

Overview of climate change adaptation platforms in Europe

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Executive summary

The landscape for web-based adaptation platforms in Europe

As adaptation policy progresses in Europe, it is increasingly important that people have access to relevant and high-quality information. This information can be used to support the development and implementation of national and transnational adaptation strategies and plans as well as the implementation of the EU Adaptation Strategy (2013) laid out in the communication *An EU Strategy on adaptation to climate change*. A broad range of users consider web-based climate change adaptation platforms an effective means of collecting, assimilating and communicating relevant evidence, experience and knowledge to interested stakeholders including policymakers, practitioners and the general public.

The number of existing or planned national and transnational adaptation platforms in Europe is increasing. There are national adaptation platforms in place in 14 European Environment Agency (EEA) member countries (Austria, Denmark, Finland, France, Germany, Hungary, Ireland, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland and the United Kingdom). At transnational level, web-based platforms are in place for the Alpine region and the Pyrenees. At European level, the European Climate Change Adaptation Platform (Climate-ADAPT) is managed and maintained by the EEA in collaboration with the European Commission. The 'transnational regions' pages of Climate-ADAPT host a section on the Baltic Sea Region.

Of the 14 national adaptation platforms in place in EEA member countries, 7 are directly linked to the implementation of a national adaptation strategy (NAS) or action plan (Austria, Denmark, France, Germany, Poland, Spain and Switzerland). It should be noted that only a few platforms (Austria, Denmark, Finland, France, Germany, Norway, Sweden, and the United Kingdom) have more than three years of operating experience.

What does this report contain?

This report provides an overview on the state of play of most adaptation platforms in Europe. It offers information on the scope, history, targeted users and funding models of the identified national, transnational and EU-level adaptation platforms. It also analyses existing and potential links of these platforms to climate services and disaster risk reduction (DRR) platforms.

Furthermore, it identifies and explores challenges, reflections and lessons learned that are significant for platform developers and operators. These have been grouped into seven issues: (1) funding and sustaining a platform; (2) understanding, communicating and engaging with users; (3) identifying relevant knowledge and information; (4) presenting relevant knowledge and information; (5) design, technical and structural elements of a platform; (6) linking across sectors, scales and platforms, and (7) monitoring, evaluating and improving a platform.

The report shows that the adaptation platform landscape in Europe is dynamic, and that the nature of the platforms varies. Depending on the remit, target audience(s) and budget, there are differences in the scope, aims and means of delivery of platforms. The type of information that appears most often on adaptation platforms includes policy action at transnational, national and subnational levels, scientific research output, guidance, decision-support tools and experiences from practice and implemented adaptation measures. Yet the content and breadth of information and other services that are made available on each platform may differ based on the aims and scope. Also, political and socio-economic context and adaptation experiences determine the challenges and opportunities addressed by each platform.

Information was collected through three expert meetings on adaptation platforms in Europe: in June 2013 in Copenhagen, in November 2013 in Vienna and in June 2014 in Copenhagen again. These meetings

Table ES.1 Timing associated with development of adaptation platforms

Adaptation platforms	2007	2008	2009	2010	2011	2012	2013	2014
National								
Austria			Since 2009, substantially updated and revised in 2013.					
Denmark		CCA Strategy 2008 and launched in 2009 continuously developed.						
Finland			Planning started in 2009 and it became operational in 2011.					
France	ONERC evolved into an adaptation portal launched in 2006, and was revised in 2009 to support the NAPCC. Wiklimat launched in 2013.							
Germany		Launched in 2008 as a follow-up of the NAS. 2011 NAP required strengthening of the portal which was re-launched after improvements in 2013.						
Hungary							Climate Dialogue Platform launched in 2013.	
Ireland				A phased approach to develop the platform – planning in 2010, working on an operational platform for launch in 2015.				
Spain				Idea of developing a platform originated in 2010 and launched in 2013.				
Norway	Ministry of Climate & Environment established an adaptation working group in 2007, and launched a portal, Klimatilpasning.no in March 2009.							
The Netherlands							First plans in December 2013, became operational in August 2014. Created by the programme Knowledge for Climate.	
Poland					Developed as part of the KLIMADA project (2011–2013) and launched in October 2013.			
Switzerland			Federal Council mandate summer 2009, start of platform planning end 2010 with March 2012 launch.					
Sweden	Initial portal launched in 2007, with the Swedish National Knowledge Centre for Climate Change Adaptation being set up in 2012 providing an opportunity to relaunch.							
United Kingdom	Launched UKCIP platform in 2000 with continuous improvements, and major updates in 2003, 2008, 2010, 2013 and still active. National responsibility transferred to Environment Agency 2012, with GOV.UK launched in April 2013.							
Transnational								
Alpine Region							Platform conceptual work in 2012 and launched in 2014. There is an additional pre-existing portal on the Alpine Convention website supporting its Action Plan for Climate Change.	
Baltic Sea Region					Baltic Window as part of Climate-ADAPT – implementation period 2011–2013, launched in 2013.			
Pyrenees			Pyrenees Observatory for Climate Change project 2010–2014.					
European								
Climate-ADAPT			Identified as an integral component of White Paper. Launched 2012.					
Legend:		Platform in development						
		Platform live						

engaged experts in the management of a wide range of national and other web-based adaptation platforms. In addition, information was collected through a series of targeted interviews with platform managers. The information presented in the report was confirmed by member countries through a consultation process. It should be noted that most of the platforms presented here are owned or supported by national authorities responsible for adaptation policy at national level, or by transnational organisations/bodies supporting adaptation across a particular region. While this set of platforms is representative of the platforms available, it is not comprehensive.

In presenting this overview, the intention is to provide an opportunity for existing and potential developers and operators to learn from and be inspired by existing practices. Thus, the intended audience of this report are developers and maintainers of adaptation platforms at national, transnational and European levels. The conclusions of the report, however, might also be of interest to decision-makers considering means of improving access to relevant information on climate change as well as disaster risk management. The key findings of this report are summarised below.

Key findings

The web-based adaptation platform landscape in Europe

- Web-based adaptation platforms in Europe are not homogeneous in terms of the nature and scope of remit, roles and services provided, nor in terms of their stage of development and development pathways. Platforms have varied histories and have been in place for different lengths of time and operate within different policy contexts: these are reflected in the scope of information and other services provided and in their respective operational and business models.

Strategic planning of adaptation platforms

- It is essential to develop a strategic plan that links the platform to the respective adaptation policy, defines the aim, target audience, current direction, scope and proposed developments, both in the short and long term. Such a plan can be used to effectively modify available capabilities and resources, as well as to communicate and engage users, contributors and collaborators.

Understanding and engaging users

- Effective user engagement in all phases of a platform's development is key, from design

and implementation to maintenance. Multiple engagement mechanisms can prove useful; however, they should be tailored to specific phases of the platform's development and to the targeted user groups.

Identifying and maintaining relevant knowledge and information

- Updating a platform means striking a balance across several considerations: selection of information that is most relevant for decision-making on adaptation, presentation of the most up-to-date scientific knowledge, and taking account of the available human and IT resources, including those of the intended users. To facilitate effective platform maintenance, it is helpful to establish selection criteria for the knowledge that will be presented on the platform as a whole, as well as for different sections. Quality control and assessment schemes should also be put in place to assess the quality and reliability of the information and other services provided; the workflows, respective roles and permission schemes for internal and external providers of a platform should be designed in a practical and effective way.

Presenting knowledge and information on platforms

- While the integration of adaptation platforms into governmental websites involves a different set of challenges as compared with stand-alone platforms (e.g. the need to cope with limitations due to website design standards), it also provides an opportunity for improved links to other policy fields.
- The relevance and usability of the platform are strongly linked to the successful uptake of the information that it provides. The information presented on adaptation platforms should take into account the different levels of adaptation knowledge and capabilities of their intended users.
- Interactive features may improve the exchange of information among users and hence their engagement in the development of a platform. They are also very helpful means to evaluate whether a platform is meeting its objectives.

Design and structural elements of platforms

- The design and layout of a platform must respect its users' varying levels of adaptation knowledge and experience, and IT capabilities. Structural and other features should be built in to make platform content easily accessible to users.

Linking across sectors, scales and platforms

- Platform collaboration should bear in mind the need to focus on:
 - improving the services available on the platform to support decision-making;
 - understanding and articulating expectations and mutual benefits of the cooperation, as well as the respective roles and responsibilities;
 - maintaining informed engagement at the necessary levels, involving both those funding and those delivering the platforms.

Monitoring, evaluating and improving platforms

- Monitoring and evaluation should cover all the potential roles of the platform (e.g. knowledge exchange and mobilisation, planning and implementation), the added value of the platform from a policy, economic and institutional viewpoint, and the aspects of the platform (e.g. content, design and structure) from both users' and contributors' perspectives.

Links of adaptation platforms to disaster risk reduction and climate services

- Effective collaboration between those providing climate services, adaptation platforms and disaster risk reduction (DRR) platforms is likely to offer several benefits. These are particularly evident in efforts to address climatological extremes, reduce vulnerability and enhance resilience. There are opportunities for facilitating such collaboration (e.g. existing institutional relationships at national and EU levels, initiatives within Horizon 2020 and supportive networks and discussions within different forums), and these need to be continued and supported.

Future steps

The EU strategy on climate change adaptation will be reviewed in 2017, and national strategies and action plans will continue to be developed and implemented. In addition, mainstreaming of adaptation into a range of EU policies, including DRR, is expected to continue

in the coming years. Various EU funds are available for such mainstreaming activities in EU Member States, and some may also be used for improving and enhancing web-based adaptation platforms.

In addition, EU research funds can serve as an impetus for development and collaboration amongst platforms. The EU-funded roadmap for climate services is expected to fund climate service research and innovation projects in the near future. The Copernicus Climate Change Service will become operational in 2015. Furthermore, city networks and EU-supported initiatives such as Mayors Adapt will become more active on the issue of adaptation. The need for relevant information and knowledge at city level will increase.

Overall, national and other platform owners and operators have expressed a desire to continue sharing and learning, and several existing mechanisms provide opportunities to do so. These include the annual European Environment Information and Observation Network (Eionet) workshop and planned webinars on Climate-ADAPT organised by the EEA, the working group on adaptation under the EU Monitoring Mechanism Regulation, the Copernicus user forum, and meetings focused on civil protection and on climate services.

By end of 2015, the EEA will publish a technical report that will describe how monitoring, reporting and evaluation (MRE) of adaptation action can inform policymaking and facilitate shared learning on national-level MRE approaches across member countries. The technical report will also include information on how web-based adaptation platforms are included in MRE schemes.

Further development and improvement of the content, functionalities and user-friendliness of Climate-ADAPT is planned in the coming years. This will be carried out by the EEA, in close collaboration with the Directorate-General (DG) for Climate Action, by collecting and analysing user feedback. There is also a need to further discuss and clarify the complementarity of Climate-ADAPT to, and consistency with, national and other adaptation platforms and services. The review of the EU Adaptation Strategy in 2017 will be an important opportunity to take stock of the overall scope, content and use of Climate-ADAPT.

1 Introduction

1.1 Background

Many national governments and the EU have supported the development and delivery of climate change adaptation web-based platforms, in particular as a means of supporting, developing and implementing respective adaptation plans and strategies. Web-based climate change adaptation platforms are considered a vital means of sharing evidence, experience and knowledge of the players and stakeholders engaged in adaptation. The information, data and guidance collected, assimilated and shared through these platforms are intended to enhance the awareness of the need for adaptation, and address knowledge and capacity gaps, both in the context of enabling action.

The content being shared by these web-based platforms varies, but it often includes policy action at transnational, national and subnational levels, scientific bases, research results, guidance, decision-support tools and experiences from practice and implemented adaptation measures (case studies). However, depending on their respective remits, target audiences, budgets and aims, the scope and content that is made available and the means of delivery differ. These differences largely reflect the diverse platform stakeholders (funders and operating agencies) and the range of interests, needs and capacities of the target audiences (e.g. policymakers, sectoral organisations, practitioners, researchers and businesses).

Many of the existing adaptation platforms consider their primary aim to be provision of a one-stop repository of information, data and knowledge to support those preparing for and adapting to the consequences of climate change. The information, data and knowledge would otherwise be distributed across different agencies, institutions and organisations. Their existence also reflects the need for such a one-stop repository, due to the cross-sector nature of the risks and responses, and the need to avoid duplicated and conflicting information from multiple, potentially disjointed sources.

There are a number of countries within Europe without a national adaptation platform (often attributed to lack of resources, capacities, or financial resources). Some of these are considering the possibilities of establishing a platforms. They see this as a way of addressing the fragmentation of relevant information and support that can impede awareness and limit action.

In addition to the different national adaptation platforms, there are platforms operating at transnational level, and the European Climate Adaptation Platform at European level (Climate-ADAPT ⁽¹⁾). These platforms operating at different scales provide both opportunities and challenges from the perspective of the platform managers themselves. From a user perspective, the different services can appear conflicting, and result in confusion and frustration, because locating the required information is not easy ⁽²⁾.

Furthermore, adaptation platforms should also be considered in the broader context of existing and emerging climate change services and similar activities supporting disaster risk management. Both are being delivered by web-based platforms or portals and platforms. These additional platforms can be linked to national, EU and global policies and other developments. This report explores these developments and the opportunities and challenges of establishing links between these platforms and climate change adaptation platforms.

Since the publication by the European Commission of the White Paper *Adapting to climate change: Towards a European framework for action* in 2009, it has been clear that it is necessary to improve the knowledge base of adaptation at EU level. At the time, existing information on climate change impacts and vulnerability and on the costs and benefits of adaptation in Europe remained scarce, fragmented and was not well shared. More spatially detailed information was needed to develop adaptation strategies.

⁽¹⁾ See <http://climate-adapt.eea.europa.eu>.

⁽²⁾ Addressing this challenge was one of the main reasons for organising the meeting and workshops held during the past two years (e.g. CIRCLE2 meeting and EEA expert workshops in 2013 and 2014).

In response in 2010, the European Commission started to develop the web-based platform Climate-ADAPT, which was launched in 2012. In order to improve European preparedness and capacity to respond to climate change impacts at local, regional, national and EU levels, in 2013 the European Commission published the EU Adaptation Strategy in the communication *An EU Strategy on adaptation to climate change* ⁽³⁾. This strategy has the following aims: to encourage and support EU Member States' action on adaptation, to foster the knowledge base through EU-funded research in support of better informed decision-making, and to make key EU economic and policy sectors more resilient to the impacts of climate change. The strategy recognised the importance of further developing Climate-ADAPT as the 'one-stop-shop' for adaptation information in Europe. Furthermore, its interaction with other relevant platforms, including national and local adaptation portals and the EU-funded Copernicus Climate Change Service, should be enhanced.

By 2015, there has been progress in the development of the knowledge base, although the degree of preparedness for climate change still varies across Europe. While 21 EEA member countries have an adopted national adaptation strategy (NAS) and 12 have developed a national adaptation plan (NAP), others are still in the starting phase of the adaptation policy process ⁽⁴⁾.

In order to support the development and implementation of national strategies and plans in all EU Member States, Climate-ADAPT was designed to assist with all steps of the adaptation policy cycle. This includes the assessment of risks and vulnerabilities, the identification and assessment of adaptation options, the implementation of adaptation measures and the monitoring and evaluation of the adaptation process. The information presented is also expected to serve European and transnational levels, since the EU aims to integrate adaptation into EU policies, promote adaptation action covering the entire EU territory and effectively fill knowledge gaps. Furthermore, during 2014, the focus of Climate-ADAPT on adaptation in cities increased; from 2015 onwards, Climate-ADAPT will include information currently collected and presented by the Mayors Adapt Initiative ⁽⁵⁾.

1.2 The broader adaptation policy context

As mentioned above, the primary need for information and knowledge on climate change impacts, vulnerability and adaptation originates in the development and implementation of adaptation strategies and action at EU, transnational, national and subnational scales. Attention to adaptation as a response to climate change has been increasing within the UN Framework Convention on Climate Change (UNFCCC) ⁽⁶⁾. The topic will also be addressed in the global climate change agreement, expected to be adopted by end of 2015. The EU policy context for adaptation has been described above.

However, in parallel, important and relevant thematic and sector-based policies have also had their respective knowledge bases developed further. For various themes and sectors, this also includes knowledge on taking climate change into account in their respective areas. Key thematic EU policies that are aiming at mainstreaming climate change adaptation include those on agriculture, forestry, biodiversity, water management, coastal management, marine ecosystems and fisheries, human and animal health and DRR ⁽⁷⁾. Furthermore, there are various EU funds available for mainstreaming ⁽⁸⁾ activities in Member States, including enhancing resilience of infrastructure.

It is crucial to explore the links between the information and knowledge platforms in place for these thematic areas and those in place for adaptation, for a number of reasons. For example, understanding these linkages may help prevent overlaps and duplication but may also enhance synergies and benefits for those using the platforms. Furthermore, different communities of practice may be better connected and thereby better informed if these platforms are better linked.

All of the policy areas mentioned above are relevant, and in some cases, such as water ⁽⁹⁾, biodiversity ⁽¹⁰⁾ and human health ⁽¹¹⁾, information platforms are in place. However, enhanced relationships between climate adaptation, climate services and DRR platforms are considered key, and thus the policy context for

⁽³⁾ See <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0216>.

⁽⁴⁾ See the EEA's *National adaptation policy processes in European countries — 2014* at <http://www.eea.europa.eu/publications/national-adaptation-policy-processes>.

⁽⁵⁾ See <http://mayors-adapt.eu>.

⁽⁶⁾ See <http://unfccc.int/adaptation/items/4159.php>.

⁽⁷⁾ See <http://climate-adapt.eea.europa.eu/eu-adaptation-policy/mainstreaming>.

⁽⁸⁾ See <http://climate-adapt.eea.europa.eu/eu-adaptation-policy/funding>.

⁽⁹⁾ See Water information system for Europe, <http://water.europa.eu>.

⁽¹⁰⁾ See Biodiversity information system for Europe, <http://biodiversity.europa.eu/topics/climate-change>.

⁽¹¹⁾ See WHO <http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change>, and ECDC, http://www.ecdc.europa.eu/en/healthtopics/climate_change/Pages/index.aspx.

each of these is presented here in more detail. Links to these platforms are further explained in Chapter 4.

1.3 Disaster risk reduction services

The 'policy cycle' on disaster risks includes enhancing prevention, preparedness, emergency response and recovery. It should be noted that disasters cover a broader range of hazards, such as geophysical, hydrological, industrial, weather and climate related. The link with climate change adaptation is mainly relevant to weather- and climate-related disasters.

Economic losses and impacts on human health due to climate- and weather-related disasters have increased in the EU in the last decades. In an attempt to mitigate such impacts, the Hyogo Framework for Action⁽¹²⁾ noted the strong interconnection between DRR and climate change adaptation. The Sendai Framework for Disaster Risk Reduction 2015–2030 adopted in March 2015⁽¹³⁾ indicates a number of considerations and priorities for action and activities related to this common agenda.

The new European Union Civil Protection Mechanism legislation solidifies DRR considerations within the law of the European Union. The legislation includes a strong emphasis on building a culture of disaster prevention, with particular focus on risk assessment, risk management planning and peer reviews. European countries will undertake multi-hazard risk assessments, address collection of data on and undertake peer reviews.

The EU Civil Protection Mechanism⁽¹⁴⁾ (regulation revised in 2013⁽¹⁵⁾) enables coordinated assistance from the EU and other Member States if the scale of an emergency overwhelms national response capabilities. It includes, for example, an Emergency Response Coordination Centre, which collects real-time information on disasters, monitors hazards and prepares plans for the deployment of resources. Many EU Member States have similar national information and coordination centres and related knowledge platforms or websites. Increasingly, national as well as EU policies are also focusing attention on the important 'prevention' aspect⁽¹⁶⁾. In 2014, the European Commission published guidelines for risk

assessment to support Member States in preparing national assessments. Based on information provided by Member States, in 2014 the Commission produced an overview of natural risks and risks of human origin in the EU, which will be updated in future based on further information provided by Member States. The next update is to be reported by end 2015. The Joint Research Centre's Institute for the Protection and Security of the Citizen (JRC-IPSC), in collaboration with European, international (e.g. UN) and national organisations, is supporting the development and improvement of the collection of data on disaster losses and the related national databases on disaster losses, by means of expert meetings, guidance and reports⁽¹⁷⁾.

Several countries are developing and implementing risk prevention measures (e.g. related to floods, also linked to the EU Floods Directive (Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks). The EU Floods Directive requires countries to develop and report flood risk management plans to the European Commission by 2015⁽¹⁸⁾. The Water Information System for Europe, managed by the EEA, is including information related to the Floods Directive⁽¹⁹⁾. Integration of climate change in disaster risk management is already taking place, although there is interest and expressed need that this should be further enhanced.

1.4 Climate change services

Driven by international (UNFCCC), EU and national adaptation policies, the need for better climate data and information, including on the impacts of climate change, has increased. As a response at global level, the Global Framework for Climate Services (GFCS) was established⁽²⁰⁾. It prioritises the needs of climate-vulnerable developing countries.

At EU level, various initiatives on climate and climate change services have emerged from different perspectives. Within the EU research budget until 2020 (Horizon 2020), funding is available for climate-related research, including climate services. The *European research and innovation Roadmap for Climate Services*

⁽¹²⁾ See <http://www.unisdr.org/we/coordinate/hfa>.

⁽¹³⁾ See <http://www.wcdrr.org/> and http://www.wcdrr.org/uploads/Sendai_Framework_for_Disaster_Risk_Reduction_2015-2030.pdf.

⁽¹⁴⁾ See http://ec.europa.eu/echo/files/aid/countries/factsheets/thematic/civil_protection_en.pdf.

⁽¹⁵⁾ See http://ec.europa.eu/echo/files/aid/countries/factsheets/thematic/civil_protection_legislation_en.pdf.

⁽¹⁶⁾ See http://ec.europa.eu/echo/files/aid/countries/factsheets/thematic/disaster_risk_management_en.pdf.

⁽¹⁷⁾ See <http://drr.jrc.ec.europa.eu/Loss-Data>.

⁽¹⁸⁾ See http://ec.europa.eu/environment/water/flood_risk.

⁽¹⁹⁾ See <http://www.eea.europa.eu/themes/water/interactive/floods-directive-viewer>.

⁽²⁰⁾ See <http://www.gfcs-climate.org>.

was developed and presented in March 2015⁽²¹⁾. It will be implemented by the European Commission over the coming years. The Copernicus Climate Change Service (C3S) was set up in November 2014, coordinated by the European Centre for Medium-Range Weather Forecasts (ECMWF⁽²²⁾). It aims to increase the knowledge base at EU level to support adaptation and mitigation policies. It will include both in situ and satellite-based observations on essential climate variables. Furthermore, it covers re-analysis of data, climate change predictions and projections, and possibly climate change impacts and vulnerability information. The EEA is exploring collaboration with C3S, towards enhancing links with its work on indicators and on Climate-ADAPT.

The European Joint Programming Initiative on Climate (JPI Climate)⁽²³⁾ is a collaborative effort across 14 European countries to jointly coordinate their climate research and fund new transnational research initiatives. It also works on climate services⁽²⁴⁾, in collaboration with the European Commission.

Furthermore, the Climate Knowledge and Innovation Communities (Climate-KIC) was established within the EU-funded European Institute of Innovation and Technology (EIT)⁽²⁵⁾. This is a public-private innovation partnership, addressing both mitigation and adaptation, and bringing together organisations from private, public and academic sectors. It includes activities related to adaptation services⁽²⁶⁾.

Finally, at national level, several climate services have been established, such as the Climate Adaptation Service (CAS)⁽²⁷⁾ in the Netherlands. These often originate in meteorological institutes as a response to the GFCS. They have varying scopes, experiences and levels of expertise, depending on the national circumstances, needs and capabilities. They are structured so as to provide information not only for adaptation, but also for mitigation and other policies.

1.5 Differences and similarities between climate change and adaptation services

Corresponding to the establishment of the term 'climate services', the term 'adaptation services' has

been introduced to describe the services supporting decision-making to address climate change. Adaptation platforms as web-based resources are vital, but are not the only means to provide adaptation services. Based on their mandate in the policy cycle, the main purpose of the adaptation platforms is to build a consistent and updated knowledge base for the decision-making on adaptation policy, planning and action. More specifically, they facilitate the collection, sharing and using of information on climate change, vulnerability and adaptation.

There are no universally accepted definitions of climate services or of adaptation services (see definitions below). There is also no clear delineation between what comprises these two linked services (see definitions and Annexes 1 and 2), nor the platforms on which they are provided. This potentially confusing situation would benefit from a better clarification of the differences and similarities, as well as an exploration of the potential benefits of closer collaboration (see Chapter 4). The lack of accepted definitions is largely attributable to the developments mentioned above. It is also influenced by the related communities, which determine how climate change and climate services have been defined and continue to be developed and defined. These different communities are adopting a more comprehensive or restrictive definition, according to what best suits their vision, remit, functions, stakeholders and their needs and circumstances. Thus, the definitions will develop and change over time based on experiences of users and providers that will be accumulated in the coming years.

Some examples of current definitions of climate services follow.

- The Global Framework of Climate Services⁽²⁸⁾ provides: climate information in a way that **assists decision-making** by individuals and organisations. A service requires **appropriate engagement** along with an effective **access mechanism and must respond to user needs**.
- The JPI Climate refers to: **user-driven development and provision** of knowledge for understanding the climate, climate change and its impacts, as well as **guidance in its use** to researchers and decision-makers in policy and business.

⁽²¹⁾ See <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/fighting-and-adapting-climate-change-1> and <http://ec.europa.eu/research/index.cfm?pg=events&eventcode=552E851C-E1C6-AFE7-C9A99A92D4104F7E>.

⁽²²⁾ See <http://www.ecmwf.int/en/about/media-centre/news/2014/copernicus-climate-change-and-atmosphere-monitoring-services>.

⁽²³⁾ See European Joint Programming Initiative on Climate: 'Connecting Climate Knowledge for Europe'

⁽²⁴⁾ See <http://www.jpi-climate.eu/jpi-themes/research-agenda/theme2>.

⁽²⁵⁾ See <http://eit.europa.eu>.

⁽²⁶⁾ See <http://www.climate-kic.org/themes/adapting-to-climate-change>.

⁽²⁷⁾ See <http://www.climateadaptationservices.com/en>.

⁽²⁸⁾ See http://www.gfcs-climate.org/what_are_climate_weather_services.

- The Climate Services Partnership ⁽²⁹⁾ refers to: the production, translation, transfer and use of climate knowledge and information in **climate-informed decision-making** and climate-smart policy and planning.
- The Advisory Group for H2020 Societal Challenge 5 ⁽³⁰⁾ refers to: the transformation of climate-related data, together with other relevant information, into customised products. This may include projections, trends, economic analysis, counselling on best practice, development and evaluation of solutions and any other service related to climate that may be of use for society at large. These services include data, information and knowledge that support adaptation, mitigation and disaster risk management.

There is an evolving understanding of what adaptation services comprise, as shown below.

- Climate-KIC refers to: increasing the capacity of society, cities and infrastructure to be able to adapt to climate change — **taking knowledge from climate services and translating it into concrete services and solutions** further downstream to make a real impact.
- The Netherland's based CAS Foundation provides: information services supporting the assessment of vulnerability from a wider perspective, and includes design and appraisal of adaptation strategies — going the last mile by **translating climate impact information to policy-relevant and usable science** ⁽³¹⁾.

These definitions suggest that in both cases, the services are those required by the intended user communities to inform their decision-making processes. They also suggest the following main differences.

Climate (or climate change) services focus primarily on providing climate information, data and knowledge, but often also include climate impacts.

Climate adaptation services go beyond providing these climate services, to provide a broader set of services to support adaptation, including vulnerability and risk assessments of regions and sectors, adaptation strategies, adaptation options, case studies' planning tools, policy frameworks and processes.

As such, these definitions suggest that climate services are a subset of adaptation services (see Figures A1.1 in Annex 1 and A2.1 in Annex 2, respectively). Furthermore, this suggests that the main common element, which can provide synergies, lies in the area of climate change impacts and vulnerability and risks.

Highlighting these differences in this report helps provide the context for grasping the adaptation platform landscape. Understanding the services made available through the different platforms helps to determine the need for and scope of the relationships amongst the different platforms.

1.6 Scope and purpose of the report

The purpose of this report is to support the development and delivery of web-based climate change adaptation platforms across Europe, hereafter also referred to as 'adaptation platforms' or 'platforms'.

The report aims to inform European developers and maintainers of adaptation platforms at national and transnational levels, by providing an overview on the state of play of adaptation platforms in Europe and an opportunity to exchange experiences, learn from and be inspired by existing practices. The report's conclusions are also of interest to decision-makers considering how to improve access to relevant information on climate change and also disaster risk management.

Platforms at subnational level as well as the diversity of platforms on adaptation at national level are not covered in the report. It also provides information on the nature and scope of links between adaptation services, going beyond web-based adaptation platforms, climate services and disaster risk management services. It analyses the status and drivers for these links, how respective roles can be defined and relationships established and how the quality of available services can be enhanced.

The report is based on information discussed with experts involved with management of a wide range of national and other adaptation platforms, at various expert meetings and workshops in 2013 and 2014 (see Section 2.1). In 2014, the European Topic Centre on Climate Change impacts, vulnerability and Adaptation

⁽²⁹⁾ See <http://www.climate-services.org/content/what-are-climate-services>.

⁽³⁰⁾ See <http://bookshop.europa.eu/en/a-european-research-and-innovation-roadmap-for-climate-services-pbKI0614177>.

⁽³¹⁾ See <http://www.climateadaptationservices.com/en>.

(ETC/CCA) prepared a technical paper ('Overview of climate change adaptation platforms in Europe')⁽³²⁾, including information from these meetings and from

telephone interviews with platform managers. This report is largely based on that unpublished ETC/CCA technical paper.

⁽³²⁾ 'Overview of climate change adaptation platforms in Europe', ETC/CCA Technical Paper 2014, unpublished.

2 The adaptation platform landscape

2.1 Adaptation platforms considered in the report

The adaptation platform landscape in Europe is dynamic and varied, and the number and scope of such platforms are increasing. There are diverse adaptation platforms operating in Europe, with remits for providing climate adaptation information and knowledge at national, transnational or European levels. These platforms have differing histories and have been in place for different lengths of time that are reflected in the breadth of services provided and in their respective operational and business models.

In all cases, these web-based platforms are considered a means of enabling and empowering adaptation action through providing a platform for sharing information and knowledge and thereby increasing the 'visibility' and understanding of adaptation. The information and knowledge shared includes results of adaptation research, guidance; supportive data, information and tools; policy action at transnational, national and subnational levels; experiences from practice and implemented adaptation action (e.g. case studies). In addition, some platforms are also used as a forum to engage experts. For example, Spain uses its platform to enable experts and decision-makers to work on documents and to actively exchange experiences.

As discussed above, the multiplicity of providers with overlapping remits on content and geographic coverage present both challenges and opportunities. Addressing these challenges and opportunities requires, as a first step, an understanding of the adaptation platform landscape in terms of the scope of the services provided, operational and business models and future plans.

The following analysis is intended to present that landscape as a basis for better understanding and addressing the above-mentioned challenges and

opportunities. The information used to undertake this analysis (see Annex 3) was assembled based on the information provided during the following three events:

- CIRCLE-2/EEA Experts' meeting on 'National Adaptation Platforms' (Copenhagen, 19 June 2013) ⁽³³⁾;
- CIRCLE-2/EEA Workshop on 'Adaptation Platforms in Europe: Addressing challenges and sharing lessons' (Vienna, November 2013) ⁽³⁴⁾;
- EEA Expert workshop on 'Climate change adaptation platforms' (Copenhagen, 23 June 2014) ⁽³⁵⁾.

The national and transnational adaptation platforms identified during these workshops are those comprising the European adaptation platform landscape at the time of this report (see Table 2.1). Information collected during the workshops was confirmed and updated based on discussions with platform managers and owners, as organised and arranged by the ETC/CCA during 2014 (see Annex 3).

Climate-ADAPT operates at European level and is hosted by the EEA. It helps users to access and share information on observed and expected climate change in Europe; current and future vulnerability of regions and sectors; national and transnational adaptation strategies; potential adaptation options and case studies on implemented adaptation actions; tools that support adaptation planning; relevant EU policy frameworks and processes and a searchable database on adaptation relevant knowledge.

There are three key objectives of Climate-ADAPT: (a) to facilitate the collection, sharing and use of information on climate change impacts, vulnerability and adaptation in Europe, so as to build a consistent and updated knowledge base; (b) to assist the effective uptake of the relevant knowledge by decision-makers; and (c) to

⁽³³⁾ See <http://www.circle-era.eu/np4/576.html>.

⁽³⁴⁾ See http://www.circle-era.eu/np4/Adaptation_Platforms.html.

⁽³⁵⁾ See <http://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/expert-workshop-climate-change-adaptation-platforms>.

contribute to a greater level of coordination amongst sectors and institutional levels.

In order to meet different needs at all governance levels, the development of Climate-ADAPT follows the key principles:

- it should facilitate quick and straightforward access to the most relevant sources of adaptation information in Europe;
- it should provide mostly information on adaptation resources that are relevant at EU level, and should be complementary to the roles and content of national and other knowledge platforms in the EU;
- it is a long-term knowledge infrastructure, to be developed step by step, remaining responsive to user needs and priorities, and in line with available resources.

According to these principles, the content and functionalities currently available within Climate-ADAPT will be further developed over time as progress is made in the adaptation process.

One element of Climate-ADAPT is the updating of information on mainstreaming of adaptation in EU policies, and the inclusion of studies and assessments funded by DG Climate Action on various topics⁽³⁶⁾. Furthermore, the EEA is publishing and updating a range of indicators on climate change impacts and vulnerability and various assessment reports that have been or will be published on Climate-ADAPT. These include an impact and vulnerability report⁽³⁷⁾ (2012, update planned for 2016), an assessment report on adaptation in the urban sector⁽³⁸⁾ (2012, update planned for 2016), a report on adaptation in the transport sector⁽³⁹⁾ and the report on national adaptation policy processes in Europe⁽⁴⁰⁾. In addition, a technical report on monitoring and evaluation of national adaptation policies is planned to be published by the end of 2015.

Since Member States are moving forward in the adaptation process, information to be presented on

Climate-ADAPT on national adaptation strategies and action will increase, and information on monitoring and evaluation will become more relevant in the future.

It should be noted that the 2013 EU Strategy on Adaptation will be reviewed in 2017, and that Climate-ADAPT will likewise be reviewed in the same period.

Most of the platforms in the Member States listed in Table 2.1 are owned or supported by the national authorities that lead adaptation policy at national level. There are additional adaptation platforms in Europe beyond those considered in this report. Within some Member States (e.g. France, Germany and the United Kingdom) there are several platforms operating, reflecting the diversity of organisations involved and the nature of adaptation within those different Member States.

For example, in the United Kingdom, adaptation is the responsibility of the British government and the devolved administrations, with adaptation services being disseminated by a range of partner organisations operating at British level (Gov.uk⁽⁴¹⁾ and Climate UK⁽⁴²⁾). British government policy and information on adapting to climate change are provided on the British government website⁽⁴³⁾, including information on the Environment Agency Climate Ready Support Service. The Environment Agency does not host its own adaptation platform, but delivers its information and resources through partner organisations such as Climate UK and Climate Local⁽⁴⁴⁾. Adaptation information and knowledge are also disseminated in each of the devolved administrations: Scotland, Northern Ireland and Wales and supporting local authorities, as well as UKCIP⁽⁴⁵⁾, the original nationally-supported adaptation platform.

France has the platform of the National Observatory of the Effects of Climate Change (ONERC)⁽⁴⁶⁾, which presents the information and knowledge on adaptation at national level. An additional tool, Wiklimat⁽⁴⁷⁾, accessible from the same platform, was launched in 2013 as the 'local window' of the national platform to involve regional decision-makers in the adaptation process.

⁽³⁶⁾ See <http://climate-adapt.eea.europa.eu/eu-adaptation-policy/landing>.

⁽³⁷⁾ See <http://www.eea.europa.eu/publications/climate-impacts-and-vulnerability-2012>.

⁽³⁸⁾ See <http://www.eea.europa.eu/publications/urban-adaptation-to-climate-change>.

⁽³⁹⁾ See <http://www.eea.europa.eu/publications/adaptation-of-transport-to-climate>.

⁽⁴⁰⁾ See the EEA's Report No 4/2014, *National adaptation policy processes in European countries*, at <http://www.eea.europa.eu/publications/national-adaptation-policy-processes>.

⁽⁴¹⁾ See <https://www.gov.uk/government/policies/adapting-to-climate-change>.

⁽⁴²⁾ See <http://climateuk.net>.

⁽⁴³⁾ See <https://www.gov.uk/government/policies/adapting-to-climate-change>.

⁽⁴⁴⁾ See <http://www.local.gov.uk/climate-local>.

⁽⁴⁵⁾ See <http://www.ukcip.org.uk>.

⁽⁴⁶⁾ See <http://www.developpement-durable.gouv.fr/-Impacts-et-adaptation-ONERC-.html>.

⁽⁴⁷⁾ See <http://wiklimat.developpement-durable.gouv.fr/index.php/Wiklimat:Accueil>.

Table 2.1 Adaptation platforms considered in this report

Adaptation platforms	Title	URL
National		
Austria	Klimawandelanpassung.at (Austrian Adaptation Platform)	http://www.klimawandelanpassung.at
Denmark	Klimatilpasning.dk (Danish National Adaptation Platform)	http://www.klimatilpasning.dk
Finland	Climate Guide (Finnish Adaptation Platform)	http://www.climateguide.fi
France	Observatoire National sur les Effets du Réchauffement Climatique (ONERC) (French National Adaptation Platform)	http://www.developpement-durable.gouv.fr/-Impacts-et-adaptation-ONERC-.html
Germany	KomPass — Climate Impacts and Adaptation in Germany (German National Adaptation Platform)	http://www.anpassung.net and http://www.umweltbundesamt.de/en/topics/climate-energy/climate-impacts-adaptation
Hungary	Climate Dialogue Forum (Hungarian National Adaptation Platform)	http://klimadialogus.mfgi.hu
Ireland	Climate Ireland (Irish National Adaptation Platform)	http://www.climateireland.ie
Netherlands	Dutch Adaptation Knowledge/Spatial Adaptation Portal	http://www.ruimtelijkeadaptatie.nl/en/
Norway	Klimatilpasning.no (Norwegian Climate Adaptation Portal)	http://www.klimatilpasning.no
Poland	KLIMADA Adaptation Platform (The Polish National Adaptation Platform)	http://klimada.mos.gov.pl/en/
Spain	AdapteCCa.es (Spanish National Adaptation Platform)	http://www.adaptecca.es
Sweden	Klimatanpassning.se (Swedish Portal for Climate Change Adaptation)	http://www.klimatanpassning.se
Switzerland	BAFU Thema Anpassung an den Klimawandel (Swiss Information Platform on Adaptation to Climate Change)	http://www.bafu.admin.ch/klima/13877/14401/index.html?lang=de
United Kingdom	GOV.UK climate change adaptation pages (including Climate Ready Support Service by the Environment Agency)	https://www.gov.uk/government/policies/adapting-to-climate-change
Transnational		
Alpine Region	Klimaportal Alpenkonvention	http://www.alpconv.org/de/climateportal/default.html
		http://www.c3alps.eu/kip
	Climate Adaptation Platform for the Alps (CAPA)	
Baltic Window	Baltic Sea Region (BSR)	http://climate-adapt.eea.europa.eu/transnational-regions/baltic-sea/general
Pyrenees	Observatoire Pyrénéen du Changement Climatique; OPCC (Pyrenees Climate Change Observatory)	http://www.opcc-ctp.org
European		
The European Environment Agency and the European Commission	Climate-ADAPT	http://climate-adapt.eea.europa.eu

In the case of Germany, there is more than one adaptation platform at the national level. The platform of the Federal Environment Agency (<http://www.anpassung.net>) supports the Federal Ministry of the Environment, the department that leads the adaptation policy process in Germany. Furthermore, the Klimanavigator (Climate Navigator) (<http://www.klimanavigator.de>), launched by the Climate Service Centre 2.0, in 2011, is a national web portal that guides users to climate research institutions and climate change information in a user-friendly language. This portal bundles information and provides pathways to knowledge about climate and options for adaptation available mainly from academic sources. There is also the German Climate Portal (<http://www.deutschesklimaportal.de>), hosted by Germany's National Meteorological Service (Deutscher Wetterdienst) in close cooperation with its partners: it is a key element in the national implementation of the GFCS in Germany. The German Climate Portal is a service and tool to facilitate access to shared and pooled climate expertise in Germany. It is tailored specifically to German structures and provides customised services to Germany's federal states (*Länder*) and the sectors identified in the German adaptation strategy.

There are web-based information portals for transnational regions, other regions and countries within Climate-ADAPT (<http://climate-adapt.eea.europa.eu/transnational-regions>). For example, the Baltic Window is one such web-based portal. It provides information on the policy framework, essential organisations, and core documents such as the proposal for a BSR-wide climate change adaptation strategy and action plan developed within the Baltadapt project. It also includes information on impacts and vulnerabilities, and adaptation actions happening in the region. The Baltadapt project (<http://www.baltadapt.eu>) was funded by the EU IV B Baltic Sea Region Programme (transnational ETC programme/ Interreg) from 2011 to 2013.

The varying mandates and lessons learned by multiple adaptation platforms in the Member States would require a more in-depth analysis of the different platforms, something beyond the scope of this report.

The focus of the analysis has been on exploring the scope, history, business models, targeted users and funding models of the identified national, transnational

and EU-level platforms, as well as their links to climate services and DRR platforms. These are areas where sharing knowledge and experiences would be most useful. The analysis is intended to inform owners and operators of national and transnational platforms in Europe.

2.2 Scope and development to date

As shown in Table 2.1 there are 14 EEA member countries that have some type of adaptation platform in place and in addition there are three transnational platforms and one at EU level.

For various other transnational regions information is actually available on project websites, such as EU-funded Interreg projects and on Climate-ADAPT⁽⁴⁸⁾. For example there is much information provided for the BSR, for which a proposal for an adaptation strategy was presented to Member States at the Baltadapt final conference in September 2013⁽⁴⁹⁾. For various transboundary river basins climate change adaptation strategies and related information, such as for the Danube⁽⁵⁰⁾ also exist. However such other 'information websites' were not taken further into consideration in this report.

An analysis of the scope and development to date of the different adaptation platform shows the driving forces behind their establishment and the time when they were launched. The analysis shows that in all cases the platforms were launched as a means of supporting adaptive action on climate change. In most cases they supported or initiated the development or delivery of national adaptation strategies or plans (see Table 2.2). For example, Climate-ADAPT's origin lies in the White Paper *Adapting to climate change: Towards a European framework for action*⁽⁵¹⁾ published in 2009. It is an integral component of the EU Strategy on Adaptation (Priority 2: Better informed decision-making, Action 5) (see Table 2.2).

The timing of the development and launch of these platforms is often synchronised (leading or immediately following) with the launch and implementation of such national strategies or plans (see Table 2.3). This is the case for 6 out of the 14 of the countries with a platform: Austria, Denmark, France, Germany, Poland and Switzerland.

⁽⁴⁸⁾ See <http://climate-adapt.eea.europa.eu/transnational-regions>.

⁽⁴⁹⁾ See <http://climate-adapt.eea.europa.eu/transnational-regions/baltic-sea/policy-framework> online. Since December 2013 a follow-up policy process — the BSR climate dialogue platform is following-up on recommended actions and activities from the strategy and its action plan. The platform consists of all BSR countries, including Norway and Russia, relevant pan-Baltic and other INGOs as well as NGOs and scientists from the region.

⁽⁵⁰⁾ See <http://www.icpdr.org/main/publications/climate-change-adaptation-strategy-danube-basin-adopted>.

⁽⁵¹⁾ See: <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52009DC0147>.

Table 2.2 Driving force behind establishing climate adaptation platforms

Adaptation platforms	Driving force
National	
Austria	Developed as part of the participatory process to accompany and support the development of the Austrian NAS/NAP
Denmark	Initiative within the Danish Strategy on Climate Change Adaptation (2008)
Finland	Established to fulfil a perceived need to provide the research-based climate change information that would be applicable in particular at the local (municipal) level
France	Launched under the French National Plan of Adaptation to Climate Change (PNACC)
Germany	Develop and implement the German adaptation strategy and identify means towards a resilient strategy
Hungary	Created to exchange scientific information and policy on climate change and can serve as a partnership on climate policy, as a forum
Ireland	One-stop web-based source information, data and resources to facilitate decision-makers in the development of adaptation plans
Netherlands	The idea for the development of platform originated from the Delta programme and the Knowledge for Climate programme. The Delta Programme is an intergovernmental initiative, which involves the State, the ministry together with the provinces and the municipalities and is aimed to proactively protect the Netherlands against disasters. There are no links to the NAS (separate website linked to the NAS)
Norway	The platform aims to gather relevant knowledge and information about climate adaptation at local and regional level. The portal is created mainly for planners and decision-makers at local and regional level, but the information should be easily accessible and interesting for all engaged with what climate change will mean for Norwegian society
Poland	Need to support the implementation of the Polish NAS — exchanging information, making information from relevant projects, reports, etc. available, and to creating an official one-stop-shop for adaptation information in Poland
Spain	To consolidate the governance of the National Plan for Adaptation to Climate Change (PNACC), providing a tool for information exchange and to enhance coordination amongst administrations and key stakeholders
Switzerland	Developed as part of the NAS to provide the most relevant adaptation information and to sensitise target groups (administrative bodies on all levels and experts)
Sweden	To support society and citizens preparing for the consequences of climate change; to increase interest and understanding of adaptation by serving as the national focal point on adaptation
United Kingdom	Gov.uk provides latest information on government action and policy on adapting to climate change within the United Kingdom. Sets out legal arrangements and includes links to key partner organisations. UKCIP initially funded by government between 1997 and 2012 to stimulate understanding of impacts of climate change at British level and facilitate adaptation action. Climate Ready Support Service delivered by the Environment Agency provides tailored sector support to help the public sector and businesses in England adapt to climate change. It provides online tools and guidance through a range of partner platforms with local audiences, including Climate UK and Climate Local
Transnational	
Alpine Region	The adaptation part of the Alpine Convention website was developed under its action plan consecrated to climate change in the Alpine region. The CAPA was an initiative by the C3-Alps project in response to the need to capitalise on and make available in a target group-oriented approach the increasing quantity of knowledge being funded by European and national programmes
Baltic Window	Developed within the Baltadapt project (http://baltadapt.eu) and hosted as part of the transnational region's subsection on Climate-ADAPT. It functions as an information portal compiling available information on climate change impacts and adaptation in the BSR. It is aimed at decision-makers in the region
Pyrenees	Strategic initiative of the Working Community of the Pyrenees to tackle climate change at the Pyrenean transnational biogeographic region — to support decision-making, and raise awareness and capacity-building
European	
Climate-ADAPT	Supports implementation and is an integral component of the EU Strategy on Adaptation

Table 2.3 Timing associated with development of adaptation platforms

Adaptation platforms	2007	2008	2009	2010	2011	2012	2013	2014
National								
Austria			Since 2009, substantially updated and revised in 2013.					
Denmark		CCA Strategy 2008 and launched in 2009 continuously developed.						
Finland			Planning started in 2009 and it became operational in 2011.					
France	ONERC evolved into an adaptation portal launched in 2006, and was revised in 2009 to support the NAPCC. Wiklimat launched in 2013.							
Germany		Launched in 2008 as a follow-up of the NAS. 2011 NAP required strengthening of the portal which was re-launched after improvements in 2013.						
Hungary							Climate Dialogue Platform launched in 2013.	
Ireland				A phased approach to develop the platform – planning in 2010, working on an operational platform for launch in 2015.				
Spain				Idea of developing a platform originated in 2010 and launched in 2013.				
Norway	Ministry of Climate & Environment established an adaptation working group in 2007, and launched a portal, Klimatilpasning.no in March 2009.							
The Netherlands							First plans in December 2013, became operational in August 2014. Created by the programme Knowledge for Climate.	
Poland					Developed as part of the KLIMADA project (2011–2013) and launched in October 2013.			
Switzerland			Federal Council mandate summer 2009, start of platform planning end 2010 with March 2012 launch.					
Sweden	Initial portal launched in 2007, with the Swedish National Knowledge Centre for Climate Change Adaptation being set up in 2012 providing an opportunity to relaunch.							
United Kingdom	Launched UKCIP platform in 2000 with continuous improvements, and major updates in 2003, 2008, 2010, 2013 and still active. National responsibility transferred to Environment Agency 2012, with GOV.UK launched in April 2013.							
Transnational								
Alpine Region							Platform conceptual work in 2012 and launched in 2014. There is an additional pre-existing portal on the Alpine Convention website supporting its Action Plan for Climate Change.	
Baltic Sea Region					Baltic Window as part of Climate-ADAPT – implementation period 2011–2013, launched in 2013.			
Pyrenees			Pyrenees Observatory for Climate Change project 2010–2014.					
European								
Climate-ADAPT			Identified as an integral component of White Paper. Launched 2012.					
Legend:		Platform in development						
		Platform live						

As indicated in Table 2.3, the UKCIP platform, launched in 2000, has been active the longest, while most other national platforms were launched after 2007. The transnational and European platforms have been available since 2011. Experience in delivering these platforms is limited, with only four platforms — the United Kingdom (different organisations), Germany, Austria and Denmark — having more than 3 years of experience. Some countries have already started to evaluate their platforms, resulting in some cases to major restructuring of their respective platforms (see Section 3.2 under monitoring, evaluating and improving a platform). Climate service platforms within Europe and globally have been in existence for many years in numerous forms (including prior to concerns related to climate change). Some of these were started as a result of earlier initiatives within the World Climate Programme, private sector initiatives and the Intergovernmental Panel on Climate Change (IPCC) Data Distribution Centre⁽⁵²⁾). Furthermore within UNFCCC the Nairobi work programme on impacts, vulnerability and adaptation to climate change⁽⁵³⁾ facilitates and catalyses the development and dissemination of information and knowledge that would inform and support adaptation policies and practices.

In the case of DRR, there are platforms at national, European⁽⁵⁴⁾ and global levels. Most of which have been implemented in response to policy initiatives at the European and global levels, such as within the UN Hyogo Framework for Action). National Platforms for DRR are a coordination mechanism built through a nationally owned and led participatory process that includes different sectors' perspectives and actions and a multi-stakeholder composition. Regional Platforms for DRR (such as for Europe) are multi-stakeholder forums that aim improve coordination and implementation of disaster risk reduction activities while linking to international and national efforts.

2.3 Funding models

From the perspective of those providing adaptation platforms, a critical determinant of what can be made available to users, and of the updating and platform development options is the nature and amount of funding available. It is for this reason that funding

and sustaining platforms is raised as a challenge for adaptation platforms (see Section 3.1). The further elaboration of the different funding models is beyond the scope of this report, but the following background information on the different funding models and their implications for the adaptation platforms and the services available is provided to support that subsequent analysis in Chapter 3.

There are a variety of funding models supporting the development and delivery of the different adaptation platforms, related to the different legal basis and mandate of the respective platform (see Table 2.4).

To better understand and support learning from different approaches, three funding models (based on those being used by the different platforms) were identified during the EEA Expert workshop on climate adaptation platforms (23 June 2014):

- 1) research- or project-funded, with funding often provided to support proof of concept and development stages (e.g. Austria, Ireland, Pyrenees and the Alpine region);
- 2) funding based on policy support (e.g. Denmark, Norway and Sweden);
- 3) policy-mandated funding (e.g. France, Switzerland, and the United Kingdom (Gov.uk)).

Experience has shown that the nature of funding can change with time, with initial development funded using project-based resources and then subsequently switching to policy support (e.g. Austria, Finland, Germany and the Netherlands) reflecting an altered role of the platform.

A number of the national and transnational platforms were developed using project funding. For example, national project funding was used to develop platforms in Austria, Germany, Ireland and Poland. In all of these cases, the funding has been time limited (providing mostly short-term funding) with implications for the scope of the services developed. Dependence on this type of funding for operations and further development can be challenging (see Section 3.1), whereas policy-supported and-mandated can provide a longer-term perspective, depending on whether that funding is short or long term.

⁽⁵²⁾ See <http://www.ipcc-data.org>.

⁽⁵³⁾ See <https://www3.unfccc.int/pls/apex/f?p=333:1:2158212705492247>.

⁽⁵⁴⁾ The European Forum for Disaster Risk Reduction (EFDRR) is intended to serve as the forum for exchanging information and knowledge, coordinating efforts throughout the Europe region and for providing advocacy for effective action to reduce disasters. See <http://www.preventionweb.net/english/hyogo/regional/platform/efdr/2014>.

Table 2.4 Funding sources and models for adaptation platforms

Adaptation platform	Funding source
National	
Austria	Created using project funds (Ministry of Environment); updated in January 2013 using funds from the Austrian Climate and Energyfonds
Denmark	Funded by the Ministry of the Environment, maintained by the Danish Nature Agency
Finland	Originally developed with support from LIFE+ EU funding. Maintained jointly by the Finnish Meteorological Institute and the Finnish Environment Institute, with substantial contributions from Aalto University and other research institutes. Funding partly based on external projects for developing the portal
France	Funded and maintained by Ministère de l'Ecologie du Développement durable et de l'Energie (MEDDE)
Germany	Anpassung.net — Created through projects funded by the Federal Ministry of the Environment; maintenance funded by UBA with the platform integrated into the Federal Environment Agency website
Hungary	Ministry of National Development
Ireland	Development stage funded by Ireland's Environment Protection Agency, with options for funding and sustaining an operational platform being considered
Netherlands	Development was funded by the Delta programme together with the Knowledge for Climate programme. These two programmes, both funded by the government, commissioned the development of the platform
Norway	Annual financial support from the Ministry of Climate and Environment
Poland	Initially funded through the KLIMADA project, during which it was managed and administered by the Institute of Environmental Protection, but now the maintenance and all changes are funded by the Ministry of the Environment, with the platform operating as part of the ministry's servers. The platform is considered/linked to specific project funding (for updating and adding new material)
Spain	Funds for development and operations were provided from the budget of the Ministry of Environment, and external funding is being sought to support further development
Switzerland	Platform is part of the Federal Office for the Environment website and budget
Sweden	Funding (5 years until 2015) is provided to support the Knowledge Centre, with no funds specifically targeted for the portal
United Kingdom	Gov.uk: Developed, managed and funded by the British government UKCIP: Funded by Defra until 2012, and subsequently by UKCIP and the Environmental Change Institute, Oxford University Climate Ready Support Service and its delivery through partner organisations: Funded by the Department for Environment, Food and Rural Affairs (Defra) on behalf of the British government
Transnational	
Alpine Region	Developed by the C3-Alps project, coordinated by the Environment Agency Austria and co-funded by the Alpine Space programme through the European Regional Development — European Territorial Cooperation 2007–2013. Decision on long-term future financing expected in 2015
Baltic Window	Developed within the transnational project Baltadapt funded by EU IV B Baltic Sea Region Programme (transnational ETC programme/Interreg)
Pyrenees	Funding is mainly project based, and is dependent on external funding. It also counts on funding from the eight territories included in the Working Community of the Pyrenees
European	
Climate-ADAPT	The EEA is hosting the platform while the further functional developments are funded by the European Commission. The Commission also indirectly funds content through contracts (DG Climate Action) or other EU funds (Interreg, research). Content updates are carried out by the EEA, supported by the European Topic Centre on Climate Change Impacts, Vulnerability and Adaptation (ETC/CCA), funded by the EEA

Climate-ADAPT functional developments were and still are being supported through project funding by DG Climate Action, while the content updating and the maintenance is based on EEA staff and budget. Many of the platforms are funded by the respective Ministry of the Environment solely or in conjunction with the respective meteorological services (see Table 2.4).

Although platform development is considered a national task, some platforms were also partially supported by EU funds (such as through Interreg programmes for the transnational platforms for the Pyrenees and CAPA). Since the end of 2014, EU funding has become available that can be used for the development of platforms. Potential future sources of funding at EU level for climate adaptation are described in the 2013 EU Adaptation Strategy.

The three main instruments can also fund adaptation platforms:

- the subprogramme for Climate Action under the LIFE instrument;
- Horizon2020;
- the European Structural and Investment Funds (ESIF).

DG Climate Action has also provided (and will continue to provide) support through project funding for dissemination activities, in addition to functional activities.

The European Commission has developed factsheets providing guidance on the potential for funding under the European Structural and Investment (ESI) Funds⁽⁵⁵⁾ and other funds.

Climate-KIC funds adaptation projects, including adaptation platforms⁽⁵⁶⁾. The approach being taken is based on recognition that difficulty in incorporating knowledge into investment decisions is due to widely dispersed information, limited understanding of involved uncertainties, and the still underdeveloped expertise in translating climate data into concrete impact chains for different sectors. This approach, focusing on businesses and innovation, is based on recognition of the need to take the available knowledge and translating it into concrete services and solutions further downstream on the required decisions and actions.

2.4 Evaluating the role of adaptation platforms

As noted above, a primary objective of adaptation platform is to support adaptation action, with many of the national adaptation platforms specifically focused on supporting the implementation of the NAS and/or action plan. As such, critical to the success of such platforms and to their sustainability is demonstrating their relative contribution and effectiveness in supporting adaptation. Attribution, however, is complex and not easily demonstrated, especially considering the myriad of drivers of adaptation action (e.g. response to extreme events, corporate social responsibility, policy and regulatory, etc.)⁽⁵⁷⁾.

The importance of evaluation for adaptation platforms is reflected in that it is seen as a major challenge by those responsible (see Section 3.1). Some have experience with evaluation and using the resulting information to update and improve the platform and its content (see Section 3.2). It is worth considering that there is some merit in evaluating a platform's relative contributions as part of (or linked to) the broader process of MRE of adaptation. By so doing, the evaluation of a platform's contributions is embedded into an overall MRE framework.

Including it as such, would also facilitate linking improvements and updates to those where the products and services available on the platform have demonstrated benefits and where they are required to better support those areas identified as needing more attention. This includes identifying what and how new knowledge and evidence should be introduced.

A MRE process that results in improvements and updates is consistent with approaching adaptation as a learning process whereby new knowledge and evidence, and learning from planning, implementation and MRE schemes are fed back into the process to improve adaptation interventions (policy, action and research).

By the end of 2015, the EEA will publish a technical report that will describe how MRE activities can inform policymaking and facilitate shared learning on national level MRE approaches across member countries. This report will also include information on how web-based adaptation platforms are included in MRE schemes.

⁽⁵⁵⁾ See <http://climate-adapt.eea.europa.eu/eu-adaptation-policy/funding/esi>.

⁽⁵⁶⁾ See <http://www.climate-kic.org/themes/adapting-to-climate-change>.

⁽⁵⁷⁾ See EEA Report No 4/2014, *National adaptation policy processes in European countries — 2014*.

3 Adaptation platform analysis

In Chapter 2, the adaptation platforms landscape in Europe was described, including the legal basis of the platforms, history of their development and funding models. In addition to this, Sections 3.1 and 3.2 highlight some of the most significant challenges, reflections and lessons learned in setting up, developing and maintaining adaptation platforms in Europe. In both cases, the analysis has been clustered under seven issue categories as a means of structuring and presenting the analysis. These categories areas do not represent relative priorities, but rather represent issues that can be used to facilitate further discussion towards clarifying the challenges, and to identify and translate reflections and lessons learned to support owners, developers and managers of platforms.

These issues are those that have been highlighted in discussions at which owners, developers and managers of platforms have come together. They are often interconnected and do not represent stand-alone elements of a platform's development, maintenance and evolution. In addition, there are overlaps between the seven categories. The topics have been assigned to the categories in the most practical way. The representative challenges, reflections and lessons presented under each issue area are based on the experience of those countries and platforms that are included in this analysis (see Table 2.1). Care should be taken with their translation to other socio-economic and political contexts.

The seven issues considered in the analysis of challenges, reflections and lessons learned are:

- funding and sustaining platforms (see Sections 3.1.1 and 3.2.1);
- understanding, communicating and engaging with users (see Sections 3.1.2 and 3.2.2);
- identifying relevant knowledge and information (see Sections 3.1.3 and 3.2.3);
- presenting relevant knowledge and information (see Sections 3.1.4 and 3.2.4);
- design, technical and structural components of a platform (see Sections 3.1.5 and 3.2.5);
- linking across sectors, scales and platforms (see Sections 3.1.6 and 3.2.6);
- monitoring, evaluating and improving a platform (see Sections 3.1.7 and 3.2.7).

3.1 Challenges for adaptation platforms

All platforms aim to provide access to scientifically sound, high-quality, relevant, reliable and usable information (salient, credible and legitimate) to enhance the value of that information and the trust so essential to success. There are a number of challenges associated with developing, delivering and sustaining such a platform. These challenges include: funding, understanding, communicating and engaging with users, identifying and presenting relevant knowledge and information, and ensuring and demonstrating the quality and relevance of the information provided, as well as practical issues relate to the design, technical and structural components of the platform.

The following challenges have been identified by platform owners, developers and managers as those that have required or still require particular attention. The depth of analysis provided within each of the seven issues reflects the differing nature and status of adaptation platforms in Europe. The information compiled here is expected to cut across platforms and countries. The identification of specific countries is presented when relevant for specific aspects. Although providing data, information and knowledge to support adaptation, these platforms are not necessarily homogeneous and the challenges experienced reflect the situation, concerns and needs of their host and target audiences. It is also crucial to recognise when interpreting these challenges that these adaptation platforms are at different stages in their development and have different development pathways (see Section 2.2). The description of these challenges have been included to support others that are developing adaptation platforms so that they can

better understand the challenges they may need to address and to learn from others.

To support learning and sharing, the challenges include responses and solutions have been developed and implemented for at least a specific adaptation platform (see Section 3.2). Challenges have also been presented that are unresolved or for which solutions are still being explored. In both cases, it is intended that by sharing these challenges it will support joint working on the solutions.

However, responses and solutions developed and implemented to address a specific challenge for one or more adaptation platforms may not be directly transferrable to other adaptation platforms. There is a need for 'translation' of the challenge and response that considers the specific circumstances prior to transferring learning from others' experiences. These 'challenges' are presented here so that the knowledge and insights are shared. This provides the basis for working with others to explore appropriate responses.

Readers are encouraged to see Section 3.2 under the respective issues for reflections and lessons learned to further their understanding of the challenge and to explore potential responses.

3.1.1 *Funding and sustaining platforms*

Funding poses a challenge for many platforms due to the nature of the funding used to develop, deliver and maintain an effective platform. Funding models were presented in the Section 2.3 above, while this Section aims to explain the specific challenges further. The nature and the sustainability of funding is a very significant challenge for both owners and managers. Amongst other elements, it may often relate to the following: (i) political mandates and connections to ongoing or future adaptation policy development; (ii) meeting the increasing expectations of current and potential users; and (iii) the growing demand for adaptation platforms. The necessary long-term strategic direction of a platform makes planning, and thus funding, difficult. An overall strategic plan that sets out the direction and scope of a platform in the longer term is often required to allow for the most effective configuration of competence and resources. Such a strategy ensures that development remains appropriate and able to fulfil users' expectations and needs.

Key challenges that have been identified are described below.

- Determining and defining the appropriate funding models (i.e. start-off, development and maintenance),

including criteria, long-term strategy and planning, decision-making processes and sustainability of sources over time (e.g. Austria, Germany, Ireland, the Netherlands, Norway, Poland, CAPA and the Pyrenees).

- Funding is often project based and depends on funds from specific funding agencies (e.g. research funders) or research programmes (e.g. specific calls for projects). For those platforms that are project based, development, engagement, updating and sustainability can be challenging (e.g. adaptation platforms in Austria, Finland, Germany, Ireland, Poland, CAPA and the Pyrenees). For example, with this type of funding, there is often the need to encourage others to contribute to the development of the services available on the platform, i.e. the co-design and co-production of content. Furthermore, such co-funding may lead to problems of conflicting political ownership and agendas (e.g. Germany).
- An additional challenge for the project-funded platforms is the relative strength of the associated political mandate with implications for the development of the platform content, engagement of stakeholders and building the market compared to the short-term funding base.
- Resource allocation in different cost categories. In this type of situation, there can be separate budgets to support technical and content development, regular maintenance, modification and improvement of the platform and for personnel (e.g. adaptation platforms in Austria, Germany, Norway, Poland, Pyrenees, Sweden, the Netherlands and Climate-ADAPT).

Potential approaches, next steps and lessons learned that could be used to address these challenges can be found in Section 3.2.1.

3.1.2 *Understanding, communicating and engaging with users*

Given the limited resources, practice has uncovered multiple challenges in understanding, communicating and engaging with the target audience in the practical use and further development of the content and functionalities of the web-based adaptation platforms.

These challenges may be grouped as follows.

- Identifying those using the adaptation platform.
- Dealing with and managing stakeholders' expectations (e.g. challenge identified by Climate-ADAPT).

- Increasing the demand and uptake of the presented information. Even where there is additional value in high-quality adaptation information and tools, engaging stakeholders in using these remains a challenge (see also Section 3.2.4). The challenge relates to striking an appropriate balance between providing information and working with users that is consistent with the political, economic and societal expectations and capabilities.
- Enhancing the utility of information and other resources available on the platform.
- Understanding the varying capabilities of the users concerning content and functionalities (e.g. Climate-ADAPT).
- Defining platform users' cost profiles. There are several related questions: Is it free of charge to be a user? Are there registration or service fees? (e.g. Poland).
- Sustaining users' support and interest, in particular in the case of uncertain viability of a platform.
- Setting up user's feedback mechanisms over time (e.g. Ireland).

Potential approaches, next steps and lessons learned that could be used to address these challenges can be found in Section 3.2.2.

3.1.3 *Identifying and maintaining relevant knowledge and information*

The information and knowledge available on climate change and adaptation is constantly growing. At the same time, the needs of stakeholders are evolving over time while they are progressing in the adaptation policy process. The identification of relevant adaptation knowledge and information to be presented that is useful, credible and accessible is a requirement of any platform. Involving researchers and providers of adaptation information into the development of the adaptation platforms is another challenge. It includes sharing their results, thereby enhancing the quality and relevance of the information available.

This translates into significant requests that relate to the selection of the content and the maintenance of a platform.

Selecting relevant content

- Striking the appropriate balance between striving for relevance and user-friendliness and aiming for

scientific quality and completeness. Striking this balance may include having the courage to leave gaps, or defining niches of added value.

- Ensuring that the scope and structure of a platform is created to fit the intended user's needs rather than to fit the available funding.
- Identifying and engaging potential contributors (e.g. stimulating experts to contribute information and relevant resources).
- In line with users' needs, determining the type of information (data, maps, graphs, tools, guidance) and the complexity of information (data or metadata) to be selected for publication on a platform. Achieving comparable and consistent information, for example, on climate change risks and vulnerabilities related to various climate change scenarios, across scales (from national to local) and across boundaries. This is especially significant for transboundary issues such as management of river basins or biogeographical regions (e.g. challenge identified by the Alpine region and the Pyrenees), but also for selecting content by different partners (e.g. challenge identified by Finland).
- Accommodating relevant results and outcomes of nationally and internationally funded research projects (e.g. challenge identified by Austria).
- Ensuring the consistency and comparability of the information selected (e.g. challenge identified by Climate-ADAPT).
- Setting up and sustaining an advisory or steering group that is willing and able to provide direction, reviews the knowledge input, and provides advice on additional gaps and needs (e.g. challenge identified by Ireland).

Maintaining a platform

- Striking the best possible balance for the maintenance of a platform; coping with potential mismatches between the envisaged content and functionalities of the platform, the IT conditions and the content-updating procedures (e.g. challenge identified by the Alpine region, Ireland and Climate-ADAPT).
- Introducing quality assurance and control (QA/QC). Which level of QA/QC procedure is appropriate to the effort and compared to the added value? What are the different mechanisms and means for 'effective' QA/QC? How to communicate the results? This may include exploring the use of ISO standards

and INSPIRE, including in the context of enhancing interoperability with other platforms (e.g. challenge identified by Climate-ADAPT).

- Develop specific criteria for quality control, in particular for information stemming from research projects. Should only scientifically peer-reviewed results be presented? If 'grey' literature and information is included, which process is in place for quality control? (e. g. challenge identified by Climate-ADAPT).
- Ensure the feasibility of the envisaged quality of a platform, while maintaining it with more than one organisation, e.g. in partnerships. This involves the coordination of large and distributed expert teams, the division of labour, the IT conditions and the available human and financial resources for maintenance.
- Warranting that a portal is dynamic and regularly updated, also confirming the continued validity of existing items. Furthermore, it addresses outdated items (e.g. challenge identified by Finland).
- Finding time and resources for performing such updates can be a challenging and demanding task, especially in cases where funding is limited or temporary (e.g. challenge identified by Finland). This challenge is bigger for platforms for which information is presented in multiple languages (e.g. challenges identified by Finland, Switzerland).

Potential approaches, next steps and lessons learned that could be used to address these challenges are discussed in Section 3.2.3.

3.1.4 Presenting relevant knowledge and information

In recent years, the production of adaptation-related knowledge has improved significantly in Europe. The use of the knowledge by policymakers and decision-makers, however, is dependent to a large extent on the way that this is presented.

The challenge is to present adaptation data, information and knowledge in a way that is relevant, credible, accessible and easy to understand with the aim of it being well received by users. This is also likely to increase the utility and demand for the adaptation knowledge available on the platform. This challenge is made harder by the complexities of adaptation and of the different users and their decision-making processes.

The challenge is to understand the role that data, information and knowledge play in supporting and

leading to adaptation actions. By presenting this information in a way that meets users' needs it begins to address this challenge making it easier for users to understand adaptation and therefore make the most appropriate decisions.

Common challenges usually relate to the following issues.

- Finding appropriate approaches to present the information to the target audience. One particular requirement is to strike an appropriate balance between generic and customised approaches.
- Providing the appropriate information for a diverse set of users and scales has led to a trade-off challenge: How to achieve completeness and relevance in equal amount when presenting and displaying climate adaptation knowledge in a single platform? (e. g. challenge identified by C3-Alps. The platform is dealing with the needs of 17 partners).
- Exploring and assessing innovative approaches including the use of visualisation techniques and aids such as infographics and interactive tools. Policy players are often in favour of such tools, as they facilitate their understanding of the adaptation information and knowledge. In such cases, attention should be placed on matching technical requirements with user adaptation and IT capabilities and capacities (e.g. challenge identified by Poland and Norway).
- Presenting information in a user-friendly way, using simple language that is easy to understand, including by non-scientists. Reflecting the interests and capabilities of new and experienced users is a challenge identified by Climate-ADAPT managers.
- Information that is to appear on platforms is usually the output of research projects. The language in which it is initially written may not always be clear to the target audience of the platform. It may be necessary to rewrite information in non-technical terms (e.g. challenge identified by the United Kingdom).
- Assessing the amount of information that is provided on a platform is necessary. Original articles are often long, making their utility from the users' perspectives limited, and making both management and updating of the platform a cumbersome task (e.g. challenge identified by Finland).
- Making information available in more than one language is sometimes vital for circulating information within a country itself, but also for

presenting relevant information beyond national boundaries. This is important for enhancing the uptake of the information provided, but also for increasing recognition by potential users. Maintaining a platform in multiple language versions, however, is recognised as a rather laborious task. Platforms that have information in more than one language include Austria, C3Alps, Denmark, Finland, Germany, the Pyrenees and Switzerland. Other platforms have parts of the information in English, such as France and Poland.

- Presenting information using the target users' media and processes.
- Understanding what tools and information should be developed and provided. Furthermore, understanding the level of the associated supporting guidance (e.g. information on tools for adaptation, databases, checklist and examples of good practices).

Developing case studies, adaptation options and other guidance to support adaptation policy and practice, including links to relevant products available elsewhere (e.g. challenge identified by Austria, the Netherlands, Norway and Sweden). Furthermore, Climate-ADAPT managers have identified the challenge of finding good-quality illustrative cases of practical implementation with explicit decision-relevant assessments (e.g. cost-benefit or legal implications) in collaboration with current stakeholders, and of finding a fair proportion of case studies presented across countries, sectors and impacts.

Potential approaches, next steps and lessons learned that could be used to address these challenges can be found in Section 3.2.4.

3.1.5 *Design, technical and structural elements of a platform*

The design of the structure and the functionalities of a web platform greatly affect how user-friendly it is and how easy it is to develop, maintain and develop new features in the long term. These elements include the content management system (CMS) as the hosting of a platform, the structure of the site, the navigation as well as the design of the pages and the search engine.

The main challenges are as follows.

- Design and maintain a structure and functionalities (e.g. web content, navigation and database search functionalities) considering the perspectives of different user groups (e.g. challenge identified by Climate-ADAPT).

- Develop web applications considering the varying background of adaptation and IT capabilities of different user groups. This included providing help functions that are sufficient for less experienced, but not disturbing for more experienced users, such as glossaries (e.g. challenge identified by Climate-ADAPT).
- Develop features to maintain the users trust in the timeliness and relevance of the information presented on a platform (e.g. challenge identified by Climate-ADAPT).
- Implement interactive features to cope with user's needs to exchange experiences on adaptation and to discuss possible approaches (e.g. challenge identified by Climate-ADAPT).
- Consider technical limitations posed by mandatory web standards of the organisations hosting the platform (e.g. challenge identified by platforms developed on government-wide websites such as the United Kingdom on gov.uk and Switzerland on www.bafu.admin.ch).
- Develop efficient workflows for submissions by different sets of providers (e.g. challenge identified by Climate-ADAPT).

Potential approaches, next steps and lessons learned that could be used to address these challenges are discussed in Section 3.2.5.

3.1.6 *Linking across sectors, scales and platforms*

There is a growing interest in climate change adaptation platforms and a growing landscape of such platforms available to users. This includes platforms that are operating at different scales: subnational, national, transnational, Europe-wide and global. These platforms include amongst others, adaptation platforms, climate services platforms as well as disaster risk management platforms (see also Chapter 4). Coordination processes between the platforms at different governance levels are established, such as the exchange of experiences through EEA Eionet workshops and cooperation between the EEA and countries. Action has been taken in order to improve the complementarity of the platforms (see Section 3.2). But still the coordination at the national or European levels amongst the different platforms, but in particular amongst the different thematic platforms remains a challenge.

A challenge for providers is the increasing competition for 'space'. This competition can lead to potential

duplication of effort and difficulties securing funding and support from those providing resources and other services. This competition can also reduce the potential for stakeholders' engagement due to their fatigue and lack of willingness to duplicate their engagement.

Factors that contribute to this challenge include the following.

- Reaching a clear understanding on the relative remits of adaptation platforms operating at different scales and amongst them covering specific aspects and sectors of adaptation (e.g. climate services and DRR platforms). This includes the ability and willingness to clearly articulate these remits to intended users (e.g. Finland).
- Exploring and defining effective relationships amongst adaptation platforms operating at different scales, with the purpose of identifying mutually beneficial and sustainable delivery models. This calls for consensus on the different roles and responsibilities to support users, the added value of having platforms operating at different scales, the nature and scope of cooperation needed, and 'effective' models, procedures and plans for cooperation that facilitates a win-win situation and ensures credibility.

Additional factors linked to this challenge include:

- exploring the potential benefits and challenges of establishing links to other (e.g. sector-based) platforms as a contribution to fulfilling the platform's role;
- integrating other project-based platform developments takes time, resources and effort;
- need to identify means and mechanisms for facilitating the exchange of information between national and transnational/European platforms with the aim of enhancing the quality of the services provided to users and in the most efficient way;
- engaging players working on different platforms;
- managing the technical and political connections between the different platforms;
- managing potential 'cultural differences' between people working in different organisations or countries and different technical fields — this also extends to the

need to recognise the differences amongst the knowledge 'producers' and 'users' (e.g. challenge identified by Switzerland).

Potential approaches, next steps and lessons learned that could be used to address these challenges can be found in Section 3.2.6.

3.1.7 Monitoring, evaluating and improving a platform

It has to be ensured that adaptation platforms support decision-making for adaptation policy and planning over time. Monitoring, evaluating and improving the platform are essential means to assess whether a platform on EU, transnational and national level successfully achieved the specific goals according to its mandate. The results of the evaluation are needed in order to make the necessary adjustments to a platform to further support the needs of the stakeholders in the evolving adaptation policy process. Monitoring can include measuring the impacts the platform is having on users' ability to adapt using predefined criteria and analysis as well as using web statistics to measure user numbers. It can also include consideration of the value added by the platform from various perspectives (e.g. users and contributors, as well as the policy, economic and institutional environments in which it operates. This requires an overall understanding and clear demonstration of the platform's mandate and role and its content and functionalities. It can also include defining the process of QA/QC. The delivery of QA/QC is in this report considered to be a 'maintenance' issue and is covered in Section 3.1.3. Furthermore, it can include user surveys both ongoing and at specific-points of a platform development (i.e. midterm and end of projects, in the case of project-based platforms).

Factors contributing to this challenge include the following:

Monitoring

- Set out how to monitor the use of the platform. This can be based on user feedback, on web statistics or by indicators on the platform use. It is vital to define the monitoring scheme in relation to the intended evaluation.
- Due to many influencing factors on adaptation policy and action it is methodologically challenging to determine indicators for success or failure as well as impacts of a platform.
- Interpreting user feedback by understanding who is accessing the platform and for what purposes. This is a rather complex task with many uncertainties.

- It is crucial to set up ways that allow platform owners and managers to use this feedback effectively in evaluating and improving the platform.
- Establish an appropriate process to define and communicate the results of these measures in a transparent way.

Evaluation

- Defining a systematic evaluation scheme clearly linked to the mandate and goals of the platform (e.g. challenge identified by Climate-ADAPT). A significant challenge for further developing the European level platform is the disparity in adaptation efforts across Europe and the need to be relevant to all countries. Contributing to this challenge is the different users' capabilities; ranging from those new to the adaptation policy process to those with considerable experience.
- Establish an appropriate process to involve stakeholders in the evaluation and communicate the outcomes.
- Using evaluation in learning and continuous improvement of the platform structure and content.
- Assess integration of the platform into supporting policy and business structures as a success factor. If a platform is a free stand-alone portal with many good ideas but no political, legal, economic and social relation it may be difficult to succeed in supporting decision-makers, regardless of the credibility of the science on which it is based.

Potential approaches, next steps and lessons learned that could be used to address these challenges can be found in Section 3.2.7.

3.2 Reflections and lessons learned

Lessons learned on adaptation platforms in Europe are presented here assigned to the same categories as in Section 2.1 to make use of the existing experiences across the adaptation platforms. There are a range of reflections and lessons learned provided; reflecting that adaptation platforms are not homogeneous in terms of the nature and scope of remit and services provided, but also in terms of their stage of development and development pathways.

The aim is to encourage continued improvement of adaptation platforms to support the adaptation policy cycle (see Chapter 1). These lessons are also intended to increase awareness of the potential and limitations

of the adaptation platforms. Furthermore, they are intended to highlight which approaches are the most appropriate for the individual circumstances of each platform.

The reflections and lessons learned have been proposed by platform owners, developers and managers from their experience of current practices within their respective platforms. These include those developed and implemented to address specific challenges identified in Section 3.1, but also those that address other issues unrelated to any previously-identified challenge. These additional lessons have been included as they are believed to be potentially of interest to others.

Approaches (examples) used by individual platform owners and managers to cope with the challenges identified under their specific circumstances are highlighted within each category. The approaches are presented in more depth so as to better understand the specific solutions and to provide inspiration. To better understand and increase the potential for others to learn from the approach taken, each of the examples includes relevant background information and a description of the specific challenge being addressed.

As with the challenges and their interpretation, these reflections and lessons learned are not necessarily directly applicable for all platforms. Some owners, developers and manager have found them useful from their own particular situation, concerns, and the needs and capacities of their host institution and target audiences. Furthermore, many of the lessons presented were mentioned by many owners, developers and managers, in multiple sessions and forums. Hence, they are a distilled reflection that cuts across platforms. It is thus key to review these reflections and lessons learned in this context with a view to learning from them relative to their validity and adaptability for the intended application.

3.2.1 Funding and sustaining platforms

Based on the varying legal basis and mandate of the adaptation platforms, different funding approaches have been applied (see Table 2.3.1). The nature and the sustainability of funding are considered crucial for the sustainability, continued relevance and credibility of adaptation platforms. Recognition of this role of funding is still an area of incipient practice. Few, if any, examples of strategically designed funding models for platform development and maintenance over time have been identified: for instance, state funds (e.g. France), governmental and additional external

funding (e.g. the Netherlands), institutional and project-based funding (e.g. Finland).

Key lessons are as follows.

- The identification of significant political and practice drivers at the appropriate scales and their ambitions, resources and own funding models are fundamental for the development and maintenance of a platform. They can provide a clear definition of the platform's scope and utility, and ensure its sustainability (e.g. C3-Alps, Sweden).
- The relatively short-term nature of project-based funding models can have wide-ranging positive and negative implications for the platform development and the scope of its services (see Section 2.3 and Section 3.1.1). The rapid development and

successful demonstration of a functional prototype (necessarily so as projects are fixed in time) can form the basis of a further solid commitment towards funding. It may be easier to attain a political mandate for an operational-ready status platform (e.g. Ireland).

The nature and scope of the service available within a platform are determined by the amount and type of funding available. For example, the available funding will determine whether the service is a website (e.g. Gov.UK and Austria) or a knowledge exchange platform (e.g. Denmark and Climate-ADAPT). It will also determine to what extent it provides information versus providing a participatory platform supporting long-term processes (e.g. Spain, C3-Alps).

Platform examples follow below:

Sustaining the adaptation platform funding by basic governmental and additional external funding

Example: the Netherlands (www.ruimtelijkeadaptatie.nl/en)

Background

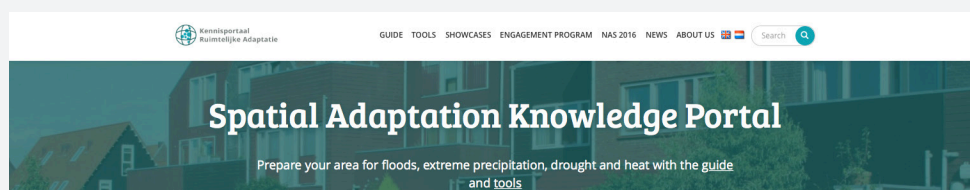
The spatial adaptation platform became operational in August 2014. It provides information on the reasons, the ways and the areas where adaptation to climate change needs to be implemented through a stepwise approach for the assessment of vulnerability as well as the design and appraisal of adaptation strategies. Amongst others, the platform provides support tools for the design of adaptation, an impact geoportal, a measures database, localised atlases, guiding models and a generic and integrated social cost-benefit tool. The development of the portal was funded by the Delta programme, together with the Knowledge for Climate programme. Although currently there is not a primary link to the Dutch NAS, a new programme, called 'Spatial Adaptation Programme', will encompass the Dutch NAS as well as action relevant to the local level. The platform is hosted by the CAS foundation, a non-profit foundation, which represents a large number of institutes. This is the main responsible organisation for the maintenance and update of the platform. Information in the platform is available both in English and Dutch.

The challenge

Due to the limited or uncertain governmental funding, the platform management considered it vital to avoid complete dependency on the state funds and to explore opportunities for complementary funding sources.

The approach

The current business model of the CAS foundation focuses on two main elements: the maintenance of the web portal and the disclosure of adaptation knowledge through the platform. Funding for the conduct of these activities has been partially dependent on governmental funds, namely the Knowledge for Climate programme and the Ministry of Infrastructure and the Environment (I&M) through a multi-year service contract. In attempt to avoid being fully dependent on government funding, the CAS foundation has aimed to acquire additional funds through projects and delivery of services, applied tools and support to various stakeholders. So far a large part of the work revolves around the application of knowledge at the municipality level. Also opportunities for new projects in Europe and beyond (e.g. in developing countries) have been successfully used to gain further funding. Being a non-profit organisation, non-governmental financial resources resulting from such activities are invested on the foundation, to support the maintenance of the tools and the website.



Securing the long-term maintenance of the platform through institutional funding and development projects

Example: Finland (<http://www.climateguide.fi>)

Background

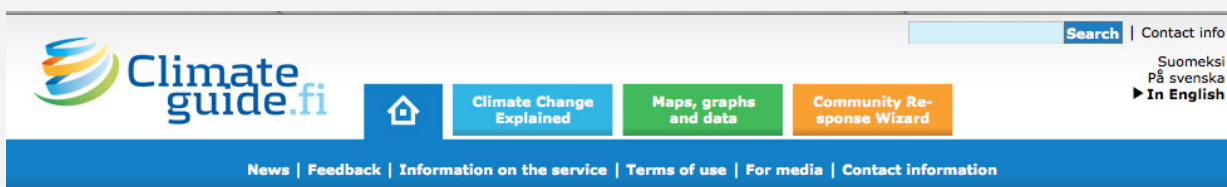
The planning of the Climateguide.fi started in 2009. It became operational in the autumn of 2011, with support received from the LIFE+ EU-funded project: 'Climate Change Community Response Portal' (Life07 INF/FIN/000152; CCCRP). Its original purpose was to provide research based climate change information that would be applicable particularly at the local (municipal) level. However, later on this focus expanded to include also the regional and national level. The platform makes reference to sector-based adaptation programmes and the Finnish NAS. Although the platform was not directly part of the work undertaken for the development of the NAS, its link to the NAS has been strengthened, with the new strategy (called a NAP and adopted by the government in November 2014) making also an explicit reference to the portal. In its current version the portal provides information on climate change, impacts, adaptation and mitigation in the form of relevant articles, historical data and projections on rainfall and temperature and impacts of climate change in two map tools, visualisations and case studies. After the ending of the LIFE+ funding in 2012 the platform was maintained primarily by the Finnish Meteorological Institute (FMI) and the Finnish Environment Institute (SYKE), with some support from the Aalto University YTK Land Use Planning and Urban Studies Group. A particular emphasis is to make the portal provide more current information on ongoing events and processes. Information (but not all) is available in three languages (Finnish, Swedish and English).

The challenge

The main challenge of the Climateguide.fi lies in securing the long-term maintenance of the portal. This has not yet been fully achieved although progress has been made in securing some institutional funding. The project-based funding is excellent for developing new innovative elements to be included in the portal. The business model would, however, greatly benefit from a slightly increased constant resource flow.

The approach

Initial funding support through LIFE+ of the EU was sufficient to launch the portal. After the ending of the LIFE+ funding, the Finnish Meteorological Institute (FMI), the Finnish Environment Institute and other organisations invested their own work and resources in the maintenance of the portal, applied for additional external funding to continue the development work and made effort to include more producers of information in the portal. Subsequent funding has been a combination of several smaller development projects and institutional funding coming especially from the two main partners, the FMI and SYKE. Due to the temporal variation of the project-based funds and the yearly scrutiny to which institutional funding is subject, the platform managers aim to include more institutional funders to secure the maintenance of the basic contents. Furthermore, they structured the platform by the organisations delivering the contents, and seek to obtain external funding for the further development of the platform.



3.2.2 Understanding, communicating and engaging with users

Understanding communicating with and engaging users is usually seen as one of the critical aspects of platform's development and maintenance as it cuts across all other elements. Therefore it is also an area where more thinking goes into providing interesting lessons based on the experiences of developers and managers.

The lessons are as follows.

- It is fundamental, before anything else, to clearly identify and understand users by asking 'who they are', 'where they are', 'what they want' and 'why they want it'.
- It is fundamental to match (even if this is limiting) the scope of target users with the available resources and information. Focusing on a few target

- groups and aiming at tailor-made information and products can be a solution.
- Limiting the target group of a platform can also be a way to efficiently maintain platforms operating and complementing each other at different governance levels (e.g. Climate-ADAPT).
 - It is key to identify and engage users from the beginning in the design, implementation and maintenance phases, while also recognising that these and their respective roles as well as interests may change with time.
 - Conserve the users' trust in the dynamics and timeliness of the portal, by making the timeliness of the platform content visible.
 - If it is difficult to engage users, since it is often difficult and for them to articulate their needs. An intermediate may be used for this purpose. This could be a person who understands the science, but could also be the users.
 - Users can be better involved by replying to them, including information on how their feedback has been considered.
 - Based on the intention of users to enhance visibility of their own activities they can be engaged by turning them into providers via offering platform space to showcase their success via case studies or policy profiles, (e.g. in Poland, on Climate-ADAPT).
 - It may be required to use multiple engagement mechanisms. These are often tailored to specific phases of the platform's stage of development and to the targeted user groups, including for example:
 - formal policy-related participatory processes, e.g. on the development of the adaptation strategy in Austria);
 - technical meetings with public and private stakeholders on specific aspects of the platform development (e.g. Spain);
 - directly involving users into the platform development, e.g. via a usability group in Ireland, via an engagement programme (e.g. the Netherlands);
 - targeted interviews (e.g. Austria and Switzerland);
 - using online feedback via contact button (e.g. the Netherlands);
 - surveys and polls (e.g. Finland and Germany, Ireland, the Alpine region);
 - newsletters (e.g. Germany, Austria and UKCIP; Climate-ADAPT);
 - tailored workshops, seminars and webinars (e.g. Finland, Germany and the Netherlands);
 - presentations at conferences and seminars (e.g. Ireland);
 - Facebook (e.g. Finland);
 - meeting users at conferences, seminars or other events (e.g. Germany and Ireland);
 - email feedback mechanism (e.g. Germany, Austria, Climate-ADAPT);
 - formal and informal meetings and discussions (e.g. Ireland, the Netherlands, Spain and Switzerland);
 - user-based maintenance mechanism for digested tailor-made information via commenting on thematic collections of knowledge (e.g. Alpine region);
 - reports and publications (e.g. Ireland);
 - testing panels (e.g. the Netherlands);
 - include user's directly in platform maintenance and evaluation via editorial board and in evaluation team (e.g. the Netherlands);
 - creating networks of users (e.g. Ireland).
- Reflections and lessons learned relate also to the promotion of a platform, ensuring that its users know what to expect and where to find the information they need.
- This includes the following.
- Use of personal contacts to keep in touch with users.
 - Use of newsletters to inform about platform news targeting policymakers, decision-makers and interested public (see Table 3.1). Moderation is advised, however, so that users do not receive too much information that they cannot process.
 - Identify linkages with key websites, e.g. those that support publicity and use of platforms (e.g. the United Kingdom).

Table 3.1 List of newsletters

Country/region	Portal URL	Newsletter (link and additional information)
Austria	http://www.klimawandelanpassung.at/ms/klimawandelanpassung/en/kwa_allgemein/kwa_home	http://www.klimawandelanpassung.at/ms/klimawandelanpassung/de/newsletterregistrierung/kwa_archiv/ (in German)
Denmark	http://www.klimatilpasning.dk	http://en.klimatilpasning.dk/recent/news.aspx (in Danish and English)
France	http://www.developpement-durable.gouv.fr/-impacts-et-adaptation-ONERC-.html	Weekly newsletter (in French)
Germany	http://www.umweltbundesamt.de/en http://www.umweltbundesamt.de/en/topics/climate-energy/climate-impacts-adaptation	http://www.umweltbundesamt.de/en/service/newsletter Online newsletter and archive (in German)
Netherlands	http://www.climateadaptationservices.com/en http://www.ruimtelijkeadaptatie.nl/nl/nieuws	Newsletter (in Dutch)
Sweden	http://www.klimatanpassning.se/nyhetsarkiv http://www.anpdm.com/form/444B5041734447504A71/42405B417946425943	Online sign up and archive (in Swedish)
Pyrenees	http://www.opcc-ctp.org	http://www.opcc-ctp.org/fr/newsletter (in French)
Climate-ADAPT	http://climate-adapt.eea.europa.eu	http://climate-adapt.eea.europa.eu/newsletter Bimonthly newsletter (in English) Online archive

- Publishing relevant articles in relevant media and on other relevant websites (e.g. Finland, Poland).
 - Offering material to be published at other websites (e.g. Germany).
 - Publishing press releases promoting the platform (e.g. Finland).
 - Use of online available bookmarks with information about platforms (e.g. Spain).
 - Marketing of the platform through attendance and presentations at workshops and key conferences, e.g. Finland, dissemination of project information through newsletters and through contributions to key publications. Use of new forms of media communication to users (e.g. videos, published at Climate-ADAPT, videos and social media as implemented in Finland, Poland, planned in Austria).
 - Use of other promotional mechanisms (e.g. offering training and support, e.g. implemented in the Netherlands, the platform is mentioned at conferences and workshops in Switzerland, organising events, online games, offering apps, videos and other communication material setting up competitions for innovative approaches and good practices such as that in Germany related to adaptation examples⁽⁵⁸⁾).
 - Establishing a task force, which travels to municipalities and support the development and implementation of municipal adaptation plans (e.g. Denmark).
 - Enhance user contact via embedding stand-alone adaptation platforms into institutional platforms (e.g. Germany).
 - Introducing public information campaigns targeting intended users.
- The effectiveness of all these activities can be assessed through web analytics (e.g. number of new and returning visitors). This is for example being used in the United Kingdom and for Climate-ADAPT.
- More lessons learned can be provided on the engagement of stakeholders in using the information available on the platform in order to take adaptation action (see Section 3.2.4).

⁽⁵⁸⁾ See <http://www.umweltbundesamt.de/themen/klima-energie/klimafolgen-anpassung/werkzeuge-der-anpassung/tatenbank>.

- Some platforms recognise this limitation and include specific activities to enhance working with key end-users, including in the co-design, co-production and co-delivery of information and knowledge needed for adaptation actions. A platform involving users in the updating of the platform is C3-Alps.
- In order to encourage users to become providers of information to a platform the barriers for the submission should be as low as possible. This includes user-friendly submission procedures and the transparency of the data processing (see Section 3.2.5). For example, on Climate-ADAPT the selection criteria for the approval of submitted case studies as well as examples for the submission are published on the platform.

Platform examples follow below:

On the way from providing adaptation support for local level action to facilitating interaction with an extended audience

Example: Norway (<http://klimatilpasning.no>)

Background

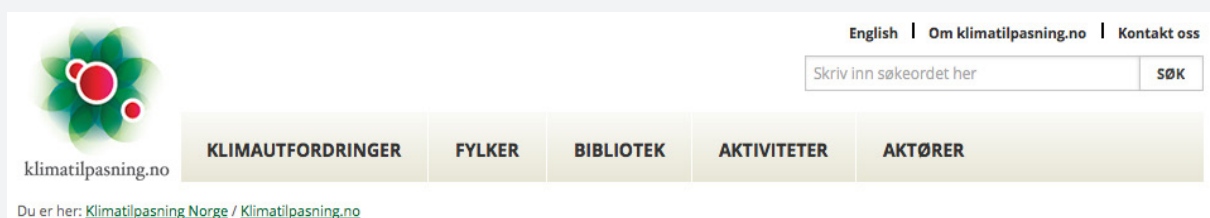
The platform was set up on behalf of the Ministry of Climate and Environment as a national clearing house to coordinate national adaptation efforts at directorate level and to build capacity for local planners through the county governor's office. It was developed by the Norwegian Directorate for Civil Protection (DSB) and launched in March 2009. In the process of the national adaptation policy the maintenance and further development of the platform was moved to the Norwegian Environment Agency in January 2014. The platform aims to gather relevant knowledge and information about climate adaptation and serve as a formal information provider. It has been mainly created for planners and decision-makers on local and regional level, but the information should be easily accessible and interesting for all who are engaged with what climate change will mean for the Norwegian society.

The challenge

In order to allow an easy uptake of the information by the key target group, the local planners and experts and to support the capacity-building on adaptation, the information and tools have to be presented in an understandable and easy accessible way. In order to be useful also for other target groups, the platform should also present more complex information and entry points for other stakeholders.

The approach

In response to the practical needs of the local users, the platform was created taking into consideration the work areas of the local planners, the challenges with which they have to confront and the vocabulary which they use. The factual information presented on the platform (climate change impacts, sector information and a big section on local activities for each municipality) is tagged with specific climate change impacts, geography, date, type of information (e.g. report, guideline, publication, research) and is accessible via search criteria in a database. More information (results of local analysis, case studies, research results, maps and a planning guide) is presented via a library. The entries consist of metadata, printable pages, downloadable documents and links to relevant sources of information. Case studies include further links to enable access to further external information sources. At the moment there is no space for an interactive exchange amongst local users on adaptation. The platform will be revised and re-launched at the end of 2015 to ensure that all presented information is clear and straightforward to its users. The revision aims to involve more target groups. In the first round of revision, the building and agriculture sector will be included as target groups. There will be closer links to the revised Norwegian Climate Service platform, to allow access to updated downscaled climate change projections. More streamlined visuals across both platforms are envisaged as well. Within the revision IT functionalities will be implemented to improve the presentation of the example database and the visibility of contacts. Furthermore, the re-launch aims to increase the user-friendliness of the whole platform and to facilitate interaction with an extended audience (through an extended and more visible example database, clear contact information, information about webinars, seminars, etc.).



Eliciting the needs and expectations of users through a multi-method approach

Example: Ireland (<http://www.climateireland.ie>)

Background

Within the context of the climate change research programme of the Environment Protection Agency, the Impacts and Adaptation Steering group recognised in January 2010 the need for an official, trustworthy source of climate information in Ireland. As a result, at the end of the same year there was a call for the development of a national climate change information system. This would serve as a one-stop, web-based resource of climate and adaptation information and data, with the aim to facilitate decision-makers (e.g. organisations, sectors and government) in the development of adaptation plans. A phased approach has been used towards the development of Ireland's Climate Information Platform. In phase I (2011–2013) a prototype, 'discovery portal' was developed. In phase II (2013–2015, currently under way) the prototype is being further elaborated in order to develop an operational platform to support decision-makers at sectoral and local level with assessments of climate change impacts, vulnerability and adaptation planning. In this phase, the best options for embedding, governing, resourcing and sustaining an operational platform are also explored. Finally in phase III, the platform is envisaged to be fully operational (2015). Future plans will concentrate on providing reliable and accurate climate and adaptation information also for the general public.

The challenge

Understanding user needs and expectations and engaging users at different stages of the platform development is important for two main reasons: firstly, to ensure, that the information presented in the platform is relevant, and secondly, to maximise users' willingness to further support the platform. However, garnering stakeholder support and encouraging them to contribute to the design and the production is not always a trivial task. One of the key challenges lies in finding efficient ways to elicit, influence and ultimately meet the needs and expectations of the end users.

The approach

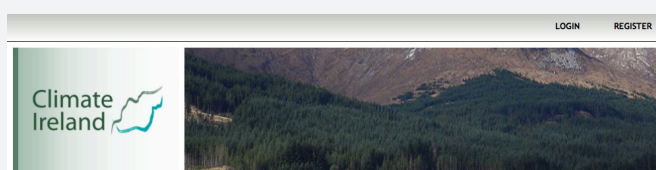
In attempts to answer some of the questions that platform managers are often confronted such as 'How to maintain the trust, interest and enthusiasm of the users?' or 'How to elicit the desired information or data formats?' Climate Ireland has employed a multi-method approach.

Following from an extensive review of the available research related to adaptation and practice in Ireland, which allowed for an overview of the existing knowledge, workshops were held with key sectoral representatives and local authorities in order to ascertain information requirements for adaptation planning. Formal and informal meetings and discussions with the key user groups formed a key component of understanding user needs, highlighting in particular the areas and topics on which more information is needed (e.g. the need to increase understanding of climate change and its implications for Ireland in particular). Presentations at conferences, published reports (e.g. Ireland's Future Climate: The Road Ahead') and outreach activities have been used to engage end users.

In addition and importantly, the project team is currently actively engaging with users (e.g. health sector and local authorities) who are developing their adaptation plans. These users, along with representatives from other key user groups (e.g. local authority and sectoral decision-makers), adaptation specialists and web development experts, are involved in the so-called usability group. This is a group that has been set up to ensure that the platform meets the requirements of the key user groups in terms of usability (e.g. Does the content fulfil a need?, is the site easy to use?, Is the site aesthetically pleasing?, Is the content easily navigable? Do users trust the content?). Following from this, ICIP will be reiterated on the basis of recommendations made by the usability and subsequently re-assessed.

Another way to further engage with users has been the establishment of a network of users (currently under way). As a first step, access to ICIP has been widened, and requires users to complete a simple registration form. Feedback from registered users is currently being elicited by online survey.

Finally, the need for an overall strategic plan that sets out the direction and scope of the platform in the longer term is seen as a further need. This will allow for the most effective configuration of competence and resources with the aim of fulfilling stakeholder expectations. This should also ensure that the way that platform is developed remains appropriate for the needs of the stakeholder groups.



Communication and interactivity to improve the engagement of the platform users

Example: Austria (<http://www.klimawandelanpassung.at>)

Background

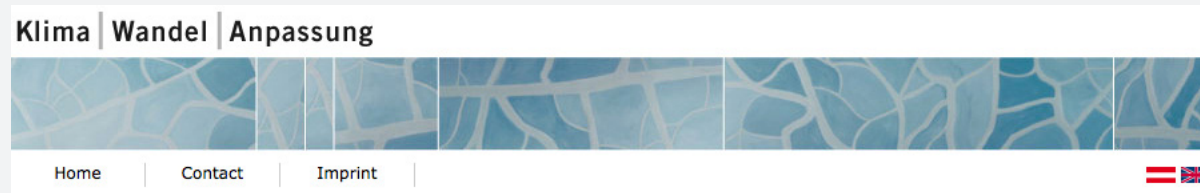
The Austrian Adaptation Platform was launched in 2009 and was substantially updated and revised in January 2013. It was developed as part of the participatory process to accompany and support the development of the Austrian NAS and NAP. For this reason it required only a small budget for the technical set-up and few personal resources. While the initial aim of the platform was to provide simple support of the national policy process, this aim shifted after the platform's launch, and now includes the provision of broader support of adaptation for the whole public. Since its launch the platform has also strengthened the presentation of research results and enhanced the level of interactivity and the use of online tools. The European Agency Austria is the sole platform operator. However, principal changes are discussed and agreed also with the funders. With the exception of the database maintenance, which receives a direct fund from the Ministry of Environment, all other developments of the platform are currently project based. In its current version the platform is organised in six main areas: Climate change in Austria; Adaptation to climate change; Austrian adaptation strategy; Research on CCA; Database of adaptation measures; Links/Glossary/Newsletter. This information is available in German while main parts of the website have been also translated into English.

The challenge

In addition to content that appear or the functionalities that can be used on a platform, one of the aspects that needs to be considered when aiming to improve users' engagement is that of communication. It is fundamental to ensure that multiple and efficient ways of communication are available to inform different user groups for possible changes, progress and other news that appear on the platform. Also the level of interactivity of the platform is a chief element that could maintain the interest in and hence the engagement of the users with the platform.

The approach

Several projects developing adaptation tools and guidance were recently finalised, providing new methods, tools and guidance for developing adaptation strategies at subnational, regional and cities level ('Factory for Adaptation Measures Operated by Users at different Scales' (FAMOUS) handbook). Also tools and guidance have been delivered on how to effectively communicate climate change and adaptation (via the research project CcTalk! ⁽⁵⁹⁾). A brochure was produced for the general public aiming at raising awareness about the NAS/NAP and providing practical advice for Austrian citizens. Although the website is currently designed as an information hub, this information can be translated online and used to interact with potential users. For example, this is being carried out by offering training and support, organising events with different target groups, designing online games, offering apps, setting up competitions for innovative approaches and good practices. Future plans include also the set-up of an online decision tool for local adaptation (CC-Act project), which is expected to allow more interaction with potential users. Other more traditional methods of communication have also been used since 2011 targeting policymakers, decision-makers and interested public.



⁽⁵⁹⁾ 'Projekt „Vom Wandel zum Handeln: Effektive Kommunikation zu Klimawandel und Anpassung“ funded by Klima- und Energiefonds Österreich (2012–2014) (in English: Project 'From change to action, effective communication regarding climate change and adaptation').

3.2.3 Identifying and maintaining relevant knowledge and information

The identification of relevant adaptation knowledge and information that are, useful, credible and accessible is a challenge that every adaptation platform has to address. The overall utility of the platform itself is primarily determined by its success in delivering these, as well as its capability to capture the user's long-lasting interest. Because this is literally the content of the platform, it has to be screened and tailored to fit the purpose and needs of the users. Lessons learned from current practices include:

Selection of relevant knowledge

- Defining a framework for the selection of the content to be provided on the platform should also consider the appropriateness of the information for the intended support to users. This relates to the role of a platform – the extent that it simply provides data and tools versus it offers comprehensive knowledge support as a service function. Furthermore, this relates to its relationships with other platforms in terms of interoperability. For example, the Swiss platform is intended to provide a suit of essential administrative information rather than a comprehensive thematic information platform.
- It is fundamental that there are clear criteria that can guide the identification of relevant knowledge. A well-focused content eases the cooperation with users and ultimately with other climate change platforms. These criteria are very helpful to ensure over time that the quality of the information presented is reliable, relevant for the adaptation policy process and can be maintained with the available resources. Such clear criteria have been developed, e.g. for the C3-Alps platform and for Climate-ADAPT.
- It is advisable to consider that the content to be published should be selected in different ways according to the aim of the publication. This can vary from 'enabling informed decision-making' to 'having better visibility'. It should also be considered if a platform is being used to publish information according to an official reporting obligation, such as under the European Commission's Monitoring Mechanism Regulation (MMR) ⁽⁶⁰⁾ regulation or national reporting obligations.

- Beside content and the appropriateness of the information to be selected the user-friendliness of the information should also be part of the selection process (e.g. Ireland).
- Where platforms have sections with different purposes and are maintained by different institutions, it might be advisable to prepare additional or different selection criteria for the individual platform sections. For example, the criteria for the selection of case studies are different from the criteria applied for the selection of other adaptation information in the Climate-ADAPT database. Information highlighted within the Urban Adaptation support tool and updated by the Mayors Adapt consortium ⁽⁶¹⁾ is identified based on specific selection criteria (e.g. Climate-ADAPT).

Maintenance

- Regularly communicating the framework of an adaptation platform maintenance to users and providers ensures the transparency of the platform development. Furthermore, this raises awareness on and acceptance of the possibilities and limits of a platform. Based on the feedback by users and providers adjustments to the maintenance framework can be made if needed (e.g. planned for Climate-ADAPT).
- Developing quality assurance procedures with clear roles and responsibilities for the updating process is helpful to make the maintenance of a platform feasible (e.g. C3-Alps).

Due to the varying mandates of the platforms there are different models used for the maintenance process in the Member States, as such:

- Due to the limited resources of a platform deciding the updates internally with a small number of experts from the hosting organisation (e.g. Austria and Spain), involving funding organisations only in case of big changes (e.g. Austria) and doing the quality assurance on a case-by-case basis and relying on the quality of the information providers (e.g. Sweden).
- Proactively developing formal agreements and processes for the submission of content. One recognised dissemination outlet for the Environment Agency is the adaptation platform

⁽⁶⁰⁾ Commission Regulation (EU) No 601/2012 of 21 June 2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council MMR.

⁽⁶¹⁾ DG Climate Action service contract for Mayors Adapt.

(e.g. Ireland). The Environment Agency funded research is actively encouraged to engage with the platform (e.g. Ireland, Germany).

- Based on the submission of content by a platform supporting research project the selection of content has been made only based on these available research results. A regional level, user feedback-driven development of selection criteria is being envisaged (e.g. Poland).
 - Combining the content quality assurance by expert review and the quality assurance of the user-friendliness and scientific writing quality by two user groups involving climate scientists, adaptation specialists and sectoral experts (e.g. Ireland).
 - Setting up a review team for consultation and advice and sometimes also for decision-making. This includes discussing suggestions for improvements and making decisions about what to add or to change. Such teams, containing of main users, exist for example in the Netherlands.
 - Using different approaches for the maintenance of platforms with more than one contributor. One model used is the explicit waiving of QC
- by the platform managers leaving the QC of the information to the research institutions providing the information or the tools. It is about disclosing existing information and not so much about developing new, unique content (e. g. the Netherlands).
- Develop practical solutions to cope with the burden of maintenance including user-based maintenance models. For example, on the C3-Alps platform, an online metadata editor allows users to share their own resources and to enter new items into the inventory. Users can create their own customised thematic collections, write synthesis dossiers and submit these for publication.
 - In order to encourage users to become providers of information to a platform the barriers for the submission should be as low as possible. This includes user-friendly submission procedures and the transparency of the data processing (see Section 3.2 5). For example, on Climate-ADAPT, the selection criteria for the approval of submitted case studies as well as examples for the submission are published on the platform.

Platform examples follow below:

Presenting the most relevant knowledge for a broad target audience in Europe

Example: Climate-ADAPT

Background

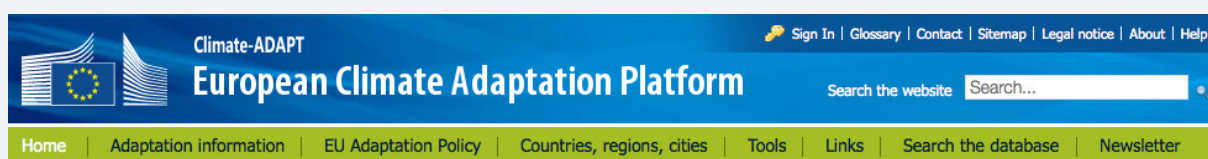
Launched in 2012, the European Climate Adaptation Platform of the European Commission, Climate-ADAPT, hosted by the EEA, aims to support decision-making on adaptation to climate change in Europe. Valued as a core element of the EU Adaptation Strategy, the platform aims to provide the best available information on adaptation at EU level and to share this knowledge base for all Member States. Supported by the ETC/CCA continuous efforts are placed to identify and publish the relevant knowledge and information. The information is available in English.

The challenge

A growing amount of information on policy approaches and guidance on different governance levels, research results and practical experiences on adaptation is available in Europe. It is difficult to balance the different requirements of the intended target audiences with the content to be provided on the platform. Since the level of preparedness to climate change varies amongst EEA Member States it remains an additional challenge to present the knowledge such that it supports decisions at different steps of the adaptation policy cycle such that it is easily understood and usable by a variety of users with different needs and capabilities. Furthermore, decision-makers on EU, national and local level need different levels of information.

The approach

The information to be published on Climate-ADAPT follows the guideline within the Climate-ADAPT work plan (2013 to 2018) developed based on interactions with DG Climate Action, Member States and other stakeholders via the European Environment Information and Observation Network (Eionet) and EEA Expert meetings⁽⁶²⁾. The EEA, alongside DG Climate Action, set out the main principles for the update and further development of the platform. These were translated into standard operating procedures (SOPs) by the EEA, supported by the ETC/CCA. The main principles are that the information on Climate-ADAPT should be relevant, reliable, timely and easy accessible. According to these principles, processes have been set up for the different sections of the platform. For example, Member States are directly involved in preparing for the platform their own profiles on their national adaptation process. Key EU research and Interreg projects have been involved in synthesis in a structured way their results for publication on the platform. Criteria have been developed and used to provide the relevant news and events on the platform that will keep decision-makers informed. For the Climate-ADAPT database specific selection criteria have been developed. A QA procedure has been set up in order to ensure that the database is relevant and reliable over time. The criteria are being constantly revised to ensure that the database content still matches the evolving needs of decision-makers. Specific criteria for the identification of relevant case studies have been developed by the EEA supported by the ETC/CCA and published on the platform⁽⁶³⁾. Beginning in 2015 information on a city network activity (Mayors Adapt) will be included defining and using specific QA criteria. The EEA, together with the ETC/CCA, is working towards the systematic identification and closing of gaps in the information presented. In order to allow adjustments of the content to be selected for Climate-ADAPT based on user feedback a contact functionality is being used on the platform (<http://climate-adapt.eea.europa.eu/contact>).



⁽⁶²⁾ See http://forum.eionet.europa.eu/nrc-climate-change-adaptation/library/workshops-meetings/2014-eionet-workshop-climate-change-impacts-vulnerability-and-adaptation/meeting-documents/eionet-workshop/040614_climateadapt_wp_summary.

⁽⁶³⁾ See http://climate-adapt.eea.europa.eu/en/c/document_library/get_file?uuid=593659fe-c206-4ee5-9bc2-f819d803a7ac&groupId=18.

Selecting the relevant content for a platform run by several partners in a consistent way

Example: Finland (<http://www.climateguide.fi>)

The background

The Climateguide.fi platform started in 2009 and became operational in 2011. The platform has been maintained as a joint project between the FMI, the Finnish Environment Institute (SYKE) and the Aalto University YTK Land Use Planning and Urban Studies Group and more recently has expanded to include the Natural Resources Institute Finland (LUKE); providing both regional- and national-level information. In 2014, a contextual link was established to the revision of the NAS, but the platform has not been directly connected to the Ministry of Forestry and Agriculture, leading the NAS process. The platform was launched to fulfil a perceived need to provide research based climate change information that would be applicable in particular at the municipal level. It consists not only of information on climate change and adaptation, but also on mitigation. On the platform there are articles on impacts, adaptation and mitigation ('climate change explained'), historical data and projections on rainfall and temperature as well as projections of impacts of climate change in two map tools as well as visualisations ('maps, graphs and data sets') and short articles on adaptation and mitigation with checklist questions to help to assist the climate work and decision-making in municipalities together with case studies ('Community response wizard'). It provides information in three languages (Finnish, Swedish and English). It has a sharing component.

The challenge

Since the different sections of the platform are being maintained on an instable funding basis and by more than one research institution it has to be ensured that the information to be presented on the platform is selected in a consistent way.

The approach

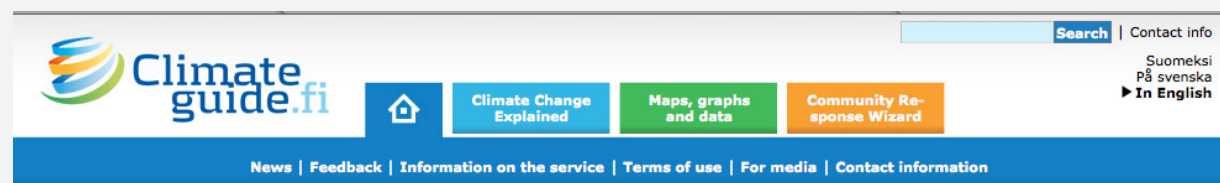
A two-step procedure is used to select the relevant and eligible content for the platform.

Firstly, every article of Climateguide.fi has a 'home'. The organisation responsible and flagged on the platform as 'author' is regularly checking the content and updating it, when necessary.

Currently, the regular scanning of pages and articles and the revision of content is performed differently in these organisations. Most of the updates have been made in separate projects with external funding, but also by own research projects as part of the dissemination of their results. Other updates consider information available by other sources. A process of internal review is in place, with each article being checked by at least two relevant experts in regard to content and language.

At the second step of the procedure, as much consistency as possible concerning content and style is being ensured, through the additional check conducted by the science editor of the platform. There are internal quality criteria for the translation of the articles into focused documents in understandable language. The procedure of the updating process is therefore challenging. Finding time and resources for updating is demanding due to the temporary nature of the funding.

The scientific editor of the platform plays a key role, because he is keeping the overview of the content and the use statistics as well as of the user feedback. Based on this he identifies the general updating needs. He prepares the basis for the regular evaluation of the platform carried out by the informal group of all institutions involved in the further development of the platform.



Selecting knowledge for a transnational climate adaptation platform

Example: the Baltic Sea Region adaptation platform 'Baltic Window' (<http://climate-adapt.eea.europa.eu/transnational-regions/baltic-sea/general>)

The background

To facilitate increased transnational cooperation and knowledge exchange on adaptation, the EU Strategy for the Baltic Sea Region (EUSBSR), Europe's first macro region, called for the development of a macro-regional approach to adaptation to climate change. In response 11 partner organisations from six different Baltic Sea countries with the EU financed Council of the Baltic Sea States (CBSS)-Baltic 21 Lighthouse and EUSBSR flagship project 'Baltadapt' (2011–2013) jointly developed a transnational climate change adaptation strategy for the Baltic Sea Region (BSR) in a unique integrated cross-sectoral project-to-policy process. Furthermore, the project formulated an accompanying action plan with recommended actions and proposed guidelines for climate change adaptation. Another outcome of the project was the climate adaptation platform 'Baltic Window'. As a one-stop-shop information portal compiling all available information on climate change adaptation in the BSR, it was developed as the central hub for decision-makers from the region. The 'Baltic Window' is integrated within the European adaptation platform 'Climate-ADAPT'. As a subsection under the heading 'Transnational regions', it addresses not only policymakers in the BSR but target groups all over the European Union.

The BSR subsection provides information about the region, climate impacts it has to face and sectoral vulnerabilities. The policy framework, crucial organisations and central documents such as the proposal for a BSR-wide climate change adaptation strategy and action plan are described. Examples of adaptation actions are given. In addition, integrated into the Climate-ADAPT database, the BSR subsection provides a searchable overview of projects dealing with climate change adaptation in the BSR and their relevant outputs. Since 2013, the strategy is in the hands of Member States and the leader of the EUSBSR Horizontal Action Sustainable Development CBSS-Baltic 21 (<http://www.cbss.org>), for further action at the policy level.

The challenge

Since the BSR adaptation platform has to support a transnational target audience in one working language (English) it is challenging to select and communicate, provide, maintain and update the relevant national data and knowledge on adaptation for presentation in the transnational context. In particular, it has been a challenge to decide on the scope of the information provided, especially the identification of joint adaptation challenges in a transnational setting. Furthermore, updating the platform after the end of the funded Baltadapt project lifetime, thus ensuring its viability, has been a challenge.

The approach

Since the BSR adaptation strategy is in the hands of the CBSS-Baltic 21 and the leader of the EUSBSR Horizontal Action 'Sustainable Development' ⁽⁶⁴⁾, CBSS advised by its Member States initiated a cooperation follow-up process — the 'Baltic Sea Region climate dialogue platform'. Here Member States from EU and non-EU countries meet twice a year in the format of round tables with pan-Baltic organisations and scientists to discuss concrete joint activities on adaptation. The BSR Climate Dialogue Platform aims to inform policy development, catalysing exchange of information, best practices and fostering synergies amongst existing initiatives. As part of the round-table discussions, the members of the dialogue platform provide advice, prioritise and provide input on the information to be shared on the Baltic Sea Region Section of the Climate-ADAPT database. They support the CBSS Secretariat in providing relevant knowledge and information for updates to the BSR website content. Selection criteria for the content are based on the recommendations and identified macro-regional challenges identified and outlined in the BSR strategy and action plan on adaptation. For example, included are cooperation on disaster risk management to cope with the increased risks due to climate change, transnational cooperation to ensure solidarity and funding of adaptation measures and adaptation measures in coastal areas and the sea itself.

The BSR Climate Dialogue Platform does not have its own financial resources and is not supported by any national or EU funding. Members are financing their own participation in the meetings. The CBSS Secretariat covers some of the costs for administration through technical assistance as part of the financial support for the EUSBSR Horizontal Action coordinators.



⁽⁶⁴⁾ After the latest revision of the EUSBSR Action Plan, the Horizontal Action will be renamed 'Horizontal Action Climate'.

3.2.4 Presenting relevant knowledge and information

When identifying and presenting relevant knowledge and information, there is the growing recognition that providing data and information is necessary, but in itself may not be sufficient to enable adaptation action. Some adaptation platforms provide supportive resources targeting key groups (e.g. businesses, public sector and other organisations) that go beyond information and assessments of climate change impacts, vulnerability and adaptation. These resources can include decision-support tools (e.g. stepwise approaches). Furthermore, they include also case studies and experiences of target groups, reflecting on success factors and barriers, for instance. Additional activities are necessary to engage stakeholders in using these remains a challenge (see Section 3.2.2).

In addition to identifying the information that appears on a platform, special care needs to be given to the way that this is presented with the aim of being fit-for-purpose, namely that it addresses the various audiences' needs.

- It is recognised that the performance of the platforms need to have certain attributes including having a logical, self-evident flow to the navigation, being rapidly accessible (regarding the speed of the site) and reliable (minimal outage time). These attributes of user-friendliness are in addition to those for the services comprising the platform which are expected to be credible, relevant and usable.
- It might be necessary to rewrite the information from research projects or technical reports, avoiding scientific terms and using alternative means of presenting the results, such as infographics (e.g. Poland).
- Long documents need to be presented as a shortened and more focused version, including the use of hierarchical presentations of the relevant information.
- Translation services may need to be considered in research project budgets so that the results can be presented on the platform in more than one language. Developing well-written guidance's to models or other technical information developed by research projects.

- For all data and information on climate change there are associated uncertainties. It is advisable to complement the data and information presented on a platform by additional guidance on the limits and possibilities of its use in adaptation planning and decision-making. For example, on Climate-ADAPT 'Uncertainty guidance' is published and will be updated soon.
- Providing products and services in the national, regional and local 'languages' is also important particularly for platforms that cover countries or regions with more than one spoken languages (Switzerland, Pyrenees, C3-Alps). This often impacts the speed of updating of information, but reaching the intended audience is also seen as a key criterion.

There are different models for presenting information.

- For example, Denmark has specific dedicated sections for different types of users (citizens, municipalities and businesses). Beside tailor-made platform sections there are also approaches presenting individual tools for different types of users. For example, Climate-ADAPT offers an Urban Adaptation support tool for city experts beside an Adaptation Support Tool (AST), offered for all types of users.
- Another example is provided by the German platform on which information is presented using a hierarchical structure. On the landing page information is presented using a simple non-technical language. If users want more information they can access further subpages on which the language becomes more specific and technical. In addition, to the hierarchical structure there are also two other ways of entering the website: the user can choose between either 'topics' or by the 'target group' they belong to.
- There are other examples that support users with different adaptation knowledge. For example, France supports different kind of visitors from specialist to beginners, Climate-ADAPT uses sections like 'getting started' within tools, such as the AST and provides glossary to support users with limited adaptation knowledge.

Platform examples follow below:

Tailor-made entry points into adaptation knowledge for main target groups

Example: Denmark (<http://www.klimatilpasning.dk>)

Background

The portal, developed within the Danish NAS process and launched in 2009, is owned by the Danish Ministry for the Environment. It is being supported by all ministries involved in adaptation policy. Since municipalities in Denmark are obliged to develop action plans on adaptation the aim of the platform is to guide local and regional planners through this process of adaptation planning. Accordingly, the clear main target audience of the platform are municipalities, but businesses and citizens should be able to find support as well.

The challenge

In order to ensure the relevance and usefulness of the information for the target group, the knowledge should be presented so that municipalities can understand the fundamentals of climate change, and will be able to integrate its consequences into their decision-making.

The approach

In order to support the needs of the municipalities as the main and citizens and businesses as secondary target groups the homepage of the portal has been structured using tailor-made entry points and subpages for the three target groups. Within the specific subpages municipalities find targeted information, consisting of a knowledge base, a case study database with 34 cases, a newsletter and 4 different tools. Amongst the tools are a web GIS with interactive maps, tools like coastal planner, 'flooding from sea tool', local climate impact planner, climate meter, resilience houses tool, a precipitation and cloud burst management as well as municipal plans and strategies. Due to the need to enable an effective use of the facts, scenarios, tools and guidance the scientific and practical basis as well as research results are being presented in a very clear and structured way. 55 web pages are linked to the portal to allow an easy access to related information.



Tailoring information to enhance relevance and quality

Example: Poland (klimada.mos.gov.pl/en/Poland)

Background

KLIMADA, developed along with the Ministry of the Environment KLIMADA project 'Development and implementation of a strategic adaptation plan for the sectors and areas vulnerable to climate change'. Launched in 2013, it is maintained and all changes are funded by the Ministry of the Environment. Before KLIMADA, information about climate change and about NAS 2020 were available as a tab on the Ministry of the Environment web page. The main driver for establishing the Polish National Adaptation Platform was the need to develop a tool to support the implementation of the Polish NAS. KLIMADA supports the NAS process, namely providing an official one-stop-shop for adaptation in Poland. There were already several other 'non-official' websites operating in Poland. The target audience for KLIMADA is not the general public, but players from local, regional and national governments.

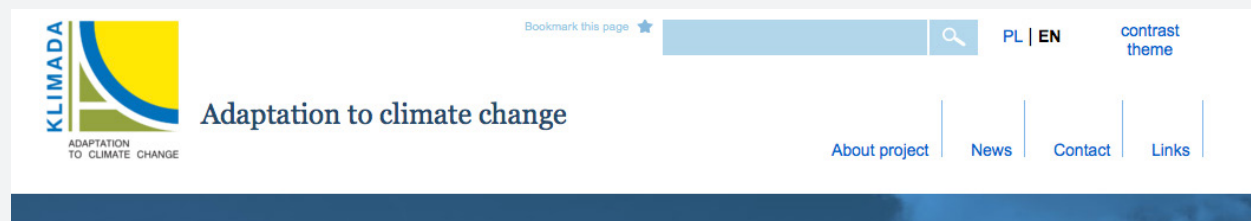
The challenge

The biggest challenge for KLIMADA when presenting new information is to present that information in a user-friendly way. New information for the platform sometimes results from scientific projects. The language and format in which it is presented is not clear to the target audience of the platform.

The approach

When preparing the information for presentation on KLIMADA, attempts are made to make it more user-friendly. For example, technical articles are rewritten in a less technical language to make them more understandable for the intended users. In addition, infographics, graphs, tables and pictures are added where they can better present some of the information included.

Future plans are to launch targeted subsites related to upcoming programmes. For example, one such subsite being considered is related to the Polish presidency in Council of the Baltic Sea States (CBBS) ⁽⁶⁵⁾ (2015–2016). It will provide information on current and future climate change and related impacts in the coastal zone and the Polish Baltic Sea ecosystems. Another potential subsite, based on a project initiated by the Polish Ministry of the Environment, is related to supporting major cities in Poland in developing adaptation strategies and plans. These strategies should comprise proposals of measures to improve resilience against climate change.



⁽⁶⁵⁾ See <http://www.cbss.org>.

Improving the use of climate change and adaptation information through its multilingual presentation

Example of the Pyrenees (<http://opcc-ctp.org>)

Background

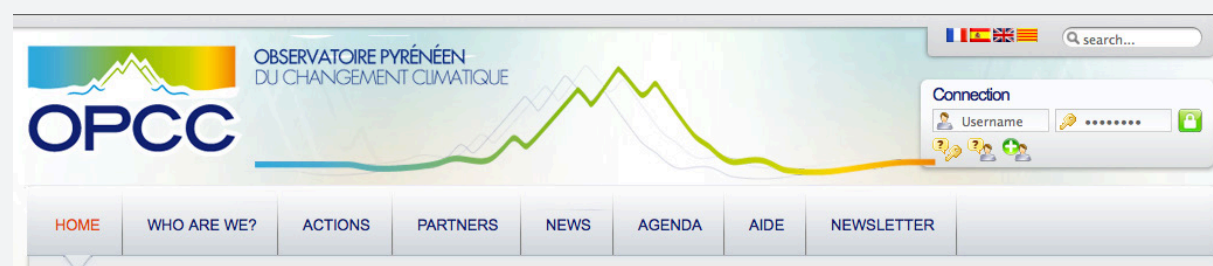
The Pyrenees Climate Change Observatory platform was launched in 2010. It was developed as part of the Observatory's actions programme (2009–2011), as a strategic initiative of the Working Community of the Pyrenees to tackle climate change at the Pyrenean transnational biogeographic region. The platform, developed based on project funding, later supported by the eight territories of the Pyrenees, now based mainly by EU funds, aims to monitor climate change in the region. Furthermore it supports to build a better understanding of it in attempts to increase resilience and to raise awareness and capacity-building of various stakeholders. To achieve these aims, the platform serves as a decision-making support tool for climate change related issues. It provides accessible and relevant information and guidelines on climate change and adaptation to a broad target audience. This is local authorities' bodies, academic and scientific community, managers and developers and general interested public. Amongst others the platform provides information about climate change in the Pyrenees, namely the lines of OPCC actions, impacts and vulnerability, observations of climate change and adaptation; information on the OPCC projects. Furthermore, it presents a number of tools including a database of adaptation measures, a catalogue with studies and articles related to climate change in the Pyrenees and beyond, transboundary geographical information, a directory of climate change related stakeholders and tools for communication, such as a newsletter.

The challenge

Ensuring that the language used to present information on a climate adaptation platform is not too technical or complex for its users, is already a challenge. In addition, the language in which information is written and presented is often a challenge with which platform managers are often confronted. Providing customised products and services in the national, regional and local 'languages' is demanding but also of utmost importance. This is particularly the case in countries where more than one native language exists or in the case of platforms that cover a region that goes beyond national boundaries.

The approach

OPCC platform covers the Pyrenean transnational biogeographic region and includes multiple countries. Hence, the language in which the information is presented is critical and determines in many cases, if stakeholders in different countries can use it to support their decisions. To overcome this challenge, OPCC platform has given attention at customising its services, not only in the context of providing information and data that are specific to the Pyrenean region, but also by ensuring that the provided information is available in all relevant languages, namely in Catalan, Spanish, French and English. Multilingual presentation of information and its relevant updates are not easy tasks by themselves. Ensuring also that there is enough time and resources for performing them, especially in cases where funding is not secured increases further this challenge.



3.2.5 Design, technical and structural elements of a platform

Since adaptation platform often include very complex information, it is important to ensure that the valuable content is easily accessible and supported by the structure of the platform. Reflections and lessons learned about the choice of the Content Management System (CMS) and the design of the functionalities relate mainly to create a platform easy to manage and maintain as well as to make the layout and structure of the pages as user-friendly as possible. These include recommendations both for the system architecture and for the design of the platform layout.

Design of the platform

- organise the content in the best possible way, considering the platform layout standards of the hosting organisation (e.g. Switzerland the United Kingdom);
- make the platform layout as straightforward as possible;
- avoid having many separate windows on the screen;
- use short and precise interaction pathways ('3 clicks');
 - provide an option for downloading main documents (preserving knowledge);
- provide an option for printouts of search results;
- since adaptation platforms contain very complex information the pages should be designed in a way that users are encouraged to further explore the platform. This can be effected, for example, by offering contextual information for all features on the platform. This encourages users to further navigate by anticipating what they will see as a result of the next navigation step.

Interactive features

Many platforms have already, or are on the way to include interactive features to improve the access of the information presented in the knowledge base parts of the platforms and to support users' needs in the adaptation policy process. The establishment of interactive features is often driven by the need to assist regional and local users in their practical needs to assess and use the information. Lessons learned include:

- Interactive features should be added ensuring that the necessary resources for moderating the interactive processes are available over time. For example, interactive forum functionalities for cities, committed to the Mayors Adapt Initiative, will be added to Climate-ADAPT in 2015. These will be maintained by the Mayors Adapt Initiative project consortium ⁽⁶⁶⁾.
- Interactive maps are a well-established means to easy access complex information. For example, a map viewer functionality is being used to find case studies by location and sector (e.g. Climate-ADAPT).
- Encouraging providers to submit information to a platform should be supported by the design of the functionalities. It means that the functionalities for providing information to a platform should be prepared in a transparent way (see also Sections 3.2.2 and 3.2.3). For example, dashboard functionalities can be used in a way that providers can trace the status of the submitted information until the publication.

CMS

- The workflows, the respective roles and permission schemes for internal and external providers of a platform should be designed in the most practical and sustainable way to ensure feasible platform maintenance (e.g. Climate-ADAPT).

Platform examples follow below:

⁽⁶⁶⁾ DG Climate Action service contract 340202/2014/691839/SER/CLIMA.C.3. Implementation of the urban adaptation initiative within the framework of the Covenant of Mayors.

Enhancing the use of a nation platform by offering an interactive knowledge-sharing for local users

Example France (<http://www.developpement-durable.gouv.fr/-Impacts-et-adaptation-ONERC-.html>)

Background

The French national adaptation platform (<http://www.developpement-durable.gouv.fr/-Impacts-et-adaptation-ONERC-.html>) was launched in 2006 and further improved in 2009 as a support for the development of the French National Plan of Adaptation to Climate Change (NAPCC). It is hosted by and embedded into the website of the French Ministry of Ecology, Sustainable development and Energy (MEDDE), which is in charge of adaptation. The content of the platform is being developed by the Observatoire national sur les effets du réchauffement climatique, ONERC (National Observatory on the effects of Climate Change) which is coordinating the adaptation activities in France since 2001. In order to develop a strategic framework for adaptation the observatory works as a network with scientific bodies to develop and disseminate information on and recommendations for coping with the risks and effects on climate change and extreme weather climate events in mainland France and oversea territories.

The challenge

The aim of the platform is not only to communicate adaptation information to the government, to the public, to the local authorities and to overseas. It should furthermore offer tools, indicators, reports and documents to help policymakers to deal with climate change challenges and to build their own adaptation strategies.

The approach

In order to achieve the national adaptation platform goals two different approaches have been combined.

Firstly, the national platform provides the broad knowledge base for climate change adaptation in France, including methodological guideline, impacts examples, climate projection assessment, thematic reports, press releases, adaptation policy documents such as the NAPCC and the monitoring of the NAPCC. Furthermore, it includes links to relevant other information sources like IPCC as well as to further tools like the projections tools of Drias-climat. The homepage has been updated in 2011 in order to reach different kinds of users from adaptation specialists to beginners. It allows easy access to different data sets and indicators on climate change, impacts and vulnerabilities by a thematic approach. These are presented via links and visualisation tools. Technical data (bibliography, research projects and indicators) are gathered in the database part of the website. This platform plays makes also a major contribution to the valorisation of the different IPCC volumes.

Secondly there is the additional separate interactive platform Wiklimat (<http://wiklimat.developpement-durable.gouv.fr>), launched in 2013 as the 'local window' to the national platform. It is also being hosted by MEDDE and can be accessed from the national platform under the tab 'local activities'. It has been developed by ONERC, as one of the research measures of the French NAP to Climate Change (PNACC 2011–2015). It contains subnational climate change information as well as concrete local adaptation activities, e.g. first coastal preparations of relocation action. It is a wiki-based knowledge-sharing platform for climate change adaptation stakeholders, moderated by ONERC. It has been created as a space where all interested users can publish local examples of adaptation actions and create discussions based on a personal account. Each record is accessible through three items: 'Challenges', 'environment' and 'territories'. The 'knowledge/actors' category makes it possible to easily identify the main bodies involved in adaptation. Each record is also accessible via GIS-based visualisations thanks to the Géoportail (platform of geo-localisation) from the French National Institute of Geographic and Forest Information (IGN). The Wiklimat inputs come from public establishments or decentralised state services, thematic PNACC pilots, communities, offices of study and enterprises, NGOs. This information is available only in French.

The screenshot shows the top navigation bar of the website with the following menu items: ÉNERGIE, AIR ET CLIMAT; EAU ET BIODIVERSITÉ; PRÉVENTION DES RISQUES; DÉVELOPPEMENT DURABLE; TRANSPORTS; BÂTIMENT ET VILLE DURABLES; MER ET LITTORAL. Below the navigation bar is a breadcrumb trail: Accueil du site > Énergie, Air et Climat > Effet de serre et changement climatique > Impacts et adaptation (ONERC). The main header area features a blue bar with the text 'ÉNERGIE, AIR ET CLIMAT' and a logo for 'Impacts et adaptation (ONERC)'.

Dedicated design to serve expert dialogue

Example: Hungary (<http://klimadialogus.mfgi.hu>)

Background

Carried out by the Geological and Geophysical Institute of Hungary, which is the background institute of the Ministry of National Development, the website has been launched in June 2013. It is being hosted by the National Adaptation Centre, which belongs to the Geological and Geophysical Institute of Hungary (MFGI). This institute was in charge of the 2013 revision of the first National Climate Change Strategy. Embedded into the website of the institute, the Klimadialogus platform has been created to share the information and knowledge on likely impacts of climate change, prevention measures, and preparedness and adaptation measures. Its aim is to act as a network for consultation on strategic, professional issues, problems related to climate change (e.g. sharing background information and form opinions about position papers, strategies, draft laws, concepts and studies). Beside the adaptation topic the platform also covers the topics on mitigation and awareness-raising.

The challenge

Since the platform should be a place for constructive debates about climate change adaptation, possible mitigation practices and awareness-raising it is necessary to create a user-friendly layout and structure as well as user-friendly functionalities. Since it is embedded in the website of the Geological and Geophysical Institute (MFGI), the platform standards of the institute's homepage have to be considered as a standard.

The approach

The layout and structure as well as most platform functionalities have been designed to work as a means for building a network of climate change professionals and stakeholders supporting the adaptation policy process. Due to the main focus on the consultation process, the basic feature of the platform is personal registration and a visualisation of the profiles of the participating experts. The most important network feature is three subpages dedicated to the main topics (adaptation, mitigation and awareness-raising) known as the 'Forum', where experts can comment on documents. The network features are managed by a moderator. Beside these network management functionalities, the knowledge base of the policy process is presented on the platform by linking to the National Adaptation Centre and its resources (subpages of research project descriptions, links to partner institutions, a news/events section and one tool (the National Adaptation Geo-Information System)).



Offering adaptation knowledge while coping with limiting technical platform standards

Example: Switzerland (<http://www.bafu.admin.ch/klima/13877/14401/index.html?lang=de>)

Background

The platform was based on the Swiss Federal Council Mandate linked to the set-up of a NAS and was launched in March 2012. It has been developed as a part of the Federal Office for the Environment (FOEN website). In order to support the decision-making on federal, subnational (Canton) and municipal level, the platform aims to provide the most relevant information on climate change adaptation in Switzerland, to raise awareness amongst the main target audience and to empower the stakeholders to take adaptation action.

The challenge

Due to the technical limitations, posed by the web CMS of the Swiss Confederation for all Federal offices, the platform managers have to support their users while not being as comprehensive as national adaptation platforms in other countries. An additional challenge is due to another need of the publication regulations of the Swiss Federation: The content has to be released in three national languages (German, French and Italian). This has to be considered while publishing and updating the content.

The approach

The platform is focused on presenting the most relevant content: the NAS, adaptation in the Cantons, adaptation in the sectors, federal funding programme as well as responsibilities, publications and news. Information in the platform section 'adaptation in the sectors', is, as far as possible, presented with three levels of information: 1) short descriptions, 2) URLs, and 3) factsheets. Linking the different sections of the platform to other relevant sources of information is a successful approach for coping with the limited possibilities of platform flexibility. In order to publish the information in three languages, the platform content is presented in an identical manner for each language. Future plans include the integration of the platform into a comprehensive climate platform together with the Met Office and other federal offices, in the context of establishing the Swiss National Centre for Climate Services.

The screenshot shows the header and navigation menu of the Swiss adaptation platform website. The header includes the following elements:

- Breadcrumbs: Bundesverwaltung > UVEK > BAFU
- Language selection: Kontakt | DE (selected) | FR | IT | EN
- Logo and name: Schweizerische Eidgenossenschaft / Confédération suisse / Confederazione Svizzera / Confederaziun svizra
- Department name: Bundesamt für Umwelt BAFU
- Current theme: Thema Anpassung an den Klimawandel
- Search bar: A search input field with a magnifying glass icon and a dropdown menu below it containing "-- Bitte wählen --".

The navigation menu below the header consists of several tabs:

- Themen (highlighted in red)
- Umweltzustand
- Dienstleistungen
- Dokumentation
- Das BAFU

3.2.6 *Linking across sectors, scales and platforms*

Establishing links across sectors, scales and platforms and promoting a two-way sharing and exchange of knowledge is important for providing relevant and high-quality information. Links and exchange should be enabled between users, developers, researchers, other platforms, projects, policy fields like DRR and governance levels (from local to international). These are aspects that have been highlighted by multiple platform owners and developers.

Key point to consider include the following.

- Improving exchange, coordination and cooperation between platform managers on national, transnational and EU level. This exchanging and sharing is important to make best use of synergies, learn from each other and to avoid duplication. It may also reduce the administrative and financial burden. These may include streamlining visuals across platforms, transfer of case studies and working towards common 'regions' or 'sectors' pages.
- Enhancing the emerging experience of collaboration and linking web-based adaptation platforms with climate services and with DRR platforms across Europe. The need to strengthen these for the mutual benefit of the platforms and users is being recognised, including within Horizon 2020 and within the Climate Knowledge Brokers Group ⁽⁶⁷⁾.
- Ensuring linkages with new platforms that are working in relevant policy fields. This is particularly significant for time-restricted project-based platforms.

Promoting cooperation and networking amongst stakeholders responsible for adaptation policy and practice. This can be achieved through workshops, conferences, expert dialogues and cooperation exchanges on climate adaptation. It includes setting up of interactions amongst communities of users and the use of their websites and other media to

demonstrate adaptation in action. Next steps could include further exchange of experiences and efforts to better understand complementarity, e.g. through EEA Eionet workshops and collaboration between the EEA and countries (more frequent interactions, through webinars, for instance).

Models used for linking across sectors, scales and platforms are:

- Establishing long-term links between science, policy and practice including sector authorities (e.g. the Netherlands and Germany).
- Establishing links with different organisations, institutes and divisions through different processes and relevant projects with the aim of ensuring a good exchange of information. For example, in Finland, the adaptation platform (Climateguide.fi) focuses on providing information on the changing climate with a separate platform for climate services. That focuses more on the monitoring of climate change and communication on present climate variability. The DRR platform focuses on real-time services, e.g. warnings. A regular exchange on the platform takes place between the governments steering group for climate information. This is a group consisting of information officers from all relevant ministries and the hosts of the platforms.
- In some cases there are even closer links where there is no separation between adaptation and DRR. For example, in the Netherlands they are covered in the same portal with information on evacuation, early warning, real-time visualisation and floods. In addition the same organisations are responsible for both climate change adaptation and DRR namely Deltares and the Ministry of Water Safety.
- Links between platforms are also being actively used to promote adaptation activities on other platforms (e.g. in the United Kingdom).

Platform examples follow below:

⁽⁶⁷⁾ See <http://www.climateknowledgebrokers.net>.

Platforms providing cross-cutting information

Example: Climate Adaptation Platform for the Alps (CAPA) (<http://www.c3alps.eu/kip>)

Background

The Climate Adaptation Platform for the Alps (CAPA) is a project-based adaptation platform developed by the C3-Alps project, which has been coordinated by the Environment Agency Austria. Its development was co-funded by the Alpine Space programme, through the European Regional Development Fund-European Territorial Cooperation 2007–2013. The planning of the platform started in 2011, followed by the conceptualisation phase in 2012 and its technical implementation in 2013. The platform has been online and fully operational since October 2014, while advancements and additional developments are being implemented regularly. The guiding principles of the platform were: to collect knowledge relevant for the Alps; to compare, analyse and synthesise the knowledge to assure it is complete and practically sound; to organise and prepare the knowledge to make it useful and practical; to provide target group-oriented information products with an easy access via the web portal; and to provide smart search options. A core group of partners (Environment Agency Austria, European Academy Bolzano and Paris-Lodron University Salzburg) is responsible for the conceptual and technical development of the platform, while all C3-Alps partners and external experts contributed to content development. Original resources on the platform are provided in multiple languages (DE, FR, IT, SI and EN).

The challenge

One of the main challenges when managing a platform is to ensure the provision of accessible, relevant and usable information that meet the needs of the key users. This challenge augments when looking at large geographical areas that cross national borders, as the information that is usually available is highly context or country specific. In such cases, there is a great need to cut across scales, sectors and areas and to identify and present information that refers to larger geographic scopes, specific landscape elements and sectors.


The approach

The main drivers of the C3-Alps project were related to the need to capitalise and make available over the long term the increasing quantity of knowledge about the Alpine region that was produced by European and national funded programmes. Some of the identified gaps addressed by the platform include the coverage of transnational Alpine Space cooperation area (i.e. all Alpine countries and their territories); the coverage of specific bio-geophysical elements of the Alps that are not covered by national and European platforms; the provision of information about items relevant from transnational to municipality scale; and the language awareness by providing access to original information in multiple native languages.

The Climate Adaptation Knowledge Platform for the Alps covers all types of knowledge products (studies, reports, tools, interactive online resources etc.) and gives direct access to the original resources. The contents are comprehensive in thematic scope. They are organised and searchable by inter alia, adaptation sectors, adaptation knowledge domains, process stages of the adaptation cycle and target groups. The knowledge domains are: future climate (scenarios, projections); climate impacts, vulnerabilities and risks; adaptation policies; adaptation options; tools and methods and adaptation in practice. Selection of items, organisation of the inventory and design of search functionalities put particular emphasis on cross-cutting aspects. The platform is planned to be inter-operational opening the door to further linkages. These could include DRR and climate services if they are developed for the region.

Climate Adaptation Platform for the Alps

 Collections ▾

 Inventory ▾

 Maps

 Help

 Sign in

Enhancing the use and transfer of knowledge by establishing links between platforms

Example: AdapteCCa Spain (<http://www.adaptecca.es>)

Background

The planning of the Spanish adaptation platform, AdapteCCa, started in 2010. This was an initiative of the Spanish Office for Climate Change, the Biodiversity Foundation and the units in charge of the adaptation to climate change in the Autonomous Communities, which jointly identified the need for this tool, and was followed by a mandate. The platform became fully operational in 2013. Its development followed a wide participatory process and it was in full alignment with the objectives and structure of the National Adaptation Framework. The ultimate aim of the platform is to consolidate the governance of NAP to Climate Change (PNACC), to provide a tool to exchange information knowledge and experience on impacts, vulnerability and adaptation to climate change, as well as to enhance multidirectional communication and coordination amongst administrations and key stakeholders both public and private. In its current version, AdapteCCa provides information on climate change impacts and adaptation for many sectors, geographical areas and ecological systems that have been identified as vulnerable in Spain. Through this it aims to integrate adaptation in planning and management. Information on the platform is available in Spanish and English.

The challenge

Taking into account the limited resources available for producing new knowledge and tools, the platform management valued it as important to enhance the transfer of information and expertise in order to make the best possible use of existing knowledge and to avoid the duplication of work. To achieve this, there is a need to identify and to establish ways that would enhance the synergistic links between different platforms and benefit from their individual strengths.

The approach

Bidirectional flux of information is an efficient way to improve learning and to minimise duplication of work when producing new knowledge and tools. For this purpose considerable efforts have been undertaken to establish links between AdapteCCa and other platforms of different scales (e.g. EU, national, regional), sectors (e.g. Observatory of health and climate change) and areas (e.g. climate services).

Strong links have been already developed between AdapteCCa and regional level platforms. These aim primarily to establish a group work space and complement each platform through sharing of information and offering of documents and tools. Links with European level have also been prominently highlighted. Consolidating the coordination with Climate-ADAPT has been so far one of the main focuses of the work undertaken in AdapteCCa. This is expected to continue further in the future. Future plans may focus on creating a specific protocol or standards for this purpose. Specific plans have been designed with reference to the case studies, based on a proposal to link the case studies that appear on the Climate-ADAPT platform with those of AdapteCCa.

Developing links with other sectors (e.g. climate services) is also seen of great importance. In its current version, users of AdapteCCa are given the opportunity to link to the AEMET platform⁽⁶⁸⁾ where they can search and interact with the climate scenarios. DRR is also another relevant area. Although there are no links at the moment, this element is expected to improve in the future.



⁽⁶⁸⁾ AEMET is the platform responsible for the climate services in Spain and in charge of coordinating the climate scenario development.

Establishing dialogue between platforms and sectors to provide a complete set of information for adaptation issues

Example: Sweden (<http://www.klimatanpassning.se>)

Background

The Swedish Portal for Climate Change Adaptation is hosted by the National Knowledge Centre for Climate Change Adaptation, which is based at the Swedish Meteorological and Hydrological Institute. After a couple of years of running on a voluntary basis, in 2012 the Knowledge Centre was set up and provided the opportunity to restart the portal. The platform contains information about climate change and its effects, risk management, short and long-term adaptation and adaptation planning. Furthermore, it contains examples of how climate change adaptation can be integrated into the daily work, and latest news on adaptation, internationally and in Sweden. Information is available in Swedish and part of this is also translated in English. Its main objectives are to support society and citizens to prepare for the consequences of climate change, to increase interest and understanding of adaptation amongst general public, to serve as the national focal point for information about adaptation, and to give an overview and links to information on other websites. Currently, it is supported by the cooperation between Swedish governmental agencies, municipalities and county councils.

The challenge

Sharing of knowledge and information amongst different platforms and/or sectors has the potential to provide a thorough overview of the adaptation-related issues, even when the information produced specifically for/by an individual platform is limited. To achieve this aim, efforts of platform managers should focus on establishing a framework to ensure ongoing dialogue and communication between key players, as well as to incentivise and support their cooperation.

The approach

The Swedish Portal for Climate Change Adaptation contains only little unique information. Yet, it aims to provide an overview of the relevant adaptation issues. In attempts to achieve this aim, it has established strong links to other European platforms, as well as between science, policy and practice. In its current version, it is supported by links to further information, sites, databases and applications. The web portal is dependent on the contributions of the partner authorities, but also from regional and local stakeholders. The portal is already closely connected to the Swedish Meteorological Service platform (smhi.se), ensuring a close relationship with the national climate services. Furthermore, it has achieved a good cooperation with the National Disaster Risk Reduction platform, which is hosted by the Civil Contingency Agency. At regular intervals a dialogue is held between the agencies to gradually develop the platform. There is also a discussion between the Nordic portals and EU portals.



Supporting adaptation by linking up through sectors and other platforms

Example: United Kingdom

Background

The provision of climate adaptation services within the United Kingdom has undergone a number of changes reflecting the development of the adaptation agenda and its delivery within the United Kingdom, the different levels of responsibility for adaptation and the British government's policy on providing government information and services. The UK Climate Impacts Programme (UKCIP) was funded by government between 1997 and 2012 and launched its website in 2000⁽⁶⁹⁾. Since April 2012, the Environment Agency has provided the British government's Climate Ready Support Service to advise and support the public sector, businesses and other organisations to enable them to adapt to the changing climate. From 2013 onwards, adaptation (transactional and policy related) information and services have been available on the British government's website (<http://www.gov.uk>) with Defra⁽⁷⁰⁾ providing updates. The Environment Agency does not host its own adaptation platform, but disseminates information via gov.uk and partner organisations such as Climate UK and Climate Local.

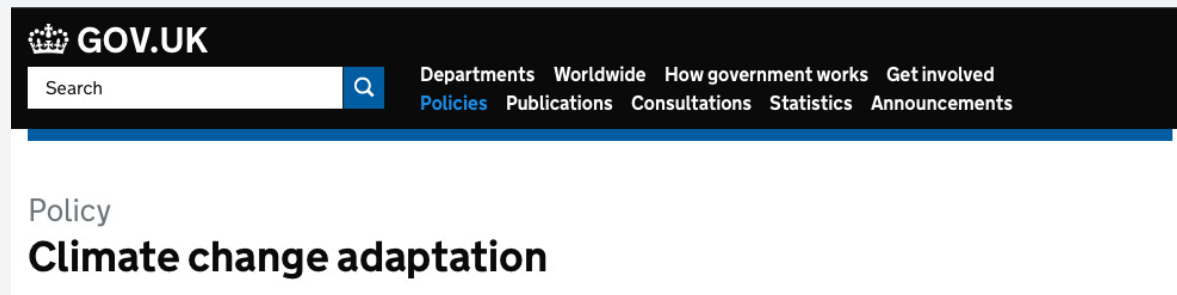
The challenge

One of the biggest challenges for the United Kingdom is continuing to support adaptation action across the United Kingdom, including the provision of guidance where appropriate and other non-transactional information and services.

The approach

The approach within the United Kingdom is supporting action through working with different sectors, partnerships and through other adaptation platforms operating at different levels. GOV.UK (developed, managed and funded by the British government) provides the latest information on government action and policy on adapting to climate change within the United Kingdom. It sets out the legal requirements under the Climate Change Act (2008) for the five-yearly Climate Risk Assessment, National Adaptation Programme and the adaptation reporting power. It also includes links to key partner organisations.

The Climate Ready Support Service⁽⁷¹⁾ delivered by the Environment Agency provides tailored sector support to help the public sector and businesses in England adapt to climate change. It delivers online tools and guidance through a range of partner websites with local audiences, including Climate United Kingdom⁽⁷²⁾ and Climate Local⁽⁷³⁾. Adaptation information and knowledge are also disseminated in each of Scotland⁽⁷⁴⁾, Northern Ireland⁽⁷⁵⁾ and Wales⁽⁷⁶⁾.



⁽⁶⁹⁾ UKCIP and its adaptation platform (see <http://www.ukcip.org.uk>) still exist but its platform is now funded by UKCIP and the Environmental Change Institute, Oxford University.

⁽⁷⁰⁾ Department for Environment, Food and Rural Affairs.

⁽⁷¹⁾ The Climate Ready Support Service and its delivery through partner organisations is funded by Defra on behalf of the UK Government.

⁽⁷²⁾ See <http://climateuk.net>.

⁽⁷³⁾ See <http://www.local.gov.uk/climate-local>.

⁽⁷⁴⁾ See <http://www.adaptationscotland.org.uk/1/1/0/Home.aspx>; funded by the Scottish Government and delivered by Sniffer (knowledge brokers for a resilient Scotland).

⁽⁷⁵⁾ See <http://www.climate-northernireland.org.uk>; funded by the Department of the Environment in Northern Ireland.

⁽⁷⁶⁾ See <http://theccw.org.uk>; funded by the Welsh Government.

3.2.7 Monitoring, evaluating and improving a platform

A platform needs to be assessed with regards to multiple aspects, such as the relevance of the information presented for supporting the policy process, how well it functions (the speed and reliability (minimal outage time) of the site) as well as the appropriateness of the maintenance process. It should not only be assessed, whether it meets the current purpose, but also how it could meet user needs in the near future. Platforms can be adjusted to changing users' needs via the presentation of additional knowledge or changes of platform functionality. Further development is being undertaken due to new requests by adaptation decision-makers and based on new or improved adaptation knowledge and experience. It furthermore determined by improved IT technologies as well as by the availability of the financial resources.

Some countries have already carried out internal platform evaluations, such as Germany, Finland and Sweden. Others recognise that they will need to evaluate their platforms and have it planned for the future, but have not yet started the process (e.g. Poland are planning their monitoring and evaluation (M&E) scheme for 2015. An evaluation of Climate-ADAPT is planned within the evaluation of the EU Adaptation Strategy in 2017. No external platform evaluations have been planned or carried out (see also Section 2.4).

Adjustments may be made before a platform goes live or as part of a periodic review process. There are various things to consider about the monitoring and evaluating and improving platforms.

Monitoring

Lessons learned regarding the monitoring of a platform's use are the following:

Feedback from users is a critical component of monitoring and evaluating the platform and its content. The most common approach is the collection and interpretation of web statistics. Since interpretation of the statistics does not make it possible to base solid recommendations for the platform development in most cases, different forms of the collection of individual user feedback are being used (see also Section 3.2.2). Examples of means of securing users' views and feedback include:

- use of online surveys related to specific content, formats and functionality (e.g. Ireland);
- providing a 'contact button' that provides users with opportunities to provide direct feedback, ask for help or support, send comments, describe their

expectations and opinions, or become involved in a platform network (e.g. the Netherlands and Poland);

- an open Facebook group has been set up which provides news and opportunities for users to comment on postings (e.g. Finland);
- collecting feedback during meetings, conferences and events, and by using bilateral contacts (e.g. Climate-ADAPT) or asking users via email or newsletters (e.g. Austria, Germany);
- regularly check the user-friendliness of the information and knowledge presented. User-friendliness influences if and how users will perceive, and the extent to which they will access and utilise, the information and knowledge presented on a platform;
- check the effectiveness of marketing strategies. The effectiveness of the marketing strategy, developed for the Irish platform, will be assessed through web analytics, e.g. number of new and returning visitors.

Evaluation

Evaluating the success of a platform requires referring to the aim or the mandate of a platform which can change over time. The results of the evaluation help to make informed decisions about the possible adjustments of a platform.

There are different ways of evaluating how the platform is performing and generally a multi-stranded approach has been adopted.

- For example, in Sweden this has included: Feedback through the networking authorities, visiting numbers checked every half year, yearly evaluation of quality and content through a survey and a QA/QC process applied on a case-by-case basis with the responsibility on those providing the information.
- Other evaluation models being used are evaluations supported by consultants, including analyses of the state of the art, the platform content and functionalities as well as the development of generic user types ('personas') to regularly check the fulfilment of user needs (e.g. Germany).
- Use the criteria developed for the QA/QC process of the platform maintenance as a basis for the evaluation of the platform.
- In some cases the platforms role and purpose are clear from the outset. This makes it easier to evaluate. For example, for the C3-Alps platform,

questions underlying the evaluation have already been laid down at the development of the platform. These are: What knowledge has been produced? Is that knowledge relevant and complete? Is it able to support a complete adaptation process? Is something missing? Is this knowledge useful? Is it able to match the target group requirements? How to improve the efficacy of that knowledge?

- In Climate-ADAPT a systematic analysis of the platform content was started to identify possible gaps and to ensure a focused updating process.

Further development

In order to find the best solution for further developments it is recommended to use the results of evaluations carried out regularly. Using appropriate processes to develop the decisions on the further development and to communicate them can also be a way to better promote the use of the platform in adaptation policy, planning and implementation.

- The adopted processes are dependent on the resources available to establish and maintain such processes.

- In many cases, platform content and functionality is continuously being reviewed and improved. This can be both as a result of user feedback and through the creation of new knowledge and information. Sweden, for instance, is currently updating the portal. This includes a redesign of the section on tools, the further development of the bank of adaptation examples to cover additional geographical and topical areas, and the collection of more information about the effects of climate change on society from partner authorities, especially those that are new to the work. Furthermore, new and improved calendar functions for adaptation-related events will be developed.
- Creating and maintaining engagement with users, providers and collaborators (e.g. networks such as the Eionet linked to the EEA and relevant for Climate-ADAPT, and linkages with national platforms). Establishing close contacts and communication with individuals whether they are developers, managers, users and knowledge providers is essential to further develop, evaluate and improve the information and knowledge available and their presentation.

Platform examples follow below:

Monitoring and evaluating a platform run by several partners in a consistent way

Example: Finland Climateguide.fi (<http://ilmasto-opas.fi/en/>)

The background

The Climateguide.fi platform started in 2009 as a joint project between the FMI, the Finnish Environment Institute (SYKE) and the Aalto University YTK Land Use Planning and Urban Studies Group. Later the platform was expanded to also include the Natural Resources Institute Finland (LUKE) and will expand further.

The challenge

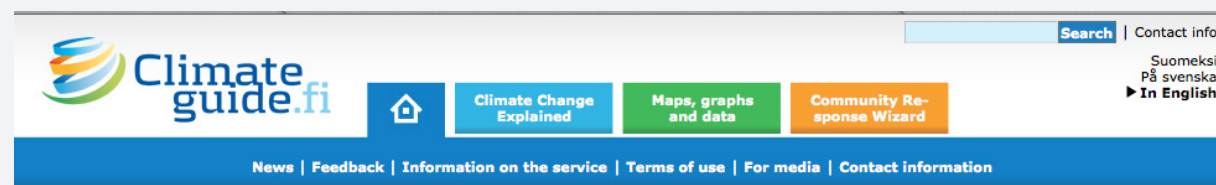
Since different partners are maintaining different content parts of the portal and the connection to the policy process is not institutionalised it is a challenge to get the funding for the evaluation process and to evaluate the platform in a consistent way.

The approach

Different means are being used to monitor and evaluate the platform. One person in the role of a 'science editor' is monitoring the platform content, collecting user feedback and proposing further development needs. Since the platform is not directly managed by the institution leading the national adaptation policy process the evaluation is linked to the goals of the involved research institutions.

The evaluation is being carried out in a twofold way: Firstly, the content and recommendations for further development of the platform are being evaluated based on the results of user/stakeholder workshops. Based on an overview of the contents, detailed web information on the use and a general presentation of infographics the results of the evaluation will be discussed in these workshops, and recommendations for the further platform development will be made. The infographics are being provided by a visualisation project, funded by a foundation devoted to science information. Secondly, new project workers/trainees who produce or update the content will give direct feedback on areas and topics that need to be improved.

Based on this information an informal group consisting of the institutions is regularly discussing the ideas for further development of the platform and recommending them for external funding.



Modifying the adaptation platform based on a comprehensive systematic evaluation: the example of Germany (<http://www.anpassung.net>) ⁽⁷⁷⁾

Background

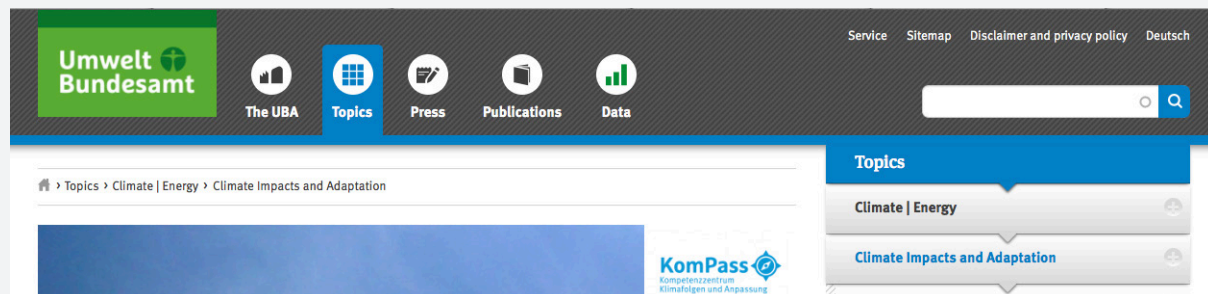
The platform, hosted by the Federal Environment Agency of Germany (UBA) since the beginning, was launched in 2008. The platform was designed to support the Federal Ministry for the Environment (BMUB) in charge of the development of the NAS and NAP. Furthermore, it was designed to serve as a national clearinghouse on adaptation for all relevant stakeholders. While the hosting of the platform was funded by UBA, the development of new features (e.g. a project database, was based on federal project funding).

The challenge

Having the platform in place several years, and developing it stepwise in order to cope with the growing demands of the main stakeholders in the adaptation policy process there was a growing need to determine the further development of the platform on the basis of a systematic evaluation.

The approach

Mainly supported by project funding the content of the knowledge presented on the adaptation platform has been analysed based on defined categories and criteria and in comparison to other adaptation platforms at European, national and regional level. Based on an online survey with 172 stakeholders from different public institutions, business associations, NGO's and media user's needs have been analysed and compiled. In order to find a common understanding of the main user group needs six fictional user types (personas) have been developed. Recommendations for an improved presentation of the platform content have been made in order to adjust the platform development to these target audiences. Based on an analysis of the technical conditions supported by web statistics a more user-friendly layout and structure of the platform content and functionalities have been recommended. As a result of the evaluation the thematic platform has been transformed in a way that it can be used by stepping from an introductory landing page with easy understandable language into different information layers with more complex and technical information. The increase of subscribers of the platform newsletter is an indication of the successful transformation of the platform. The six user types (personas) are constantly being used as correctives for all steps of the further platform development.



⁽⁷⁷⁾ The URL is for the new location of the platform, included in the website of the Federal Environment Agency of Germany (see <http://www.umweltbundesamt.de/en/topics/climate-energy/climate-impacts-adaptation>).

4 Relationships between climate adaptation, climate service and DRR platforms

There are a growing number of web-based platforms and websites operating at national and EU levels providing data and information to users on climate, climate adaptation or DRR. In addition, there is a range of sector-based websites that provide climate change impacts, vulnerability and adaptation information both at the EU and national levels (e.g. water (WISE ⁽⁷⁸⁾), biodiversity (BISE ⁽⁷⁹⁾) and health (WHO and ECDC ⁽⁸⁰⁾). This report has intentionally focused on the relationships between climate adaptation, climate service and DRR platforms, as many organisations (both within the EU and nationally) realise that there is a need to enhance synergies and avoid duplication, as well as to effectively and efficiently use limited resources.

At the same time, there are a number of perspectives on the nature and scope of these platforms and their respective users. In reality, the differences amongst them, particularly from the perspective of users, are somewhat blurred and becoming more so, with implications for those using and those delivering and supporting the services provided. At the same time, there is growing recognition of the potential benefits that could be reaped if there was a stronger and sustained relationship amongst these platforms. This growing recognition is reflected in experimenting and learning about the potential nature and scope of these relationships; partly as a result of demand, partly because of a push by funders and partly because of various learning and mimicking processes. In a few cases, the relationship is also happening because the same players and organisations are involved (e.g. in Finland, Sweden and Switzerland).

The strengthening of these relationships is expected to deliver benefits to the respective platforms managers, but also to those using the resulting services and to those funding the different platforms.

This section of the report explores the potential for these relationships from the perspective of climate adaptation platforms and their managers.

4.1 Relationship between and amongst climate adaptation, climate service and disaster risk reduction platforms

The nature and scope of the platforms

Climate services have primarily focused on providing climate data, information and knowledge (i.e. services) to support decision and policymaking (potentially including adaptation, mitigation and DRR). Although climate service platforms have been operating for many years, the GFCS ⁽⁸¹⁾ (launched at the World Climate Conference-3 in 2009) has guided recent developments, including an implementation plan ⁽⁸²⁾ and a user interface platform ⁽⁸³⁾ that provides a structured means for users, researchers and climate service providers to interact at the global, regional and national levels to ensure that user needs for climate services are met.

Climate adaptation platforms have different origins and do not yet have a general guiding framework. Their different histories and roles in the exchange and mobilisation of climate change adaptation information preclude the forming of any clear framework. They tend to focus on providing action-oriented and supportive policy data, information and knowledge (services) aimed at informing adaptation. Climate adaptation services have in most cases a broader ambition than climate services and include socio-economic and other environmental data and information, and tools and resources to support adaptation decision-making.

⁽⁷⁸⁾ See <http://water.europa.eu>.

⁽⁷⁹⁾ See <http://biodiversity.europa.eu>.

⁽⁸⁰⁾ See <http://www.euro.who.int/en/health-topics/environment-and-health/Climate-change> and ECDC, http://www.ecdc.europa.eu/en/healthtopics/climate_change/Pages/index.aspx.

⁽⁸¹⁾ See http://www.wmo.int/pages/governance/ec/global-framework-for-climate-services_en.html online (accessed 18.11. 2014).

⁽⁸²⁾ See http://www.gfcs-climate.org/sites/default/files/implementation-plan//GFCS-IMPLEMENTATION-PLAN-FINAL-14211_en.pdf.

⁽⁸³⁾ See <http://www.gfcs-climate.org/UIP>.

The Hyogo Framework for Action ⁽⁸⁴⁾ (a 10-year plan to make the world safer from natural hazards) has been seminal in motivating the establishment of national platforms on DRR ⁽⁸⁵⁾ which are now present in most European countries. The DRR community addresses all kinds of hazards, including geophysical, industrial and meteorological / hydrological. In terms of scope of the DRR community's efforts, these cover the whole policy and implementation cycle of early warning, prevention, preparedness, response and recovery. EU policies on DRR have been explained in Section 1.2. At the global level, the information and knowledge management for disaster risk reduction (IKM4DRR) dialogues ⁽⁸⁶⁾ have provided opportunities for interested practitioners to share and develop knowledge and experiences on DRR-related issues. In Europe, the European Forum for Disaster Risk Reduction (EFDRR) facilitates discussion and advances on DRR ⁽⁸⁷⁾.

The climate adaptation community also addresses changes in extreme events, along with slower onset changes that amongst other things can affect the distribution and frequency of extremes. Climate adaptation focuses its efforts on supporting adaptation and building resilience. Building resilience is also an important task for DRR. There is thus a common need to address climatological extremes and to reduce

vulnerability and enhance resilience. More specifically, the common interests include the identification, implementation and evaluation of prevention and preparedness measures in the context of extreme events. These have led to an expressed need for a stronger relationship between the DRR and climate adaptation communities, including between their respective service platforms. Table 4.1 gives an overview on common aspects of adaptation and climate services and DRR.

At a practical level, there is emerging experience in Europe of integrating adaptation with climate service provision. Some of that experience is a result of direct links and joint responsibility with either the national meteorological service or a national climate service provider (see Table 4.2). There are examples where climate information is also available on adaptation platforms. For example, some provide aggregated information with a link to more information available through a climate service provider (e.g. Denmark). Further exploring the nature of the specific required links and the implications for service delivery and the respective business models would be useful. This includes benefits in the context of sharing lessons learned and the further development of the respective services.

Table 4.1 Climate change adaptation, climate services and DRR services

Characteristics	Climate services	Climate change adaptation services	Disaster risk reduction
Means of delivery	Available and accessed through a variety of mechanisms, including web-based platforms		
Scope of climate information	Range of climate data, information and other climate-related services	Climate and weather data, information and other climate and weather related services	
	Interest in extremes and climate variability		
Consideration of risk	Interest in providing climate information to support risk assessment	Interest in assessing and addressing climate-related risks	Interest in assessing and addressing disaster related risks, (broader than just climate risks)
Spatial scales	Global, regional and local scales	Strong interest in regional and local scales	
Scope of services	Primarily climate to support adaptation, mitigation and business continuity	Integration of climate, environment as well as socio-economic information and data	

⁽⁸⁴⁾ See <http://www.unisdr.org/we/inform/publications/1037>.

⁽⁸⁵⁾ The national platforms are defined as officially declared national coordinating, multisector and interdisciplinary mechanisms for advocacy, coordination, analysis and advice on disaster risk reduction.

⁽⁸⁶⁾ See <http://www.preventionweb.net/go/ikm4drr>.

⁽⁸⁷⁾ See <http://www.preventionweb.net/english/professional/contacts/profile.php?id=8679>.

Table 4.2 Identified relationships of adaptation platforms with climate service and DRR services

Country	Nature of the relationship
National	
Austria	The Environment Agency Austria (EAA) is a partner of the Climate Change Centre Austria (CCCA) and will ensure future linkages; EAA portal provides observed trends, future projections, possible climate impacts and vulnerabilities. The Austrian DRR platform is under development with the Austrian Met Office taking the lead.
Denmark	Climate data are provided by the DMI – interactive maps and climate data, scenarios and sea-level rise summary facts.
Finland	The adaptation platform provides information on climate change and is jointly maintained by the two main partners the FMI and the Finnish Environment Institute (SYKE). The climate service platform is maintained by the FMI. The national multi-hazard DRR platform is coordinated by the Weather Service within the Finnish Meteorological Institute. A joint flood centre has been set up between SYKE and FMI for flood related DRR.
France	Wiklimat: Currently links with climate services via ONERC, but plans to link to the national climate service Drias (http://www.drias-climat.fr). The adaptation platform includes information of the Observatoire National des Risques Naturels (http://www.onrn.fr). Links are made with the national strategy for integrated coastal management.
Germany	KomPass (http://www.anpassung.net) – climate change impacts are explained; provides general information about and links to websites providing climate services; provides links to the German Climate Portal (Deutscher Wetterdienst: http://www.deutschesklimaportal.de) and the Climate Navigator (Climate Service Centre 2.0: http://www.klimanavigator.de). Identification and assessment of risk is one of the topics included, and although there is not a national DRR website, KomPass is part of an alliance of federal and other institutions dealing with adaptation issues (with a website).
Hungary	Links with climate service through the National Climate Change Strategy and with DRR through the 'Joint Disaster Management, Risk assessment and Preparedness in the Danube Macro-region' (SEERISK) project.
Ireland	Data on observations and projections have been provided by Met Éireann (Irish National Meteorological Service). Employing these data a climate information tool is being developed as part of the platform. Under the national adaptation framework there is a requirement for an adaptation plan within the emergency planning sector.
Netherlands	There are links between CCA and DRR (with Deltares and the Ministry of Water Safety responsible for DRR).
Norway	Planning for closer links with the Norwegian climate change service platform, by establishing close contacts with the Climate Service Centre, led by the Met Office. Part of the links may include streamlining visuals across both platforms. The link with DRR will be maintained by continuing to work with the DSB.
Poland	Climate services and DRR are separated, operating as different platforms the responsibility of different institutes, ministries or other bodies. There have been discussions about possibilities and ways to cooperate and to integrate, but these have not yet lead to a clear or definite decision.
Spain	Link to the AEMET (climate service) platform and plans to update (even if data remain with AEMET). No current links with DRR, but are expected to become clearer as meetings are being held across communities.
Sweden	Platform is developing within the Swedish National Knowledge Centre for Climate Change Adaptation at the SMHI and using the same framework and web platform as SMHI. There is good cooperation in place with the National Disaster Risk Reduction platform (hosted by the Civil Contingency Agency).
Switzerland	Platform coordinated and linked with the Swiss Met Office and the Swiss National Platform for Natural Hazards PLANAT (DRR) to provide complementary web information The Swiss National Centre for Climate Services is under development, led by the Swiss Met Office and supported by FOEN and further institutions.
United Kingdom	Partnership with the United Kingdom Met Office in development and presentation of climate information. There is good cooperation within government between Defra, the lead department for domestic climate change adaptation and the Civil Contingencies Secretariat at the Cabinet Office, responsible for work to improve the United Kingdom's ability to prepare for, respond to and recover from emergencies.

Table 4.2 Identified relationships of adaptation platforms with climate service and DRR services (cont.)

Country	Nature of the relationship
Transnational	
Alpine Region	DRR is one of the sectors covered by the platform, specific contents are thus made available. The platform is planned to be inter-operational opening the door to further linkages that could include DRR and/or climate services, which are up to now not existing on transnational level in the Alpine region. The Natural Hazards Platform of the Alpine Convention (PLANALP) is actively working on the interaction between climate change adaptation and DRR.
Baltic Window	Cooperation on DRR to address the increased risks due to climate change is a transnational challenge to be tackled in the Baltic Window, including even closer cooperation with relevant European DRR platforms. There is good cooperation with the priority area on civil security in the EUSBSR (led by the Swedish Civil Contingency Agency (MSB) and the Council of the Baltic Sea States). Facilitating this cooperation is that the MSB is also a member within the BSR climate change dialogue platform.
Pyrenees	Website (http://www.opcc-ctp.org) is the only one with Pyrenean specific data about temperature, precipitation, biodiversity, water and natural hazards, forests and GIS information).
European	
Climate-ADAPT	Links with the Copernicus Climate Services are being developed in 2015. Informal cooperation has been initiated between the EEA, DG Climate Action, the Commission DG dealing with DRR (DG Humanitarian Aid and Civil Protection (ECHO)), the UNISDR and the EFDRR.

Challenges associated with building effective relationships between adaptation platforms and DRR and climate services

There are several challenges facing the different types of platforms when attempting to develop effective relationships between them. One such challenge is that there are no universally accepted definitions of what comprise climate services, climate adaptation services and disaster risk management services (see Section 1.5 for definitions). This challenge also stems from different responsible institutions adopting a more comprehensive or restrictive definition according to what best suits their remit and situation (e.g. platform governance, organisational arrangements and funding). Adding to this challenge is the lack of clarity available on platforms as to the scope and limits of the services available.

There are also challenges related to the differences in operating environments (business models, skills, funding models and sources of funding) under which the different platforms operate⁽⁸⁸⁾. Once again, there is not a universally accepted operating environment. This challenge is often reflective of the fact that the platforms are often funded and coordinated by different organisations. For example, DRR platforms at the national level are often coordinated by ministries of interior or civil protection agencies, while adaptation platforms are primarily the responsibility of ministries of environment or climate and environment agencies. Developing a relationship must consider these differences and develop specific means and

mechanisms towards establishing and sustaining an effective relationship.

Further challenges associated with establishing and sustaining relationships between platforms may arise because of competition for the same space regarding provision of knowledge, targeted users and funding. From the users' perspectives, these platforms can appear to be offering similar types of services that are in some cases, or at least appear to be, conflicting or non-consistent. For example, climate service platforms supporting adaptation decisions-making and adaptation platforms presenting climate data and information can be perceived to be conflicting or inconsistent. This is especially if the temporal or spatial scales presented differ, the models used for projections differ, or different underlying scenarios are used. The partial overlapping of the services available can add to the challenges of establishing effective relationships, but also provides opportunities for enhancing collaboration.

In the case of climate adaptation platforms and DRR platforms, there are different spatial, temporal and functional perspectives, most evidently reflected in the manner in which the services are compiled and presented. In particular, disaster risks probability risk models calculate current risk based on events with a 100, 200 or 500 year return period⁽⁸⁹⁾. Services presented within adaptation platforms include risks with a longer-term perspectives and possible multiple future climatic conditions and broader spatial scales.

⁽⁸⁸⁾ See <http://www.unisdr.org/we/inform/preventionweb>.

⁽⁸⁹⁾ See http://www.preventionweb.net/english/hyogo/gar/2013/en/gar-pdf/Annex_1.pdf.

There is increasing recognition that considerable benefits could be reaped for both service providers and users, as well as those funding the respective platforms. It can be achieved through collaboration between and amongst these different platforms. This is likely to require well-defined roles and responsibilities. Without well-defined roles and responsibilities and a strong and sustained relationship there is the potential for inefficiencies and conflicts leading to user confusion and even a loss of users' trust.

4.2 Benefits of improved cooperation between adaptation platforms and DRR and climate service platforms

From the perspective of the platform providers, these benefits include:

- Cost-effectiveness of service development and delivery. Improving the quality and credibility of aggregated climate information available on adaptation and DRR platforms;
- Enhancing links within these platforms pointing to climate services providing state-of-the-art basic climate data; and
- Enhancing the links within climate service platforms pointing to adaptation and DRR platforms providing evidence based on up-to-date and tailor-made decision-support tools and knowledge.
- Enhance user engagement, including engagement of the adaptation and DRR platform operators as users of climate services, as a basis for informing the development of relevant climate services. It is also worth noting that collaboration in understanding users' needs and capabilities could address concerns associated with user fatigue. It can furthermore provide users with opportunities to provide a united voice when speaking about their needs in areas of common interest; and Enhance benefits of the services provided from the users' perspectives.

From the perspective of platform respective users, these benefits include:

- Those related to the scope and quality of the services that users have access to through trusted and known sources. Furthermore they benefit from the consistency of the services available by reducing the potential for user confusion and further frustration; Ensuring consistency in the information and data provided is crucial, but this is becoming

difficult, as the overlap in services being provided by these platforms is growing. In response to meeting users' expressed needs, adaptation platforms are providing aggregated climate data, and climate service platforms are now starting to offer adaptation-related information.

From the perspective of the platform funding organisations:

- It is important to ensure the appropriateness and effectiveness of the funding. Therefore, it is advisable to avoid duplication of efforts, especially if that can lead to real or perceived inconsistencies, and to look for stronger synergies.

There are similarities between the perspectives taken by the adaptation and DRR platforms, including mutual interests in assessing and addressing risks (particularly risks associated with extremes), working at local and regional scales and interest in making available and integrating particular types of data and information such as socioeconomic data. In addition, the climate service community has an expressed interest in providing information to support understanding of these risks.

From the perspectives of their respective users, the benefits are related to the scope and quality of the services that they have access to (available through trusted and known sources), and consistency of the services available (reducing the potential for user confusion and further frustration). Ensuring consistency in the information and data provided is becoming difficult as the overlap in the services provided by these platforms is growing. In response to meeting users' expressed needs, adaptation platforms are providing aggregated climate data, and climate service platforms are now starting to offer adaptation-related information. Both from the perspective of funding (funders' confidence in the appropriateness and effectiveness) and from the users' perspectives it is advisable to avoid duplication of efforts, especially if that can lead to (real or perceived) inconsistencies, and to look for stronger synergies.

4.3 Supportive elements of improved cooperation between adaptation platforms and DRR and climate services

Based on the evidence within Table 4.2 and other evidence reviewed and presented in this report it is possible to identify connections that can guide and strengthen the desired collaboration between platforms serving related but slightly different needs.

There are similarities between the perspectives taken by the adaptation and DRR platforms, including mutual interests in assessing and addressing risks (particularly risks associated with extremes), working at local and regional scales and interest in making available and integrating particular types of data and information such as socioeconomic data. In addition, the climate service community has an expressed interest in providing information to support understanding of these risks. Within the DRR community, the need for collaboration is reflected in the recognition of the relevance of addressing the impacts of climate change in the context of prevention and preparedness measures (e.g. climate change changing risks with consequences on prevention and preparedness), and thus the need to better link climate adaptation and DRR platforms (e.g. in line with the EFDRR⁽⁹⁰⁾). Similarly within the climate adaptation community there is increasing recognition of the need to include adaptation in addressing existing risks, including those associated with extremes (also as a means of building adaptive capacity).

The need for an effective relationship between climate services, adaptation and DRR is also recognised by the European Commission. For example, the importance of this relationship is reflected in the importance placed in enhancing this relationship in the Horizon 2020 Framework Programme for Research and Innovation under the Secure Societies Challenge — Disaster resilience and climate change⁽⁹¹⁾. Also, at EU level, ECHO and DG Climate Action work together and responsibilities are relatively clear (e.g. ECHO is responsible for the 'Mechanism for Civil Protection' including the EU Monitoring and Information Centre, and DG Climate Action is responsible for the EU Strategy on Adaptation). Furthermore, the EFDRR is coordinating DRR across Europe. The platform 'Preventionweb' (with ISDR Europe⁽⁹²⁾) is well developed and recognised within the DRR community as a key information source.

Collaboration between and amongst the different platforms can be enhanced by:

- improving the institutional linkages to better connect these platforms in areas of common interest;
- identifying incentives (e.g. cost savings and improved impacts of services provided) and resources to enable the appropriate collaboration;
- exchanging experiences on the collection and structuring of information;

- identifying priority areas to initiate enhancing the links to support collaboration (e.g. integration of response policies, plans and action, and better consideration of the long-term perspective of adaptation in addressing local DRR).

A starting point is that climate adaptation, DRR and climate service platforms will continue to develop with slightly different focuses and priorities. For DRR it is crucial to also have functions for those that are involved in early recovery to help 'Build Back Better'⁽⁹³⁾. Climate service platforms also have operational priorities, but these are across a number of time scales. Constant and fast updating is not as critical in this case as those for DRR. Climate adaptation has strong elements of awareness-raising and contributing to overall adaptive capacity by strengthening the users' understanding of adaptation processes.

Although there are as yet limited examples of emerging relationships, evidence does suggest that critical to their success is that the collaborating platforms are engaged for their mutual benefit and the benefit of their respective users. In addition, it also suggests that the specifics of the relationship should consider the different institutional relationships, funding and business models, and perceived remits and scope. In practice the collaboration between these types of platforms can be of different nature and scope; ranging from simple linking reflecting the different core responsibilities of the respective platforms to deeper integration of the services.

The principles that are at the core of developing this collaboration are: 1) focus on improving the services available to support decision-making; 2) understanding and articulation of expectations and mutual benefits, as well as the respective roles, responsibilities and relationships; and 3) sustained and informed engagement at the necessary level(s) within those funding and delivering the platforms.

The following processes support the required collaboration.

1. Building relationships and (initial engagement) and developing a mutual understanding between adaptation platforms, DRR and climate services

This initial element explores and seeks to clearly articulate the institutional, organisational and developmental contexts within which the organisations

⁽⁹⁰⁾ See <http://www.preventionweb.net/english/professional/contacts/v.php?id=8679>.

⁽⁹¹⁾ See <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-drs-2014.html>.

⁽⁹²⁾ See UNISDR Regional Office for Europe (<http://www.unisdr.org/europe>).

⁽⁹³⁾ See <http://www.unisdr.org/we/inform/publications/14499>.

involved operate. There are examples amongst the existing platforms where building such relationships and engagement are recognised and under way. Organisational co-location of the platforms such as in Finland, Sweden and Switzerland, is seen as beneficial as is broadening engagement in the development of the platform to include appropriate adaptation and climate service providers such as in Ireland, Austria and the United Kingdom.

2. Identifying areas where collaboration is possible

This process explores and clearly identifies where and why collaboration is meaningful. This includes consideration of quality and relevance of the services provided from the users' perspectives, and user experience. In addition, the impacts on the service providers as a result of not collaborating should also be considered. This process should lead to understanding and articulation of the mutual benefits, but also support deliberations with the respective funding bodies and management teams. Practical areas identified by the Sendai Framework for Action on Disaster Risk Reduction 2015–2030 and the EU Civil Protection Legislation are: Multi-Hazards Risk Assessment; Disaster Data Losses Collections and Peer Reviewing.

3. Identification, appraisal and implementation of options for collaboration

This process involves identifying and prioritising based on an appraisal of different collaboration options. The nature of these options depends on the desired scope of collaboration. The options could range from providing links between the engaged platforms allowing users to find complementary information, to including specific jointly produced platform products/pages, to full integration with shared data, information and knowledge products and services. This process

should result in the development of a collaborative implementation plan with clearly identified costs, roles and responsibilities based on reaping the intended benefits.

4. Harmonising and standardising contents in areas where links are strong

The stronger the links are between the platforms the greater the demands are on harmonisation and standardisation of the contents. For example the basis for estimating likelihood of extreme events and the way of expressing them should be harmonised (for example probabilities or expressed as return period). This harmonisation is particularly important if users are expected to switch between different views of the same topic such as short-term risk management of extreme events versus long-term adaptation to extreme events in a changing climate. Concepts and features also need to be standardised if the same elements are used and exchanged. These could be achieved through engagement of DRR and climate change adaptation players in discussions on terminology, standards and indicators, rather than in parallel and divergent processes. As a practical example, the United Nations Office for Disaster Risk Reduction in collaboration with other UN agencies and national/regional partners is developing a set of supplementary guidelines to address disaster risk in national policy documents. The collaboration amongst different practitioners in developing such guidelines will represent a crucial practical step towards a harmonised approach.

5. Monitoring, evaluating and updating the relationship

Establishing an M&E process with clearly articulated criteria for identifying how the relationship has worked in practice and whether the expected benefits are being reaped, and what and when the collaboration outputs and processes will need to be updated.

5 Conclusions

5.1 Key messages on adaptation platforms in Europe

Web-based adaptation platform landscape in Europe

- The adaptation platform landscape in Europe is dynamic and varied, and the number and scope of such platforms are increasing. There are a variety of adaptation platforms operating within Europe with remits for providing climate adaptation services at the national level (Austria, Denmark, Finland, France, Germany, Hungary, Ireland, the Netherlands, Norway, Poland, Spain, Sweden, Switzerland and the United Kingdom). At transnational level, there are the Alpine region, the Pyrenees platforms and the Baltic Sea Region on Climate-ADAPT, as well as Climate-ADAPT at European level. These different platforms have varied histories and have been in place for different lengths of time. They have also policy contexts that are reflected in the scope of services provided and their respective operational and business models.
- Since adaptation platforms are a means of assisting decision-makers in the different steps of the adaptation policy cycle, they are primarily linked to the preparation, implementation and evaluation of adaptation strategies and plans. Of the 14 national adaptation platforms in place in EEA member countries, 7 are directly linked to the launch or implementation of the NAS or NAP (Austria, Denmark, France, Germany, Poland, Spain and Switzerland). It should be noted that only few platforms (Austria, Denmark, Finland, France, Germany, Norway, Sweden and the United Kingdom) have more than 3 years of operating experience.
- As a number of the platforms are directly linked to the implementation of national or EU adaptation strategies and plans, it is key that the support they provide remains current and anticipates the needs of those developing and implementing those strategies and plans. This requirement includes being able to meet the needs of users as their efforts move through the adaptation policy cycle:
 - from gaining information to awareness-raising and understanding the problem, to vulnerability and risk assessment, to identifying and assessing adaptation options, learning from inspiring case studies and on to monitoring and evaluating actions. This also requires that information, knowledge and guidance (including case studies) provided should be evaluated and updated based on the evolving science and practices.
- The adaptation platforms in Europe are not homogeneous in terms of the nature and scope of remit, roles and services provided, nor in terms of their stage of development and development pathways. This precludes the forming of any general guiding framework. A number of challenges, reflections and lessons learned have been identified by platform owners, developers and managers. There is a desire to share these as a basis for enhancing the quality and utility of the platforms and the services they provide. When interpreting these challenges, reflections and lessons learned for use in another platform, however, it is necessary to take into account the particular situation, concerns and the needs and capacities of their respective host institutions and target audiences.
- Some adaptation platforms have been launched as stand-alone platforms (e.g. the UKCIP platform) or as part of governmental websites (e.g. Switzerland). In some cases, changes are being implemented that integrate multiple websites into governmental websites (e.g. Germany, the United Kingdom). This implies that there are challenges such as the need to cope with limitations due to website design standards, but also offers the opportunity of improved links to other policy fields. Due to the specific needs of regional and local users to exchange information and experience, as well as to enhance user involvement, interactive features are being used (e.g. Spain, Hungary, C3-Alps) and are being increasingly integrated into the adaptation platforms (e.g. France, Climate-ADAPT). The workflows, respective roles and permission schemes for internal and external providers of a platform should be designed in the most practical

and sustainable way, so as to ensure platform maintenance.

Funding and sustaining platforms

- A critical determinant of what can be made available to users, and of the capability to update and further develop an adaptation platform is the nature and amount of funding available. There are a variety of funding models that have been used to support the development and delivery of adaptation platforms across Europe. These models — project based, policy supported and policy mandated — reflect the role and also the stage of development of the platform. Dependence on short-term funding (e.g. typical of project-based funding) can be challenging and limiting for available services.

Strategic planning of adaptation platforms

- An overall strategic plan that defines the current direction and scope of a platform and proposed developments in the short and longer term is fundamental. This can be used as a basis for communicating and engaging users, contributors and collaborators. However, such a strategy can also be used to effectively configure competence and resources. It can also ensure that development remains appropriate and continues to be able to fulfil users' expectations and needs over time.

Understanding and engaging users

- It is important that organisations responsible for the platform effectively engage users in all phases of the platform development, from design and implementation to maintenance. Multiple engagement mechanisms may be useful; however, prior to adopting, they should be tailored to specific phases of the platform's stage of development and to the targeted user group.

Identifying and maintaining the relevant knowledge and information

- Updating the platforms requires striking a balance across three aspects; to select the information that is most relevant for decision-making on adaptation; to present the most up-to-date scientific knowledge on adaptation; and to consider the available human and IT resources, including those of the intended users. Defining selection criteria for a platform itself as a whole as well as for different sections helps to identify the relevant information and effectively maintain a platform according to the needs and available resources. Quality control and assessment schemes are very helpful in ensuring high quality

and reliability of the information provided for users, and in informing the maintenance and updating processes.

- The information presented on adaptation platforms must take into account the different levels of adaptation knowledge and IT capabilities of users. As the analysis shows, there are different approaches for presenting the information. There are several options including tailor-made sections for different types of users such as citizens, municipalities and businesses (e.g. Denmark), and a hierarchical approach (non-technical language on the landing page; technical information in subpages; e.g. Germany). The relevance and usability of the platform is critical to the successful uptake of the information presented.

Linking across sectors, scales and platforms

- Establishing links across sectors, scales and platforms is significant for the provision of relevant and high-quality information. Furthermore, promoting two-way sharing and exchange of knowledge between users, platform developers, researchers, other adaptation platforms, policy fields like DRR and governance levels from local to international is recognised as a factor for a successful way of collaborating. There are certain principles at the core of developing this collaboration are: (1) need to focus on improving the services available on the platform to support decision-making; (2) need to understand and articulate expectations and mutual benefits of the cooperation, as well as the respective roles and responsibilities; and (3) need for sustained and informed engagement at the necessary levels, involving both those funding and those delivering the platforms.

Monitoring, evaluating and improving a platform

- Monitoring and evaluating the take-up of the services available and use of the platform itself are necessary tasks that relate to all aspects of the platform. This includes its role in knowledge exchange and mobilisation for the adaptation policy, planning and implementation, the information that appears in it and its design and structure. The value added by the platform needs to be considered and assessed from various perspectives. Users' and contributors' perspectives should be considered, as should the policy, economic and institutional environments in which it operates. Some national platforms (e.g. Finland, Germany and UKCIP in the United Kingdom) have evaluated aspects of their platform and adjusted

it or plan adjustments according to the evaluation, including the evolving needs of the adaptation policy.

Relationships between adaptation services, climate services and disaster risk reduction

- Effective collaboration between those providing climate service, adaptation platforms and DRR platforms is likely to result in several benefits. These are particularly important when addressing climatological extremes, reducing vulnerability and enhancing resilience. Efforts have been made to enhancing such types of collaboration, at both national and European levels; they have originated from within the climate adaptation, DRR and climate service communities. Opportunities to facilitate this collaboration should be continued and supported (e.g. existing institutional relationships at national and EU levels, initiatives within Horizon 2020 and supportive networks and discussions within different forums).
- There are as yet limited examples of emerging relationships amongst these different platforms. But evidence does suggest that a critical factor for success is that the collaborating platforms be engaged for their mutual benefit and the benefit of their respective users. It also suggests that they should consider the different institutional relationships, funding and business models, and perceived remits and scope of services provided and users targeted. In practice, collaboration between these platforms can vary: from simple linking reflecting the different core responsibilities of the respective platforms, to deeper integration of the information and knowledge provided.

5.2 Next steps for national and other platforms

Relevant developments which will drive policies but also the development of the related knowledge base, such as adaptation platforms, include the 2015 UN World Conference on DRR⁽⁹⁴⁾ (March 2015) and UNFCCC (December 2015). How their outcomes will influence EU developments will become clear in 2016 and beyond.

Furthermore, at EU level, the EU strategy on climate change adaptation will be reviewed in 2017, and national strategies and action plans will continue to

be developed and implemented. In addition, taking adaptation into account in a range of EU policies, including DRR, is expected to continue in future. Various EU funds are available for such mainstreaming activities in EU Member States. Some may also be used for improving and enhancing adaptation platforms. Moreover, it is expected that new transnational adaptation projects will be granted EU funding as a follow-up to earlier Interreg projects.

In addition, EU research funds can serve as an impetus for developing and collaboration amongst platforms, for example the Horizon 2020 Framework Programme for Research and Innovation call under the Secure Societies Challenge — Disaster resilience and climate change (DRS9a)⁽⁹⁵⁾. The EU-funded *A European research and innovation Roadmap for Climate Services*⁽⁹⁶⁾ and linked activities by JPI Climate is expected to fund climate service research and innovation projects during the coming years. The Copernicus Climate Change Service will become operational in 2015. It will gradually extend its services over the coming years as well as its interaction with various user groups.

Furthermore, city networks and EU supported initiatives such as Mayors Adapt will become more active regarding adaptation. The need for relevant information and knowledge at city level will increase.

Overall, there is an expressed interest from national and transnational platform owners, operators and managers to follow-up on the 2013/2014 dialogues within CIRCLE2 and the EEA, including by seeking opportunities to continue sharing and learning from others experiences.

Taking into account the many policy and other developments mentioned above, there are opportunities using existing mechanisms. These include the regular annual Eionet workshop and planned webinars on Climate-ADAPT organised by the EEA in 2015. This also includes the meetings between the European Commission and Member States (e.g. the working group on adaptation under the EU MMR, the user forum of Copernicus, meetings related to civil protection and meetings on climate services). Furthermore meetings of the European forum on DRR (linked to ISDR) and UN webinars led by the Climate Knowledge Brokers Group could well be relevant.

By end of 2015, the EEA will publish a technical report that will describe how monitoring, reporting and evaluation of adaptation actions can inform policymaking and facilitate shared learning on national

⁽⁹⁴⁾ See <http://www.wcdrr.org>.

⁽⁹⁵⁾ See <http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-drs-2014.html>.

⁽⁹⁶⁾ See <http://ec.europa.eu/research/index.cfm?pg=events&eventcode=552E851C-E1C6-AFE7-C9A99A92D4104F7E>.

level MRE approaches across member countries. As part of this process, the EEA held an expert meeting in March 2015, bringing together national-level experts working on climate change adaptation MRE. The technical report will also include information on how web-based adaptation platforms are included in MRE schemes.

In addition, exchanging and sharing experiences can be achieved through specific events and special sessions at relevant conferences. These include the second European Climate Change Adaptation Conference (to be held in Copenhagen in May 2015⁽⁹⁷⁾, and subsequently in 2017). The fourth international conference on climate change adaptation⁽⁹⁸⁾, to be held in 2016 by the European Commission and the Netherlands, could also provide a relevant opportunity.

5.3 Next steps for Climate-ADAPT

General

Further development and improvement of the content, functionalities and user-friendliness of Climate-ADAPT is planned in the coming years. This will be carried out by the EEA in close collaboration with DG Climate Action, supported by ETC/CCA in the context of the EEA's annual work programmes and available resources. Activities will be guided by the multiannual Climate-ADAPT work plan, that will be regularly updated and discussed with DG Climate Action and EEA member countries, e.g. at the annual Eionet workshop.

The intention is to further collect and analyse user feedback through various mechanisms, while also improving the content management approach with supportive mechanisms aimed at enhancing the quality of the platform content and its perceived benefits. This includes the consideration of different levels of adaptation knowledge and IT capabilities of users.

There is also a need to further discuss and clarify the complementarity and consistency of Climate-ADAPT with national and other adaptation platforms and services. This could include considering the potential role of the existing Climate Change Committee Working Group on Climate Change Adaptation in providing a European forum on climate change adaptation platforms.

Content

In 2015, the EEA is carrying out an analysis of the content of the Climate-ADAPT database and also web

pages to identify possible gaps and possible areas for more focused updates in future.

In 2015, the country information will be improved, based on the first reporting (due 15 March 2015) by countries under the EU MMR. Furthermore, additional case studies will be included, based on information provided by practitioners, through various mechanisms (see also below). Many EU-funded research projects on adaptation have recently been finalised, and mechanisms for selecting and presenting incorporating relevant results will be considered. Furthermore, many new projects are expected to start under the new LIFE (adaptation) programme and through other EU funds; how to select and incorporate future results will be considered (e.g. with DG Climate Action, Research and Innovation and DG Regional and Urban Policy and project coordinators).

As a key activity in 2015/2016, information on cities will be considerably improved and enhanced through the Mayors Adapt Initiative.

In collaboration with the European Commission (DG Regional and Urban Policy), transnational information will be improved on macro-regions as defined by the EU and regarding other transnational initiatives and regional conventions.

The Copernicus Climate Change Service (C3S) is expected to be operational from 2015 onwards. The EEA has started collaborating with the operating organisation (ECMWF) to better understand the complementarity and links with Climate-ADAPT. This will focus on the use of C3S information for EEA indicators on climate change and impacts, and on potentially using C3S to improve the map viewer and visualisation tools of Climate-ADAPT.

The Adaptation Support Tool (AST) (at both national and urban level) was enhanced in 2014. In 2015 and beyond, improvements will continue, in particular regarding the sections on MRE.

User feedback, user-friendliness

- Between 2012 and 2014, DG Climate Action and the EEA collaborated with the intended end-users of Climate-ADAPT on several occasions: these included the dedicated Eionet and CIRCLE2 expert workshops on adaptation platforms held in 2013, and the DG Climate Action-funded dissemination events organised in 2014, which involved 14 European countries less advanced in adaptation.

⁽⁹⁷⁾ See <http://www.ecca2015.eu>.

⁽⁹⁸⁾ See <http://www.adaptationfutures2016.org>.

Since 2012, the EEA has introduced and presented Climate-ADAPT at many conferences and workshops, with both providers and users. With regard to cities in particular, the EEA co-organised the annual European Open days on adaptation with ICLEI.

Feedback from users with varying degrees of experience in adaptation was collected during this time, and the platform was revised based on this feedback (see also Section 3.2.2).

However, the EEA and DG Climate Action have recognised that there is a need for more structured, direct feedback and regular interaction with the main Climate-ADAPT targeted audiences (users and providers), in particular for EEA member countries. Accordingly, the EEA started to organise webinars in 2015, aiming to have participation at country level and users at transnational, national and city levels. The first seminar focuses on involving countries in developing and including case studies. The second webinar will focus on how best to involve 'providers', including EU-funded projects. A background document was prepared on these webinars that can be regarded as 'terms of reference'.

Based on these experiences, this 'users and providers' group, the 'terms of reference' and composition can be revised as needed in the future.

Users and providers are also encouraged to further submit feedback to Climate-ADAPT via the contact function (see <http://climate-adapt.eea.europa.eu/contact>).

Functionalities

Climate-ADAPT's functionalities' development can be broadly distinguished between 'content-related' and 'general user-friendliness'. For the former, the focus in 2015 is on city information (such as city profiles collected and checked by the Mayors Adapt project and presented on a map viewer). Moreover, country-level information may be presented in future in a different, more easily accessible way. Other tools that will be included and/or improved include urban vulnerability maps, a Time Series Tool (developed by JRC, showing spatially detailed past and projected climate data) and a new version of the map viewer (see also the comments above on the Copernicus Climate Change Service).

General user-friendliness features that are planned include interactive tools allowing users to engage in discussions, and a clearer indication of when and where new content has been added and/or updated.

Furthermore, in 2015/2016, Climate-ADAPT content will be moved to a new CMS (which is already being used by the EEA for its main website). This will enhance various functionalities, such as the option to print selected pages. It is planned to discuss such improved functionalities with the user and provider group mentioned above, to engage them in the design and development, and to help prioritise most important and urgent functionalities.

Newsletter

To attract new users and to engage existing users of Climate-ADAPT, a regular newsletter on Climate Change adaptation was started by the EEA; the first edition was disseminated in January 2015. The newsletter contains news on EU policy and EEA activities, Climate-ADAPT, EU research and transnational, national and local activities, and finally, on main upcoming events. Whether users are engaged by the newsletter will be evaluated during 2015.

Evaluation

In 2017, a more comprehensive evaluation of Climate-ADAPT is planned, to assess whether the platform has been meeting its main objectives in terms of supporting the needs of its users and other stakeholders. This evaluation will involve users and will make use of various methods, including analysis of web statistics, feedback from users in the 'user and provider' group and other approaches still to be discussed and agreed. The evaluation will build on feedback from and interaction with users in the period before 2017.

In addition, consideration and further clarification of the remit and role of Climate-ADAPT relative to that of national and transnational adaptation (and climate services and DRR) platforms will be discussed and evaluated with users and other stakeholders in the coming years. This clarification will be used to enhance the appropriate connectivity (e.g. cascading and linking of relative information) between and across these platforms.

Acronyms

AEMET	Agencia Estatal de Meteorología (Meteorological Agency, Spain)
AST	Adaptation Support Tool
BISE	Biodiversity Information System for Europe
BMUB	Bundesministerium für Umwelt, Naturschutz, Bau und Reaktorsicherheit (Federal Ministry for the Environment, Germany)
BSR	Baltic Sea Region
C3S	Copernicus Climate Change Service
CAPA	Climate Adaptation Platform for the Alps
CAS	Climate Adaptation Services (the Netherlands)
CBSS	Council of the Baltic Sea States
CCA	Climate Change Adaptation
CCCA	Climate Change Centre Austria
CIRCLE2	Climate Impact Research & Response Coordination for a larger Europe (EU FP7; Framework Programme on European Research and Technology Development 2007–2013)
Climate-ADAPT	European Climate Change Adaptation Platform
Climate-KIC	Climate Knowledge and Innovation Communities
CMCC	Euro-Mediterranean Centre for Climate Change
CMS	Content Management System
CSC	Climate Service Centre
DG Climate Action	Directorate-General for Climate Action
DG	Directorate-General
DMI	Danish Climate Centre
DRR	Disaster risk reduction
DSB	Direktoratet for samfunnssikkerhet og beredskap (Directorate for Civil Protection, Norway)
EAA	Environment Agency Austria

Acronyms

ECDC	European Centre for Disease Prevention and Control
ECHO	European Commission (DG) Humanitarian Aid and Civil Protection Office
ECMWF	European Centre for Medium-Range Weather Forecasts
EEA	European Environment Agency
EFDRR	European Forum for Disaster Risk Reduction
Eionet	European Environment Information and Observation Network
EIT	European Institute of Innovation and Technology
ESI	European Structural and Investment
ESIF	European Structural and Investment Funds
ETC/CCA	European Topic Centre on Climate Change impacts, vulnerability and Adaptation
EUSBSR	EU Strategy for the Baltic Sea Region
FAMOUS	Factory for Adaptation Measures Operated by Users at different Scales
FFCUL	Foundation of the Faculty of Sciences of Lisbon University (Portugal)
FMI	Finnish Meteorological Institute
FOEN	Federal Office for the Environment (Switzerland)
GFCS	Global Framework for Climate Services
GIS	Geographic Information Systems
I&M	Ministry of Infrastructure and the Environment, the Netherlands
ICIP	Ireland's Climate Information Platform
IGN	National Institute of Geographic and Forestry Information (France)
IKM4DRR	Information and knowledge management for disaster risk reduction
IPCC	Intergovernmental Panel on Climate Change
IPSC	Institute for the Protection and Security of the Citizen
JPI Climate	European Joint Programming Initiative on Climate: 'Connecting Climate Knowledge for Europe'
JRC	Joint Research Centre
LUKE	Natural Resources Institute (Finland)
M&E	Monitoring and evaluation
MEDDE	Ministry of Ecology, Sustainable Development and Energy (France)
MFGI	Magyar Földtani és Geofizikai Intézet Geological and Geophysical Institute (Hungary)

MMR	EU Monitoring Mechanism Regulation
MRE	Monitoring, reporting and evaluation
MSB	Swedish Civil Contingency Agency
NAP	National adaptation plan
NAPCC	National Adaptation Plan on Climate Change
NAS	National adaptation strategy
ONERC	Observatoire national sur les effets du réchauffement climatique National Observatory on the Effects of Climate Change (France)
OPCC	Pyrenees Climate Change Observatory
PLANALP	Natural Hazards Platform of the Alpine Convention
PNACC	National Climate Change Adaptation Plan
QA	Quality assessment
QC	Quality control
SEERISK	Joint Disaster Management risk assessment and preparedness in the Danube macro-region
SMHI	Swedish Meteorological and Hydrological Institute
SOP	Standard Operational Procedures (Climate-ADAPT)
SYKE	Finnish Environment Institute
UBA	Umweltbundesamt (Federal Environment Agency, Germany)
UKCIP	UK Climate Impacts Programme at the University of Oxford
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	The United Nations Office for Disaster Risk Reduction
WHO	World Health Organization
WISE	Water Information System for Europe (EEA)

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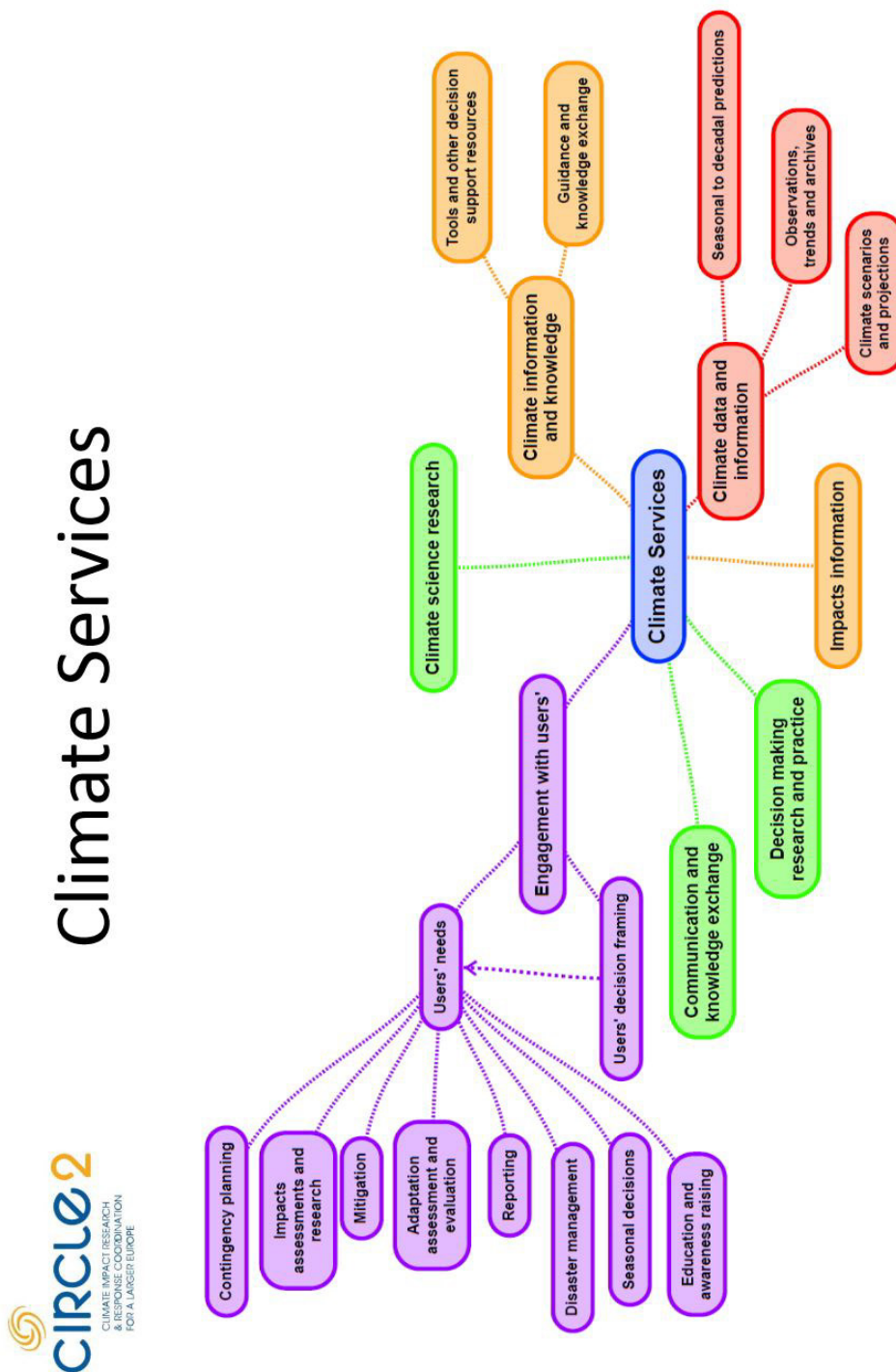
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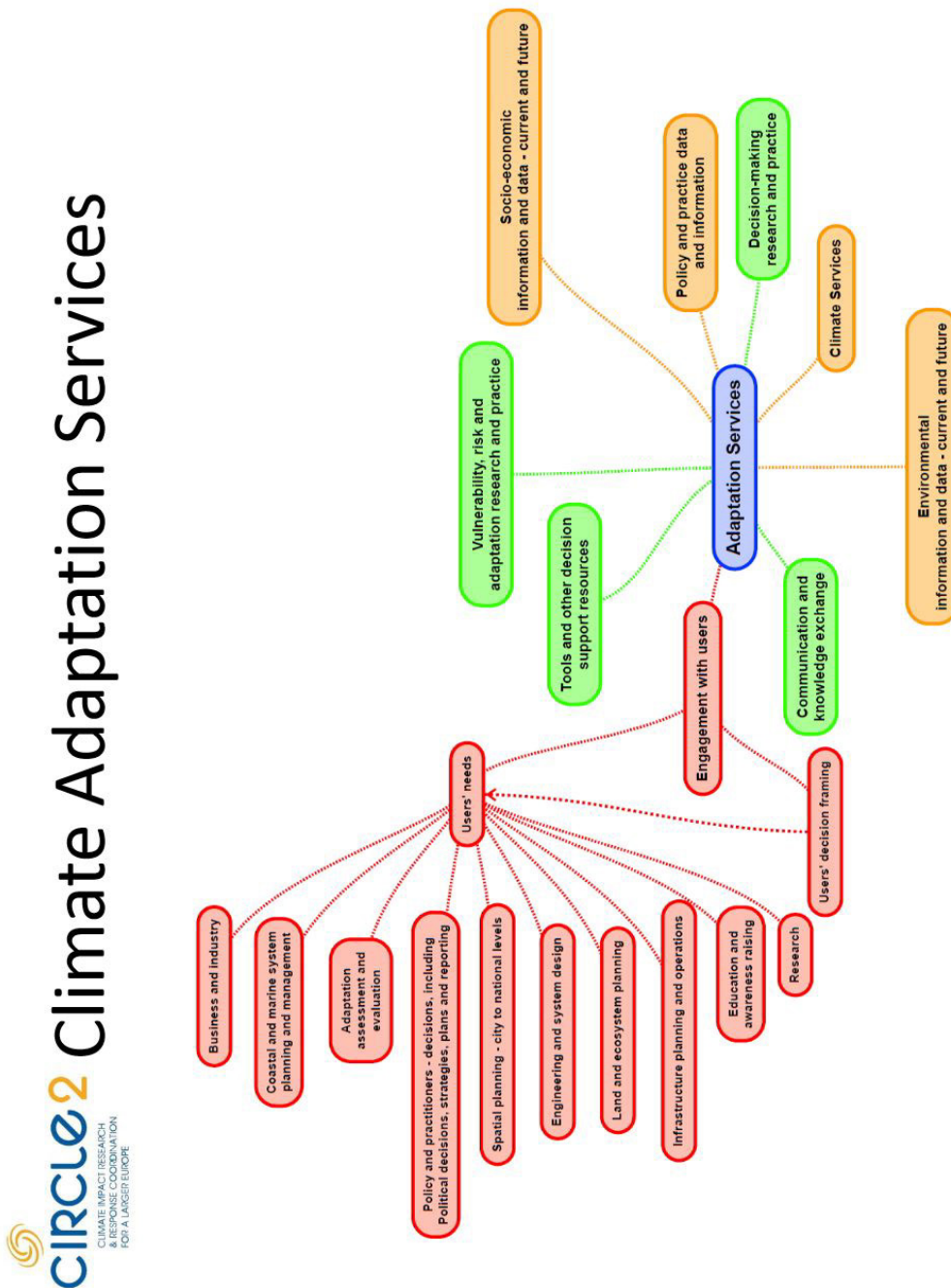
Annex 1 Climate services

Figure A1.1 Initial mind map of climate services developed by UKCIP as a basis for dialogue involving climate service and adaptation service providers



Annex 2 Climate adaptation services

Figure A2.1 Initial mind map of climate services developed by UKCIP as a basis for dialogue involving climate service and adaptation service providers



Annex 3 Information on adaptation platforms

This annex provides information on national adaptation platforms as collected during various workshops and expert meetings, and from additional bilateral interviews with national adaptation platform managers.

This annex is available in a separate file on <http://www.eea.europa.eu/publications/overview-of-climate-change-adaptation>.

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