis on recommendations, good practices etc.
Overview of the points	The report and the analytical study can work as tools for the science communicators on climate change in order to implement more inclusive public engagement strategies.

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relevant to STAGE	
Evaluation	**Transferability:** The site's information is about activities and reports about a rights-based, gender responsive approach to climate action. Thus, it can be transferred to many areas and target groups. **Desirability:** This practical resource will appeal to science communicators, who can use its content as tools, in order to implement more inclusive public engagement strategies. Therefore, it can be part of STAGE toolkit. **Feasibility:** Everyone can access to site's information, which is online. **Viability:** The site's information is free accessible for everyone.
Weblink	https://www.ohchr.org/en/climate-change/gender-responsive-climate-action

Best-practice 47: Climate Resilience Webinar Series 2021-2022

Type	Webinar Series
Data released	May 2020
Institutions	The webinar series are offered by the UK Climate Resilience Programme (UKCR). It is a four-year Strategic Priorities Fund (SPF) scientific research programme led jointly by UK Research and Innovation (UKRI) and the Met Office with Natural Environment Research Council (NERC). https://www.metoffice.gov.uk/research/approach/collaboration/spf/spf-uk-climate-resilience
Aim	The target audience: researchers, stakeholders Key-competence: Develop writing and oral skills needed to communicate science, mainly issues related to climate change and the gender gap in STEM, in various spaces (popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals etc.)
Summary	UK Climate Resilience Programme develop webinar series for promoting the results of research programs in climate change. It has almost 40 webinars on different thematic topics.
Overview of the points relevant to STAGE	Users can develop communication skills on the topics delivered through the webinars.
Evaluation	**Transferability:** Because of the variety of topics related to Climate Change, this practical resource can be transferred to various areas.

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	Desirability: The webinar is useful especially for the researchers and stakeholders, who want to be informed about different aspects of Climate Change, such as Climate Resilience. **Feasibility:** Each of the webinar is uploaded on a specific Youtube channel and lasts for about 1 hour. Everyone can access on it. **Viability:** The webinar series can be accessed for free, thus this best practice is financially viable.
Weblink	https://www.ukclimateresilience.org/news-events/climate-resilience-webinar-series-2020-2021/

Best-practice 48: Climate Trade

Type	Blog
Institutions	Climate Trade
Summary	The blog provides resources regarding how companies have achieved the reduction of carbon emissions. The target audience: stakeholders / companies
Overview of the points relevant to STAGE	This blog is useful because it also provides the financial perspective through companies among the other perspectives that should be taken into account in the discussion on climate action.
Evaluation	**Transferability**: This blog information focus mainly on target groups, like stakeholders and companies. Despite this, it can be transferred to many areas, because the information is related to carbon emissions. **Desirability:** This practical resource will appeal to science communicators, who can use its content as tool, in order to inform people on how the trade contributes to Climate Change phenomenon. Therefore, it can be part of STAGE toolkit. **Feasibility:** Everyone can access to blog, which is online. **Viability:** The blog's information is free accessible for everyone.
Weblink	https://climatetrade.com/about-us/

Best-practice 49: Can we eat our way to a better planet?

Type	Podcast
Data released	7th April 2022
Institutions	The Climate podcast is offered by the UCL.

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	https://www.ucl.ac.uk/ The Podcast hosts Helen Czerski and Mark Maslin and in this episode they are tackling plant based diets. Helen Czerski is joined by Tim Van Berkel, Co-Founder of Cornish Seaweed Company, Prof Tim Lang, emeritus professor at London City University and Dr Carole Dalin from UCL's Institute of Sustainable Resources.
Aim	The target audience: non expert audience Key-competence: - Reflect critically on the social, historical, cultural and ethical dimensions of science - Develop writing and oral skills needed to communicate science, mainly issues related to climate change and the gender gap in STEM, in various spaces (popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals etc.)
Summary	In this episode they spoke about the pros and cons of plant based diets, the popularity of superfoods and whether seaweed can become a staple in our diets, and discuss how we can eat our way to a better planet.
Overview of the points relevant to STAGE	The podcast underlines the importance of a collaboration between scientists, stakeholders and media in raising public awareness on how to act on climate change.
Evaluation	**Transferability** This practical resource can be transferred to many areas and target groups. **Desirability** This podcast is a conversation with experts on a specific topic, which is plant-based diets and how they affect on planet's sustainability. It can be used by the science communicators as a tool to inform public about this topic, or/and as an inspiration to make their podcasts. **Feasibility** The podcast is accessible online for the target audience, which makes this best practice technologically and organisationally feasible. Its duration is about 30 minutes. **Viability** The podcast can be accessed for free, therefore it is financially viable.
Weblink	https://soundcloud.com/uclsound/season-2-can-we-eat-our-way-to-a-better-planet?in=uclsound/sets/generation-one-the-climate&utm_source=clipboard&utm_medium=text&utm_campaign=social_sharing

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Best-practice 50: How empowering women and girls can help stop global warming

Type	TEDx Talk
Data released	February 2019
Institutions	The video is made by TED.
Aim	The target audience: non expert audience Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science
Summary	The talk is given by Katharine Wilkinson (writer and environmentalist). She proposes solutions to draw down heat-trapping, climate-changing emissions: obvious things like renewable energy and sustainable diets and not so obvious ones, like the education and empowerment of women.
Overview of the points relevant to STAGE	Science communicators could use this practice to communicate directly with non expert audience mainly issues related to climate change and the gender gap.
Evaluation	**Transferability:** This practical resource can be transferred to many areas and target groups. **Desirability:** Watching this TEDx Talk, non-expert audiences can be informed on various types of climate change solutions. It will appeal to the target audience. It could be also interesting for women, because they will realize the importance of their empowerment in the planet's sustainability. Thus, it can be useful for the STAGE toolkit. **Feasibility**: This TEDx Talk is about is uploaded to Youtube and everyone can access it, therefore it is a technologically and organisationally feasible best practice. It lasts about 14 minutes and can be watched many times. **Viability**: The TEDx Talk can be accessed for free, thus it is financially viable.
Weblink	https://www.youtube.com/watch?v=vXlJEcrinwg

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Best-practice 51: Gender Responsive Climate Finance

Type	Animation video
Data released	August 2019
Institutions	Heinrich Böll Stiftung Washington
Aim	The target audience: non expert audience Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science
Summary	The video gives emphasis on the impacts of climate change on those sections of the population that are most reliant on natural resources for their livelihoods and/or who have the least capacity to respond to natural hazards, such as droughts, landslides, floods and hurricanes. Women commonly face higher risks and greater burdens from the impacts of climate change in situations of poverty, and the majority of the world's poor are women. Women's unequal participation in decision-making processes and labour markets compound inequalities and often prevent women from fully contributing to climate-related planning, policy-making and implementation.
Overview of the points relevant to STAGE	This animation video increases public awareness on climate change and the role of female inclusion and action.
Evaluation	**Transferability** This practical resource can be transferred to many areas and target groups. **Desirability** This animation video can be used as a means of informing non-expert audiences about the importance of public awareness on Climate Change and the role of female inclusion and action. Many different groups could be interested in this video. It can also be an inspiration for science communicators, who could make their animation videos. **Feasibility** The animation video is uploaded to Youtube and everyone can access it. It is a technologically and organisationally feasible best practice. It lasts about 4 minutes and can be watched many times. **Viability** This video can be accessed for free, therefore it is financially viable.
Weblink	https://www.youtube.com/watch?v=YKmvdiXlDFI&t=226s&ab_channel=Heinrich-B%C3%B6ll-StiftungWashington%2CDC

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Best-practice 52: Climate Change and Human Rights

Type	MOOC
Data released	26th September 2022
Institutions	The online course is offered by the NYU | LAW.
Aim	The target audience: non expert audience (anyone interested in learning about the growing field of climate change and human right) Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	During the course the history of the field, key actors and cases, as well as emerging trends and takeaways regarding climate change are discussed.
Overview of the points relevant to STAGE	The course has the potential to give some basic knowledge regarding the topic of climate change and the relationship between climate change and human rights.
Evaluation	**Transferability** This course can be transferred to many areas and target groups. **Desirability** The participants of this course desire to learn more about the various dimensions of climate change phenomenon and the relationship between climate change and human rights. **Feasibility** It is an online course, which takes approximately 8 hours depending on the self-pace of each one. Therefore, it is a technologically and organisationally feasible best practice. **Viability** This course can be accessed for free, which makes this best practice financially viable. Besides this, if they need something more than informing on a specific topic, they have to pay the extra services.
Weblink	https://www.coursera.org/learn/climate-change-and-human-rights

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Best-practice 53: IPCC 2022 – Women and Climate Change

Type	Site - Teaching resources
Institutions	The content of the site is made by MetLink.
Aim	The target audience: - science communicators - non expert audience Key-competence: - Reflect critically on the social, historical, cultural and ethical dimensions of science - Develop an understanding of how public engagement can benefit scientists (predominantly female scientists) career
Summary	The teaching resources investigate the links between two of the Sustainable Development Goals – gender equality, and climate action.
Overview of the points relevant to STAGE	The teaching resources can be used as an example for public understanding about sustainability, gender equality and climate action.
Evaluation	**Transferability:** The information focus on the investigation of the links between two of the Sustainable Development Goals – gender equality, and climate action. It can be transferred to other areas. This information can be handled from many different target groups. **Desirability:** This best practice will appeal to expert or/and non-expert target groups. It is really interesting to women, who live the gender inequality more intensely. Therefore it can be useful for the STAGE toolkit. **Feasibility:** Everyone can access to site's information, which is online. Thus, this best practice financially viable. **Viability:** The site's information is free accessible for everyone.
Weblink	https://www.metlink.org/resource/ipcc-2022-women-and-climate-change/

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Best-practice 54: Rumaitha Al Busaidi: Women and girls, you are part of the climate solution

Type	Video
Data released	May 2021
Institutions	The video is made by TED.
Summary	Entrepreneur, scientist and TED Fellow Rumaitha Al Busaidi explains why women are more likely to be impacted and displaced by climate catastrophes as well as why access to education, employment and family planning for all women and girls is the key to our climate future. The target audience: non expert audience. Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science
Overview of the points relevant to STAGE	It is brief inspiring talk - case study regarding the role of women in climate change action.
Evaluation	**Transferability** This best practice can be transferred to many areas and target groups. **Desirability** This TEDx Talk can be interesting to the target groups and especially to women, because it is related to the role of women in climate change action. It can be used by science communicators to inspire the public and arouse its interest. **Feasibility** This TEDx Talk is about is uploaded to Youtube and everyone can access it, therefore it is a technologically and organisationally feasible best practice. It lasts about 5 minutes and can be watched many times. **Viability** The TEDx Talk can be accessed for free, thus it is financially viable.
Weblink	https://www.youtube.com/watch?v=EgFJ1lu2kR8&ab_channel=TED

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Best-practice 55: Gender, climate and security: Sustaining inclusive peace on the frontlines of climate change

Type	Booklet
Data released	2020
Institutions	UN Women https://www.unwomen.org/en
Summary	Grounded in a series of case studies from research and programming experience, the report offers a comprehensive framework for understanding how gender, climate, and security are inextricably linked. The report assesses entry points for integrated action across existing global agendas and suggests concrete recommendations for how policymakers, development practitioners and donors can advance three interrelated goals: peace and security, climate action and gender equality. The target audience: policymakers & stakeholders.
Overview of the points relevant to STAGE	It offers recommendations for how policymakers and other stakeholders can promote climate action and gender equality.
Evaluation	**Transferability**: It could be used in many areas and target groups, because it contains proposals for stakeholders on how they can promote knowledge to the public. **Desirability**: This booklet can be useful to various target groups. It consists of knowledge about the relationship between gender, climate and security, and recommendations on how to communicate those to the public. **Feasibility**: This best practice has pdf formation and is online. It is accessed by everyone. **Viability**: This booklet is free, so it is financially viable.
Weblink	https://www.unwomen.org/en/digital-library/publications/2020/06/gender-climate-and-security https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/Library/Publications/2020/Gender-climate-and-security-en.pdf

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Best-practice 56: Empowering Women: Why Women Are Crucial to Solving Climate Change | ClimateScience #8

Type	Video animation
Data released	July 2021
Institutions	The video animation is made by ClimateScience.
Summary	The video focuses on the ways women can be effective agents of change in both adaptation and mitigation through 3 different ways: equal opportunities in the agriculture sector, family planning and education. The target audience: non expert audience. Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science
Overview of the points relevant to STAGE	This practice helps in the direct empowerment of the female population and thus in the direct action against climate change.
Evaluation	**Transferability** This best practice can be transferred to many target groups. **Desirability** This animation video can be used as a means of informing audiences about the importance of women to Climate Change solutions, which are mitigation or/and and adaptation. Many different groups could be interested in this video. It can also be an inspiration for science communicators, who could make their animation videos. **Feasibility** The animation video is uploaded to Youtube and everyone can access it. It is a technologically and organisationally feasible best practice. It lasts about 5 minutes and can be watched many times. **Viability** This video can be accessed for free, therefore it is financially viable.
Weblink	https://www.youtube.com/watch?v=25aNiGPZBcg&ab_channel=ClimateScience-SolveClimateChange

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Best-practice 57: Women and Climate Change

Type	Video
Data released	March 2021
Institutions	The video is made by the NRDC.
Aim	The video presents the consequences for women due to climate change and extreme weather events. The target audience: - non expert audience - policymakers Key-competence: Reflect critically on the social, historical, cultural and ethical dimensions of science
Overview of the points relevant to STAGE	The main purpose is to promote the action in order to eliminate the gap between the genders, a gap that affects the contribution of women in the fight against climate change.
Evaluation	**Transferability** This best practice can be transferred to many target groups. **Desirability** This video can be useful for the STAGE toolkit and it would appeal to science communicators because it can be used as a means of informing non-expert audiences about the importance of empowerment of women in Climate Change mitigation. **Feasibility** The video is uploaded to Youtube and everyone can access it. It is a technologically and organisationally feasible practical resource. It lasts about 3 minutes and can be watched many times. **Viability** This video can be accessed for free, therefore it is financially viable.
Weblink	https://www.youtube.com/watch?v=paeptDl4znA&ab_channel=NRDCflix

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Best-practice 58: Why Gender Matters for Effective Adaptation to Climate Change

Type	Animation video
Data released	August 2021
Institutions	The video is made by NAP Global Network.
Summary	Differing backgrounds, genders, and socio-economic realities play a key role in how people experience climate impacts. National Adaptation Plan processes are only effective when these aspects are included in the decision-making process. The target audience: policymakers & non expert audience. Key-competence: - Reflect critically on the social, historical, cultural and ethical dimensions of science - Develop an understanding of how public engagement can benefit scientists (predominantly female scientists) career
Overview of the points relevant to STAGE	The video explains how different people, with different backgrounds, experience climate impacts. *Important is also the fact that the video is created by a National Adaptation Plan Global Network which tries to facilitate sustained peer learning and exchange among participant countries, to support national - level action and to develop knowledge of how countries can advance their national adaptation plan processes.*
Evaluation	**Transferability** This best practice can be transferred to many target groups. **Desirability** This animation video can be used as a means of informing audiences about how different people, with different backgrounds, experience climate impacts. Many people can be interested in it, especially the groups that it is focused on them. Thus, science communicators can use it to inform people about this topics. **Feasibility** The animation video is uploaded to Youtube and everyone can access it. It is a technologically and organisationally feasible best practice. It lasts about 3,5 minutes and can be watched many times. **Viability** This video can be accessed for free, therefore it is financially viable.
Weblink	https://www.youtube.com/watch?v=luO8phhdfsA https://napglobalnetwork.org/2021/08/gender-effective-adaptation-climate-change/ https://napglobalnetwork.org/about/

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Best-practice 59: Let's Change The Way We Talk About Climate Change

Type	Video
Data released	April 2018
Institutions	The video is made by TED.
Summary	The talk gives advice on how to communicate climate change to the public. The target audience: Science communicators. Key-competence: Develop writing and oral skills needed to communicate science, mainly issues related to climate change and the gender gap in STEM, in various spaces (popular science magazines, newspapers, websites, social media, TV, radio, TEDx talks, science festivals etc.)
Overview of the points relevant to STAGE	The discussion around climate change can be improved by connecting the issues to the places and people.
Evaluation	**Transferability** This best practice can be transferred to many areas, because the skills of communicating knowledge can be used in various fields apart from Climate Change. **Desirability** This TEDx Talk can be interesting especially to people who have to communicate the Climate Change to the public in a more effective way. Thus, it can be useful for the STAGE toolkit. **Feasibility** This TEDx Talk is about is uploaded to Youtube and everyone can access it, therefore it is a technologically and organisationally feasible best practice. It lasts about 13 minutes and can be watched many times. **Viability** The TEDx Talk can be accessed for free, thus it is financially viable.
Weblink	https://www.youtube.com/watch?v=oXOu-dezdKo&ab_channel=TEDxTalks

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Best-practice 60: The Story Collider

Type	Shows and podcast series
Data released	2020, March 20 (online). Founded in 2010 as an in-person shows series.
Institutions	Science Sandbox https://www.simonsfoundation.org/outreach/science-sandbox/ Also supported by: The National Association of Science Writers, New York State Council on the Arts, Rockefeller Brothers Fund, The Kavli Foundation, Lyda Hill Philanthropies, The Burroughs Wellcome Fund, and The Tiffany & Co. Foundation
Aim	The purpose of this resource is to reveal the role that science plays in all of our lives, thus implicitly bringing people closer to scientific issues. The series also aims to foster diversity and inclusion in scientific spaces. **Target audience**: non-expert audience **Key-competences**: reflect on the social, historical, cultural and ethical dimensions of science
Summary	The Story Collider consists of weekly podcasts on personal, true stories about science. People of all walks of life are invited to tell stories about how science has affected their lives, in some way. The aim is to understand, through the power of the storytelling, the humanity behind science, with a particular attention to the inclusion and diversity aspects.
Skills	This resource allows people to understand how deeply their lives are immersed and connected with science. Besides, the stories are meant to demonstrate that the story of science is incomplete without a diversity of perspective and try to decrease the threat of stereotypes in the listener, allowing them to see a place for themselves in science.
Overview of the points relevant to STAGE	**Desiderability**: the material has the potential to entertain, move and at the same time make users more aware of the role of science in daily life. **Feasibility**: users can browse through the episodes on the website and listen to them for free. A transcript of the podcast is also reported. **Viability**: the podcasts can be listened to for free.
Weblink	https://www.storycollider.org/

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Best-practice 61: The Poetry of Science

Type	Blog
Data released	2014
Institutions	ScienceSeeker http://www.scienceseeker.org/ Founder: Sam Illingworth, Associate Professor at Edinburgh Napier University (UK)
Aim	The purpose of this initiative is to develop a dialogue between scientists and non-scientists, through the use of poetry, on important science issues, such as climate change. **Target audience**: non-expert audience **Key-competences**: Reflect critically on the social, historical, cultural and ethical dimensions of science; improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action.
Summary	Sam Illingworth writes poems trying to summarise new pieces of scientific research in an accessible and entertaining manner, in order to demonstrate how poetry can be used to convey important scientific information. Many poems concern climate change.
Skills	This blog addresses fundamental scientific issues, such as climate change, through the language of poetry, thus attracting even a non-expert audience and making them reflect on these topics.
Overview of the points relevant to STAGE	**Desiderability**: the poems may be melancholic or may raise a smile, but also make users think about science issues. **Feasibility**: a new poem is published every week. Poems are accompanied by podcasts. **Viability**: poetry and podcasts can be read and listened to for free.
Weblink	https://thepoetryofscience.scienceblog.com/

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Best-practice 62: Kurzgesagt - In a Nutshell

Type	YouTube channel
Data released	2013, July 10
Institutions	Founder: Philipp Dettmer (Munich) The series of videos concerning climate change are supported by Breakthrough Energy.
Aim	The purpose of this YouTube channel is to raise awareness on topics of various kinds, but especially scientific ones. **Target audience**: non-expert audience **Key competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action.
Summary	Kurzgesagt - In a Nutshell is the YouTube channel of a German-made animation and design studio, focusing on minimalist animated educational content. Through the power of animation and storytelling the videos discuss topics from the fields of science, space, technology, biology, history and philosophy, with the aim of encouraging people to learn.
Skills	A good selection of videos are about climate change. Some of the topics addressed are: the use of renewable sources, nuclear energy, the consequences of massive consumption of meat, the difficulties of implementing programs and protocols to stop climate change. Subscribers and users can develop communication and debate skills on the topics addressed in the videos.
Overview of the points relevant to STAGE	**Desiderability**: this YouTube channel can be a good compromise for anyone who wants to know something more about the most varied issues, while not having more time for in-depth studies. **Feasibility**: users can watch the videos on YouTube at any time; the official language is English but some videos are available also in German, French, Hindi, Brazilian Portuguese, Japanese and Korean; subtitles are available in 46 languages. **Viability**: the videos can be watched for free.
Weblink	https://www.youtube.com/c/inanutshell

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Best-practice 63: What if scientists ruled the world?

Type	Interactive theatre performance (live streaming)
Data released	2021, May 8
Institutions	Australian Academy of Science, Falling Walls Engage Hub Australia, Rebus Theatre (Canberra)
Aim	The performance aims to make the participants think about the challenges and dilemmas they encounter in their daily practice. **Target audience**: non-expert audience **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; improve understanding of the factors causing distrust towards scientists and disengagement with science.
Summary	The story explores the complex chains of actions and behaviours that contribute to shaping a political controversy and its consequences in the local community. The play was designed to provide a space for participation and critical engagement: the public (in-person and online) was invited to influence the unfolding scenario.
Skills	"What if scientists ruled the world?" shows an alternative world in which the fate of humanity depends on how science is used. The performance therefore leads the audience to reflect on the consequences of a given decision on a social level and on the complexity of scientific truth in our modern societies.
Overview of the points relevant to STAGE	**Desiderability**: the format of the performance allows both to entertain and to make the public more aware of the issues addressed. **Feasibility**: the performance took place at the Shine Dome in the Australian Academy, with 85 people attending in person and the online audience. The replay of the performance is still available on YouTube. **Viability**: the replay of the performance can be watched for free on YouTube.
Weblink	https://www.youtube.com/watch?v=2iww0mz843c

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Best-practice 64: Trilogie Terrestre - INSIDE, Moving Earths, Viral

Type	Conference-performance
Data released	2016-2019-2020
Institutions	Zone Critique (theatre company)
Aim	The aim of this project is to question the aesthetic and political consequences of the change in the cosmos, studied by the sciences of the Earth System. **Target audience**: non-expert audience **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	This project, consisting in three lecture-performances, is a reflection on the need for a deep renewal of human representations of the terrestrial world. “Inside” focuses on the meaning of “zone critique”, the area on Earth where life develops; “Moving Earths” reflects on how human actions make the planet react in unexpected ways; “Viral” focuses on the existential meanings of confinement and contagion in human life.
Skills	The Trilogie Terrestre disputes the scientific and ecological image, leading the participants to reflect on several issues, such as the space and time on Earth as products of the actions of living beings.
Overview of the points relevant to STAGE	**Desiderability**: the format of the performance allows both to entertain and to make the public think about the issues addressed. **Feasibility**: the trilogy has been performed in several theatres in Europe and US, starting from 2016 with the release of INSIDE.
Weblink	https://www.zonecritiquecie.org/trilogie-terrestre

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Best-practice 65: Communication Toolkit on Gender and Climate

Type	Booklet
Data released	2018
Institutions	The Greens/EFA in the European Parliament (Brussels)
Aim	The purpose of this resource is to focus on the importance of integrating gender in climate policy. **Target audience**: non-expert audience **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	One of the most significant divides in our society is gender inequality and this is connected to climate change since the difference in the lifestyles of men and women bring a different environmental impact based on gender. By tracing the history of climate policies since 1994 and reporting some of the most common problems concerning gender inequality, the booklet shows how integrating gender issues in climate policy is fundamental.
Skills	This document correlates climate change issues with gender inequality ones.
Overview of the points relevant to STAGE	**Viability**: the toolkit is reported in a handbook but can be consulted also online for free.
Weblink	https://www.greens-efa.eu/files/assets/docs/gender_tool_kit.pdf

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Best-practice 66: Climate change podcast

Type	Podcast
Data released	2021, May 8
Institutions	H2020 QUEST project - Funding from European Union's Horizon 2020 research and innovation programme.
Aim	"Climate change" aims to provide insights to scientists and science communicators on how to speak effectively in public about climate change. **Target audience**: scientists, science communicators **Key-competences**: develop writing and oral skills needed to communicate science, mainly issues related to climate change and the gender gap in STEM, in various spaces; improve understanding of the factors causing distrust towards scientists and disengagement with science and climate action; develop an understanding of how public engagement can benefit scientists (predominantly female scientists) careers.
Summary	This podcast analyses the main challenges, and possible solutions, that arise when scientists and journalists work together, particularly in reference to how the industry can move from exploiting fossil fuels to becoming part of the global green energy solution. The aim is to identify the factors that generate greater public understanding on climate change issues, and consequently greater trust in science.
Skills	The podcast underlines the importance of a collaboration between scientists and media in raising public awareness on how to act on climate change. "Climate change" is the third episode of a series of conversations with leading science communication professionals around Europe. The focus is particularly on female contributors, who, in science, are relatively underexposed and under-represented in the media.
Overview of the points relevant to STAGE	**Desiderability**: this podcast can be useful both to science communicators and scientists, and to a more general audience. **Viability**: the podcast can be listened to for free.
Weblink	https://questproject.eu/the-quest-podcast-episode-3-climate-change-2/

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Best-practice 67: Climate Change Communication Toolkit - Factsheets

Type	Fact sheets set
Data released	2014
Institutions	Environmental Management Centre LLP for Mumbai Metropolitan Region, Environment Improvement Society (MMR-EIS), India.
Aim	The purpose of these factsheets is to provide information, tools and resources related to climate change. **Target audience**: non-expert audience. **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	This set of factsheets raises awareness on climate change by providing information on the main issues related to it: the meaning of global warming and the role that human activities have on it, the concepts of adaptation and mitigation, lifestyle that can be adopted to move towards a "Low Carbon Living". The data provided is related to the Mumbai metropolitan region.
Skills	The resource can help to make people understand the motivations behind the development of climate change policies and driving governments to make certain decisions.
Overview of the points relevant to STAGE	**Desiderability**: factsheets can be of interest to anyone wishing to acquire information on climate change. **Viability**: the factsheets are available at the link indicated for free.
Evaluation	Knowledge Co-Production
Weblink	http://www.mmreis.org.in/mmr-ccrt/index.php?option=com_flippingbook&view=category&layout=thumbnails&id=2&Itemid=108&lang=en

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Best-practice 68: Climate Change Communication Toolkit - Calculators

Type	Tool
Institutions	Environmental Management Centre LLP for Mumbai Metropolitan Region, Environment Improvement Society (MMR-EIS), India.
Aim	The purpose of this resource is to make people understand the meaning of Carbon Footprint Index (CFI) and of Carbon Footprint (CFP). **Target audience**: non-expert audience **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	The calculators - one designed for adults, another one for children - allow you to assess your carbon footprint through a series of queries about your daily lifestyle, in particular in relation to electricity, transport, cooking and waste. The calculators have been designed specifically for the residents of the Mumbai Metropolitan Region (MMR) and considers the general lifestyle choices available to the citizens in the MMR.
Skills	The calculator provides an estimate of your CFI and CFP, comparing them with the national average ones (for India) and also showing the percentage of your consumption in a pie chart. It also provides some useful tips to lead a low carbon lifestyle.
Overview of the points relevant to STAGE	**Desiderability**: the user can learn important information about his individual impact on the environment through a simple and fun test. **Viability**: the calculators are available at the link for free.
Evaluation	Knowledge Co-Production
Weblink	http://www.mmreis.org.in/mmr-ccrt/index.php?option=com_content&view=article&id=19&Itemid=109&lang=en

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Best-practice 69: Can games help people manage the climate risks they face?

Type	Working paper
Data released	2012, November 6
Institutions	Climate Centre Funded by: UK department for International development (DFID), Netherlands Directorate-General for International Cooperation (DGIS)
Aim	The purpose of the paper is to make people understand the value of games as learning tools, especially referring to climate change. **Target audience**: game designers, decision-makers, policy-makers. **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills needed to communicate science, mainly issues related to climate change.
Summary	This document is an output from a project aimed at demonstrating how games with an underlying serious purpose can be an innovative approach to accelerate learning about climate change, stimulate dialogue and raise awareness of one's actions. A six step guide to design a game which supports learning about forecast-based risk management is reported, then the case of a game co-designed by the Nicaraguan and Guatemalan PfR country teams is presented.
Skills	The document draws attention to the need to create a constructive learning dialogue on climate risk management, and identifies a possible solution in the themed game.
Overview of the points relevant to STAGE	**Desiderability**: the project engages people's minds and emotions while leading them to think about important issues. **Feasibility**: the document can be used as a guide for designing climate change-themed games.
Weblink	http://www.climatecentre.org/downloads/files/Games/AW-wps-games-v5.pdf

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Best-practice 70: Communications Activities

Type	Toolkit
Data released	2021
Institutions	The Climate Initiatives (TCI)
Aim	The purpose of this toolkit is to encourage spaces for discovery of different perspectives and reactions to climate change issues. **Target audience**: professors, science communicators **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	The toolkit consists of a series of tried and tested simple communications activities regarding climate change aiming to acquire certain skills (listening, creating connections between people, seeing issues from different perspectives…). The proposed activities are easily reproducible in several contexts and can be a starting point for thoughts within the community. In the last part of the toolkit a checklist to create a webinar is reported.
Skills	The listed activities help people reflect on climate change issues from different points of view.
Overview of the points relevant to STAGE	**Desiderability**: professors and science communicators can find this resource particularly interesting for engage a school class or an audience. **Feasibility**: the activities can be easily reproduced, requiring simple material and a few hours. **Viability**: the toolkit is available at the link for free.
Weblink	https://www.theclimateinitiative.org/wp-content/uploads/2021/09/Full-com-toolkit.pdf

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Best-practice 71: Chapter Zero: A climate change boardroom toolkit

Type	Toolkit
Data released	2020
Institutions	Chapter Zero, The Berkeley Partnership, Hughes Hall Centre for Climate Change Engagement (Cambridge)
Aim	Chapter Zero aims to help address the challenge of managing the transition to a net zero carbon economy. **Target audience**: board of directors **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills needed to communicate science, mainly issues related to climate change.
Summary	This toolkit was designed to help board members to understand the key issues relating to climate change, to hold informed and strategic discussions and to identify the possible actions which can be taken in order to effectively respond to the climate change challenge. The text of the toolkit is short and concise, but several links are provided to access further information.
Skills	Chapter Zero has been established to spread awareness of climate change and the business risks it poses amongst chairs and non-executive directors.
Overview of the points relevant to STAGE	**Desiderability**: the document offers practical solutions and it is easily consultable. **Viability**: this toolkit is accessible for free from PC, tablet and Smartphone.
Weblink	https://chapterzero.org.uk/wp-content/uploads/2021/09/Chapter-Zero-Board-Toolkit-2020.pdf

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Best-practice 72: The water we eat

Type	Infographic website
Data released	2022
Institutions	InfoDesignLab Sources: Water Footprint Network, Virtual Water by Tony Allan
Aim	The purpose of the website is to make people aware of the importance of water in human activities. **Target audience**: non-expert audience **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science.
Summary	This is configured as an infographic story that explains how water is used and how much of it is consumed daily for different activities: domestic consumption, production of industrial products, food production. Finally, it is explained how each of us can do something to save water, such as reducing the consumption of meat in the weekly diet and not wasting food.
Skills	The story shows the large consumption of water that is made daily and emphasises how much water could be saved in order to obtain a lower environmental impact.
Overview of the points relevant to STAGE	**Desiderability**: the structure of the web page is designed to provide important information in an engaging way. **Viability**: the website can be consulted online for free.
Weblink	https://thewaterweeat.com/

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Best-practice 73: Climate Kids

Type	Climate change-themed games
Institutions	NASA
Aim	The aim of the games is to make children understand the basic concepts related to climate change. **Target audience**: children **Key-competences**: reflect critically on the social, historical, cultural and ethical dimensions of science; develop writing and oral skills needed to communicate science, mainly issues related to climate change.
Summary	This website offers a series of climate change themed games, designed to explain to children some of the most important issues concerning our planet. One of the games consists, for example, of adjusting the temperature and pollution of the sea to see the effect of these parameters on coral reefs. Each game also includes a simple explanation of the phenomena and of technologies developed to analyse and monitor them.
Skills	The themes addressed in the games are: sea pollution and its consequences; greenhouse gases; the melting of the ice and the rising of the sea level, the ocean currents.
Overview of the points relevant to STAGE	**Desiderability**: the games allow children to have fun and at the same time satisfy their curiosity on these issues. **Viability**: it is possible to play for free.
Weblink	https://climatekids.nasa.gov/menu/play/

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