

National action on urban adaptation in EEA Member states

Internal working paper - draft June 2015

Margaretha Breil (CMCC), Rob Swart (Alterra), ETC CCA

Contents

1.	Introduction	3
2.	Governance and national policies.....	5
2.1	How is urban adaptation included in the national adaptation strategy or plan?	5
2.2	Is urban adaptation included in any legal framework?	9
2.3	How are responsibilities shared between institutions and stakeholders at different governmental levels, how is coordination provided for?.....	12
3.	Relevant National and Local Initiatives	16
3.1	International research projects:.....	16
3.2	National financing and research projects.....	18
3.3	Handbooks, guidelines	22
3.4	Platforms, initiatives for knowledge exchange	24
3.5	National City Networks.....	28
3.6	Local Activities	29
3.7	Surveys on urban adaptation activities and monitoring	32
4.	Overview table	34
	References	37

1. Introduction

The following paper reassumes and highlights the information provided by the National Reference Centres (NRCs) for climate change adaptation on the request of the EEA in December 2014/January 2015 (20 responses received by April 2015), from information uploaded to the Climate.ADAPT platform and from the 19 reports delivered under the Monitoring Mechanism Regulation MMR by April 2015 (see Table 1 for details). For those countries where no information was available, results from the self-assessment were used which is at the basis of the recent EEA report on national adaptation policies (EEA 2014).

From these sources information regarding specific aspects connected to national strategies with respect to urban climate change adaptation has been extracted, that is potentially interesting for writing the EEA report on Urban Adaptation to be published in 2016. Actions indicated by national representatives either in formal (MMR) or informal reporting procedures (the EEA request) and contributions to the Climate-ADAPT can potentially be used within the report in order to illustrate good practice achieved so far on national support to urban adaptation. Furthermore some specific local initiatives were highlighted.

Table 1: Country reports used for the review

	NRC questionnaire	MMR Report
Austria	•	•
Belgium	•	•
Bulgaria	•	•
Croatia		•
Cyprus	•	
Czech Republic	•	•
Denmark		•
Estonia		•
Finland		•
France	•	
Ireland		•
Germany	•	
Greece	•	
Hungary	•	
Italy	•	
Lithuania	•	•
Luxemburg		•
Malta		•
The Netherlands		•
Norway	•	
Poland	•	•
Portugal	•	•
Romania		•
Slovenia	•	
Spain	•	•
Sweden	•	•
Switzerland	•	
Turkey	•	
United Kingdom	•	•

The present paper has the intention to organize the access to the information available from these sources, providing, as far as possible, links to further resources either in English or in national languages. Not all

countries have provided information or detailed indication of sources; to some extent it was possible to retrieve more information by accessing national sources directly.

The EEA request sent out to the NRCs specifically targeted information needs of the EEA report with regards to national action. It was articulated in five questions which essentially aim at describing the national context for local urban adaptation action (box 1).

Box 1: Shaping the EEA Report on Urban adaptation: Questions to the National Reference Centres

- **Inform us, who is primarily responsible for urban adaptation in your country, and who are additional key stakeholders. It would be very helpful, if you could provide us the relevant internet pages and sections and contact details, so that we can explore certain information in more depth ourselves.**
- **Share your view on which topics an EEA report in particular should consider and what would be most supportive for your national activities**
- **How is urban adaptation included in the national adaptation strategy or action plan? (e.g., own chapter or mainstreamed in different chapters)**
- **Is urban adaptation included in any legal framework? (e.g., mandatory urban adaptation strategies / plans)**
- **What are key actions and key resources on urban adaptation in your country? (internet platforms, tools, guidance, programmes, initiatives, funding streams, general concepts)**

Considering the strategy for information collection (indeed, some NRCs did not provide information, and only part of the information requested could be retrieved from other sources), this overview cannot aim at providing a complete overall picture of national actions in member states, but sheds a light on interesting initiatives and programmes in a policy landscape which is in continuous evolution. Rather than providing an overview, the aim is to thus at providing inspiration for good practice examples.

This paper follows the structure indicated by the five questions and is subdivided into two parts: a first part focussing on governance, describes national activities, frameworks and legal initiatives. It aims at understanding how local climate adaptation is framed within the national climate policy, how responsibilities are shared and which strategies national governments have put in place for facilitating urban adaptation at local level. The second part focusses on implementation and initiatives. Extracting information from the feedback provided by national reference centres and national reporting, short descriptions and links are provided that allow for insights into potentially interesting good practices, including guidance and knowledge exchange initiatives, and local initiatives referring to international funding projects, national funding, and independent local action that has been indicated as being interesting for the urban adaptation report from the side of the national reference centres.

2. Governance and national policies

2.1 How is urban adaptation included in the national adaptation strategy or plan?

Austria reports that, whereas the National Climate Plan provides for the strategic framework of all adaptation activities, the complementary national Action Plan dedicates a chapter to adaptation needs in urban areas, providing recommendations, and indicating objectives and actors for adaptation action. Further areas of action addressed by the NAP which are of relevance for urban adaptation strategies are housing and construction, health and spatial planning. For each of these areas further recommendations, objectives and actors are defined by the plan. The recommendations made for cities are focussed on urban green and open spaces (MMR). Furthermore, some regional (Bundesländer) adaptation strategies have been adopted or are under preparation.

In the federal **Belgian** system, each of the regions (Flanders, Wallonie, and Brussels capital region) has its regional autonomy and is creating its own adaptation plan. The draft federal adaptation plan addresses national adaptation actions for 10 sectors; two among these sectors, transport and health, are of relevance for urban areas (source: MMR reporting)

The **Belgian** regional climate plans provide the framework for action at the local level. In the Wallonie Region the regional climate plan¹, actually under public consultation, contains one chapter dedicated to adaptation activities addressing risks from heat waves, water scarcity and flash flooding. The indications given in relation to heat waves point at building level measures (shading) underlining the necessity of measures that do not increase energy consumption. The Flemish Adaptation Plan is part of the Flemish Climate Policy Plan, whereas the plan for the Brussels Capital region was adopted as “Air Climate Energy Plan” again contains a section on adaptation. Belgic plans do not attribute priorities to single sectors, but to issues within the sectors, the build environment is among the priority issue.(MMR)

The **Bulgarian** third National Action Plan on climate change provides mainstreamed information on urban adaptation which is included in different chapters of the plan. Urban areas appear as the least vulnerable among the sectors considered (MMR).

In the draft Adaptation strategy for the **Czech Republic**, linkages between different sectors considered and between mitigation and adaptation measures are highlighted (MMR). Adaptation measures are proposed, among others, for urbanized landscape, health and hygiene, crisis situation, protection of the population, transport (MMR). Up to now, urbanized areas have not been considered in the vulnerability assessment, but urban environment will be included in a forthcoming project call for vulnerability assessment considering further sectors (MMR)

In **Denmark** both NAS and NAP in place, an English translation of the [National Action Plan](#) is accessible from the national Adaption platform. The plan explicitly addresses one impact relevant for urban areas which is rain and cloudburst, so implicitly urban adaptation appears representing the core action in the Danish adaptation plan. The Danish Action plan underlines the need for efforts providing support and knowledge, and green transition.

In Estonia no Climate Adaptation Plan is in place, according to self assessment, the MMR underlines the necessity of preparedness for emergency situations.

¹ Plan Air Climate Energie <http://www.awac.be/index.php/thematiques/changement-climatique/les-actions-chgmt-clim/plan-pace> retrieved at 15/04/2015.

Finland considers spatial planning a crucial tool for prevention with respect to climate risks. Among the sectors described in the national strategy, although urban areas are not explicitly addressed, crucial features of urban systems, as transport and communication, land uses, buildings and construction and health are addressed.

According to the MMR report, vulnerability studies have been made for river and urban floods (cloudbursts). Specifically with regards to city planning, a study has been made on the vulnerability of cities to flash floods and heat island effect (EARK-ILKKA, 2011-2014).

In **France** NAS and NAP in place (no detailed info)

In **Germany**, both NAS and NAP are in place, urban adaptation is included and mainstreamed in several chapters, dedicated to health, spatial planning.

Greece according to self assessment no NAP/NAS in place

Hungary according to self assessment no NAP/NAS in place

Iceland according to self assessment no NAP/NAS in place

Ireland according to self assessment NAP/NAS in place

In the **Italian** climate adaptation strategy (adopted in Dec. 2014), adaptation in urban areas is addressed in a separate chapter, vulnerabilities considered refer to impacts from urban heat island, flash flood and river/coastal flooding.

Latvia according to self assessment no NAP/NAS in place

Liechtenstein according to self assessment no NAP/NAS in place

The Parliament of **Lithuania** has approved a national strategy for climate change management in 2012, which covers both adaptation and mitigation policies. For priority sectors the strategy refers to the results of the Baltic Sea Region Climate Change Adaptation Strategy. Further ongoing vulnerability studies (including risk assessment and identification of opportunities and indicators for monitoring), are focussing, inter alia, on spatial planning. (MMR) With respect to support actions (Guidelines) one of the sectors mentioned is the construction sector which is considered from a competitiveness point of view:

“to establish the main goals and objectives for the expansion and development of the Lithuanian construction sector and their implementation tracks till 2020. One of the reasons for the revision of the priorities in this sector are the increasing environmental requirements that are being established by the EU legislation and the impact of climate change that will have the influence on the public prosperity in the future.” (MMR)

The guidelines will furthermore focus on “sustainable infrastructure development of the cities and settlements” (MMR)

Luxemburg, according to self assessment no NAP/NAS in place The MMR report provided by Luxemburg does not focus explicitly on urban areas, but mentions adaptation measures which are relevant for urban areas like treatment of rainwater in urban areas, ecologic corridors) (MMR).

Malta, according to self assessment, has a NAS in place; the MMR report does not report on adaptation activities specific to urban areas.

In the **Netherlands** the adaptation strategy adopted in 2007 (Make Space for Climate) is actually being updated by two documents: a new comprehensive and integrated National Adaptation Strategy (NAS), and the spatial programme (Delta Programme), actually being implemented, which re-evaluates water management in the light of long-term sustainable development and climate change. The Delta Programme provides for plans and measures aiming at guaranteeing flood safety, freshwater supply and urban resilience, including the relevant planning and a cost estimate. "The Delta Programme uses an integrated and adaptive approach in finding solutions when tackling the issues of safety, water supply and the role that spatial planning can play in resolving those issues" (MMR)

Measures foreseen by the Delta Programme are

- Delta Decision on Water Safety, the new flood risk management policy, based on a multi-layered approach to improve protection and reduce the consequences of flooding.
- Delta Decision on the Freshwater Supply, a new nationwide approach to limit water shortages and using the freshwater supply optimally in the economy and public utilities.
- Delta Decision on Spatial Adaptation, a new, targeted approach to water-robust and climate-proof (re)development in the built environment.

In addition, three key decisions are made regarding two complicated geographical areas, where coastal and riverine water systems interact, and the sandy coast, and where measures regarding flood risk, fresh water supply and spatial adaptation are urgent and may interfere with each other:

- Delta Decision on the Rhine-Meuse Delta choices on the distribution of water from the Rhine across the Waal, Lower Rhine-Lek and IJssel that is of great importance to water safety in the delta region.
- Delta Decision on the IJsselmeer Region choices on average summer and winter water level of the IJsselmeer to balance water safety and the freshwater supply.
- Strategic Decision on Sand choices on maintaining the sand balance along the coast

The Delta Programme 2015 also offers a long term perspective supporting the implementation of the European Water Framework Directive and the Floods Directive in a coherent way. (MMR)

The **Norwegian** national strategy for climate change adaptation adopted in 2013 is formalized in a White Paper on Climate Change Adaptation which provides both an outline of national policies and guidance for adaptation action. It addresses the distribution of responsibilities for adaptive action, including both institutional actors and individuals. Urban adaptation framed as responsibility for development which falls under the responsibilities of municipalities.

The **Polish** National Adaptation Strategy identifies objectives and directions for adaptation actions to be taken within the period to 2020; including spatial development and urban developed areas. The latter are recognized as having a crucial role for implementing adaptation action, as adverse effects of climate change are accumulating in urban areas, pointing specifically to impacts from heat waves, droughts and cloud bursts. (there is also info on a parallel project for financing adaptation activities (New financial perspective 2014-2020) Vulnerabilities of these sectors of public policies will be identified based on climate change scenarios adopted for the NAS. Up to now only risk assessments have been performed for urban areas as for other priority areas. (MMR).

In the **Portuguese** strategy for Adaptation to climate change (ENAAAC), urban areas and spatial planning are considered priority areas for action, and national authorities responsible for these areas are members of the group coordinating the implementation of the strategy. In the perspective of a revision of the strategy, spatial

planning is among the areas which are going to be reinforced. The strategy identifies nine priority sectors, among these territory and urban. A report on risk prevention and reduction is planned with the aim of defining a Framework for local and regional plans with regards to the identification of vulnerable areas, of measures and the integration of measures for risk reduction and prevention in spatial planning plans. (MMR)

Romania, according to self assessment, a NAS is in place. According to the MMR report, the climate strategy adopted in 2013 covers both mitigation and adaptation issues. Among the 13 sectors, addressed by the strategy, urban areas are not explicitly mentioned, (but they comprise relevant elements such as, inter alia, public health, construction and infrastructure, flood protection) and municipal authorities are named in different contexts as the responsible authorities for implementing parts of sectoral strategies.- the World Bank has delivered (is delivering?) assessments for some of the priority sectors (project OPERA CLIMA (ESIF 2014-2020) which included the urban sector, among others.

In **Slovakia** a national Adaptation strategy was adopted in 2014, which was stimulated by the impacts and damages generated by extreme weather events. Although not directly named, urban areas are considered with regards to flood protection, water supply and sewerage.

Slovenia no NAS in place

The **Spanish** National Plan for Adaptation to Climate Change (PNACC) works as a framework coordinating public administrations for impacts and vulnerability assessment (only for the public domain, not for private actors). The implementation of the plan is organized in 6 - year - work programmes areas (Pillars); urban areas are considered for the first time in the third programme (2014-2020), and will be covered with the four areas of action: knowledge generation and impact/vulnerability analysis, integration into legislation, development of indicators (**Monitoring**) and stakeholder mobilization. Urban areas are considered both as a geographic territory and in terms of sectorial interventions (planning, construction, transport, energy).

The description of the **Swedish** climate strategy (NAS) does not refer to explicitly urban adaptation measures, but refers to the need of a broad involvement of the entire society, and of integration into responsibility for sectorial policies. Responsibilities for the execution of preventive measures has been given to different national authorities, but there is no coordinating authority.

The **Swiss** national adaptation strategy has identified climate change impacts in urban areas as one of the main challenges, to be dealt with in terms of health and spatial development policies. For reasons of federal constitution, the central government has hardly any competences in this field, limiting its activities to support to local and regional (cantonal) authorities.

The **Turkish** climate strategy, addressing both adaptation and mitigation activities, contains some specific strategies for urban areas with potential both for mitigation and adaptation: efficient land-use for preventing urban heat island effect, reduction of urbanization pressures on rural areas, flood and river basin management, as well as measures for sustainable urban water management, use of appropriate architecture and building materials, and protection of urban ecosystems are mentioned among the measures to be implemented.

The **UK** National Adaptation programme identifies actions to be undertaken and designates Government departments and arms' length bodies responsible for their execution. Areas of action relevant for urban adaptation concern flood and coastal erosion risk management and spatial planning. The same chapter dedicated to the built environment furthermore addresses the need for increasing adaptive capacities and

resilience. A separate chapter is dedicated to local governments, focussing on awareness raising and capability building, a framework for action and commitments to action by core cities.

The Scottish and Welsh strategies focus, inter alia, on resilience for buildings, infrastructures and communities, while the Northern Ireland strategy does not mention sectors of direct relevance for urban adaptation (MMR).

2.2 Is urban adaptation included in any legal framework?

Including urban adaptation into existing legal framework is a relevant step towards mainstreaming of adaptation to climate change into existing policies, like spatial planning, building layout, and design of infrastructures. To some extent, having climate change included into legal frameworks can facilitate the access to financial resources, and provide incentives for including measures aiming at protection against climate change impacts into diversified financial strands.

The **Austrian** Adaptation Strategy has not been translated into a legal framework which would provide a legally binding background for local action. Nevertheless, specific adaptation measures have been included in existing sector-specific regulations, especially into federal building laws and legal frameworks for urban planning.

Bulgaria has introduced urban adaptation as an issue in the climate mitigation act (not sure whether the question has been understood correctly), envisaging the preparation of a draft for a national adaptation plan.

In the **Czech** republic, where no adaptation plan has yet been adopted, urban or local adaptation activities are promoted by financial measures both from sectorial national programmes (flood, landscape protection) or by funding provided from EU and EEA sources.

In **Denmark**, the planning act has been amended in 2012, in order to enable municipalities to include climate change adaptation directly into municipal development plans. This comes with an agreement between municipalities and central government to increase municipal investments into climate change adaptation into wastewater treatment by DKK 2,5 billion; relying on risk assessment and municipal climate change adaptation plans. Complementary to this the water sector act was amended in the same year, clarifying that wastewater companies are allowed to invest in climate change adaptation (source: **MMR Denmark**) in Copenhagen this amendment allowed the water utility to charge *investment costs in adaptation measures on water users*.

Following the indications of the revised Planning Act, all **Danish** municipalities will have finalized their climate change adaptation action plan by spring 2015, consideration of adaptation issues includes flood risk mapping as a basis for establishing priorities for the local climate change adaptation measures (source: MMR) ;

In **Finland**, management of stormwater has been taken into consideration in the Land Use and Building Act since an amendment of this act in 2014. (source: **MMR Finland**)

In **France**, according to the French law on climate action “*lois Grenelle*”², local climate action is codified within Territorial Climate-Energy Plans ([PCET](#)), which consider all forms of climate action for both climate change mitigation and adaptation (“France - Climate-ADAPT” 2015). Furthermore, several national plans have

² Law 2010-788 of 12 July 2010

identified specific action and provide funding for activities at local level, related to drought and flash floods (“The National Climate Change Adaptation Plan - Ministère Du Développement Durable” 2015).

Although urban and spatial planning is a state (Länder) competence in the federal **German** structure, the federal level nevertheless has used its legislative competences for mainstreaming urban adaptation into sector laws as the town and country planning code (Baugesetzbuch) and the financial promotion programme for urban development (Stadtebauförderung).

Ireland is actually developing guidelines for integration of adaptation into local level planning. Once these guidelines will be revised (the [guidelines version](#) actually online dates from 2007, they will be included into the statutory planning guidelines (MMR reporting).

Urban planning legislation in **Italy** is a competence of regional authorities. In this sense the province of Trento³, introduced adaptation related norms in relation to urban planning.

In a similar manner, also **Norwegian** local authorities are requested both by building legislation and by legislation regarding civil protection, to consider adaptation in their planning processes.

In **Slovakia**, flood protection and prevention measures have been integrated into the Landscape Revitalization and integrated River Basin Management Programme (Government resolution no 744/2010). For the time being, urban adaptation has not been mainstreamed into planning legislation, but EU funding (Structural Funds) are being used. In ERDF Regional development programmes under the strand of “Sustainable Urban Planning”. Although adaptation in urban areas among has not been included the priorities of the national adaptation strategy, is actually planning for actualizing the national strategy of regional development in order to provide for indications on urban adaptation. (MMR)

In **Sweden**, several tasks related to climate change adaptation have been assigned to different administrative levels and governmental agencies. Nevertheless, as far as what can be understood from the communication made by the Swedish NRC, local authorities are free to consider climate change impacts and measures for adaptation in the context of their spatial development and civil protection plans, or to define separate plans of guidelines for adaptation planning. In 2014, Municipalities represented by SALAR (the Swedish Association of local authorities and Regions) pledged the national Government asking for clear attribution of responsibilities and financing mechanisms (“Klimatanpassning I Den Fysiska Planeringen - SKL” 2015). According to the MMR reporting, Swedish Municipalities are obliged to consider climate change impacts in their spatial development plans according to the Swedish Planning and Building Act. Financial resources of approx. €2,5 million for protection measures have been made available by the Swedish contingency agency, which can be used to finance max. 60% of eligible costs (or max 60% of the object’s value) for protection measures against landslides and flood. Furthermore, since 2009, approx. 100 million SEK (ca. €10,5 million) have been spent every year for financing prevention and awareness raising activities, including administrative expenditures. (MMR)

The **Swiss** federal government is evaluating whether the consideration of climate change adaptation should be included among challenges, spatial planning needs to consider by law (Bundesamt für Umwelt 2014, 48).

The **Turkish** National Climate Change Adaptation Plan designates local administrations as responsible organizations of some actions, whereas in general, the “relevant” role for local authorities and the need for

³ The province of Trento has a larger status of autonomy than other Italian provinces.

“integrating the issue of climate change into their own strategic plans and programmes “ and for preparing Local Climate Change Action Plans (NRC report).

The **UK** government deliberately renounced on anchoring obligations for adaptation planning into legislations, stating that “Local authorities are free do decide how best to address (...) challenges and take advantage of any opportunities.” (<http://climate-adapt.eea.europa.eu/countries/united-kingdom>, assessed 17/04/2014). In line with this statement, the 2008 Climate Change Act which makes monitoring of adaptation strategies compulsory for institutions and agencies, explicitly excludes local governments from these obligations as these are “largely independent of central government and are (...) accountable to their electorates”(Great Britain and Department for Environment 2013, 21)

2.3 How are responsibilities shared between institutions and stakeholders at different governmental levels, how is coordination provided for?

In most European countries, relationships between local authorities and national governments are based on a more or less accentuated interpretation of the principle of subsidiarity underlying the national constitutional asset, assigning tasks to the lowest compatible policy/administration level in order to keep decision processes close to citizens. Under this perspective, urban planning is generally, in the European context, a task of local administrations. Activities belonging to the area of disaster risk protection, and connected prevention measures are *less generally* attributed to local competences, but are, for the sake of optimizing the use of resources and coordination, concentrated at higher levels, in more than one case at national level.

In **Austria**, local authorities, being in charge of spatial planning (and also for the protection of cultural heritage) public services relevant areas for action such as transport, water, energy, housing and health care and nature protection, are actually under local competences. Local authorities are furthermore responsible for planning disaster control and protection. Intermediate administrative levels at provincial (regional?) level (the text mentions Oberösterreich as an example for action at province level) provide for coordination, and articulate, in some cases, their own adaptation strategy. The different sector specific competences at national level are coordinated, with respect to climate change, by the Federal ministry responsible for, inter alia, Environmental Policies, which has the responsibility for implementing the national Adaptation strategy.

The Federal character of **Belgium** determines, compared to other countries, a stronger competence for the intermediate (Regional) level which is used also for coordinating policies: the three regions (Flanders, Wallonie and Brussels Capital Region) are defining each their own adaptation strategy, the role of a future (?) national adaptation plan is seen mainly in coordination, communication at international level, and facilitating interaction between different government sectors, merging of regional and local initiatives etc. in a bottom-up process, “the most effective way to come to a national plan is to establish a process which allows the different levels to merge their locally developed and adjusted action plans on adaptation into a single National Adaptation Plan ...” (National Climate Commission 2010, 46). Under this perspective, the reference level for local adaptation action is to be found in the regional adaptation plans. The regional plan for the Wallonie Region⁴ is actually under public consultation, whereas the Flemish Adaptation Plan and the plan for the Brussels capital region have already been adopted as part of the relative Climate policy or climate Policy and Energy Plans respectively.

In **Bulgaria**, where no adaptation strategy is in place, all government levels share responsibilities on climate change adaptation (no indication who is coordinating /responsible);

The report on the **Czech** republic states that local authorities (including municipalities, protected areas) are the principal agents in charge of adaptation action. The national level provides funding for adaptation measures focussing on water, nature and landscape protection. Furthermore, EEA and EU Grants which in part are directed to creating systems of information exchange in support of the creation of adaptation strategies and measures are used.

In **Denmark** climate change adaptation is principally conceived a task to be developed principally at local level by municipal authorities, companies or individuals, stating that “individual stakeholders know the local conditions best, and are consequently in the best position to make decisions on adaptation” (MMR). The role

⁴ Plan Air Climate Energie <http://www.awac.be/index.php/thematiques/changement-climatique/les-actions-chgmt-clim/plan-pace> retrieved at 15/04/2015.

of the central government lies in the establishment of a framework for local action by adapting laws, regulations, ensuring coordination and providing the necessary information. The central government has furthermore some direct responsibilities being owner of infrastructures, buildings and land. (MMR)

In **Estonia**, adaptation is considered, by the Ministry of the Environment a task for regional and local development plans (Ministry of the Environment of the Republic of Estonia 2009: 145, cited by Peleikis 2011). Actually, the only adaptation activities for urban areas are reported so far from the context of disaster risk preparedness in coastal cities, developed in response to experienced weather extremes.

The **Finnish** National Adaptation Strategy is implemented integrating “adaptation into routine planning, implementation and development processes. The Strategy is being implemented within the sectors of the ministries in cooperation with different actors...” (“Finland - Climate-ADAPT” 2015),

Responsibilities for local adaptation action under the **French** law are mainly delegated to regional plans Regional Climate, Air and Energy Schemes (SRCAE), and local adaptation actions are designed, according to the French law on climate action “lois Grenelle”⁵, within Territorial Climate-Energy Plans (PCET), which consider all forms of climate action for both climate change mitigation and adaptation. (“France - Climate-ADAPT” 2015). Furthermore, several national plans have identified specific action and provide funding for activities at local level, related to drought and flash floods (“The National Climate Change Adaptation Plan - Ministère Du Développement Durable” 2015).

According to the **German** federal governance framework, competence for urban planning is, at first hand, attributed to municipalities according to the subsidiary principle, and covers all issues where no territorial coordination is necessary. At national level, responsibilities for urban adaptation is with the national ministry for the Environment which has coordinated the definition of a national strategy for climate change adaptation. The main task of the strategy is to provide a framework for regional and local action. The subsequent national action plan foresees national activities in terms of knowledge generation and the creation of a framework for local and regional action (integration of adaptation into national sector relevant legislation and funding streams). Direct national activities are mainly limited to external contacts (international communication and support of adaptation in developing countries. Within this framework, regional climate change adaptation strategies have been defined which provide, with regards to urban adaptation, further regionally relevant support for local action.

In absence of a **Greek** national adaptation strategy, the national Ministry for Environment, Energy and Climate Change is catering for coordination of regional and local and sectorial initiatives.

The same holds for **Italy**, where the Ministry of Environment has been promoting the adoption of the national climate change adaptation strategy supported by the national Environmental Agency. Regional legislations and regional agencies are active in some cases, too. Urban planning legislation is a competence of the 20 regional authorities which are acquiring increasing legislative, fiscal and political competences in a process of increasing decentralization. Some regions (Emilia Romagna and Tuscany) have defined climate plans which include adaptation measures and use their environmental agencies for research and monitoring, too.

In the **Netherlands** the national government is responsible for national interest including flood risk management and the management of the main water system. At province level, spatial planning and setting out of a framework for the management of the water system is provided for, whereas regional water boards supervise and manage the regional and the major part of the primary protection system, and cares for water

⁵ Law 2010-788 of 12 July 2010

availability and quality. Municipal authorities cater for the spatial planning of the territory of their competence, and for the public areas within their duty of care under the Water Act. They are furthermore the first contact point in case of flooding events. At national level, plans and programmes have been set up and implemented following nation-wide strategy for protection and enhancement of resilience, as for instance the Room for the River plan, approved by the national Government in 2007, and the overarching Delta Plan which entered in force in 2012. The actual spatial implementation plan, called Delta Programme, is, from a formal point of view, an amendment of the national Water Act. It aims at protecting the country “from (coastal and river) flooding, to work towards climate resilient urban areas and to ensure adequate supplies of freshwater for generations ahead” (MMR). It is based on a legal act created for the implementation (Delta Act on flood safety and freshwater supply) which defines the implementation programme, the allocation of national funding for the entire duration of the programme destined both to implementation and research need and the form of Governance based on the role of a special Commissioner appointed by the government who is directly responding to the cabinet (MMR). The commissioner presents annual reports to the Parliament alongside with indications of appropriate policy responses which are accepted by the cabinet as government policy, to be elaborated in national legislation and administrative agreements. Financial resources for implementation and research are provided by the national government at a level of a minimum of €1 billion a year (MMR) an amount defined in the Delta Act. Co-finance to 50% of construction and improvement costs for primary flood defence systems is provided by water boards. Advice on how to target the budget on implementation measures and supporting research is given by the Commissioner’s annual Delta Programme; these investments are approved by the Minister of Infrastructure and the Environment decides who bears the political responsibility. (MMR)

In **Norway**, national adaptation policies are coordinated by the Ministry of Climate and Environment, supported by the Norwegian Environment Agency. Regional and local activities are coordinated and followed up by county governors, providing support to local authorities especially with regards to vulnerability analysis and spatial planning and coordinating at the regional level, local civil protection activities for preparedness and preventive measures. County governors function as a controlling instance for the translation of national adaptation policies into the local assessments of vulnerability and risk and in land use plans. County municipalities (?) furthermore provide guidance and regulation in relation to local planning, having received increased competences by the 2008 reform of the national planning and building act. According to a recent analysis this has led to a good diffusion of vulnerability analysis in the local authorities, but frequently these analysis are focussing mainly on the emergency prevention aspect, and do not translate the results into changes in the building and planning norms⁶.

The **Polish** national adaptation strategy attributes the main responsibility for urban adaptation to local and regional governments. The national government with the ministry of environment is supporting local adaptation efforts with the (planned) publication of guidelines for local adaptation planning and by a specific national project addressing adaptation needs for cities with more than 100.000 inhabitants, providing organizational and financial support for local authorities. This project is part of the national Household Plan “New Financial Perspective” 2014 – 2020. This support for the implementation of adaptation action in cities with more than 100.000 inhabitants both in organizational and financial terms, anticipates the creation of a future basis for integrated urban adaption actions. Participation in this process is voluntary.

⁶ http://www.miljodirektoratet.no/no/Klimatilpasning_Norge/Bibliotek/Forskning/Mange-planer-manglende-implementering/

In **Portugal** there is a quite articulated scheme of competences supporting or complementing local authorities' activities. A national working group coordinates the implementation of the national climate adaptation strategy which is intended to be defined at sectorial, local and/or regional levels. members of the group are the General Directorate for Territory (DGT), and the National Association of Portuguese Municipalities. With regards to inland and coastal waters, climate change adaptation is programmed, coordinated and implemented by the level are the authority for water management. Furthermore the National Authority for Civil protection coordinates activities related to risk and disaster reduction, so most climate change adaptation measures fall under their competence, too. Urban planning is coordinated by territorial management instruments. Measures for climate change adaptation are implemented by local authorities, in most cases in articulation with the relevant national bodies mentioned. Monitoring of weather and climate and alerts for extreme events are provided by the national Meteorological office. Civil society has access to planning exercises participating in public consultation processes which are foreseen for all public planning processes.

In **Spain**, a dedicated office for climate change (OECC) has been created within the Ministry of Agriculture, Food and Environment, which has the task of coordinating, managing and monitoring the implementation of the national plan and the work programmes. National plans have been detailed by most regional authorities (Autonomous Communities), defining their own climate change adaptation plans or strategies. the Spanish network for Cities and climate, which is a section of the national association of Municipalities and Provinces, provides technical support for local authorities and a platform for knowledge exchange and experiences, supporting local authorities who are planning and implementing measures for adaptation to climate change. The aim of the network goes beyond the adaptation, aiming at supporting local authorities committed to sustainable local development and climate protection. (check which role climate change has in this context; could also be: climate change has been inserted as an additional aim among existing policy goals committed to sustainable development and climate change mitigation).

Sweden did not assign overarching responsibility to a single national authority, but follows, for the national policy, a scheme of distributed responsibilities, mostly according to specific sectorial competences. This corresponds to a policy goal aiming at a permeation of adaptation activities into the entire society, and a general mainstreaming into sector policies. Nevertheless, within the hierarchy territorial authorities, adaptation activities are distributed across three levels: national, regional and local, where the regional level (County Administrative Boards CAB or Län) has a coordinating role and reports to the government annually about actions taken. Within this system, local authorities have extended responsibilities, which comprise planning regulations and management of infrastructures (water, sewerage system, energy, waste, hospitals schools, care facilities) as well as for emergency protection facilities and services like emergency plans and rescue services.

In **Switzerland**, the principal needs of adaptation action in relation to urban areas are seen in the health and the spatial planning sector. Responsibilities for these sectors lie, according to the federal system, with local and cantonal administrations, whereas the role of the national government is limited to providing support to local and cantonal governments for the development and the implementation of adaptation policies.

As mentioned above, in the **UK**, local governments are responsible for planning and implementing adaptation measures for urban areas. The national government explicitly limits its intervention at providing services, support and information using support frameworks, works programmes, as well as activities of national agencies as DEFRA, networks as the local government group (an umbrella body for local authorities in the

UK), the Climate UK network and UKCIP, and institutions as the Royal Town Planning Institute (see more under initiatives below).

3. Relevant National and Local Initiatives

3.1 International research projects:

Austria:

EUROPEAN SUMP-network ENDURANCE (Bregenz, Graz, Hartberg, Judenburg, St. Pölten, Vienna)

C3Alps (Pilot Area Mosterviertel)

CLISP – Climate Change adaptation by Spatial Planning in the Alpine Space (www.Clisp.eu) funded under Alpine Space 2007-2011)

Bulgaria:

Urban Nexus (FP7) participation of the national Agency of Sustainable Development Sofia; project aiming at adaptation, urban sustainability

Estonia has used the ASTRA project (check) for setting up an autonomous early coastal flood warning system

Greece

Among Greek regions the region of Achaia in Western Greece has participated in the INTERREG IVC project F:ACTS: Forms for Adapting to Climate Change through Territorial Strategies focusing on increasing resilience of risk prone areas to climate change effects, the region of Crete was partner of the in the RegioClima project, which aimed, inter alia, at the elaboration of adaptation strategies and the creation of EU-wide networks. Among urban areas, Patras had participated in the Life+ Project 'Act-Adapting to Climate Change in Time' and in the CC-Waters Project which addressed Climate Change and impacts on Water Supply. The Attica Region, the Centre for Technological Research of Crete and Goulandris Natural History Museum participate as partners, while Ministry of Environment, Energy and Climate Change and the Municipality of Komotini participated as associated partners to the OrientGate project (<http://www.orientgateproject.org/>). The OrientGate project aims to implement concerted and coordinated climate adaptation actions across South Eastern Europe (SEE). The partnership comprises 19 financing partners, 11 associates and three observers, covering 13 countries, that together will explore climate risks faced by coastal, rural and urban communities, contributing to a better understanding of the impacts of climate variability and climate change on water regimes, forests and agro ecosystems. The Region of East Macedonia and Thrace and the Decentralized Administration of Crete participate in the MED Programme: COASTGAP Capitalisation Project (**COASTGAP: Coastal Governance and Adaptation Policies in the Mediterranean**) (<http://coastgap.facecoast.eu/>). COASTGAP aims to capitalize 12 best practices from 9 projects of the cluster (from MED and other programmes), to produce governance and adaptation policies aimed to reduce risk along coastal zones and foster their sustainable development. In order to provide an operational and coherent strategy for the 2014-2020 financial period, supported by multi-level agreements among coastal Administrations, COASTGAP aims to design, characterize and prepare to launch the Joint Action Plan on Adaptations to Climate Changes in Mediterranean Basin.

In **Italy**, the Municipalities of Ancona and Bologna have been active in Life + projects: Municipality of Ancona: LIFE Project ACT – Adapting to Climate change in Time (<http://www.actlife.eu/EN/index.xhtml>); Municipality

of Bologna: LIFE BLUEAP – Bologna Adaptation Plan for a resilient city (<http://www.blueap.eu/site/>). Furthermore, Rome and Milan are part of the 100 Resilient cities initiative. The Municipalities of Alba and Padua participated as Training Cities, and the municipality of Ancona as a Peer City in the EU Cities Adapt (<http://eucities-adapt.eu/cms/training/training-cities/>) project. Furthermore, the municipality of Padua is one of the Pilot Area chosen in the Central Europe UHI - *Urban Heat Island* Project (<http://eu-uhi.eu/it/>).

In **Latvia**, the capital city of Riga has started activities for the assessment of risks and opportunities in the project "Integrated Strategy for Riga City to Adapt to the Hydrological Processes Intensified by Climate Change Phenomena" co-financed by the Life + programme. The activity aims at identifying risks and strategies for protection with respect to hydrogeological risks. Furthermore, the municipality of the city Salacgrīva has adopted the Declaration on Green municipality and has also prepared its own Climate Change Adaptation Strategy under "BaltCICA" project.

Liechtenstein is actually using resources provided by the C3Alps project for assessing climate change impacts and vulnerabilities of the country and to identify needs for adaptation, a specific focus on urban vulnerabilities is not mentioned.

In **Lithuania**, inundation schemes as well as high-risk zones were analysed for the Klaipeda Seaport in the project "*ASTRA. Developing Policies and Adaptation Strategies to Climate Change in the Baltic Sea*", which was completed in 2007, The Lithuanian partners involved in this project were the Environmental Centre for Administration and Technology, Vilnius University, the Institute of Geology and Geography, and the City of Klaipeda. The city of Klaipeda participated also in the project "*BaltCICA. Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region*" (2007-2013), where adaptation options for the city of Klaipeda and the district of Klaipeda were developed, initiating the process of implementation. In the project "Baltadapt" (2007-2013) Lithuania as a partner contributed to the review of state-of-the-art knowledge on climate change in the Baltic Sea Region, identification of information needs for designing appropriate adaptation measures and impact of climate change on coastal zones identified. The aim of the project is to develop a Baltic Sea Region-wide climate change adaptation strategy. While it is understood that such a strategy cannot be adopted by "Baltadapt", the project can ensure its preparation and clear the ground for its adoption.

Poland has initiated a project in collaboration with the Verband Region Stuttgart (D) for the preparation of an adaptation strategy of the city of Warsaw, using funding by the LIFE + instrument.

Portugal has participated in the F:ACTS project (INTERREG IVC) (Forms for Adapting to Climate Change through Territorial Strategies) with a rural case study (Baixo Vouga Lagunar), and has contributed to the redaction of the Adaptation Handbook. Using EEA funding, and co finances by the Portuguese Carbon Fund, the Programme AdaPT aims at improving the capacity of Portuguese municipalities to integrate adaptation to climate change into municipal planning. Climadapt.Local, financed within this programme will provide guidance and training for planning of adaptation for 29 Portuguese municipalities. Furthermore, The Operational Programme for Sustainable and Efficient Use of Resources (PO SEUR), (EU financial framework 2014-2020), also considers one main area of intervention the municipal and regional planning for adaptation to climate change.

The **Slovak Self-Governing Region of Bratislava** (BaSGR) was a partner of the RegioClima project for assisting societies in adapting to the new climate conditions both by minimising the risk of damage and exploiting new opportunities arising from a changing climate.

In the context of the [SEERISK](#) project case studies have been produced on heat wave risk assessment in Western **Romania**'s urban Areas. (MMR)

In **Spain**, the Municipality of [Bullas](#) was partner in the LIFE ACT project adapting to climate change on time.

3.2 National financing and research projects

Specific national financing and research programmes set up at national level are mainly targeted to knowledge generation and capacities building at local level, promoting pilot actions in selected cities.

Austria:

Austria has activated a series of climate related activities at municipal level, frequently acting both towards mitigation and adaptation actions. Among these, [the national climate research programme StartClim](#) and [the Climate and Energy Fund](#) (especially its [Austrian Climate Change Research Programme - ACRP](#)) provide important and forward-looking results also for the area of urban adaption. The Austrian Energy award, an action corresponding to the European Energy Award started in 1998 provides municipalities with practical, long-term support in the fields of energy efficiency and climate protection. The focus on energy efficiency generates some synergies with adaptation options, for instance promoting measures for increasing thermal comfort in summer, generating disaster risk plans and heat protection plans). The program is managed by the Austrian Energy Agency as part of the initiative "klima:aktiv" of the Austrian Environmental ministry.

The Klima:aktiv initiative aims at market transformation towards more sustainability and includes mitigation measures which are closely linked to adaptation. The initiative will promote, until 2020, soft measures in the fields of energy efficiency, and mitigation measures closely linked to adaptation. The transport strand of the programme offers consultation and financial support for municipalities.

In a similar manner, the Austrian [Smart-Cities-Initiative](#), funded by the Federal Ministry of Transport, Innovation and Technology focusses on mitigation of climate change impacts, but still offers a good opportunity to further address urban adaptation issues in a smart technology centred approach to sustainability.

The programme [Klimanetz](#) aims at the valorization of the role of human and social capital for adaptation is financed by the Climate and Energy funds, the achievements of the case study of Virgen has been funded under this programme.

The Austrian Climate and Energy Funds (Austrian Climate Change Research Programme ACRP) has been used for several adaptation focussed projects, among these the CC TALK! , and the production of the handbook (FAMOUS Handbook) which presents methods and tools for climate adaptation in municipalities.

Furthermore, reporting from NRC mentions existing (financial) support programmes on different administrative scales (state, provinces, municipalities and cities), targeting individuals as well as communities/municipalities)

The PACINAS project (Public Adaptation Costs: investigating the Nationals Adaptation Strategy) will analyse the budget impacts of major public adaptation measures on a case study based approach combines with a macroeconomic assessment. The assessment will take into consideration both extreme events and slow onset changes. Complementary to this the project PATCH:ES (Private Adaptation Threats and Chances: enhancing Synergies with the **Austrian** NAS Implementation) will investigate into private adaptation with

regards to actors, extent of action, drivers and as well as risks of maladaptation. The assessment will be based on three case studies (Agriculture, Tourism and private households). (MMR)

In the Flanders region in **Belgium**, a think tank of experts on adaptation to climate change is being subsidised for three years by the Flemish regional government which focusses on spatial planning. It aims at developing and spreading knowledge generated in a trans-disciplinary approach. It further more discusses the required measures and identifies in advance conditions and barriers to implementation. (MMR)

In **Croatia**, as part of the initial assessments for the development plan for the City of Zagreb, an analysis of the future climate impacts was conducted, leading to a set of 47 measures which aim at improving resilience to climate change, including protection and response measures for heat waves, (buildings and green infrastructure), water management adaptation of transport infrastructure, improvement of energy infrastructure and mitigation of climate change effects on landslides. Furthermore, the city of Koprivnica was partner of the regional project OREINTGATE, whereas Zadar was a Partner in the Cities adapt project and has developed a Vision for climate change readiness and a draft Action plan for adaptation to climate change (MMR).

Measures set up in the **Czech** republic aim primarily on the integration of adaptation measures into environment protection policies, enhancing potential environmental services. The Czech Ministry for the Environment has set up three funding schemes focussing on Water, Nature and Landscape protection, which foresee planning and implementation of measures which have also adaptation effects. Two of the three programmes are funded by national resources (Landscape programme and Programme for the renewal of the natural function of the landscape). Among the interventions foreseen by a third programme (Operational Environment programme) funded by the EU, those aiming at the reduction of flood risks, and the improvement of taste of landscape and nature, are those most relevant for adaptive action. Further finance both from national and EU resources aiming at improvement of agricultural practices potentially could provide side effects in terms of adaptation. None of these activities has a specific focus on urban areas.

The **Finnish** research programme on Climate Change (FICCA) has set up a number of research projects in the field of river and urban floods (TOLERATSE and IRTORISKI projects), on health risks for elderly, and a specific project on urban planning exploring vulnerabilities of cities to flash floods and heat island effects (EAKR-ILKKA (2011-2014)). Furthermore some targeted research projects focussed on durability of Facades and balconies in a changing climate (in 2010), on the Cultural Environment (in 2008) and a research project on the urban environment focussing on questions related to the living environment and climate change (VTT, Technical Research Centre of Finland SYKE et al. concentrating, inter alia, on interconnections between mitigation and adaptation activities.

The **German** ministry for the Education and Research has initiated and financed a series of regionally focussed projects for climate change adaptation, called Klimzug, aiming at the “development of innovative strategies for adaptation to climate change” (“BMBF-Klimzug: About KLIMZUG” 2015)

- KLIMZUG-NORD – Strategies adapted to climate changes concerning the metropolitan area of Hamburg ([Webpage, en](#); [Webpage, de](#))
- KLIMZUG-Nordhessen – **Regional** Network for Climate Change Adaptation - Northern Hessen ([Webpage, en](#); [Webpage, de](#))
- dynaklim - Dynamic Adaptation to the Effects of Climate Change in the Emscher-Lippe Region ([Webpage, en](#); [Webpage, de](#)) (adaptation for a part of an heavily urbanized polycentric former industrial region)
- RADOST – Regional adaptation strategies for the Baltic coastline of Germany ([Webpage, en](#); [Webpage, de](#))

- INKA BB - Innovation Network of Climate Change Adaptation Brandenburg Berlin ([Webpage, en](#); [Webpage, de](#))
- nordwest2050 – Prospects for Climate-Adapted Innovation Processes in the Model Region Bremen-Oldenburg in North Western Germany ([Webpage, en](#); [Webpage, de](#))
- REGKLAM – Development and Testing of an Integrated Regional Climate Change Adaptation Programme for the Model Region of Dresden ([Webpage, en](#); [Webpage, de](#))

Further to these regionally focussed projects, the same institution has financed, under the KFM/Klimazwei programme, a sector oriented research project on Climate Change Adaptation, focussed, inter alia, on climate effects in the metropolitan areas of Hanover-Braunschweig-Göttingen-Wolfsburg ([Webpage, de](#)), for the State of Lower Saxony ([Webpage, de](#); [Flyer pdf, en](#)), the region of Starkenburg ([Webpage, de](#)).

Further adaptation action with focus on urban areas has been financed by the ministry for Building and the Environment, like the ExWoSt project – Climate change-proof urban development: countering the causes and impact of climate change with urban concepts ([Webpage, en](#); [Webpage, de](#)).

The **Lithuanian** city of Klaipedia was partner in the BaltCICA project (Climate Change: Impacts, Costs and Adaptation in the Baltic Sea Region), adaptation options for the city of Klaipedia and the district of Klaipedia have been addressed in the report of the project BaltCICA. More broadly this issue is elaborated in the book “Klimato kaita Klaipėdos mieste ir rajone: poveikis, kaina ir prisitaikymas ([Climate change in Klaipėda city and district: impact, price and adaptation](#))” (2012). Vilnius (available only in Lithuanian):

In the **Netherlands**, a specific capacity building and mainstreaming programme has been set up aiming at engaging regional and local policy makers, institutes and businesses in the promotion of climate proof and water resilient cities for the year 2020. It provides funding for participants supporting the implementation of programmes (MMR).

Furthermore, the [Watergraafsmeer](#) project, which was concluded in 2014, experimented the adaptation of an urban settlement to climate change, applying an integrated and participative approach to the design of a transition process. Examples for good practice are showcased in the [Spatial Adaptation Knowledge Portal](#).

In **Norway**, a pilot project in Troms aims to guide the municipalities in how to integrate CCA efforts in social and spatial planning. The project partners are the County Governor in Troms, the Directorate for Civil Protection (DSB), the Norwegian Met Office, the Norwegian Water Resources and Energy Directorate (NVE) and four municipalities in Troms. The objective with the project is to get an overview of the existing knowledge base for Troms county – i.e. existing knowledge, the legal basis (which legal acts and sections), existing guidelines and directives, tools and resources useful and relevant for the municipalities in their CCA efforts. By summer 2014, the project will summarise experiences from the project and present how the municipalities can integrate CCA on different levels in their social and spatial planning, in a very detailed and concrete way. The project is also a pilot for the Norwegian Climate Service Centre, giving input to what kind of data the municipalities need and how to present the data in a way that is useful for them.

The **Norwegian** government has furthermore financed a collaborative project between the Government and the 13 largest cities in Norway aiming at reducing greenhouse gas emissions and adapting to a changing climate called [Cities of the Future](#) (Framtidensbyer). The Programme ran from 2008–2014. The 13 cities are: Oslo, Bærum, Drammen, Sarpsborg, Fredrikstad, Porsgrunn, Skien, Kristiansand, Sandnes, Stavanger, Bergen, Trondheim and Tromsø. These “Cities of the Future” act as an important driving force for the climate change adaptation work in Norway. The cities' work has helped to speed up the climate change adaptation planning process in other municipalities.

In **Poland**, the project “Development and implementation of a strategic adaptation plan for the sectors and areas vulnerable to climate change” with the acronym KLIMADA has been implemented from 2011 to 2013. It aimed at providing the basis for the preparation of a strategic plan for adapting the country to climate change aiming both at providing information on climate impacts and on strategies for mainstreaming climate change adaptation into national policies (“Klimada” 2015).

In **Romania**, a national project Ro Risk (IGSU – Beneficiary) will explore 9 types of hazards at national scale, among these, also flash floods. The project has not yet been started (when redacting the MMR, and is supposed to close in 2015).

The **Romanian** Project⁷ Flood Risk Management Plans (FRMP) which will be finished in 2015 addresses both structural and non structural measures mitigating flood risk, including early warning and communication, spatial aspects of flood management (mapping, design of retention areas, development restrictions in flood prone areas and adaptation measures for critical infrastructures for water management. (MMR)

Although focussed mainly on mitigation, the project "**Slovenia is reducing CO2: best practices**" is one of the actions of partnership in communicating EU-level issues between the European Commission, the Government of the Republic of Slovenia and the European Parliament. The project is implemented by Umanotera, the Slovenian Foundation for Sustainable Development, and its webpage represents a database and a platform for the promotion of best practices, dissemination of knowledge and encouragement to change. One of the focus areas of the project is also adaptation to climate change. In this respect further to the Climate adapt website, a dyke project in [response to floods](#) in September 2010, as examples of good practice is presented.

In the context of civil protection measures in **Sweden**, government grants for preventive measures are provided to municipalities with built up vulnerable to landslides, or flooding. These grants are allocated by the Swedish Civil Contingencies Agency (MSB). For 2015 there is 25 MSEK or about € 2.5 million available for the municipalities.

The **Swiss** Federal office for the Environment together with major Swiss cities, has conducted the Pilot Project "Adaptation to climate change in Swiss cities". Aim of the project was to assess climate change impacts and vulnerabilities of Swiss cities and to identify the need for adaptation action. Adaptation options have been discussed, assessed and strategies drafted and experimented in pilot projects focussing on urban heat stress (German,, French) (the use of urban greening (German, French) and for a urban development concept for the city of Sitten (German, French)⁸. Furthermore, as a basis for the implementation and further development of the adaptation strategy, the FOEN conducts an assessment of risks and opportunities related to climate change in Switzerland. The assessment comprises 8 regional case studies which are representative of the six major regions of Switzerland. Two studies focus on Basel and Geneva and are representative of the virtual region ‘urban areas’. They will be completed in mid-2015⁹.

In **Turkey**, several measures and projects have been initiated by international projects and donors: The country has benefitted from a programme financed by the United Nations Joint Programme withing the **MDG Achievement Fund** called “Enhancing the Capacity of Turkey to Adapt to Climate Change” (2008-2011). Further to developing the national adaptation strategy and having it approved, it included (technical and

⁷ (? not sure whether this is a national or an international project)

⁸ For further information please contact Thomas Probst (thomas.probst@bafu.admin.ch)

⁹ For further information please contact Pamela Köllner (pamela.koellner@bafu.admin.ch)

administrative) capacity development and mainstreaming programmes as well as pilot activities, among these, 18 community based pilot projects concentrated in the Seyhan River basin (this includes the projects on “Establishing, supporting and developing the adaptation capacity of the people of Yuregir against climate change” and “Designing and establishing a local global climate change monitoring and prediction, social collaboration network and an internet based global climate change geographical monitoring and prediction decision support system in Adana and Nigde provinces).

The Gaziantep Municipality, developed the first local action plan on climate change in 2011 with the support of the French Development Agency (AFD). Within this action plan, adaptation issues were also covered. Furthermore, the UK Foreign and Commonwealth Office’s Prosperity Fund supported the Turkish Ministry for Environment and Urbanization in the development of a Pilot project for “building capacity to prepare city-level climate change adaptation plans in Turkey” implemented in 2013. In the Framework of this programme, training was provided to the Metropolitan municipality of Bursa, aiming at creating capacity for development and implementation of a city level climate change adaptation plan. Furthermore, the Project developed a Cities Adaptation Support Package (CASP) tailored to the specific Turkish situation aiming at providing guidance other cities across Turkey in the development of climate change adaptation plans (“Turkey Publishes Ricardo-AEA Prepared ‘Cities Adaptation Support Package’ - Ricardo” 2015). The project aims furthermore at assisting the Turkish Ministry in developing a roadmap for continuing support for city-level adaptation planning, implementing Turkey’s national climate change policy. In 2015, the activities of the Project “Capacity Building of Local Governments in the field of Climate Change” will be initiated for Turkey. Within this project, a stocktaking analysis including the technical and administrative capacities of municipalities will be performed and training and seminars on climate change including which also include adaptation issues, will be organized.

3.3 Handbooks, guidelines

Austria:

The FAMOUS project (Factory of Adaptation Measures operated at different Scales) which had been financed by the National Climate and Energy fund has produced a Handbook as a support tool for policy makers in provinces, region and cities, providing tools guidelines for strategic and proactive action related to climate change impacts at different levels (region, county, local) (MMR). The handbook is divided in two parts: describing essential steps of an adaptation process divided in three phases: Phase 1) Creating a Foundation for Adaptation, Phase 2) Identifying Risks and Finding Solutions, Phase 3) Implementing and Monitoring Actions. o Part 2 covers the concrete measures and tools for each phase of the adaptation process. Information is provided in form of fact sheets, checklists, guidelines, etc.(MMR).

Concept for **monitoring** developed ([Ministry for the Environment](#))

An Adaptation Communication Guideline has been developed in the [CcTalk!](#) Project, funded under the 4th call of the ACRP project.

A handbook with [Summer suitable Construction](#) guidelines has been produced by the regional energy agency of Oberösterreich.

In **Wallonia, Belgium**, a handbook /guidance tool supporting cities in diagnostics of vulnerability is being developed.

The **Finnish** association of local and Regional Authorities has published a handbook “Local authorities and Climate change” where the key role of local authorities for adaptation is emphasized and examples of good practices realized throughout Finland are presented.

French national authorities have put in place a series of knowledge and capacity building tools: comprising a vulnerability assessment tool, a regional vulnerability assessment guidebook; o a guidebook for local strategy or action as well as a guidebook for adaptation monitoring and review.

Germany, the Initiative of the North Rhine-Westphalian platform has created, inter alia, a handbook addressing knowledge needs by local authorities.

Under the initiative of the **Hungarian** EU presidency and in cooperation with several European countries and cities (Hungarian Ministry of Interior – VÁTI), The CLIMATE-FRIENDLY CITIES – A Handbook on the Tasks and Possibilities of European Cities in Relation to Climate Change has been developed which supports European cities and towns in their combat against climate change by widening the European knowledge base, furthermore (?)An expert team coordinated by the Hungarian Society for Urban Planning with expertise from VÁTI Hungarian Regional Development and Urban Planning Nonprofit Ltd., several Hungarian universities, and the HMS prepared a Guide on Climate Friendly Urban Policies for local governments.

Also the **Irish** government is revising existing guidelines supporting the local planning in order to promote the integration of adaptation into local level planning. The update of the guidelines is financed by an EPA research programme. These will replace existing guidelines published in 2007 which are part of the urban planning policies, published by the Minister for the Environment, Community and local Government, as part of the implementation of the national Planning and Development act. Once published, the subsequent cyclic updates of local development plans should enhance them to the function of “de facto” local adaptation plans. The guidelines will be integrated by a decision support tool, “the Local Authority Adaptation Support Framework” which will be made available on Climate Ireland” (MMR)

In **Italy**, handbooks and guidance have been produced primarily within funded projects, as “*Planning for adaptation to climate change – Guidelines for Municipalities*” (LIFE ACT Project, <http://www.actlife.eu/EN/index.xhtml>) and the handbook on “*Climate change planning for regional and local authorities*” (EnercitEE – SubProject CLIPART, <http://www.enercitee.eu/Sub-Projects/CLIPART--Climatic-Planning-and-Reviewing-Tools-for-regions-and-local-authorities,58/>).

In **Lithuania**, the Ministry of the Environment is preparing policy guidelines which aim at the expansion of the Construction sector. Priorities for this sector need to be revised front of increasing environmental requirements by the EU legislation and by climate change expected to influence public welfare and by the need of a sustainable development of infrastructures for cities and settlements (MMR).

The **Dutch** Knowledge portal for spatial adaptation is part of the instruments developed by the Dutch Delta Programme. It contains a guide to spatial adaptation planning which offers assistance to climate proofing and water resilient planning in a structured manner, based on the Climate proof cities Manifest (in Dutch). Information on spatial climate proofing and adaptation processes is articulated in three steps (Ambition, Analysis and Action) (“What Is the Guide to Spatial Adaptation? - Kennisportaal Ruimtelijke Adaptatie” 2015).

Norway has complemented the climate adaptation platform with an online tool (climate companion) providing relevant information on adaptation for different levels of administration, for the design of adaptation plans on the background of then national planning legislation and tools for risk and vulnerability assessment.

In **Portugal**, a handbook providing a framework for the definition and implementation of spatial integrated strategies addressing climate change adaptation in risk areas has been produced by the INTERREG IVC project F:acts!risk.

The Romanian Environment Protection Agency Sibiu has promoted project for the central region (region 7) aiming at developing a set of good practices on adaptation to climate change, and providing good practice models, focusing on the following objectives: 1. Increase capacity, knowledge and awareness for assessing and reducing vulnerability to climate change in the institutions, organizations and in the large public , 2. provide strategies and measures for adapting to a changing climate and 3. Improve energy efficiency of public buildings of in some pilot cases (LEPA Sibiu, Grimm Brothers Kindergarten and Social Center Tîrgu Mureş (homeless people)) the initiative of developing guidelines aims at compensating the the shortage of good realized examples, data and experts in the field (MMR).

In **Switzerland**, the Federal Office for Spatial Development published a guideline on “Climate Change and Spatial development”. Among others, guidance is provided on the importance of open and green space in urban areas to increase the quality of life, also with respect to adaptation to climate change¹⁰.

In **Turkey**, in the context of the Project Pilot project for “Building capacity to prepare city-level climate change adaptation plans in Turkey” implemented in 2013 (see above) a Cities Adaptation Support Package (CASP) was developed which is tailored to the specific Turkish situation and aims at providing guidance cities across Turkey in the development of climate change adaptation plans (“Turkey Publishes Ricardo-AEA Prepared ‘Cities Adaptation Support Package’ - Ricardo” 2015).

3.4 Platforms, initiatives for knowledge exchange

In **Austria**, the platform [Klimawandelanpassung](#) has been created as a knowledge platform financed by Climate and Energy Funds and managed by the National Environmental Agency, it includes Database on Projects);

The Platform [Klimanetz.at](#) has been created by the Project CAPTIAL ADAPT which aims at developing scientifically based indicators to measure adaptive as well as coping capacities to climate change in **Austria**.

The **Czech** republic has activated a knowledge exchange programme using the EEA programme for Adaptation which will focus on the creation of systems for knowledge exchange on climate change adaptation strategies and on measures for adaptation.

The Danish [Portal for Climate Change Adaptation](#), provides information to experts, policy makers and the general public, and showcasing good examples of adaptation, presenting technologies and technological development and combining it with prospects of financing and government subsidies. It furthermore set up a “mobile team.... (that) offered guidance and facilitates collaboration between municipal authorities and other stakeholders in the field, for example with regard to preparing the municipal climate change adaptation plans” (MMR).

Finland has created a web portal targeting explicitly knowledge needs of local decision makers, alongside with the general public, offering easy to understand information from research, observational data and climate scenarios, information on impacts and step-by step guidance supporting both mitigation and adaptation action. The web portal [Ilmasto-opas.fi](#) (Climateguide.fi) provides research based information on

¹⁰ Contact for further information: Melanie Butterling (Melanie.butterling@are.admin.ch)

climate change and adaptation, including map-tools, data and infographics and also case descriptions addressing both citizens and experts. It represents a platform for depositing and exchanging research results and information. In Finland, Publication of research results has to follow the principle of open science, in order to “promote better utilisation of the research information” and providing access to information materials including publications, research data and methods to all those interested in this information. This principle should furthermore enhance the opportunities for citizens to participate in the production and use of knowledge and information. Examples of open data include the [flood maps](#) and [wind atlas](#). Also the planning tools and guidelines of the project [LifeMonimet](#) in [Climate Resilient City](#) are available. (MMR).

France has created Club ViTeCC networks (how rare these organized territorially?) bringing together policy makers and scientists involved in adaptation action. The networks have been launched by CDC Climate Research, ONERC and Météo France, and address knowledge needs regarding climate change impacts as well as funding opportunities for adaptation projects. At national level, a knowledge platform on climate change adaptation has been created which addresses issues related to urban adaptation (WIKLIMAT), frequently in the context of coastal zone adaptation. It provides furthermore a territorial (but not sectorial) mapping local initiatives. Furthermore (or related to the Wiklimat), a [national observatory](#) on climate change provides information on climate change impacts and scenarios, and possible actions for mitigation and adaptation.

In **Germany**, the Ministry for environment has created an internet platform “Anpassung.net”; and the Federal institute for spatial research has created a specific [web page](#) addressing issues of adaptation in urban areas, which includes also an interactive online tool “[Klimalotse](#)” which should support local authorities decision making¹¹. La Helmholtz Gemeinschaft, (the association of top-level research institutions) manages three regionally and thematically [climate offices](#), of which the central one focuses on adaptation strategies and on the impact of climate change on the environment, land use and society, comprising thus also competences on urban adaptation. The aim of the Climate offices is to “integrate regional climate change information based on latest research projects and make scientific results understandable to the public” (“Regional Climate Offices of the Helmholtz Association” 2015).

The **German** national platform „Future City“ (<http://www.nationale-plattform-zukunftsstadt.de>; only available in German) has a special focus on infrastructure development under changing climate conditions, tackling, inter alia, the question of how leverage(s) for a transformation of infrastructures can be individuated.

In **Ireland**, an [information platform](#) (ICIP) is being developed by the University of Cork, using funding by an EPA Research Programme which aims at supporting local adaptation decision making. In its final version, it is expected to provide access to data analysis and decision support tools (MMR). Knowledge transfer, for example between science and policy, is ensured when “research reports are published and disseminated” (MMR)

The National MMR report of **Lithuania** states that an analysis of EU Member State experiences and of documents prepared by the European Environmental Agency with regards to effective adaptation measures, and to measures for enhancing the implementation of these measures will be part of a national study to be finalized in 2015.

¹¹ interestingly, this webpage addresses, further to local authorities, also private actors, for instance providing instructions for flood proofing activities for private house owners.

In the **Netherlands**, the “Knowledge portal for spatial adaptation” has been created to support the [delta decision for spatial adaptation](#) and serves, further to supporting the broad Dutch spatial adaptation strategy, for disseminating knowledge on climate change, targeted to information needs for spatial and urban adaptation (“About Us - Kennisportaal Ruimtelijke Adaptatie” 2015).

The **Dutch** Foundation for Climate Adaptation Services, a cooperation of Dutch research agencies, provides, in addition to the information provided in the Knowledge portal for spatial adaptation (see above) provides furthermore the Climate Adaptation Atlas which visualises “(future) threats for river- and coastal floods, urban floods, drought and heat in the Netherlands based on national climate scenarios”. (“Climate Adaptation Atlas - Klimaat Adaptatie Services” 2015). Maps can be explored in an interactive way detailing information at local scale

In **Poland** an adaptation web-portal, Klimada, is accessible online. It includes information on climate change at global, EU, Polish and sub-national level, as well as some information per sector (MMR). The need for capacity building was identified as a major issue, leading to the project "Good climate for the counties" in 2010. It is targeted to all types of actors – in particular local officials – and informs about climate change, providing practical tools and mechanisms to support adaptation and mitigation activities. At a sub-national level, a community of practice initiative has been created for knowledge transfer, the Mazovian Climate Agenda, which acts as a forum for cooperation, and exchange of knowledge and good practices of different entities in an urban context, using the example of the Warsaw Agglomeration. Furthermore, the Partnership for Climate Platform carries out comprehensive, innovative educational and promotional activities related to climate change issues. Within the framework of the Platform, different types of events are organised, including conferences, debates and exhibitions intended to raise public awareness on climate change issues (MMR).

In **Portugal**, a website will be published in support of the AdaPT project (see national initiatives) in 2016. It is planned as an “easy platform for the general public making available, namely: time series, climate change projections and sectorial climatic indicators for the geographical coverage of mainland Portugal” (MMR). The project AdaPT aims, furthermore, at creating a community of municipal actors which are aware of climate change issues and trained for using decision support for climate change adaptation. These activities are supported by the [webportal](#) and “Help Desk” platform provided by AdaPT (MMR).

The [Norwegian Climate Change Adaptation Portal](#) showcases, inter alia, different activities undertaken by municipalities. These presentations aim at supporting local action providing inspiration. The portal provides furthermore, information on on-going activities, research outputs and climate data.

The [Polish web based platform](#) on climate change provides information connected to the national adaptation strategy has been created in the context of the national project KLIMADA.

Although focussed mainly on mitigation, the platform realized within the **Slovenian** project "[Slovenia is reducing CO2: best practices](#)" showcases among de-carbonization projects, also adaptation to climate change. In this respect further to the Climate adapt website, a dyke project in [response to floods](#) in September 2010, as example of good practice is presented.

In **Sweden**, the Swedish Meteorological and Hydrological Institute (SMHI) is in charge of establishing a [National Knowledge Centre for Climate Change Adaptation](#) (information in English before summer 2015). The “Knowledge Centre” provides information on climate change addressing knowledge needs of different actors, with a responsibility for, or interest in, Sweden’s adaptation to impacts of climate change. It provides

tools and information to help society cope with a changing climate. A main task is to collect, develop and share research, information and good examples to facilitate sound decision making. A major tool used by the Knowledge Centre is the Swedish Climate Change Adaptation Portal www.klimatanpassning.se, a conjoint effort of national authorities and regional governments. The portal provides support to municipalities and county councils within activities relating, inter alia, to spatial planning, emergency preparedness, energy (English site in preparation). SALAR has established, in order to strengthen municipalities in the process of adaptation, an Internet-based network for exchanging experiences. The network is a forum for dialogue and exchange of experiences between municipalities but also between the SALAR and members. Access to the resources is free. For the time being, there is no planned physical meeting for members of this network, but if there is interest, this may be arranged according to SALAR. The Swedish MMR report states that local action is triggered “above all” by extreme weather events; especially those municipalities hit by extreme events actually started adaptation activities. (MMR).

In **SPAIN**, AdapteCCa has been created for promoting information, experience and knowledge transfer, between administrations, scientific community, planners and public and private managers. It contains a knowledge repository system allowing, further to the information retrieval, for uploading, storing and exchanging of knowledge relevant for climate change. It works furthermore as a platform for permanent and ad hoc working groups for specific purposes (MMR)

A web platform with information on adaptation in **Switzerland** was launched as after adoption of the national adaptation framework. The platform addresses administrative bodies and features relevant documents and studies, adaptation activities on Federal and cantonal level as well as responsibilities ([webpage, de](#); [webpage, fr](#); [webpage, it](#)).

In the **UK**, several knowledge platforms are providing support to local authorities: the national Environment Agency manages the platform UKCip which provides support to local authorities in making decisions for adaptation, documenting best practice examples and providing a decision making tool and enabling exchange between practitioners. (“UKCIP | Supporting Society in Climate Change Adaptation.” 2015).

The **UK** Environment Agency has set up Climate Ready Support Service (EA CRSS), which will help raise awareness, build capability and make a case for action targeting (inter alia or explicitly?) business activities (“Becoming Climate Ready: Business Resilience in a Changing Climate | Creating a Better Place” 2015).

The Department for Environment, Food and Rural Affairs (DEFRA) has set up a Local Adaptation Advisory Panel, aiming at allowing an efficient platform for two-way dialogue between local and central government to identify ways in which to support local adaptation action. During 2014/15 the LAAP’s work includes delivering a communications work programme, providing support to develop the local business case for adaptation and promoting the case for integrating adaptation within emerging growth plans, as being progressed by Local Enterprise Partnerships.

The Core Cities group was invited to work with the government in promoting a supportive framework on climate adaptation and possibly tackling specific policy barriers to enable councils to take more effective action on climate risks. The Government is developing a work programme, working closely with cities, to take forward its part of the cities commitment, particularly drawing in London and in close partnership with EA CRSS. For its part Core Cities are developing proposals to build local climate resilience for key priorities.

The ClimateUK initiative provides support and tools for knowledge sharing to its members (“Climate Local | Local Government Association” 2015), and the UK Royal Planning Institute (RTPI) keeps, among others, a Climate Change Compendium: [Adaptation- National, regional and city strategies and guidance](#).

3.5 National City Networks

CCCA Climate Change Centre **Austria** (tbc)

Within the **Danish** Association of Local Governments (LDK) a climate network has been created which comprises some of the 98 Danish local authorities.

The **Finnish** association of local and Regional Authorities has published a handbook “Local authorities and Climate change” where the key role of local authorities for adaptation is emphasized and examples of good practices realized throughout Finland are presented.

The **Hungarian** [Alliance of Climate-Friendly Cities](#) initiated by the Institute of Sociology of the [Hungarian Academy of Sciences](#) is a partnership of local governments and NGOs providing technical advice, tools, case studies and information to cities on climate change adaptation and mitigation. Currently, it has 18 Hungarian member cities and all of them have prepared or started to prepare their local climate change strategies.

Within the Network of **Romanian** Municipalities, the [Romanian Municipalities Association](#) a consultative process through was launched “The Romanian Municipalities Association Commitment for Climate Change Effects Prevention”, which has so far been signed by 35 out of 109 municipalities. One aspect of this commitment is related to the assessment of climate change risk and implications for public services and local communities and their capacity to adapt to climate change.

In **Spain**, the Spanish Federation of Municipalities and Provinces has created a [network of cities for climate](#) (Red Ciudades Clima) which aims at providing technical support to municipalities committed to achieving sustainable urban development. Among the activities of the network, a [document](#) dedicated to the Local climate change strategy which includes also climate Change adaptation Plan, providing guidance for impact and vulnerability assessment and promoting local action for adaptation. The Network has furthermore produced, in 2010, an assessment of climate change vulnerabilities in all associated municipalities.

In the UK, the national Adaptation plan involves several national networks as the [Local Government Group](#) which is one of the main umbrella bodies for local authorities within the UK. Among its programmes, the Climate Local initiative provides support and a knowledge platform to local authorities for comprehensive climate action, both in terms of carbon reduction and in increase of resilience. As of April 2014, 96 local authorities have signed up to Climate Local. It represents the follow-up initiative to the [Nottingham Declaration on Climate Change](#), which aimed at increasing energy efficiency. It had been signed by more than 300 English councils.

[ClimateUK](#) is a sub-national network of climate change partnerships covering the UK. Its aim is to share knowledge and learn about tackling the consequences of climate change in the UK, and to maximise the benefit from each partnership's work.

All of Scotland's 32 local authorities have signed [Scotland's Climate Change Declaration](#) and Welsh councils have signed the [Welsh Commitment to Address Climate Change \(2006\)](#). By signing these declarations councils

are committed to work with their partners to reduce their greenhouse gas emissions, to adapt to the unavoidable impacts of the changing climate, and to monitor and report on progress.

The 8 largest English cities (Birmingham, Bristol, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield.) have formed an informal group (Core Cities). This group collaborated, together with the London Councils¹² and the Greater London Authority to form a commitment, contained in the NAP, around the challenges faced by cities from a changing climate.

The participation of these cities to international networks will be mapped in a separate overview.

3.6 Local Activities

Austria:

The energy association of Oberösterreich provides comprehensive information on adaptation to increasing summer temperatures and increasing number of heat waves both for citizens and architects in a brochure and a handbook containing guidelines. The handbook covers in detail issues of “reduction of heat entry”, “heating/cooling storage” “optimization of the use of daylight”, “technical building systems”, and “the use of greening and plants”

The guidelines published by the city of Vienna point into a similar direction, underlining the multiple advantages of plants in the urban environment; These guidelines target to architects, planners, builders, citizens and public institutions. The brochure provides an overview of various greening systems, provides support for the choice of suitable plant species and information about irrigation, maintenance and engineering.

The project [Klimanetz](#) is using two case study cities, Virgen and Klosterneuburg for investigating and raising awareness about the importance of human and social capital for climate change adaptation.

Belgium:

City of Ieper: development of a residential area “De Vloei” adapted to climate change (Future Cities, urban Networks to face climate change)

Bruxelles: operational strategy for sustainable neighbourhoods (including green roofs, water management etc.) and climate mitigation, already 15 neighbourhoods created

Gent: activity for awareness raising Climate Coalition increase resilience to climate change and make the city climate neutral by 2020.

Antwerp: initiatives for reducing heat island effect and reduce the effect of flash floods, using green roofs; [onze kaaien](#) project on protection against sea level rise, raising flood dykes in the urban area.

The Sigmoplan projects aims at planning for the protection of the estuarine part of the Scheldt River against flooding connected to sea level rise.

Bulgaria:

¹² Cross party organisation, which develops policy and provides a London-wide service, representing London’s 32 borough councils and the City of London

Projects for the improvement of efficiency of public urban transport (Sofia, Plovdiv, Varna). Further to these projects aiming at energy efficiency and improvement of air quality in urban areas, in the context of projects for the improvement of quality of life in urban areas, flood protection measures and for the improvement of run off have been implemented in Plovdiv, combining flood protection measures with urban greening and measures improving urban living conditions.

In Varna, a project focussing on local and territorial planning strategies has been implemented which aims at for capacity building and knowledge exchange between participating organizations.

Cyprus has implemented local and pilot projects in the field of coastal zone adaptation (CAMP, COASTANCE, MAREMED) regarding the city and district of Larnaca.

The "[cases](#)" section of the Danish climate change adaptation platform contains several examples of urban actions tackling cloudburst impacts, focussing mainly on green solutions or on combinations between green solutions and smart technologies.

Among **Estonian** cities, adaptation action plans have been set up as a reaction on extreme winter storm and consequent coastal flooding in the cities of Tallinn, Parnu and Haapsalu, further to regional risk assessment and crisis management plans. Assessments and measures put in place focus on extreme weather events, (storm, (coastal) flooding. For Tallinn and Pärnu (ASTRA Project), early warning systems and tools of awareness rising for citizens, have been set up, which are connected to meteorological forecasting systems. In Tallinn, further to early warning, increased maintenance efforts are dedicated to the sewerage system in order to prevent impacts from cloudbursts. A wiki-based [local adaptation initiative mapping](#) (WIKIMAT) among French local authorities indicates the Lyon agglomerations a forerunner among French local authorities.

Further to regional guidelines produced by the French agency ADEME, the agency in charge of supporting French local communities in terms of Adaptation policies, some regionally specific guidelines have been published, for instance for the region [Languedoc Roussillon](#). The same agency has indicated four territories as examples for adaptation action, among these Rouen as an urban adaptation initiative. In Paris, the local climate vulnerability assessment and the adaptation framework have recently been updated. Furthermore, a heat wave plan is implemented each year by the regional Health agency.

Documentation on **German** urban Case study can be found on the Webpage organized by the Federal Environmental Agency (UBA) in a database called [Tatenbank](#), (in German).

As interesting cases the following city initiatives have been indicated:

- Essen – ExWoSt-Project ([Web page, de](#))
- Jena ([Webpage, de](#))
- Karlsruhe ([Webpage, de](#))
- Nuremberg ([Webpage, de](#))
- Regensburg ([Webpage, de](#))
- Dresden - REGKLAM-Project ([Webpage, en](#); [Webpage, de](#))
- Bocholt ([Webpage, de](#))

Among **Greek** regional authorities, initiatives have been taken with regards to sectorial climate adaptation strategies, mainly related to flood protection measures in coastal cities and regions (Thessaloniki, Heraklion). For the city of Athens The [Strategic Plan for Athens / Attica 2011](#), has been published by the Organization for the Master Plan and Environmental Protection of Athens. This plan also takes into account adaptation to climate change in specific sectors (spatial planning, environmental protection etc.).

In **Hungary**, several municipalities have developed local climate change strategies, this is the case of the 18 cities which are member of the Hungarian Network of climate-friendly cities (See above among networks), which have all started working on their local climate strategy. The following cities have adopted local climate change strategies: Tatabánya, Hosszúhetény, Pomáz, Albertirsa, Eger, Szekszárd, Tata, XIIth district of Budapest, Tata and Gyöngyös. The Handbook for climate friendly cities (see above, handbooks and guidelines) illustrates some local initiatives:

- Tatabánya: [Local Climate Change Strategy of Tatabánya and Heat- and UV-alert Plan; Climate® ticket system of the Tatabánya](#);
- Pomáz: [Climate Strategy of Pomáz on Water Management](#)
- Albertirsa: [Climate Change Strategy of Albertirsa](#)

Furthermore, some initiatives promoting urban community gardens have been highlighted.

In **Latvia**, the capital city of Riga has started activities for the assessment of risks and opportunities in the project "[Integrated Strategy for Riga City to Adapt to the Hydrological Processes Intensified by Climate Change Phenomena](#)" co-financed by the Life + programme. The activity aims at identifying risks and strategies for protection with respect to hydrogeological risks. Furthermore, the municipality of the city Salacgrīva has adopted the [Declaration on Green municipality](#) and has also prepared its own Climate Change Adaptation Strategy under "BaltCICA" project.

Climate adaptation action in **Malta** have been focussed actually mainly measures addressing impacts from drought and water scarcity and on flooding. Measures considered include a national flood relief plan, preservation of river basin (valley?) systems, fiscal incentives and economic measures like metering of ground water.

In the **Netherlands** the initiatives set in place by the city of Rotterdam with the [Rotterdam adaptation strategy](#) have been widely publicised. It aims at translating challenges from climate change into an opportunity for the city, adopting measures that create benefits and contribute to the economic and social development of the city. Further to this initiative, natural climate buffers have been used for mitigating climate impacts, for instance in the context of restoration of flood areas for river ("Room for the River") vegetation is used for maintaining soil humidity with positive impact on the local climate during heat waves. Examples for the use of ecosystem services (although not explicitly addressing urban adaptation issues) are

- [Water retention in sponge-forest Weerterbos, Eindhoven/Weert](#)
- [Greening the IJsselpoort](#)
- [Water retention in Eelder and Peizen Made, Groningen](#)

In a similar way the [Room for the River Plan](#) adopted in 2007 enhances flood security along the major Dutch rivers, reducing thus flood risks also for the urbanized areas.

Polish case studies will be showcased on the [national climate adaptation platform](#) (actually information is available only for Warsaw; the portal is undergoing revision).

In **Slovakia**, an [urban flood protection system](#) has been realized for the city of Bratislava designed for a return level of floods of 100years.

In **Slovenia**, the [Centre for Eco remediation](#) of the Faculty of Arts of the University of Maribor develops new approaches adaptable to local characteristics for the full use of regional potential [The latest study](#) (from October 2011) analysed local communities and proposed 18 pilot areas for the development of Eco

remediation techniques for better climate change adaptation. The process of developing Eco remediation systems has already started, with best practice and learning ground in Poljčane municipality. In Poljčane, the Nature Development Centre, cooperation between the academic and economic actors, has been established with the task of fostering practical Eco remediation.

In **Spain**, local experiences with climate change adaptation have been made in Playas de Palma with a the Town Planning Consortium for the improvement and landscaping of Palma Beach, in the Segura and Tagus river basin where urban water consumption is one of the issues to be addressed in relation to increasing phenomena of drought and water scarcity, and in the Madrid Gomeznarro park, where an example of Sustainable urban water management (SUDS) has been realized.

In **Sweden**, there are six municipalities acting as role-model-cities in the Making Cities Resilient Campaign: Arvika, Göteborg, Jönköping, Karlstad, Kristianstad and Malmö. Also the municipality of Jokkmokk is participating in the Swedish network.

In **Turkey**, the municipality of Bursa benefitted from a capacity building project financed by the UK Foreign and Commonwealth Office's Prosperity Fund, aiming at the definition and implementation of a local adaptation plan.

3.7 Surveys on urban adaptation activities and monitoring

In **Belgium**, the Flemish Environment Agency (VMM) is developing a specific indicator for the urban heat island for the Flemish Region in Northern Belgium¹³.

In 2010, the **Danish** information centre on climate change has carried out a survey study among Danish municipalities aiming at collecting information on the knowledge and experience among local authorities in terms of climate change adaptation. A result of this survey states that climate change adaptation is high on local policy agendas.

In **Germany**, a survey with questionnaires among local authorities has recently been performed in the region North Rhine-Westphalia; it was started in 2014, the [website](#) describing the survey strategy provides also a pdf version of the [questionnaire](#), but no results have so far been provided.

In **Italy**, a survey on the status of urban adaptation in local authorities had been launched in 2014 by the national environment agency (ISPRA) which has yielded about 40 completed questionnaires returned to the agency. (Gaudioso et al. 2014, 225 ff. in Italian))

In 2013, the **Swedish** regional government offices were given the additional task to **investigate local adaptation work** and to develop regional action plans. In 2014 Sweden had 21 regional action plans with nearly 800 proposed actions. The main actions proposed in the plans are flood protection, protection of drinking water, shoreline protection, infrastructure (roads, railways) adaptation of agriculture and forestry, heat waves and health. The plans include regional calls for national coordination, clear roles, responsibilities and funding, especially with respect to the existing built environment. The need of internal information and training to enable the integration of adaptation into planning processes is also highlighted. When adopting

¹³ De Ridder K., Maiheu B., Wouters H. & van Lipzig N. (2015), Indicatoren van het stedelijk hitte-eiland in Vlaanderen, study carried out for Flemish Environmental Agency (VMM), MIRA, MIRA/2015/05, VITO. From mid-2015 available at www.milieurapport.be - D/2015/6871/008 - ISBN 9789491385438 - NUR 973/943

the climate and energy policy in 2009 the Swedish Parliament also decided on a Control station in 2015 to analyze developments in relation to the climate change objectives as well as the adaptation to a changing climate and the state of knowledge. The control station is not to cover the basic direction of politics but is to lead to adjustments of policies and instruments. SMHI was given the task in 2013 to coordinate the assessment and report to the government. The assessment has been on-going during the whole of 2014 and the report will be handed in to the Government Office 2015-02-27. The assessment will include recommendations to customize regulations, clarify roles and responsibilities, strategies and objectives. It will also highlight the need of clarification of how funding is distributed between different actors, and how to ensure resources for necessary actions. There is still a need of undertaking research and development that fills the need for knowledge of for example early warning systems and long-term monitoring of adaptation.

In **Turkey**, within Project “Capacity Building of Local Governments in the field of Climate Change”, a stocktaking analysis, including the consideration of technical and administrative capacities of municipalities will be performed.

In the **UK**, the local Government Agency publishes annual progress reports on the work councils are doing to tackle climate change (“Climate Local | Local Government Association” 2015).

4. Overview table

EEA member country	Urban coverage in NAS/NAP ¹	Regional strategies available	Urban adaptation in legal framework ²	Coordination of urban adaptation ³	Participation in international projects ⁴	National guidance/handbooks available ⁵	Urban adaptation in national platforms ⁶	National urban networks ⁷
Austria	CHAPTER	yes	SPA, BUI	LOCAL	INTERREG, ASP, SUMP, SEE	GENERAL	ADAPT	ADAPT, MITIGATE, RESEARCH
Belgium	HEA, TRA	yes	NO	REGIONAL	INTERREG	RISK	NO?	RESEARCH
Bulgaria	MAIN	UNKNOWN	NO	UNKNOWN	NEXUS	UNKNOWN	NO	UNKNOWN
Croatia	NA	NA	NA	UNKNOWN	SEE	UNKNOWN	UNKNOWN	UNKNOWN
Cyprus	NA	NA	NA	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN
Czech Republic	HEA, TRA, DRM, SPA*	UNKNOWN	ENCOURAGE	LOCAL	UNKNOWN	UNKNOWN	NO	UNKNOWN
Denmark	MAIN	UNKNOWN	ENCOURAGE	LOCAL	UNKNOWN	UNKNOWN	ADAPT	UNKNOWN
Estonia	NA	NA	NA	UNKNOWN	BALT	UNKNOWN	UNKNOWN	UNKNOWN
Finland	HEA, TRA, BUI, SPA	NA	WAT	SECTOR	UNKNOWN	RISK	ADAPT	RESEARCH
France	MAIN	UNKNOWN	STRICT?	REGIONAL	UNKNOWN	GENERAL	ADAPT	UNKNOWN
Germany	HEA, SPA	yes	SPA	LOCAL	UNKNOWN	GENERAL?	ADAPT	RESEARCH
Greece	NA	NA	NA	UNKNOWN	INTERREG, LIFE+, SEE	UNKNOWN	UNKNOWN	UNKNOWN
Hungary	NA	NA	NA	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN
Iceland	NA	NA	NA	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN
Ireland	NA	NA	NA	UNKNOWN	UNKNOWN	ADAPTATION	ADAPT	UNKNOWN
Italy	CHAPTER	UNKNOWN	NO	REGIONAL	INTERREG, SEE, LIFE+	ADAPTATION	NO?	UNKNOWN
Latvia	NA	NA	NA	UNKNOWN	BALT	UNKNOWN	UNKNOWN	UNKNOWN
Liechtenstein	NA	NA	NA	UNKNOWN	ASP	UNKNOWN	UNKNOWN	UNKNOWN
Lithuania	UNA	UNKNOWN	NO	UNKNOWN	INTERREG, BALT	SECTOR*	NO	UNKNOWN

Luxembourg	NA	NA	NA	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN
Malta	NA	NA	NA	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN
Netherlands	WAT	yes	WAT	SECTOR	INTERREG	GENERAL	ADAPT	RESEARCH
Norway	UNA	UNKNOWN	BUI, DRM	REGIONAL	UNKNOWN	GENERAL	ADAPT	MITIGATE, RESEARCH
Poland	UNA	UNKNOWN	NO?	LOCAL	UNKNOWN		ADAPT	RESEARCH?
Portugal	SPA	UNKNOWN	NO	SECTOR/REGIONAL	LIFE+	ADAPTATION	ADAPT	UNKNOWN
Romania	UNA	UNKNOWN	NO?	UNKNOWN	UNKNOWN	GENERAL*	NA	RESEARCH?
Slovakia	UNA	UNKNOWN	SPA, WAT	UNKNOWN	INTERREG	UNKNOWN	NA	UNKNOWN
Slovenia	NA	NA	NA	UNKNOWN	SEE	NA	NA	NA
Spain	HEA, TRA, BUI, SPA	yes	NO?	REGIONAL	INTERREG	UNKNOWN	NA	UNKNOWN
Sweden	UNA	UNKNOWN	SPA, DRM	SECTOR	UNKNOWN	UNKNOWN	ADAPT	UNKNOWN
Switzerland	SPA, HEA	UNKNOWN	NO	SECTOR	UNKNOWN	ADAPTATION	ADAPT	UNKNOWN
Turkey	SPA, WAT, BUI	UNKNOWN	NO	UNKNOWN	UNKNOWN	ADAPTATION	ADAPT	UNKNOWN
United Kingdom	CHAPTER	yes	NO	LOCAL	UNKNOWN	GENERAL	ADAPT	UNKNOWN

Normal font: existing; italics: under development

¹ NA = no national strategy or plan available; UNA = urban issues not explicitly dealt with in National Adaptation Strategy or Plan; CHAPTER = urban issues dealt with in chapter of NAS; MAIN = urban issues mainstreamed throughout national strategy; INF = urban issues integrated in Infrastructure; BUI - urban issues integrated in Building sector; SPA = urban issues integrated in Spatial Planning; HEA = urban issues integrated in Health; TRA = urban issues integrated in transport; DRM = urban issues integrated in disaster risk management plans; WAT = urban issues integrated in water management

² STRICT = legally binding framework for urban/local adaptation; ENCOURAGE = unbinding framework with incentives for urban/local adaptation; NO = no legally binding framework for urban/local adaptation; MAIN = urban issues mainstreamed throughout national strategy; INF = urban issues integrated in Infrastructure; BUI - urban issues integrated in Building sector; SPA = urban issues integrated in Spatial Planning; HEA = urban issues integrated in Health; TRA = urban issues integrated in transport; DRM = urban issues integrated in disaster risk management plans; WAT = urban issues integrated in water management; UNKNOWN = insufficient information

³ NAT = strong coordination by national government; REGION = emphasis on regional coordination of urban adaptation; LOCAL = responsibility mainly at local level with little national coordination; SECTOR= main coordination at sector level; UNKNOWN = insufficient information **NB THE INFORMATION DOES NOT REALLY ALLOW FOR EVALUATING DIFFERENCES BETWEEN COUNTRIES, ALL FOLLOW THE SAME PATTERN OF ROLES FOR DIFFERENT LEVELS.**

⁴ DGR&I = cities involved in EU FP7 or H2020 urban adaptation projects; INTERREG = cities involved in EU Interreg urban adaptation projects; LIFE = cities involved in EU LIFE (+) urban adaptation projects; NATIONAL = cities involved in nationally funded urban adaptation projects; ASP = Alpine Space Programme; SUMP = Sustainable Urban Mobility Plans; NEXUS = Urban NEXUS sustainable urban development solutions; SEE= OrientGate on climate adaptation actions across South Eastern Europe; OTHER = cities involved in other urban adaptation projects **NB THE INVENTORY IS CERTAINLY INCOMPLETE SO JUST EXAMPLES CAN BE GIVEN.**

⁵ GENERAL = generic national handbook/guidance available for local/urban vulnerability and risk assessment and adaptation; RISK = national handbook/guidance available for local/urban vulnerability and risk assessment; ADAPTATION = national handbook/guidance available for adaptation; SECTOR = sector-specific national handbook/guidance available for local/urban adaptation; NO = no national handbook/guidance available for local/urban adaptation

⁶ URBAN = specific platform for urban adaptation available; ADAPT = urban adaptation addressed in national adaptation knowledge platform; CLIMATE = urban adaptation addressed in national climate knowledge platform; NO = urban adaptation not addressed in national knowledge platform. **NB THE SEARCH WAS FOR ADAPTATION MAINLY, SO NO INFORMATION ON MITIGATION SUPPORT PLATFORMS**

⁷ ADAPT = city network on climate change adaptation; MITIGATE = city network on climate change mitigation; CLIMATE = city network on climate change adaptation and mitigation; SUSTAIN = city network on sustainable development; RESEARCH = (temporary) networks related to research projects or expert groups; NO = no relevant national city network. **NB COUNTRIES HAVE INTERPRETED THE RELATED QUESTION DIFFERENTLY (MEASURES, RESEARCH, NETWORKS, ETC.) SEEMS INCOMPLETE, HAS TO BE UPDATED FROM EEA REPORT**

* Draft strategy

References

“About Us - Kennisportaal Ruimtelijke Adaptatie.” 2015. Accessed May 22. <http://www.ruimtelijkeadaptatie.nl/en/over-ons>.

“Becoming Climate Ready: Business Resilience in a Changing Climate | Creating a Better Place.” 2015. Accessed May 3. <https://environmentagency.blog.gov.uk/2014/06/23/becoming-climate-ready-business-resilience-in-a-changing-climate/>.

“BMBF-Klimzug: About KLIMZUG.” 2015. Accessed April 29. <http://www.klimzug.de/en/160.php>.

Bundesamt für Umwelt. 2014. “Anpassung an Den Klimawandel in Der Schweiz. Aktionsplan 2014–2019. Zweiter Teil Der Strategie Des Bundesrates Vom 9. April 2014.” Bern, Switzerland: Bundesamt für Umwelt (BAFU).

<http://www.bafu.admin.ch/publikationen/publikation/01762/index.html?lang=de&download=NHZLpZig7t,lnp6i0NTU042l2Z6ln1acy4Zn4Z2qZpnO2Yuq2Z6gpJChd4B2gGym162dpYbUzd,Gpd6emK2Oz9aGodetmqaN19XI2ldvoaCVZ,s-.pdf>.

“Climate Adaptation Atlas - Klimaat Adaptatie Services.” 2015. Accessed May 22. <http://www.climateadaptationservices.com/en/klimaateffectatlas>.

“Climate Local | Local Government Association.” 2015. Accessed May 3. <http://www.local.gov.uk/climate-local;jsessionid=D56D87F467C72AEF46C3839F83A6B46D>.

EEA. 2014. “National Adaptation Policy Processes in European Countries - 2014.” Publication 4/2014. EEA Report. Copenhagen, Denmark: European Environment Agency.

“Finland - Climate-ADAPT.” 2015. Accessed April 18. <http://climate-adapt.eea.europa.eu/countries/finland>.

“France - Climate-ADAPT.” 2015. Accessed April 18. <http://climate-adapt.eea.europa.eu/countries/france>.

Gaudioso, ISPRA-Domenico, Francesca Giordano, Ernesto Taurino, ARPA Emilia Romagna-Michele Sansoni, ISPRA-Francesca Giordano, and ISPRA-Daria Mazzella. 2014. “Focus Sulle Città E La Sfida Dei Cambiamenti Climatici. Qualità dell’Ambiente Urbano. X Rapporto, Edizione 2014.” http://www.anci.emilia-romagna.it/content/download/2676/29897/file/funzione_energia_estratto_focus_ISPRA.pdf.

Great Britain, and Food & Rural Affairs Department for Environment. 2013. *Adapting to Climate Change: Ensuring Progress in Key Sectors : 2013 Strategy for Exercising the Adaptation Reporting Power and List of Priority Reporting Authorities*. London: Stationery Office.

“Klimada.” 2015. Accessed April 30. <http://klimada.mos.gov.pl/en/about-project/>.

“Klimatanpassning I Den Fysiska Planeringen - SKL.” 2015. Accessed May 19. <http://skl.se/klimatanpassning>.

National Climate Commission. 2010. “Belgian National Climate Change Adaptation Strategy.” Brussels, Belgium. <http://www.lne.be/themas/klimaatverandering/adaptatie/nationale-adaptatie-strategie/Belgian%20National%20Adaptation%20Strategy.pdf>.

Peleikis, Julia. 2011. “Climate Change Adaptation in the Baltic States. Current Developments on National

Adaptation Strategies.” Hamburg: Baltic Environmental Forum (BEF). [www.bef-de.org/ fileadmin/ files/ Publications/ Energy/ activity1_paper_adaptation-to-climate-change_final.pdf](http://www.bef-de.org/fileadmin/files/Publications/Energy/activity1_paper_adaptation-to-climate-change_final.pdf).

“Regional Climate Offices of the Helmholtz Association.” 2015. Accessed April 29. http://www.klimabuero.de/index_en.html.

“The National Climate Change Adaptation Plan - Ministère Du Développement Durable.” 2015. Accessed April 18. <http://www.developpement-durable.gouv.fr/The-national-climate-change.html>.

“Turkey Publishes Ricardo-AEA Prepared ‘Cities Adaptation Support Package’ - Ricardo.” 2015. Accessed May 2. <http://www.ricardo.com/en-GB/News--Media/Press-releases/News-releases1/2014/Turkey-publishes-Ricardo-AEA-prepared-Cities-Adaptation-Support-Package/>.

“UKCIP | Supporting Society in Climate Change Adaptation.” 2015. Accessed May 3. <http://www.ukcip.org.uk/>.

“What Is the Guide to Spatial Adaptation? - Kennisportaal Ruimtelijke Adaptatie.” 2015. Accessed May 22. <http://www.ruimtelijkeadaptatie.nl/en/waar-moet-ik-beginnen>.