Climate Adaptation Partnership
Draft Action Plan

*** The Pact of Amsterdam states that the Action Plan "can be regarded as non-binding". Therefore, the actions presented in this Action Plan are not compulsory. ***

Definitions used:

Actions: should address a real need: an important issue, have real and visible impact and concern a larger number of Member States and cities; Actions should be new: no ‘recycling’ of elements which have already been done or which would be done anyway; Actions should be ready to be implemented: Clear, detailed and feasible; a study or a working group or a network is not considered an action.

Good practice: these are good projects and practices that have already been implemented and that are successful. The aim is to encourage their dissemination and mainstreaming (implementation at a wider scale) and transfer (implementation in more Member States and cities). They are instrumental to (one or more of) the actions proposed.

Responsible: is meant the institution (EU, /national/local) to who the action is addressed. It is not specifically any of the members of the partnerships. To describe why one institution should be responsible means that the partnership wen into the analysis of the action and reached the conclusion that an action fits the purpose.

Deadline: refers to the timeframe where the action should take place in order to be meaningful. A deadline refers to a specific calendar.

Contents

1 INTRODUCTION

On May 30, 2016 the Informal Meeting of EU Ministers Responsible for Urban Matters was held in Amsterdam. The ministers agreed on and established the Pact of Amsterdam: Urban Agenda for the EU (NP-CEU 2016)[1], which laid out the objectives, priority themes and the operational framework of the Urban Agenda work[2]. In line with the EU 2020 strategy for smart, sustainable and inclusive growth, the Pact of Amsterdam defines Climate Adaptation as one of the Priority themes[3] to be addressed by the Urban Agenda. The Climate Adaptation Partnership[4] was set up in 2017 as a multilevel and cross-sectoral cooperation instrument and key delivery mechanism for the priority theme Climate Adaptation.

This Action Plan has been prepared by Urban Agenda for the EU Climate Adaptation Partnership to provide concrete proposals for the design of future and the revision of existing EU legislation, instruments and initiatives relating to the adaptation to climate change in urban areas in the EU.

The Action Plan has been developed in a participatory process involving key stakeholders from the EU institutions, national governments, regional and local authorities that are represented in the Climate Adaptation Partnership and beyond.

The Action Plan is guided by these key principles:

- **Respect for subsidiarity and proportionality** principles by defining clear responsibilities for actions on the appropriate governance levels, which ensure the most efficient delivery of the results and the highest added value;
- Seeking a **more effective integrated and coordinated approach to EU policies**, legislation, funding sources and initiatives governing urban adaptation issues;
- **Mainstreaming approach** by strengthening of the urban dimension in the EU adaptation to climate change policies and strengthening the adaptation dimension in the EU urban policies, instead of creating new policies;
- **Additionality** to the existing initiatives, instruments and activities undertaken by EU, national, regional and local authorities; building on current achievements, best practice, accrued knowledge and lessons learnt;
- Strong **local governance level ownership** through active involvement of urban authorities and **innovative bottom-up approach** in the definition of the Action Plan;
- **Striving toward territorial cohesion** by ensuring a wide geographic representation among Adaptation Partnership members and encouraging the expression of urban adaptation concerns originating in all geography of the EU;
- **Strong awareness of socio-economic issues** and potential socio-economic impacts of the proposed actions with the aim to minimise negative and promote positive impacts;

[1] http://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf
[2] https://ec.europa.eu/futurium/en/node/1829
[3] https://ec.europa.eu/futurium/en/urban-agenda
[4] https://ec.europa.eu/futurium/en/climate-adaptation

- Embedding of the proposed actions in the **existing working and decision-making structures** on all governance levels – EU, national, regional and local without creating unnecessary administrative burden.

The continuation of this document presents the objectives of the Climate Adaptation Partnership and the Action Plan, the governance of the Partnership, the urban climate adaptation issues at stake as well as the proposed actions in detail and their implementation timeline.

1.1 Objectives

Objectives of the Partnership

The Working Programme of the Urban Agenda for the EU defines the main focus of the Climate Adaptation Partnership:

"to anticipate the adverse effects of climate change and take appropriate action to prevent or minimise the damage it can cause to Urban Areas. The focus will be on: vulnerability assessments, climate resilience and risk management (including the social dimension of climate adaptation strategies)."

Objectives of the Action Plan

The overarching objective of the Action Plan is

to operationalise suggested policy and governance solutions for the identified key bottlenecks hindering successful adaptation to climate change in the EU urban areas.

In order to fulfil this objective, the Action Plan:

1. Provides concrete Action proposals for the design of future and the revision of existing EU legislation, instruments, and initiatives relating to the adaptation to climate change in EU urban areas tackling the three pillars of Better Regulation, Better Funding and Better Knowledge;
2. Defines responsible institutions and organisations and implementation mechanisms for the proposed Actions;
3. Proposes a timeline for the implementation of each of the Actions;
4. Provides the basis for the monitoring of the Action Plan implementation by defining Completion Indicators for the proposed Actions.

1.2 Governance of the Partnership

Coordinator

The Coordinator of the Climate Adaptation Partnership is the City of Genoa. The participation of the City of Genoa in several EU projects and networks on the themes of resilience and the risk reduction, led to a broad relationship with numerous European cities, working on risk reduction and climate change related issues. Special attention was put on risk assessment processes and on related knowledge of different hazards, including deeper analysis of vulnerability and exposure through recognition, census and information, allowing the engagement of exposed population before, during and post-event. The Urban agenda for the EU and the candidature as Coordinator of the Climate Adaptation Partnership represented the opportunity to assess the medium-long term vision of the city of Genoa and its renovation process. This new mechanism gave Genoa and other European municipalities the opportunity to translate their needs in future EU policy improvements.

Members

The Climate Adaptation Partnership Members represent all governance levels – from the European to local - and key decision-makers and stakeholders engaged in urban adaptation to climate change in the EU.

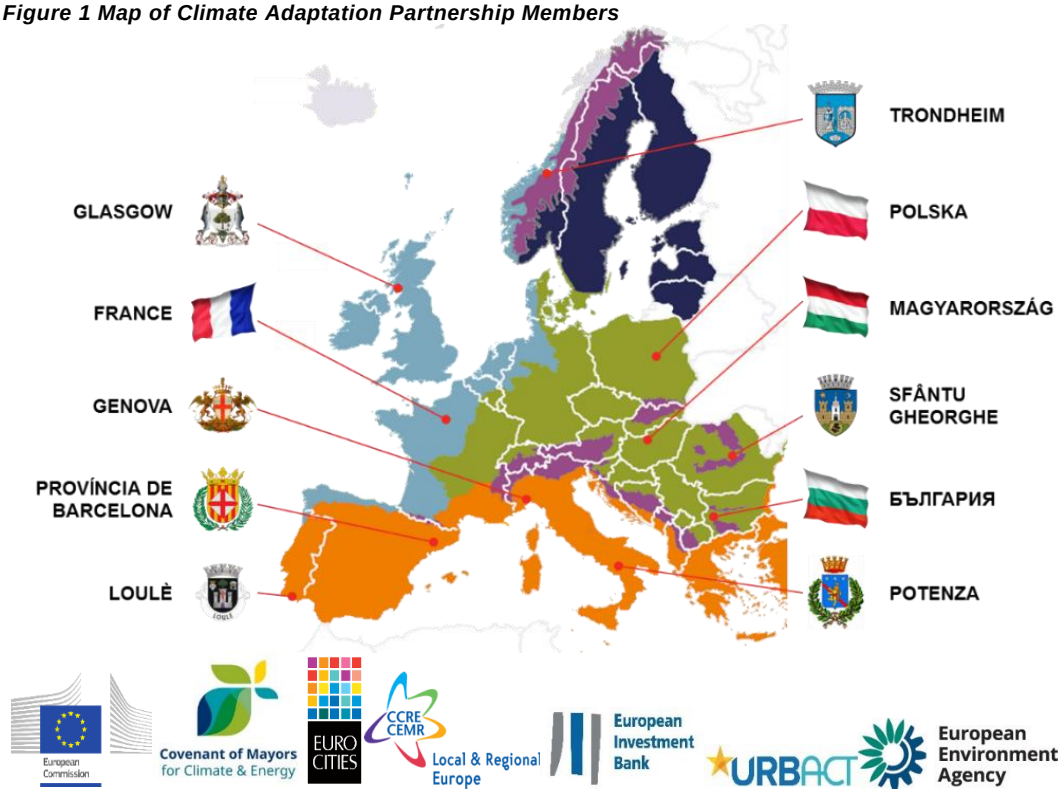
Table 1 Climate Adaptation Partnership members

Member States	Local/Regional Authorities	European Commission	Other EU Organizations / Observers / Stakeholders
FRANCE	GENOVA (IT) - Coordinator	DG REGIO	EUROCITIES
POLAND	BARCELONA Diput. (ES)	DG CLIMA	CEMR
HUNGARY	GLASGOW (UK)*	DG ENV	EIB
BULGARIA*	TRONDHEIM (NO)	DG RTD*	URBACT
	LOULÈ (PT)	JRC	EEA
	POTENZA (IT)		Covenant of Mayors
	SFANTU GHEORGHE (RO)		

** Partners that have not contributed or only to a limited extent to the Action Plan*

Furthermore, Climate Adaptation Partnership members originate from all EU macro-regions ensuring broad geographic representation.

Figure 1 Map of Climate Adaptation Partnership Members



All Partners are members of the Working Groups (WGs) established in order to address 3 key areas of actions: Governance, Resources and Knowledge. Each WG includes a mix of members representing the different governance and decision-making levels as well as diverse geographical locations and expertise. Each WG is leded by a nominated Partner.

Table 2 Working Group composition and roles of members

	WG Governance	WG Knowledge	WG Resources
Leader	LOULÈ (PT)	POTENZA (IT)	BARCELONA Diput. (ES)
Deputy		TRONDHEIM (NO)	EIB
Partners	GENOVA (IT)	GENOVA (IT)	POTENZA (IT)
	GLASGOW (UK)	LOULÈ (PT)	DG REGIO
	SFANTU GHEORGHE (RO)	SFANTU GHEORGHE (RO)	EUROCITIES
	POTENZA (IT)	EIB	GLASGOW (UK)
	FRANCE	GLASGOW (UK)	GENOVA (IT)
	POLAND	DG RTD	FRANCE
	HUNGARY	FRANCE	CEMR
	DG CLIMA	CEMR	
	CEMR	EEA	
	URBACT	JRC	
	EEA		

WG Governance is dealing with political cycle, mandate, integrated strategic planning, decision-making, staff experience and similar topics;

WG Resources is dealing with funding, human resources, cost-benefit analysis, climate adaptation monetizing topics and similar;

WG Knowledge is dealing with data, expertise, methodologies, tools, risk assessments, monitoring indicator systems, capacity building, hazard/exposure, vulnerability analysis and other similar topics.

Further details on each Working Group topic break-own is provided in Annex C.

An informal Local Authority Group acts as an advisory board assessing the actions proposed and the activities foreseen from local authorities' point of view, to ensure the common ground and the baseline from the local level, which feeds into the EU and intermediary governance level actions.

The detailed roles of the Technical Secretariat, Coordinator and Partnership Members are outlined in Annex A.

Background information used

In the process of developing the Action Plan a broad range of background information and expertise has been consulted:

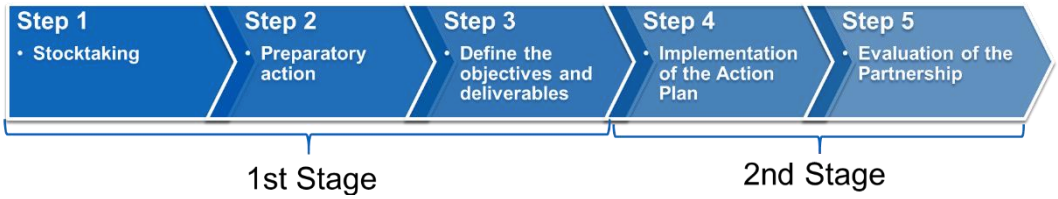
- The expertise of Climate Adaptation Partnership members that includes urban municipalities, regional authorities, EU institutions, research bodies, city networks and funding organisations.
- Background reports and literature published by the EU bodies and agencies, international organisations, research institutions, prominent NGOs, think tanks, etc.
- The results of a survey consultation on the most critical issues in urban adaptation, with 65 respondents from urban municipalities across Europe sharing their views.
- Consultations – ad-hoc consultations with relevant stakeholders during Action Plan development phase, broad public consultation online and intra-service consultation within the European Commission.

A full list of references can be found in Annex G.

Working method of the Partnership

As defined in the Pact of Amsterdam and the Orientation Paper of the Climate Adaptation Partnership, the overall working process follows five steps divided in two stages:

Figure 2 Partnership work process



Steps one to three directly contributed to the definition of the proposed Actions and the development of this Action Plan and are outlined below.

Step 1 Stocktaking

The work in this step revolved around the identification of the existing EU level work and activities on adaptation to climate change, defining the scope of the partnership and Working Group work ensuring additionality, organising the engagement and dissemination with a wider group of stakeholders. In also entailed considerations of resources for the Partnership work and external expertise needs. First Partnership Meeting in Genoa established the overall structure for the Partnership work, identified key stakeholders and led to an agreement on communication strategy.

- The summary of the existing EU regulations, instruments and initiatives is provided in Annex E
- A summary of the consultations and communication and engagement activities is provided further in this chapter

Step 2 Preparatory actions

During this step the Working Groups investigated relevant topics and issues to identify and analyse the main bottlenecks and potentials for local level adaptation to climate change in Europe. In order to collect broader inputs, a survey among other local governments in Europe external to the Partnership was likewise carried out. Second and third Partnership Meetings were held to facilitate the work on the identification of the key bottlenecks to be addressed.

- The list of key bottlenecks identified is provided in Annex F.
- The key findings of the survey are provided in Annex D

Step 3 Defining the objectives and deliverables

In the third step the members of Climate Adaptation Partnership put forward and agreed upon a set of actions that address a selection of the key bottlenecks identified in the preceding steps. Fourth Partnership Meeting concluded the work on Action development and provided the forum for cross-inputs by all Partners.

- The resulting proposed Actions are described in detail in Chapter 3

The detailed workplan of the Partnership process is provided in Annex B.

During Coordinators' Meetings of the Urban Agenda special sessions have been dedicated for creating synergies and opportunities for collaboration among the partnerships. Climate Adaptation topic has inherent synergies with Air Quality, Mobility and Land Use Partnerships. In the process it is key to maintain the identity of the Partnership, while at the same time contributing to the Urban Agenda from a 'big picture' perspective, taking into account policy developments and proposed actions in the related Partnerships.

2 ISSUES AT STAKE

2.1 Presentation of the issues

1. What is the general problem and which are the specific problems and issues?

It is widely recognised that vulnerability and the potential scale of damage due to climate change is especially high in urban areas, which host high density of populations (including highly vulnerable population groups), high concentration of valuable assets and economic investments as well as essential infrastructure networks and nodes (IPCC 2014, EEA 2013, COM 2013b, EEA 2017a). Europe's high rate of urbanisation – 75% of all citizens living in urban areas (WorldBank 2018) and cities accounting for more than 50% of Europe's GDP (MGI 2011) – calls for special attention to climate change impacts in cities and towns.

The key climate change impacts European urban areas are facing are increasing temperatures, leading to Urban Heat Island Effect, increased precipitation and extreme precipitation events leading to pluvial and fluvial flooding, water scarcity, as well as increased storm damage and threat of nearby forest fires (EEA 2016). These direct impacts cascade through the urban systems leading to a wide range of secondary impacts on the economy, human health, social wellbeing, and overall quality of life and functioning of a city (see Figure 3 below) (EEA 2016). In order to preserve European cities as safe, attractive, liveable and inclusive spaces, innovation centres and economic powerhouses, action to address climate change impacts needs to be taken.

However, European cities and towns are not equipped to face this global scale challenge on their own. Insufficient knowledge and awareness, lack of human and financial resources, conflicting urgent priorities, absence of political commitment and limited executive and legislative powers as well as the need of coordination with neighbouring and distant urban and rural areas (E3G 2014), all hamper effective local adaptation action and necessitate integration and support from other governance levels – from regional, to national, to European.

	LIVING	WORKING	MOVING
HEAT	Decreased comfort Health risks Increased energy use for cooling, decreased for heating	Reduced labour productivity Increased energy use for cooling, decreased for heating	Discomfort on public transport Rail buckling Increased energy use for cooling, decreased for heating
FLOODS	Nuisance/health risks Damage to houses Power and water failures	Reduced accessibility Economic asset damage Power and water failures	Blocked roads and rail
WATER SCARCITY	Discomfort Health and safety risks	Reduced productivity Power and water failures	Shipping constraints
WILD FIRES	Health and safety risks Damage to houses	Damage to economic assets	Transport route blockage
STORMS	Nuisance/health risks Damage to houses Power and water failures	Economic asset damage Reduced accessibility Power and water failures	Blocked roads and rail

Note: The examples are not exhaustive and they may not be relevant for all cities.

Figure 1 Overview of climate change impacts on urban areas in Europe, *Source: EEA 2016*

The recognition of the importance of taking action on adaptation to climate change in urban areas is explicitly embedded in the EU climate change policies. The EU strategy on adaptation to climate change (COM 2013) pledges that the European Union 'will support adaptation in cities, notably by launching a voluntary commitment to adopt local adaptation strategies and awareness-raising activities.' This is implemented through Action 3 of the strategy by 'introducing adaptation in the Covenant of Mayors framework' (COM 2013). In the follow-up, Mayors Adapt initiative was launched by the Commission in 2014; and in 2015 it was merged with its older sister-initiative focussed on mitigation of climate change into the Covenant of Mayors for Climate and Energy. From 2017 it was further integrated into the Global Covenant of Mayors for Climate and Energy (further referred to as 'Covenant of Mayors'), with regional Covenant of Mayors offices created all around the world. To this date almost 1100 urban municipalities from 25 Member States have signed up to the Covenant of Mayors adaptation commitment (CoM 2018) covering around 60 million inhabitants. These municipalities have committed to conduct vulnerability and risk assessments, and develop, implement and report on adaptation plans.

In addition, many other cities who have not joined the Covenant of Mayors have developed adaptation strategies or plans independently or due to national legal commitments. Altogether this has led to 25,5% of EU Urban Audit cities having a climate adaptation strategy or plan by January 2017 (Reckien et al. 2018). Recent analysis by Reckien et al. (2018) looked at 885 European cities in the EU-28, covering 190.684.004 inhabitants and thereby 37,3% of the EU-28 population. Their analysis shows that 48.624.481 people or about 9,5% of the EU-28 population are currently being protected by an urban adaptation plan.

The presence of national regulation has a significant impact on local climate planning. Cities in Denmark, France, Slovakia and the UK, where local climate plans are compulsory, are about 5 times more likely to have an adaptation plan than cities in other countries, reaching 56% of cities. This shows that binding measures at the national level significantly increase the percentage of local authorities in the EU with a local adaptation strategy, potentially because such regulation is not only a liability but also comes with guidelines, and methodological and institutional support. There is further scope to encourage other EU Member States to adopt national regulation for local areas at the national level and combine these with methodological guidance and binding measures.

Furthermore, the important role of EU-level action has also been clearly shown: 'in countries where autonomous LCPs (Local Climate Plans) are rare and cities are not required by national legislation to develop plans (..) international networks such as the Covenant of Mayors raise the awareness, build the capacity and, often through EU-funded projects, provide the expertise and the funding necessary to develop LCPs.' (Reckien et al. 2018) as well as keep up momentum on the importance of climate adaptation (CoR 2016).

This is a notable achievement, to a significant proportion driven and supported by EU-level activities, however it still leaves almost 75% of EU cities without an adaptation plan; and the analysis omits smaller urban municipalities, which are likely to have even fewer approved adaptation strategies or plans due to their limited resources and know-how. Furthermore, having a strategy or action plan alone is not guaranteed to lead to actual implementation of adaptation measures on the ground and does not portend quality outcomes of increased resilience on local

level. Even many ‘advanced’ municipalities with adaptation strategies in place continue to struggle in their adaptation efforts due to limitations in know-how, resources and political support.

Within the recent years several surveys have been carried out addressing European local authorities to identify the critical gaps and barriers to successful adaptation to climate change in urban areas. Annex D provides an overview of the survey results in regard to key gaps, barriers and needs identified among European urban adaptation practitioners. Although, progress is being observed in the awareness levels, development of local adaptation strategies and their implementation, the gaps and barriers do not appear to be sufficiently addressed and keep being re-iterated throughout the years by survey respondents. Although there is some variance in the details of the recognised gaps (often relating to how the survey has been designed and the respondent profile), the main types of remaining gaps, barriers and open needs according to local authorities are:

- Lack of financial resources for adaptation planning and implementation, including for co-funding EU projects and for participation in capacity-building activities
- Lack of supportive frameworks and policies on national level and cooperation between the different governance levels
- General lack of human resources and their capacities and know-how
- Lack of experience in creating well-functioning long-term administrative set-ups for adaptation in municipalities
- Gaps in understanding climate change impacts and economic costs in specific urban sectors
- Limited capacity to collect, access and interpret climate data
- Lack of experience and know-how on prioritising and implementing adaptation measures
- Gaps in know-how on developing monitoring systems for urban adaptation
- Limited awareness of the available information, guidance and other resources, also due to language barriers

(DG CLIMA 2013, Romanovska et al. 2015, CoR 2016, Master Adapt 2017, CoM 2017, Covenant of Mayors 2018)

It is furthermore recognised that urban municipalities of small size, as well as regional authorities face their distinctive set of gaps and barriers and often require tailored support responding to their specific needs (E3G 2014, Romanovska et al. 2015, EEA 2017a, EEA 2017b)

Grounded in this information and in order to define the focus of the Urban Agenda adaptation activities, the Climate Adaptation Partnership carried out an exercise of identifying and classifying the urban adaptation bottlenecks in Europe. Altogether 39 bottlenecks were identified, and two thirds of them (26 bottlenecks in total) are addressed by the proposed Actions in this plan.
The full list of the identified bottlenecks is included in Annex F.

2. Why are they relevant for the EU Urban Agenda (link to the Juncker priorities, and link to urban dimension)?

Upon his election as President of the European Commission in July 2014, Jean-Claude Juncker outlined the policy priorities for his five-year term in office. (Juncker 2014, EPRS 2018). The priorities revolve around ‘big themes’ that have the potential to bring real benefit for the citizens of the EU. Climate change, and specifically the climate change in urban areas and the associated

risks and responses have direct and/or indirect implications for most of the Juncker's priorities. Successful urban adaptation to climate change offers a boost and safeguarding for the achievement of the priorities:

Jobs, Growth and Investment – climate change impacts are a serious threat to industries, investment and economic activity, which is predominantly located in Europe's urban areas, also affecting jobs (EEA 2016). Taking action on urban adaptation protects these jobs and makes investments in industry more secure, thus stimulating investor confidence. Furthermore, adaptation creates new 'green' jobs necessary for the planning, implementation and maintenance of adaptation measures and helps the re-qualification of the urban workforce towards the jobs of future, as well as promotes innovation (EEA 2012, EEA 2016).

Digital Single Market – large swathes of ICT infrastructure (as well as the interlinked energy, transport and industrial infrastructure) is located in Europe's urban areas and are vulnerable to climate change impacts (JRC 2015). Protecting it from the damage, disruptions and collapse due to both extreme hazards and gradual climate change, is crucial for attaining the goals of improving access to digital goods and services, creating growth-conductive conditions for digital networks and services, and maximising the growth potential of digital economy.

A resilient energy union – energy infrastructure is projected to suffer from more than 10-fold increase of costs resulting from climate change related damages by 2080s (JRC 2015). Unless action is taken to increase the resilience of energy infrastructure, significant share of which is placed in Europe's cities and towns, the commitment to provide EU citizens and businesses with secure and affordable energy is under jeopardy. The urban areas in Europe need to be equipped with the awareness, know-how and resources to climate-proof energy infrastructure in collaboration with the relevant national authorities and private sector. Likewise, cities have a significant potential to contribute to the energy efficiency goals of this priority, by implementing adaptation measures that also result in energy savings (e.g. by improved building standards, building stock renovation, promoting more energy efficient cooling when adapting to rising temperatures, etc.).

A deeper and fairer internal market with a strengthened industrial base as well as a deeper and fairer economic and monetary union – climate change impacts in urban areas, where the industrial activity is the highest and the market most active, result in high economic costs. These costs are a burden for the development of the industrial base and the free flows of goods and people. Due to socially unequal consequences of climate change impacts in urban areas, the European Pillar of Social Rights is equally concerned (ETC/CCA 2017). Ensuring cities' capacities to increase their resilience to climate change while keeping the social aspects in mind, would lead to a more stable production, trade and improved social equity within the deeply interlinked single market, economic and monetary union.

A balanced and progressive trade policy to harness globalisation – Europe is part and parcel of a global community interlinked and interdependent through trade relations. As such it is not only vulnerable to the climate change impacts on European ground, but also sensitive to the impacts experienced along the trade paths. The economic losses and disruptions in value creation chains elsewhere are likely to have (often immediately felt) impacts in Europe, due to the increased globalisation and international trade. The impact pathways include risks to raw material supply, risks to manufacturing, global food price volatility, loss of reliability of supply and distribution, and

economic repercussions, among others (EEA 2017). Cities are the engines of international trade and globalisation, with almost half of the top 10 most powerful cities globally being located in Europe (IUS 2017). This power also comes with increased exposure to climate change shocks globally. Actions needs to be taken to increase the resilience of Europe's international trade chains to climate related impacts, looking beyond the immediate territory of the urban area and by adopting the extended system resilience approach.

Justice and Fundamental Rights Based on Mutual Trust – due to the disproportionate impacts of climate change among societal groups, it threatens several of the fundamental rights enshrined in the Charter of Fundamental Rights of the EU (the rights of women, elderly, children, access to health services, etc.) (COM 2012, DG EXPO 2012) or exacerbates social injustice issues (ETC/CCA 2017). Preventing the negative impacts on various social groups in European cities, where most EU citizens live, and where high concentrations of especially vulnerable groups (e.g. the elderly, urban poor, persons with migration background) are found can ensure higher levels of achieved social justice across the EU. Care needs to be taken to both identify the social impacts of climate change on urban populations, but also the urban adaptation response needs to be designed with social justice in mind to successfully contribute to this priority.

New Policy on Migration – climate change is likely to act as a contributing factor in the increase the movement of people globally, often by causing the worsening of economic situation, and in some cases due to deeming a living area too risky or uninhabitable. According to evidence, climate migration is mostly to result in local and intra-regional movement. Climate change also reinforces rural to urban migration. (COM 2013a) Some climate-influenced migration increase can also be expected from the neighbouring areas of the EU, although the most vulnerable populations are unlikely to have the necessary resources to migrate over large distances (COM 2013a). The current migration crisis indicates that EU might not yet be ready to face this additional factor of migration decisions. As most of the migrant populations, both from within the EU and from outside, settle in urban areas and due to inherent social factors are likely to have lower adaptive capacity to climate change impacts, addressing the particular vulnerabilities of migrants, strengthening their adaptive capacities and engaging them in adaptation decision-making in cities can successfully lessen the associated negative outcomes of migration Europe-wide and help achieve the objectives of the European Agenda on Migration . Furthermore, also within Europe, migration and relocation are potentially successful adaptation measures if planned and managed well, which European urban areas need to be equipped to manage.

Stronger Global Actor – in the global arena of climate policies, the EU is positioning itself as a strong global actor. However, it is not only the EU bodies and the Member States that have a significant contribution to international climate negotiations and agreements, European cities likewise have a solid role as the largest and one of the most impactful non-state actors in the UNFCCC process (UNFCCC 2018). So far European cities and towns have made significant commitments to climate change mitigation goals on a global level, this needs to be matched with equally ambitious adaptation action; and the use of the collective negotiating power of urban municipalities internationally should be encouraged to achieve resilience goals. Furthermore, the experiences, know-how and adaptation innovation developing in European cities is highly relevant for the EU's vision of supporting adaptation to climate change in the developing regions, contributing to efficient response to the global challenge to climate change and contributing to peace and prosperity in the world.

Democratic Change – in the spirit of subsidiarity and proportionality, all levels of governance, including the local, have their important role in the European policy-making, however effective vertical and horizontal coordination is key to make it work. Better regulation is especially important for addressing urban adaptation to climate change, which is a broad, multi-sectoral and multi-level responsibility, where impacts are felt locally, while decisions are being taken on all governance levels. Local authorities have repeatedly expressed their need for better coordinated European urban policies and better inclusion in the multi-level governance. The Urban Agenda for the EU addresses this need and the current Action Plan strives to achieve better regulation, better funding and better knowledge through complementary EU action in support of national and local urban adaptation initiatives.

3. What are the issues the Partnership focused on?

The Actions constituting the present Action Plan address a significant number of the identified key bottlenecks to successful urban climate change adaptation in Europe. In total, 26 out of 39 identified bottlenecks are fully or in part addressed by the proposed Actions. The Partnership has focussed primarily on the bottlenecks that are associated with:

- Provision, access and usability of key data, methodologies, tools and information essential for urban adaptation planning and implementation
- Accessibility, suitability and promotion of EU and other funding sources for urban adaptation, including for the development of local adaptation strategies/plans and the implementation of adaptation measures
- Awareness raising, capacity building and stakeholder engagement in support of good adaptation governance locally.

4. Are there any other important issues to be addressed at a later stage?

A sub-set of the bottlenecks identified by the Partnership are not directly addressed by the current Action Plan and remains to be tackled in the subsequent work of the Partnership. Those are bottlenecks related to:

- Gaps in internal capacities and institutional set-up of Local Governments, such as:
    - Insufficient know-how on adaptation communication
    - Inefficient or non-existing cross-departmental collaboration
    - Conflicting budget priorities and difficulties in prioritising adaptation measures
    - Lack of overall capacities to manage and achieve successful implementation of the local adaptation strategies/plans due to multitude of other daily priorities
- Multi-level governance issues such as conflicting priorities and strategic objectives between national/ regional and local level
- Insufficient uptake of adaptation financing due to limited borrowing capacity or lack of know-how on using green-bonds as a financing instrument
- The lack of knowledge and understanding on the role and importance of biosphere, ecosystems and green infrastructure in urban adaptation to climate change

A range of Action ideas that have been identified and proposed by the Partners, have not been developed into fully defined Actions for this Plan, however are to be considered for further development during successive planning periods, especially in the light of addressing the remaining gaps (as outlined above) or any new emerging issues:

1. Update of EU guidelines on national adaptation planning with increased focus on sub-national level and enhanced communication
2. Improvement of data accessibility for local Municipalities in the framework of ESPON
3. Extension of national pages on Climate-ADAPT adaptation information portal to include more detail on national data sources
4. Development and availability of templates for the elaboration of local climate adaptation strategies, localised in several national languages
5. Funding adaptation-related capacity building activities for cities
6. Opening of databases on historic climate hazards, projections, resilience investments and other relevant information held by a range of public and private institutions for the use in urban adaptation planning
7. Further improvements of the dialogue between Local Authorities, national governments and the EU to foster appropriate decisions towards adaptation funding within the EU, i.e. explicitly including adaptation in INTERREG programmes.

2.2 What is already done?

The EU Strategy on Adaptation to Climate Change explicitly defines an action under Pillar I, to 'support adaptation in cities' (COM 2013b). For this purpose, Covenant of Mayors for Climate and Energy acts as the key instrument of the EU supporting urban adaptation. The Covenant encourages political commitment, provides capacity building and technical support as well as builds a community of urban adaptation practitioners in Europe (see Annex E for more details). A recent survey has shown that participation in Covenant of Mayors or other international adaptation initiatives acts as a springboard for adaptation action in many European urban municipalities (Reckien et al. 2018). In order to broaden the positive impact of the Covenant on the local level adaptation initiatives in Europe, it's reach needs to be extended by increasing the numbers of signatories committing to adaptation targets, and the Covenant activities need to be further supported.

Local authorities likewise benefit from a plethora of other initiatives and instruments developed under the EU Strategy on Adaptation to Climate Change, including those developing and supporting the knowledge base and capacities for adaptation, providing funding to support adaptation planning and implementation, integrating adaptation in the cohesion policy as well as promoting adaptation action on national level in Member States. The full overview of the existing EU level strategies, policies, legislation, funding instruments, networks and projects and as well as knowledge support structures is provided in Annex E. The Action Plan puts forward actions that would help to scale up, better target and adjust the EU policies, tools and initiatives, as well as address the remaining gaps.

On the national level, majority of the EU Member States have by now approved their adaptation strategies (CA 2018). In 2014 it was reported, that around half of them explicitly addressed urban adaptation (EEA 2014). The presence of national regulation has a significant positive impact on local climate change planning, which is evident in Europe, especially in those countries where countries local climate adaptation strategies or plans are compulsory (Reckien et al. 2018). Thus, the development of national adaptation strategies and explicit inclusion of urban resilience aspects in them needs to be further encouraged.

3 ACTIONS

In order to support and advance successful adaptation to climate change in European cities, a range of actions need to be taken to enable local governments to assess climate change risks and the vulnerability of essential urban systems (including the social dimension), strategically plan adaptation action based on solid evidence, as well as fund and implement measures on ground leading to tangible increases of urban resilience in Europe. The European Union has a significant role in advancing adaptation action on the local level through enabling policies, instruments and initiatives in complementarity with national, regional and local efforts.

Through the bottom-up working method of the Climate Adaptation Partnership (see Chapter 1), a set of actions are put forward, focussing on those issues where European level action is most needed and adds most value. The actions address a selection of the key bottlenecks identified and contribute to the three Pact of Amsterdam objectives: 1) Better Regulation; 2) Better Funding and 3) Better Knowledge.

The table below provides an overview of all Actions, which are presented in detail in the following. A range of additional action proposals have furthermore been suggested by the Partnership for consideration in the future iterations of the Action Plan – see Chapter 2.1.4.

Table 1 The overview of actions

BETTER REGULATION	
R1	Revision of urban development and planning regulation tools with focus on national, regional and local climate adaptation action and stressing case studies and good practice examples
R2	Further engagement of national municipality associations as key facilitators and relevant Covenant of Mayors Supporters to best support local authorities in their adaptation process
BETTER FUNDING	
F1	Guidelines and toolkit for the economic analysis of adaptation projects
F2	Recommendations for the OPs of the ERDF in order to improve its accessibility for municipalities
F3	A new LIFE for urban adaptation projects
F4	Further support for the drafting of local adaptation plans – e.g. through the integration of specific provisions for smaller municipalities in existing calls
BETTER KNOWLEDGE	
K1	Improving data accessibility for EU Municipalities in the framework of COPERNICUS
K2	Enhancing the urban content of Climate-ADAPT
K3	Political training academy on climate adaptation
K4	Enhancing citizen and stakeholder involvement at regional and local levels for climate adaptation urban agenda
K5	Promote open access of insurance data for climate risk management

3.1 Better Regulation

The Urban Agenda for the EU focuses on a more effective and coherent implementation of existing EU policies, legislation and instruments. Drawing on the general principles of better regulation, EU legislation should be designed so that it achieves the objectives at minimum cost without imposing unnecessary legislative burdens. In line with the philosophy of the Urban Agenda for the EU, the Action Plan will not initiate new regulation but will contribute to the design of future and revision of existing EU regulation pertinent to topic of urban adaptation, in order for it to better reflect urban adaptation needs, practices and responsibilities. It recognises the need to avoid potential bottlenecks and minimise administrative burdens for Urban Authorities.

The Climate Adaptation Partnership proposes the following actions under the objective Better Regulation:

R1	Revision of urban development and planning regulation tools with focus on national, regional and local climate adaptation action and stressing case studies and good practice examples
R2	Further engagement of national municipality associations as key facilitators and relevant Covenant of Mayors Supporters to best support local authorities in their adaptation process

Action R1	**Revision of urban development and planning regulation tools with focus on national, regional and local climate adaptation action and stressing case studies and good practice examples**		
Short description:	Revise all available regulation tools on urban development and planning regulation in a context of climate adaptation strategies. Particular focus will be given to the urban planning and other spatial strategic planning tools tailored to the national, regional and local level needs. Collect, develop and disseminate national, regional and local adaptation case studies and good regulation practices examples.		
Responsible institution:	National governments	***Contributing institutions:***	EEA, Covenant of Mayors Office, JRC, Ministry of Environment in Poland and Hungary, Loule
Implementation timeline:	01.2019 to 06.2020	***Intermediary deadlines:***	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring
Indicator of completion:	Revised regulation systems of at least half of Member States		

What is the specific problem?	***Bottleneck(s) addressed:***	2, 3, 4, 26
Climate adaptation needs for long term strategy and this is not the main dimension of political will and decision-making. Multilevel strategic spatial planning and urban development planning is one of the best tools to respond to complex challenges of climate change. But existing regulation documents and tools on urban planning related to climate adaptation are not detailed enough, or do not contain the relevant information to be used by the target audience. In other cases, regulations are not efficient. This need is particularly important for the regional and local authorities. Municipalities find it difficult to make effective use of the existing regulatory documents and tools. Also, there is a lack of effective participatory tools for multilevel governance, cooperation concerning the connection between risk management, climate adaptation planning and urban planning. There are no effective regulatory tools of stakeholders' involvement and engagement in urban planning, and we do not know, if there is any specificity of this regulation in risk and climate adaptation field or no. The existing national, regional and local case studies and good practice examples on regulation are too few and not accessible to their respective target groups.		
How do existing EU policies/legislations/instruments contribute?		
In Europe national governments are generally responsible for urban matters' regulation, and there are many ways. But multilevel nature of climate change makes it important to revise these tools on a larger, European scale. The EU Adaptation Strategy (2013) includes Action 5: Further develop Climate-ADAPT as the 'one-stop shop' for adaptation information in Europe. It aims to contribute to the objective of better-informed decision making by providing access to information on climate impacts, vulnerability and adaptation via Climate-ADAPT knowledge platform. This platform contains a vast amount of resources on adaptation, including case studies and best practices examples, for the use of different governance levels. Urban Adaptation Support Tool has been developed specifically in support of regional and local level adaptation action. Furthermore, the European Environment Agency is issuing regular reports on national and urban adaptation planning. These, often very comprehensive, reports include a wide variety of case studies and best practices examples. Covenant of Mayors together with the Joint Research Centre of the Commission provide knowledge, how their technical guidance support municipalities in their development of sustainable energy and climate plans (SECAPs), local monitoring and reporting template for adaptation. Extensive communication material, such as best practices brochures, case studies, fact sheets are produced and disseminated by the Covenant of Mayors, all available on line. Nevertheless, there is an important need to review and update the existing guidance material and tools with particular attention to their integration into the regulation system of national, regional and local level. In addition, further work on the development and collection of case studies and the best practice examples in regulation, as well as making them available for the respective audiences. Also, there is a need to strengthen linkages between climate plans (like SECAPs) and urban plans (throughout regulation) for more effective and integrated climate adaptation.		
Which action is needed?		
Revising all available regulation of urban development and planning in context of European and national adaptation planning, like the Urban Adaptation Support Tool, sustainable energy and climate action plans, green infrastructure plans and possibly other guidance and tools that may be identified as the work		

progresses. Collaboration with national authorities, the Covenant of Mayors and other relevant partners will be important. Developing and collecting case studies and good practices examples and making them available for each member states.
How to implement the action?
The action is proposed to be implemented in 2019 before preparation of national Operational Programmes of ERDF and will consider inclusion of any new or reinforced action.
Funding sources and needs
National funding sources
Implementation risks
Lack of capacity of national authorities. Lack of information or lack of clear regulation related to urban planning and climate adaptation.

Action R2	**Further engagement of national municipality associations as key facilitators and relevant Covenant of Mayors Supporters to best support local authorities in their adaptation process**		
Short description:	To enhance the role and reinforce the commitment of National municipality associations as facilitators (and supporters?) for local municipalities to implement their ambitious climate adaptation strategies.		
Responsible institution:	CEMR/Covenant of Mayors Office	***Contributing institutions:***	Cities (e.g., Potenza), Local and National Authorities involved in the partnership and National municipality associations
Implementation timeline:	01.2019 to 06.2020	***Intermediary deadlines:***	07.2019 Case Studies pitch 12.2019 Progress monitoring 06.2020 Progress monitoring

Indicator of completion:	N° of municipalities applying in the new COM through National municipality associations N° of SECAPs delivered

What is the specific problem?	***Bottleneck(s) addressed:***	39

Climate adaptation calls for long-term strategy and this is not the main dimension of political will and decision making at municipal level. This represents a concrete weakness for Municipality in the process of application in the Covenant of Mayors for Climate & Energy. Additionally, small- and medium-size cities are often still struggling to actually translate their commitment into concrete adaptation actions and need further support in the process. Therefore, the municipalities have to be supported and additional efforts need to be made in order to stimulate political commitment and best support the Covenant of Mayors for Climate and Energy community.

How do existing EU policies/legislations/instruments contribute?

The Covenant of Mayors for Climate and Energy includes intermediate bodies with specific function of coordinating at territorial level the municipalities engagement. An effective role could be played by National municipality associations and networks representing an effective horizontal organization with high capacity to influence political willingness on common operational objectives. They are as important allies to support Covenant of Mayors signatories in meeting their commitments and increase the impact of the initiative – notably on the adaptation side.

Which action is needed?

Reaching out additional associations/networks and looking for new partnerships able to support further the Covenant signatories and other local authorities in their adaptation process; relying on their resources and harnessing their expertise in the adaptation field.

Implementing and supporting national networks of cities committed in the adaptation process by means of National municipality associations.

How to implement the action?

The National municipality associations and networks are already engaged in promoting a wide participation of their associated municipalities in the Covenant process, e.g. supporting them to reach their targets, develop and implement their Sustainable Energy and Climate Action Plans (the so-called SECAPs).

The main actions proposed would be the following:

- Set up a “Covenant Club of Supporters”, fostering exchanges between national associations on successful adaptation practices

Propose “train-the-trainers” sessions, in order to train national associations, who will in turn train their associated municipalities and regions. In addition, the following actions could be considered: - Conduct a survey among relevant national municipality associations and networks in each Member States in order to define the most pressing needs - Invite national associations of municipalities and regions to commit or renew their engagement as key supporters through the Covenant of Mayors initiative - Organise a series of national roundtables, and compile the outcomes in a joint report – submitted to the European Commission
Funding sources and needs
Additional resources have to be provided for the Covenant to engage further national municipality associations and networks and for the National municipality associations to support cities in their action.
Implementation risks
Implementation prospects depend on the CoM capacity to establish effective working network and consequently on the efficacy of each national municipality association to play the role of facilitator effectively influencing political willingness. National municipality associations may not have technical resources to support properly local municipalities on these topics.

3.2 Better Funding

The Pact of Amsterdam states that the Urban Agenda for the EU will contribute to identifying, supporting, integrating and improving traditional, innovative and user-friendly sources of funding for Urban Areas at the relevant institutional level, including from European structural and investment funds (ESIF) (in accordance with the legal and institutional structures already in place). The overarching aim of this Action Plan pillar is not to create new or increased EU funding aimed at higher allocations for urban authorities, however, it focusses on improved funding opportunities for urban adaptation based on lessons learned.

The Climate Adaptation Partnership proposes the following actions under the objective Better Funding:

F1	Guidelines and toolkit for the economic analysis of adaptation projects
F2	Recommendations for the OPs of the ERDF in order to improve its accessibility for municipalities
F3	A new LIFE for urban adaptation projects
F4	Further support for the drafting of local adaptation plans – e.g. through the integration of specific provisions for smaller municipalities in existing calls

Action F1	**Guidelines and toolkit for the economic analysis of adaptation projects**		
Short description:	This action proposes to develop guidance and tools for robust decision making on urban adaptation interventions. The tools are aimed for in-house use by cities and financial institutions.		
Responsible institution:	European Investment Bank (tbc)	***Contributing institutions:***	Financial sector (KfW, National Promotional Banks, EBRD, Commercial Banks) EUROCITES, CoM, CEMR, representative sample of EU cities for testing
Implementation timeline:	01.2019 to 12.2021[5]	***Intermediary deadlines:***	06.2019 Terms of Reference / Workplan 12.2019 Progress Monitoring 06.2020 Guidelines 12.2021 Toolkit

[5] implementation will likely extend beyond the implementation period of the Action Plan as indicated

Indicators of completion:	Delivery of Guidelines and toolkit; Dissemination and training on use for at least the 20% of cities belonging to the contributors

What is the specific problem?	***Bottleneck(s) addressed:***	31,32

The consideration of costs and benefits enables decision makers to make informed and robust decisions between options, allowing trade-offs and/or providing a means to justify decisions. In many public and private institutions, economic cost-benefit analyses (CBAs) help provide the justification for project approval. In addition, facilitate dialogue with other national, regional or local stakeholder if priorities are conflicting. CBA is however particularly challenging for climate change adaptation (CCA). The challenging arises due to high uncertainty and the stochastic nature of climate change projections, and because future benefits/avoided losses are often difficult to estimate. CBA of CCA for infrastructure, and in particular for urban multi component/sector projects, is therefore very technically challenging to complete, as well as time and resource intensive and is outsourced to external experts and consultants. As a consequence of these factors, it has proved difficult for financial institutions to develop quick and cost effective in-house CBAs which permit robust decision making for adaptation interventions.

How do existing EU policies/legislations/instruments contribute?

The EU has comprehensive guidelines on CBA, and has supported projects like ClimateCost, Econadapt, which however do not resolve the challenge outlined above, particularly for urban multi sector adaptation interventions. However, this previous work forms an important point of departure. International experience has shown that much of this guidance has proven far too complicated (CGE models, Real options from UK green book, etc.) some of which is not used at all, and the other is too costly and time consuming, and often does not aid in decision-making. EIB has started work on this, initially for large infrastructure projects globally, and will provide its concept note to UA Partnership and the implementing entity for this action to inform this work.

Which action is needed?

This action proposes to analyse existing methodologies and good practices regarding the CBA of CCA and adapt and develop these to infrastructure investments in the urban context. The guidance and tools that are developed shall be appropriate for in-house use by cities (including small and medium-size) and financial institution, as well as be cost effective and promote low regret and robust decision making on adaptation interventions. Cities need to justify their priorities and use of public funds to the constituencies and funders (loans or grants) and currently are poorly equipped to do so. The availability of appropriate tools and guidance for urban investment decisions makers will permit, promote and enhance investments and operational changes in cites, this will enable people, assets and ecosystems to cope with impacts and seize the opportunities that climate change presents.

How to implement the action?

It is envisaged that this work shall be carried out with the assistance of external consultants, to be lead collectively by representatives (steering committee) of both the financial sector (commercial and IFI) and urban/cities. The approach requires the consultants to facilitate the sharing of best practise between cities, financial institutions and service providers and initially develop simple, best practice guidelines along the lines of the “Integrating Climate Change Information and Adaptation in Project Development: Emerging Experience from Practitioners” (EUFIWACC, 2016). Next steps are more detailed guidance on robust decision making under uncertainty and low cost, low regret solutions for urban adaptation with the tool kit to carry out such assessments.
Funding sources and needs
EU funds, EUR 2-3 million
Implementation risks
There is a risk that the task of simplifying a highly complex challenge of economic analysis of adaptation, and nascent field, in the context of complex multi component/sector urban investments cannot move beyond guidance and best practises. A second risk, which is known from the urban partnerships, is the availed and willingness of all the stakeholders to commit the necessary time to support this action. May be challenging for smaller cities due to complexity and resource constraints

Action F2	**Recommendations for the OPs of the ERDF in order to improve its accessibility for municipalities**		
Short description:	Establishing recommendations for the Operational Programs in order to improve accessibility for Local Authorities and to increase adaptation actions’ implementation. The recommendations are addresses to the Member States and National Authorities managing ERDF.		
Responsible institution:	National Authorities	***Contributing institutions:***	CoMO, CEMR, EUROCITIES
Implementation timeline:	09.2019 to 06.2020	***Intermediary deadlines:***	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring
Indicator of completion:	Recommendations established		

What is the specific problem?	***Bottleneck(s) addressed:***	6,12,18,19,20,30

Accessibility of the ERDF by cities and towns, especially medium towns, due to the degree of complexity to fulfil all requirements. That complexity can be increased depending on how these funds are managed by the Member States. For instance, in some Member States the entity asking for the fund must provide upfront investment, so this is a big barrier for many Local Authorities. In some other countries operational programs take long to be developed and so the calls are very delayed.

National structures are typically sectorial, which leads to less integrated approach, and climate adaptation, on the opposite, needs and integrated approach.

The complexity to manage an ERDF projects is high; therefore, many Local Authorities feel discouraged and do not ask for one. Co-financing rate can be also a constraint.

How do existing EU policies/legislations/instruments contribute?

Each Member State develops its own Operational Programs (OP) and establishes specific ERDF calls linked to these OP, according to ERDF regulations (EU 1301/2013 and EU 1303/2013) and priorities. Right now, adaptation measures can be executed thanks to ERDF, but there is the need of a high degree to technical expertise to prepare the project adapted to the call, so hiring consultancies is needed, and in some areas co-financing is high (i.e. 50%) and difficult to achieve by Local Authorities.

Which action is needed?

National authorities managing ERDF funds could include recommendations into their OP:

- Allocating part of the funds to climate adaptation projects of Local Authorities and considering to co-finance at least part of them
- Allowing supra-municipal entities (such as provinces, councils, etc…) to act on behave of the municipalities, no matter their size, so these Authorities can help them technically and maybe co-financing in part
- Establishing more flexible indicators (also focusing on ecosystem services), more suited to the project.
- Lowering co-financing rate for adaptation projects and considering the size of the Local Authority

How to implement the action?

1. Local Authorities, supra-municipal Authorities, Covenant Coordinators should develop the justification using specific examples in order to present that to the Managing Authorities.
2. Establish a dialogue with the managing authority so recommendations are taken into account
3. National Authority/Managing Authorities has to organize this process.
4. Include recommendations in the OPs
5. Analyse results

Funding sources and needs

Human resources from LA, etc. to deal with the justification and attend the meetings with the managing authorities. Human resources within existing national authorities linked to ERDF management.
Implementation risks
Delayed Operational Programmes due to the changing of the regulations.

Action F3	**A new LIFE for urban adaptation projects**		
Short description:	The action consists in boosting urban municipalities, cities and towns capacity to access LIFE funding for urban adaptation projects. It will be done through: 1. disseminating/upscaling the frameworks that exist in some Member States to support cities to win and/or implement LIFE funding for urban adaptation projects 2. making concrete suggestions to improve access of cities to LIFE programme, including access to technical assistance (TA) resources for the preparation and implementation of urban adaptation projects, independently from project funding.		
Responsible institution:	EUROCITIES	***Contributing institutions:***	EIB, French Ministry of Territorial Cohesion, Polish Ministry of Environment tbc, Potenza tbc, Genova tbc, Province of Barcelona tbc, EASME, DG CLIMA, Covenant of Mayors office
Implementation timeline:	01.2019 to 06.2020	***Intermediary deadlines:***	02.2019 Good practice review on multi-level coordination 09.2019 Gap analysis on LIFE TA, procedure, etc. 12 2019 European workshop 06.2020 At least one national dialogue 2021 New TA facility
Indicator of completion:	1 European workshop completed with attendance of at least 25 participants; At least 3 (tbc depending final number of contributing institutions) national dialogues completed by June 2020; Final evaluation of LIFE regulation 2014-2020 reflecting cities' bottlenecks; List of concrete suggestions to overcome those bottlenecks		

What is the specific problem?	***Bottleneck(s) addressed:***	4, 6, 7, 12, 18, 19, 21, 22, 23, 24, 28

Local authorities often lack in-house capacity required to tackle climate change adaptation and this may result in poor adaptation projects, failing to pass the selection process, or not delivering their intended climate resilience benefits or not being implemented at all. Local authorities are often confronted with a number of problems: (1) challenges in identifying climate risks and vulnerabilities; (2) difficulties in prioritising adaptation projects/activities in relation to climate resilience objectives contained in strategic documents; (3) insufficient size of adaptation projects and need to bundle them in order to get sufficient critical mass; (4) difficulties in identifying the most appropriate TA and project funding sources depending on the characteristics of the project (size, sector, scope and volume of funding needed)

Cities face difficulties in accessing LIFE funding, including (but not only) for their adaptation projects, mainly for these reasons:

1. The 55% (since 2018) co-financing by LIFE constitutes a barrier for cities of all sizes, to access funding and implementing the projects. Integrating different type of funds (i.e. H2020, URBACT, ERDF) to provide the remaining 45% remains a challenge as well.
2. Many of the LIFE calls are complex, with timetables and conditions that can be different depending on the calls and the one-stage process for climate adaptation projects does not leave much time for cities to apply.
3. Further promotion could be done at national level to inform cities about the funding programmes and the necessity to work on climate adaptation, in particular with the Covenant of Mayors.
4. There is no Technical Assistance support specifically targeting cities to support them in the preparation of their climate adaptation projects (only for Member states or Regions to prepare integrated projects).
5. National ministries or regions are not always aware of LIFE projects submitted by cities and their outcomes.

This leads to a low quality of applications submitted to get LIFE funding, and to many cities not being able to submit applications.

How do existing EU policies/legislations/instruments contribute?

LIFE Climate Action supports projects on climate adaptation, selected through a one-stage application process and a 55% co-funding. LIFE Integrated Projects provide funding for plans, programmes and strategies on climate adaptation, but developed on the regional, multi-regional or national level. TA in LIFE is aimed at (1) projects implementing specific environmental or climate action plans on a large territorial scale, this is not suitable for cities which operate at smaller territorial scales; (2) projects in the areas of nature, waste, air and climate change mitigation and adaptation - where adaptation is less known compared to other areas of interest; (3) the preparation of a future project proposal that targets an eligible action plan, strategy or roadmap, hence strongly linked with the project funding.

Which action is needed?

Three streams of action are needed:

1. Identify good practices of member states or regions working effectively with cities on urban adaptation using LIFE funding. In some countries National, Regional or supra municipal governments assume part of the co-financing needed in LIFE. In some other countries, the Ministry for Environment contracts an association to support project developers, including in municipalities, and helps them apply to LIFE

projects (inter alia). Such practices should be encouraged and disseminated in the EU. This can be through support to develop project proposals); co-funding; development of integrated projects that involve or benefit cities; or targeted technical assistance provided by national/regional authorities.

2. Disseminate those good practices across the EU by making them available to cities, regions and ember states, through city networks and initiatives such as the Covenant of Mayors, in national languages when possible.
3. Convey cities' feedback on the LIFE programme to the European Commission and make concrete suggestions to improve access of cities to LIFE programme, feeding in the final evaluation of the LIFE regulation 2014-2020, expected in 2020 (the mid-term evaluation was released in November 2017). Concrete suggestions could include the improvement of technical assistance, specifically targeting the development of urban adaptation projects under the "traditional project call" and the "integrated project" call[6].

How to implement the action?

Two strands of actions in parallel:

1)COORDINATION ACROSS NATIONAL/LOCAL LEVELS:

- Review of good practices on collaboration between national ministries and cities on LIFE (desk research)
- Organisation of a European workshop on LIFE, inviting national ministries to present how they support cities to access LIFE funding possibly back to back with an existing city event to maximise participation
- Organisation of national dialogues between national ministries, regions and cities on better cooperation on LIFE funding for urban adaptation in national languages. Expected long-term outcome at national level: Established dialogues in place between national ministries or regions, and cities, to reinforce awareness and when possible, support cities' access and use of LIFE funding for urban adaptation projects

2)REVIEW OF LIFE SCOPE AND APPLICATION PROCESS

- Gap analysis reviewing where improvements to the existing TA facilities are necessary, in addition to those already identified. Based on previously identified bottlenecks, the new TA facility could provide: (1) Focus on small local projects which may or may not become bankable; (2) Depending on resources available, provision of adaptation specialists speaking the local language who would work with the municipality for a certain amount of time (1-2 years) in order to help cities (a) build internal capacity, (b) plan specific adaptation measures and (c) create resilience strategies. The specialist would be able to assist cities in numerous tasks, as adaptation measures are usually not stand-alone projects; (3) Streamlining of procurement procedures.
- Gap analysis reviewing application procedures and timeframes, co-financing thresholds, language barriers, etc.

Funding sources and needs

Use of partners' own resources, collaboration with the Covenant of Mayors, use of the TAIEX-EIR peer-to-peer instrument to fund national dialogues

Implementation risks

- Risk of low attendance of European expert workshop on LIFE –mitigated through organising the workshop back-to-back with an existing event

[6] An alternative option could also be, after the first stage is passed, to provide the project partners with a lump sum to developed further the project with the support of technical experts (i.e. URBACT projects).

- Risk of low uptake of national dialogue by National ministries and other sub-national authorities – mitigated through commitment of one/two ministries in France and Poland, who will inspire their colleagues
- Risk of little feedback from cities (and other stakeholders) on the LIFE programme – mitigated through use of networks such as EUROCITIES and the Covenant of Mayors

Action F4	**Further support for the drafting of local adaptation plans – e.g. through the integration of specific provisions for smaller municipalities in existing calls**		
Short description:	Providing further support to local authorities – in particular smaller ones – in the drafting of their adaptation strategies and action plans, leveraging the existing European funds and national funding programmes.		
Responsible institution:	European Commission (DG CLIMA; DG ENVIRONMENT; DG RTD; DG REGIO)	***Contributing institutions:***	• EASME • Covenant of Mayors Office • JRC • National governments (as managing authorities of several EU and national funds) • City/region representatives
Implementation timeline:	01.2019 to 06.2019	***Intermediary deadlines:***	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring
Indicators of completion:	Number of local adaptation plans drafted thanks to specific provisions applying to new calls Number of local climate risk and vulnerability assessments developed thanks to specific provisions applying to new calls		
What is the specific problem?		***Bottleneck(s) addressed:***	16, 2, 6, 7, 13, 19, 18, 28
Even though various EU (but also national) financing instruments already support local and regional climate adaptation action (e.g. European Structural and Investment Funds, but also Horizon 2020, LIFE, EU Solidarity Fund, Natural Capital Financing Facility), cities – especially smaller ones – still struggle in accessing such funds – in particular at an early stage of the process, when developing their climate risk and vulnerability assessments and drafting their local adaptation strategies. Both sub-national and national			

governments have a key role to play in this process, by directly offering funds or indirectly managing and redistributing those funds, and/or assisting the bundling and pooling of smaller-scale projects set up by municipalities in their territory. Moreover, it is very important for municipalities to develop their own (in-house) capacities and foster cross-departmental cooperation in drafting the adaptation plans instead of outsourcing the work to external experts. The provisions should therefore include the possibility to pay staff-time of municipality officers, in order to build in-house expertise.

How do existing EU policies/legislations/instruments contribute?

Today, there are some calls under Horizon 2020 and a few other programmes which can be used by cities to support the development of their climate risk and vulnerability assessment and/or adaptation plan, but those documents as such are not the expected deliverables, but rather a result of other project activities. LIFE program also covers, in part, adaptation planning, but since it is not the main aim of the program, it seems that nowadays the support provided is not sufficient. URBACT offers cities the possibility to develop plans through its Action Planning Networks, in a transnational partnership with other European cities. The level of financing available is not comparable with HORIZON 2020/LIFE, and climate adaptation is just one of the many topics available for cities to propose. Besides, the Covenant of Mayors provides technical assistance through capacity-building activities and twinning programmes, and some Covenant coordinators offer (directly or indirectly) financial support. Cities and towns who would need financial support to kick-start the process and draft their plan do not necessarily well fit into the existing calls, which support the implementation of specific adaptation actions, but not the development of adaptation plans.

Which action is needed?

The revision of the pre-conditions for accessing certain funds or the adjustment of selection and award criteria for grants for adaptation planning under the different programmes (mainly H2020[7]) by the Commission could enable and foster an easier access – notably by smaller municipalities.

Proposing a sort of “fast-stream access” to financial instruments for the drafting of adaptation plans for particular local and regional authorities based on factors - such as being already publicly committed to comprehensive adaptation (e.g. by joining the Covenant of Mayors initiative) is another option to be explored further.

Creating a new specific call linked to the elaboration of adaptation plans and directly targeting local governments could also be considered in order to ensure that most towns and cities in the EU end up with their own Climate Adaptation Plan (such as SECAP), in line with EU policies and strategies.

How to implement the action?

1. Assessing what financial support is available for cities through the already-existing (EU/National) funding programmes to carry out climate risk and vulnerability assessments and develop adaptation action plans.
2. In parallel, consulting cities – in particular small ones – to identify the main difficulties they face when carrying out their risk and vulnerability assessment and developing their adaptation strategies.
3. Developing a set of recommendations for fine-tuning existing EU financing instruments[8] so that they can be better used by small municipalities to draft adaptation plans and engage further (sub-)national authorities to best meet remaining cities’ needs (e.g. suggesting more specific provisions for (groups of) smaller municipalities in the next calls and adjusting other selection criteria).

[7] When it comes to LIFE, this will be done in partnership with action F3 “A new LIFE for urban adaptation”
[8] *Ibid.*

4. Integrating the proposed provisions in relevant calls.[9]
Funding sources and needs
SECAP-drafting costs range from 10.000€ to around 20.000€ for small towns. Allocating around 1M€ to Plan drafting would result in 50 to 60 new plans. If co-financing is asked then the number of new plans could be even doubled. However, adding co-financing would limit the possibility for small municipalities to apply, unless the rate is kept low. This call should be designed in order to primarily target small and medium sized municipalities with less resources to use external expertise.
Implementation risks
The time periods when the amendments to the existing call provisions can be made might not coincide with the implementation/finalisation time of this action – it needs to be taken into account that the recommendations resulting from the action might only be considered in further future.

[9] *Ibid.*

3.3 Better Knowledge

Reliable data is important for portraying the diversity of structures and tasks of urban authorities, for evidence-based urban adaptation planning and implementation. Knowledge on the vulnerabilities of urban areas to climate change needs to be further developed and brought to the users and decision-makers in local authorities; and successful experiences need to be better exploited. Initiatives taken in this context will be in accordance with the relevant EU legislation on data protection, the reuse of public sector information and the promotion of big, linked and open data.

The Climate Adaptation Partnership proposes the following actions under the objective Better Knowledge:

K1	Improving data accessibility for EU Municipalities in the framework of COPERNICUS
K2	Enhancing the urban content of Climate-ADAPT
K3	Political training academy on climate adaptation
K4	Enhancing citizen and stakeholder involvement at regional and local levels for climate adaptation urban agenda
K5	Promote open access of insurance data for climate risk management

Action K1	**Improving data accessibility for EU Municipalities in the framework of COPERNICUS**		
Short description:	Local Authorities need to better exploit the knowledge value resulting from COPERNICUS services so as to better plan climate adaptation strategies. This action aims at improving COPERNICUS data usability and would contribute to improved Risk and Vulnerability assessments of municipalities.		
Responsible institution:	ECMWF C3S (tbc)	***Contributing institutions:***	DG CLIMA, EEA, Potenza Municipality, JRC, DG GROW (tbc)
Implementation timeline:	01.2019 to 06.2020	***Intermediary deadlines:***	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring
Indicator of completion:	*The indicators to be defined.*		
What is the specific problem?		***Bottleneck(s) addressed:***	5, 10

Municipalities need effective tools for territorial analysis to better plan climate adaptation strategies and inform policy-makers at a local level. The data that would allow EU municipalities to deliver assessments of climate change baseline and future projections at city scale are at present not sufficiently available.

How do existing EU policies/legislations/instruments contribute?

COPERNICUS represents a significant EU investment and the available output products on territorial analysis have already boosted the territorial knowledge in relevant domains related to climate change adaptation.

The level of the disaggregation of datasets is still an issue. The Urban SIS[10] project has already looked into this issue by developing higher resolution climate products specifically for three case study cities (Bologna, Stockholm and Amsterdam). However further developments of C3S for urban areas would be important.

Municipal/city-scale data are necessary in order to improve the territorial knowledge and the monitoring capacity of environmental and climate variables.

The key requirements identified at this stage are:

- Improve data usability
- Facilitate access to data
- Deliver better user-friendly interface and guidance on the data
- Improve the guidance on limitations and uncertainty linked to COPERNICUS outputs.

Which action is needed?

It is necessary to:

1. Review COPERNICUS framework in order to identify technologies and procedures in order to allow Municipalities a wider access to thematic information specifically tailored for municipalities needs. Climate Change Copernicus Services (C3S) information contains both the baseline climate data variables as well as information on the projected climate.
2. Further action is needed regarding the development of specific higher resolution C3S data for municipalities.

How to implement the action?

A few actions have been preliminary identified:

- Identify the specific city needs regarding COPERNICUS program (ECMWF 3CS).
- Establish a technical/political table for the discussion of already available solutions and short-term improvements that COPERNICUS may provide to face those specific requests.
- Outline a middle-long term strategy to define new services by COPERNICUS targeted on EU Municipalities needs to address climate change issues.

Funding sources and needs

[10] Climate Information for European http://urbansis.climate.copernicus.eu/

Funding sources will be outlined in the second phase.
Implementation risks
• Risk of identifying gaps outside partners' area of expertise • Lack of sufficient resources

Action K2	**Enhancing the urban content of Climate-ADAPT**		
Short description:	To enhance the urban content of Climate-ADAPT, its usability and uptake by cities.		
Responsible institution:	European Environment Agency	***Contributing institutions:***	DG CLIMA; Covenant of Mayors for Climate and Energy; DG Regio; EASME; DG Research; EIB; Eionet; leaders of EU funded projects
Implementation timeline:	01.2019 – 06.2020	***Intermediary deadlines:***	01.2019 New version of Climate-ADAPT launched 06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring
Indicator of completion:	Increased use of Climate-ADAPT by cities and for urban context measured by number of views and downloads of urban content; number of high quality funding and financing urban adaptation case studies completed; webinar on urban contents of Climate-ADAPT carried out (June 2020).		
What is the specific problem?		***Bottleneck(s) addressed:***	2, 5, 6
The tools, guidelines and resources useful to city-level adaptation are present in Climate-ADAPT but have not been evaluated; the practitioners may have difficulties selecting the resources appropriate to their situation. Accessing climatic data at local resolution is another problem for urban practitioners due to data formats and complex user interfaces of many climate services, combined with uncertainty built into climate scenarios. The information on EU funding for urban adaptation requires more promotion, also through good practice case studies.			

How do existing EU policies/legislations/instruments contribute?

In the EU Adaptation Strategy, Climate-ADAPT is intended as the platform supporting better-informed decision-making, branded as the 'one-stop shop' for adaptation information in Europe. Climate-ADAPT includes urban content but does not have a specific urban focus. Climate-ADAPT is undergoing a revision in 2018. This, and a continuous management and enhancement in following years offer an opportunity for also addressing the problems listed above. Importantly, Climate-ADAPT contains the Urban Adaptation Support Tool (UAST)[11] developed by the Covenant of Mayors for Climate and Energy (CoM) and EEA to support development of Sustainable Energy and Climate Action Plans by CoM signatories.

The information on EU funding for urban adaptation is currently available through Climate-ADAPT, CoM website and DG Regio Cities page. The 'Financing urban adaptation report' (EEA, 2017) provides examples of funding use.

Copernicus Climate Services and other climate services[12] provide some information for cities on climate hazards (e.g. Sectoral Information System activities[13]; see also Action K1).

Which action is needed?

Specific consideration of urban practitioners' needs in the ongoing (2018) revisions and development of Climate-ADAPT in 2019-20, including: improvement of UAST content and its promotion; provision of access to climate services and climate data; promotion of information on and examples of urban adaptation funding and financing, through collaboration between EEA, CoM, DG Clima, DG Research, EASME and other partners; providing a space for the case studies on use of insurance data (see Action K5).

How to implement the action?

- Review of the UAST text and evaluation its resources (EEA, CoM, other partners (e.g. RESIN[14] project); 2018);
- Providing a page with access to Copernicus data and guidance on the uncertainty of climate scenarios
- Improving the visibility of the EEA-held data and information on climate change on Climate-ADAPT.
- Establishing mechanisms for promoting the outcomes of LIFE, Interreg and Framework Programme (FP) projects on urban adaptation on Climate-ADAPT (EEA, EASME, DG Research an DG Regio);
- Collection of case studies relating to funding and financing urban adaptation (EEA, CoM, EIB, EC, Eionet), including a possible publication of an updated report on urban adaptation/financing urban adaptation (2020).
- Improving coherence of information on EU funding for urban adaptation among Climate-ADAPT, CoM, DG Regio Cities website (EEA, CoM, DG Regio).
- Exploring the possibility of providing summary sheets on funding and financing of adaptation in several national languages (translation not to be done by EEA, but e.g. by CoM or translated by Member States).
- Promotion of urban contents of Climate-ADAPT through e.g. webinars on UAST organised jointly by CoM, EEA and DG Clima; distribution of information about the launch of the revised Climate-ADAPT website (Jan 2019).

[11] http://climate-adapt.eea.europa.eu/knowledge/tools/urban-ast
[12] see e.g. JPI Climate: http://www.jpi-climate.eu/ERA4CS
[13] http://climate.copernicus.eu/sectoral-information-system
[14] http://www.resin-cities.eu/home/

Funding sources and needs
To be managed within existing budgets or actions to be considered within future budgets.
Implementation risks
Low uptake of UAST resources Difficulties in identifying relevant case studies Lack of coordination with other platforms such as CoM, DG Regio Cities website, DRMKC

Action K3	**Political training academy on climate adaptation**		
Short description:	Give specific training to local politicians (mayors, councillors, political local leaders…) on the benefits of climate change adaptation, how to deal with adaptation in a city, how to communicate with the citizens and involve all actors affected by climate issues.		
Responsible institution:	CEMR (Council of European Municipalities and Regions)	***Contributing institutions:***	Energy adaptation partnership cities (Glasgow, Genova, Loulé, Potenza) and other interested ones; EUROCITIES, COSLA (Scottish Association member of CEMR).
Implementation timeline:	01.2019 to 06.2020	***Intermediary deadlines:***	2019 political training academy 1 and 2 2020 political training academy 3 TBC sessions in the cities 06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring
Indicator of completion:	Number of local politicians (mayors or other) attending/ number of sessions (e.g. 2 sessions in Brussels and separate sessions in the cities – 1 or 2 per city) Communication material produced (e.g. booklets for the academy sessions, online material)		

What is the specific problem?	*Bottleneck(s) addressed:*	3, 9, 27
Not every local politician (mayor or not) has a deep knowledge of what adaptation means to the city and the citizens and what concrete actions can be proposed. In the same way that there are trainings to technical experts, politicians can also benefit from a target training dedicated to them on the same topic. Adaptation measures sometimes requires substantial investment that can only be secured if there is sufficient political buy-in. This political support is often missing: the Covenant of Mayors needs-assessment report indicates that "Changes in the local political priorities" is the third most important barrier faced by city officers for the implementation of their Sustainable Energy and Climate Action Plans.[15] Sometimes there is a lack of political coordination on how to maximise the actions at city level. Communication at the level of the public also plays a key role from the mayor's side.		
How do existing EU policies/legislations/instruments contribute?		
Since 2013, the EU Adaptation Strategy encourages national, regional and local adaptation action to contribute to a climate-resilient Europe. The review of the EU Adaptation strategy will be adopted at the end of 2018. Although there is a lot of work done on adaption so far, there is a need to understand more from the local politicians' side in general so they can complement the work proposed by the technical experts. A right balance of understanding the challenge is a key to success.		
Which action is needed?		
In principle, two local political training academies can be held in Brussels in the period mentioned (co-organised by CEMR/EUROCITIES, alongside a mayor EU event) and then different smaller sessions in the cities involved in parallel with national, regional or local events which they have already planned.		
How to implement the action?		
The action is proposed to be implemented as from 2019 once the new EU Adaptation Strategy review is published. Local politicians will learn on the new measures proposed in such review to get a deeper knowledge on adaptation, be innovative, propose concrete adaptation measure in their cities and communicate better with the public and citizens.		
Funding sources and needs		
Own resources of the partners involved and depending on number of participants/location.		
Implementation risks		

[15] https://www.covenantofmayors.eu/component/attachments/?task=download&id=336 page 9

Low attendance of local politicians- to be addressed with targeted communication and coupling with other events where the politicians are participating.

Action K4	**Enhancing citizen and stakeholder involvement at regional and local levels for climate adaptation urban agenda**		
Short description:	Stakeholder engagement is key in municipal policy making and climate adaptation planning. Therefore, additional efforts need to be made in order to inform and raise awareness among citizens and other stakeholders on adaptation-related issues., but also to get feedback from the ground. This implies encouraging stakeholder consultation and participation as common practices at the municipal level when planning climate adaptation actions (i.e. in the framework of the Covenant of Mayors).		
Responsible institution:	EU commission	***Contributing institutions:***	All DGs, CoMO and city networks (CEMR, Climate Alliance)
Implementation timeline:	01.2019 to 06.2020[16]	***Intermediary deadlines:***	06.2019 Progress monitoring 12.2019 Regulations at EU level 06.2020 Progress monitoring
Indicators of completion:	N° of regulations including citizens participation as mandatory in strategic development planning N° of public consultation, working groups, forum, workshops, meeting with other municipalities organised Amount of resources reserved for the implementation of active participatory processes N° of plans, strategies, investments delivered under citizens' participation approach		
What is the specific problem?		***Bottleneck(s) addressed:***	*39*
Beyond political commitment, climate adaptation calls for long-term strategy. Drafting such local strategies in consultation with citizens and other relevant stakeholders is a key success factor to ensure in strategic decision making on climate adaptation policies and investments. The weakest points are: • Lack of effective tools for communication concerning the connection between risk management climate adaptation planning.			

[16] Deadline would eventually be modified according to public consultation feedback

- Lack of effective methodologies (shared by EU municipalities) for the definition of stakeholders' role and engagement in risk and climate adaptation field.

How do existing EU policies/legislations/instruments contribute?

EU and National governments and institutions have the means to further encourage stakeholder involvement in climate adaptation policy development as a driver for a greater participation at local level:

- A conformative approach oriented to consider stakeholder involvement as a precondition for funding
- A performative approach oriented to provide priorities in the evaluation for funding access, in relation to the level of participation achieved.

In order to move towards the second approach reference methodologies and effective monitoring

Which action is needed?

The local players have already largely demonstrated their capacities to directly engage with civil society and sufficiently empower other relevant stakeholders (e.g. universities, research institutes, thematic agencies, SMEs). The Commission and its initiatives for cities (e.g. the Covenant of Mayors and URBACT) shall therefore continue exploring new ways that encourage and facilitate a more participatory and collaborative approach where citizens and other players have their say in the decision making and planning stages at local level. This will ensure a greater awareness and commitment of citizens in climate adaptation policies and actions.

How to implement the action?

EU Commission acquires the needs identified by the Climadapt Action Plan on citizens and stakeholder involvement.

EU Commission and National Governments and sub agencies dealing with New Urban Agenda framework include in their regulations, the "stakeholders' involvement in climate adaptation policy" as a precondition for funding enhancing the performative approach oriented to include citizens in the decision process.

Managing Authorities (at EU, National and Regional levels) includes the "stakeholders' involvement in climate adaptation policy" as premiality criteria and/or reserve of additional resources in their procedures

Beneficiaries apply on the basis of a predefined participatory framework including tools, shared methodologies and techniques fixed by relevant Authorities with contributions from research sector.

Local Authorities develop Urban Agenda by mean of participatory procedures in decision making ensuring citizens empowerment n climate and adaptation policies.

EU Institutions monitor results of implementation in order to balance regulatory system

Funding sources and needs

Additional funds for those programs promoting participatory planning Participatory action has to be considered as part of project implementation and has to be funded as a component of an investment program.
Implementation risks
Lack of capacity in delivering effective participatory process at local authorities and beneficiary level. Prevailing of conformative approach due to restricted time frame for design and implementation of Urban Agenda. Criticalities in selection of effective participative methods as reference framework for local authorities and beneficiaries

Action K5	**Promote open access of insurance data for climate risk management**		
Short description:	Investigate and promote open access of insurance data for climate risk management		
Responsible institution:	DG CLIMA	***Contributing institutions:***	Municipalities, regional authorities, insurance and re-insurance companies and EIOPA (European Insurance and Occupational Pensions Authority)
Implementation timeline:	01.2019 to 06.2020	***Intermediary deadlines:***	12.2019 communication established and a cooperation initiative in place 06.2020 incorporation of the gathered information in some already ongoing urban municipal / regional plans
Indicator of completion:	Number of urban and regional plans that integrate climate and risk related information originating the insurance sector.		
What is the specific problem?		***Bottleneck(s) addressed:***	4,5,33

Risk transfer and disaster risk response are important elements of strategies on adaptation to climate change and disaster risk reduction. Climate related damage is expected to increase with climate change, due to increasing numbers of extreme-weather events that will also be increasingly powerful (storms, floods, heat waves, droughts). In terms of financial and economic damages, this will increase the burden on governments and citizens. The adaptive capacity of cities is an important factor in preventing damages. The insurance and public sector at municipal and city levels are not structurally sharing their knowledge of disaster loss data in local risk assessment and identification of adaptation options, which may lead to sub-optimal adaptation practice, leading in turn to higher damages, higher recovery costs and higher premiums for insurers.

How do existing EU policies/legislations/instruments contribute?

The EU Adaptation Strategy (2013) includes Action 8: Promote insurance and other financial products for resilient investment and business decisions. It promotes the use of products and services by insurance and financial markets. The 'adaptation preparedness scoreboard' that was developed as a tool in the EU Adaptation Strategy is also addressing the topic where one of the indicators (8e) states 'adaptation is mainstreamed in insurance or alternative policy instruments, where relevant, to provide incentives for investments in risk prevention'. Insurance aimed towards natural and man-made disasters was addressed by the Commission in a Green Paper[17] adopted along with the EU Adaptation Strategy. This focuses on a number of questions related to the adequacy and availability of appropriate disaster insurance. Its main objective was to raise awareness and to assess whether action at EU level could be appropriate or warranted to improve the market for disaster insurance in the EU. As a response to the public consultation, sharing of data was one of the main broadly supported desires by both the public and the insurance sector respondents. A recent study was conducted by DG CLIMA on 'Insurance of weather and climate related disaster risk: Inventory and analysis of mechanisms to support damage prevention in the EU'. It delivered important new insights and analysis in the field as well as policy recommendations, specifically on shared vulnerability assessment, transparency in public-private cooperation and who would cover which share of the risk and proposing a number of measures such as the use of community rating systems and allowing cities to pool their insurance. However, important gaps exist, specifically in terms of concrete next steps and a critical mass of pilot cases where sharing of risk data and loss data has been applied to improve local, urban or regional resilience.

Which action is needed?

This action will be a specific roll-out of action 8 of the EU Adaptation Strategy, serving the policy objectives of the Green Paper on Insurance of Man-Made and Natural Disasters and following a number of key recommendations made in the DG CLIMA study on insurance, disaster risk and climate change. It will lead to insights into structural data sharing to improve adaptation action, risk prevention, risk transfer and disaster risk management, and it will provide experience and potential evidence of how integrating insurance in adaptation and disaster risk management can improve climate resilience, lower climate risk and adjust the insurance business model to the consequences of climate change.

How to implement the action?

a) An outreach to municipal, regional and insurance stakeholders should be conducted before the start of this action.

[17] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52013DC0213

b) The action is proposed to be implemented after 2019 once the next Commission will assess the need for the revision of the Adaptation Strategy and will consider including any new or reinforced action. Analysis of 20 regional and urban adaptation plans to see which actions and investments are being planned to prevent or reduce the negative impacts of climate change; c) Integration of the economic development plans for the same regions and cities into the analysis under step a; d) Mapping of the extent to which insurance loss-data of climate-related extreme weather events have been used in those plans e) Improvement of the plans selected in step a, based on insurance data.
Funding sources and needs
The resources assigned for the implementation of this initiative would come from existing EU funding instruments such as LIFE.
Implementation risks
Failing to engage the insurance sector and getting access to the required information.

4 GOOD PRACTICES

Several repositories of implemented good practices on urban adaptation in Europe are available online, providing comprehensive sources of information, inspiration and learning:

Key EU sources for good urban adaptation practice cases:

- Climate-ADAPT case studies database
- Covenant of Mayors Good practices database and publication
- European Environment Agency reports
- LIFE programme publication on adaptation projects

Other sources:

- URBACT Good Practices
- Resilient Europe project solutions
- INTERREG Europe Good Practices Database
- INTERREG IVC Capitalisation – Climate Change
- Circle-2 Adaptation Inspiration Book
- Future Cities project cases compilation
- GRaBS project case studies- Green and blue infrastructure
- SIC adapt compilation of good practice tools and measures
- Making cities resilient - Role models
- KEEP (Interact portal of all Interreg projects, with some analysis of climate adaptation projects)
- Natural Water Retention Measures - NWRM platform
- Klimatilpassning.dk (English / Danish) Danish national portal
- KomPass Tatenbank (German) German national portal

5 LINKS WITH OTHER COMMITMENTS

5.1 Link with the cross-cutting issues

As stated in The Pact of Amsterdam, the complexity of urban challenges requires integrating different policy aspects to avoid contradictory consequences and make interventions in Urban Areas more effective. (NP-CEU 2016). This is particularly true for adaptation to climate change, which is inherently an issue of a complex and cross-sectoral nature.

Good urban governance is addressed by most of the Actions trough improving awareness, coordination and cooperation as well as by supporting robust governance decision-making with data, tools, methodologies, best practice and trainings.

The Action Plan strongly endorses **urban-urban and cross-border cooperation** proposing actions that foster coordinated learning between cities, countries and European roof organisations. It fosters and promotes participation in Europe-wide networks, such as Covenant of Mayors or city associations, which act as vehicle for such cooperation (see Actions R2, F1, K2, K3).

Sound and strategic urban planning is specifically targeted by Action R1 which strives to provide information and know-how on the successful use of urban development and planning regulations and tools for urban adaptation to climate change. Numerous other Actions (R2, F1, F2, F4, K1, K2, K4 and K5) likewise contribute to this cross-cutting issue aiming to provide essential knowledge, data and resources.

By addressing both vertical and horizontal integration, most of the actions promote **integrated approach** to adaptation planning and implementation, which in its focus ranges from integration between various levels of governance and stakeholders (R2, F2, K4) to cross-sectoral integration which is essential for adaptation (R1, F2, K5); to methodological integration that enables to address the complexity of the issue (F1, K1).

Albeit per se the Action Plan does not strive to emphasise innovation and rather endorses ‘good practice’ regardless of its innovation potential**, innovative approaches** appear in several Action, in particular those oriented towards provision of data, services and development of methodologies or new governance set-ups (R2, F1, K1, K4, K5)

An impact on societal change, including behavioural change, is the expected indirect outcome of the Action Plan as a whole and also the individual Actions, especially in terms of behavioural change among politicians, decision-makers, stakeholders, data holders, which would have trickle-down effect on the society as a whole. Actions K3 and K4 specifically target behavioural change by enhancing awareness of adaptation issues among local politicians and promoting higher engagement of stakeholders in adaptation planning and implementation processes.

Several Actions aiming to achieve improved accessibility of EU funds and knowledge resources for urban adaptation or promote participation in Covenant of Mayors pay special attention to the **challenges and opportunities of small- and medium-sized cities** (R2, F2, F3, K2). Action F4 in particular targets the specific needs of smaller municipalities in terms of adaptation funding.

The implementation of adaptation measures and **urban regeneration** are synergistic processes that benefit significantly from coordinated approach. Most of the processes that lead to the implementation of grey, green and blue adaptation measures will also contribute to urban regeneration. Thus, Actions R1, R2, F1, F2, F3, F4 and K5 are very likely to have an indirect positive effect on urban regeneration in a variety of European Municipalities. The same accounts for the **availability and quality of public services of general interest**- it is an intrinsic task of adaptation to ensure the good functioning of the urban systems providing public services in the light of impacts and disturbances resulting from climate change; every action that contributes to improved adaptation outcomes, safeguards the provision of these services.

5.2 New Urban Agenda and Sustainable Development Goals

The New Urban Agenda (NUA) of the United Nations was adopted in 2016 at the HABITAT III Conference and sets a shared strategic vision for sustainable urban development globally (UN GA 2016). This Action Plan aligns with a number of its statements (in particular 13, 79, 80 and 101) and leads towards their implementation on the European scale.

NUA Vision 13 g). Adopt and implement disaster risk reduction and management, reduce vulnerability, build resilience and responsiveness to natural and human-made hazards, and foster mitigation of and adaptation to climate change

The objective of the Climate Adaptation Partnership is to anticipate the adverse effects of climate change and take appropriate action to prevent or minimise the damage it can cause to Urban Areas and the aim of the Action Plan is to define specific actions that lead to the achievement of greater resilience and improved adaptation to climate change in Europe.

NUA Call for action 79. We commit ourselves to promoting international, national, subnational and local climate action, including climate change adaptation and mitigation, and to supporting the efforts of cities and human settlements, their inhabitants and all local stakeholders to be important implementers. We further commit ourselves to supporting building resilience and reducing emissions of greenhouse gases from all relevant sectors.

The Adaptation Partnership and its Members strongly share the commitment towards promoting climate change adaptation and the Action Plan is designed with direct inputs from stakeholders who are the actual or future implementers of urban adaptation efforts in order to understand their needs and provide targeted and effective support.

NUA Call for action 80. We commit ourselves to supporting the medium- to long-term adaptation planning process, as well as city-level assessments of climate vulnerability and impact, to inform adaptation plans, policies, programmes and actions that build the resilience of urban inhabitants, including through the use of ecosystem-based adaptation.

Even though the implementation period of the Action Plan is within the immediate short term, the intended impacts of the Actions are positive long-term changes and shifts in the quality, quantity, efficiency and effectiveness of adaptation planning processes on municipal level; including

thorough providing improved support and resources for climate vulnerability and impact assessments and development of adaptation strategies, plans, policies, instruments and on-the-ground measures.

NUA Effective implementation 101. We will integrate disaster risk reduction and climate change adaptation and mitigation considerations and measures into age- and gender-responsive urban and territorial development and planning processes, including greenhouse gas emissions, resilience-based and climate-effective design of spaces, buildings and constructions, services and infrastructure, and nature-based solutions. We will promote cooperation and coordination across sectors, as well as build the capacities of local authorities to develop and implement disaster risk reduction and response plans, such as risk assessments concerning the location of current and future public facilities, and to formulate adequate contingency and evacuation procedures

Due to the strong integrative elements of the proposed Actions (see previous chapter), the Action Plan provides an important contribution to this goal of effective implementation. The actions mostly focus on the aspects of integration between adaptation planning and urban planning, cooperation and coordination across sectors and governance levels and capacity and awareness-building activities. The Partnership commits to further development of the integration in the future work of the Adaptation Partnership and the subsequent iterations of the Action Plan.

***

The Sustainable Development Goals (SDGs) adopted in 2015 by the United Nations General Assembly set an even broader global perspective for sustainable common future. Goal 11 aims to 'Make cities and human settlements inclusive, safe, resilient, and sustainable' (UNGA 2015) and the targets 11.5 and 11.B speak about issues related to urban resilience to natural and man-made disasters, which are expected to be exacerbated by the projected climate change (IPCC 2014):

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.B By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

The Climate Adaptation Partnership process is a response to these important urban resilience issues recognised both globally and on the European level, however playing out on the local level. Acting locally is key for the successful achievement of the SDG, however local action can only be successful if it is supported by all governance levels in a concerted action. The participatory bottom-up approach, which is at the basis of this Action Plan, ensures that local realities and needs are brought together with a wide-ranging international expertise as well as national and international legislative and strategic mandates in defining coordinated state-of-the-art solutions – defined as specific Actions in the Plan - aimed to increase the number of urban areas adopting and implementing adaptation plans and strategies resulting in reduced human and economic losses due to climate change impacts.

5.3 Other commitments – Paris Agreement

The Action Plan and its Actions is likewise a contribution towards the Paris Agreement commitments of the EU, in particular for the achievement of Article 7 goal of *'enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change'* (UNFCCC 2015).

It aligns with the Paris Agreement recognition of the importance of the engagement of all governance levels, and the acknowledgement that adaptation action should be participatory, transparent and integrated, consider vulnerable groups, communities and ecosystems and should be based on and guided by best available evidence (UNFCCC 2015). Actions R1, F1, K1, K2 and K5 strive towards providing the best available evidence and know-how, while Actions R2, K3 and K4 contribute towards building transparent and participatory adaptation governance on the local level. The rest of the Actions aim to ensure the acutely necessary resources for successful urban adaptation planning and implementation on the European scale.

6 MONITORING

The implementation of the Action Plan will follow an iterative process of regular bi-annual progress updates, contingency management and circular feedback for the improvement of Action outcomes. Each Action will be assessed against the achievement of the intermediary and final deadlines as well as the progress achieved on the defined indicators of completion. The Monitoring Master template below will be used for the purpose.

Table 2 Monitoring Master Template

Action	Responsible institution	Implementation period	Intermediary deadlines	Indicators of completion
Action R1	National Authorities	01.2019-06.2020	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring	• Revised regulation systems of at least half of Member States
Action R2	CEMR/Covenant of Mayors Office	01.2019-06.2020	07.2019 Case Studies pitch 12.2019 Progress monitoring 06.2020 Progress monitoring	• N° of municipalities applying in the new COM through National municipality associations • N° of SECAPs delivered
Action F1	European Investment Bank (tbc)	01.2019-12.2021[18]	06.2019 Terms of Reference / Workplan 12.2019 Progress Monitoring 06.2020 Guidelines 12.2021 Toolkit	• Delivery of Guidelines and toolkit • Dissemination and training on use for at least the 20% of cities belonging to the contributors
Action F2	National Authorities	09.2019-06.2020	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring	• Recommendations established

[18] implementation will likely extend beyond the implementation period of the Action Plan as indicated in the Action description

Action F3	EUROCITIES	01.2019-06.2020	02.2019 Good practice review on multi-level coordination 09.2019 Gap analysis on LIFE TA, procedure, etc. 12 2019 European workshop 06.2020 At least one national dialogue 2021 New TA facility	• 1 European workshop completed with attendance of at least 25 participants • At least 3 (tbc depending final number of contributing institutions) national dialogues completed by June 2020 • Final evaluation of LIFE regulation 2014-2020 reflecting cities' bottlenecks • List of concrete suggestions to overcome those bottlenecks
Action F4	European Commission - DG CLIMA, DG ENV, DG RTD, DG REGIO	01.2019-06.2020	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring	• Number of local adaptation plans drafted thanks to specific provisions applying to new calls • Number of local climate risk and vulnerability assessments developed thanks to specific provisions applying to new calls
Action K1	ECMWF C3S (tbc)	01.2019-06.2020	06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring	*Indicators to be defined.*
Action K2	European Environment Agency	01.2019-06.2020	01.2019 New version of Climate-ADAPT launched 06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring	• Increased use of Climate-ADAPT by cities and for urban context measured by number of views and downloads of urban content; • Number of high quality funding and financing urban adaptation case studies completed; • Webinar on urban contents of Climate-ADAPT carried out (June 2020).

Action K3	CEMR (Council of European Municipalities and Regions)	01.2019-06.2020	2019 political training academy 1 and 2 2020 political training academy 3 TBC sessions in the cities 06.2019 Progress monitoring 12.2019 Progress monitoring 06.2020 Progress monitoring	• Number of local politicians (mayors or other) attending • Number of sessions (e.g. 2 sessions in Brussels and separate sessions in the cities – 1 or 2 per city) • Communication material produced (e.g. booklets for the academy sessions, online material)
Action K4	European Commission	01.2019-06.2020[19]	06.2019 Progress monitoring 12.2019 Regulations at EU level 06.2020 Progress monitoring	• N° of regulations including citizens participation as mandatory in strategic development planning • N° of public consultation, working groups, forum, workshops, meeting with other municipalities organised • Amount of resources reserved for the implementation of active participatory processes • N° of plans, strategies, investments delivered under citizens' participation approach
Action K5	European Commission - DG CLIMA	01.2019-06.2020	06.2019 communication established and a cooperation initiative in place 12.2019 Progress monitoring 06.2020 incorporation of the gathered information in some already ongoing urban municipal / regional plans	• Number of urban and regional plans that integrate climate and risk related information originating the insurance sector.

[19] Deadline would eventually be modified according to public consultation feedback

Annex A Roles within the Partnership

Role of the Technical Secretariat

The main role of the Technical Secretariat is to provide technical support to the Partnership. The support consists in five tasks:

1. Support the coordinator - the Secretariat will assist the Coordinator in setting up the Partnership, in organising mailing lists, in creating and update a calendar of events, assist the coordinator in organising meetings, participating in all meetings and drafting minutes;
2. Provide expertise to the Partnership - if needed, the Secretariat would mobilize additional external experts with EU experience on the topic, provide analytical work, review documents, draft documents, etc.;
3. Outreach and communication - the Secretariat will prepare information material (e.g. leaflets, brochures), maintain the collaborative platform (website), organize one-day workshop per Partnership per year, assist coordinators in a workshop at the EWRC (1 workshop per Partnership);
4. Reimburse travel costs - the Secretariat might provide reimbursement of travel costs, but only in exceptional case;
5. Support the European Commission - the Secretariat will monitor the progress of the Partnership (regular reports on the state of play), identify bottlenecks and the improvement needed (if needed), report back to the COM and to the UDG/ DGUM, draft guidelines and templates), organize two coordinators' meeting per year, provide assistance to the COM in managing Urban Agenda.

Roles of the Partnership Members

The roles of the Members described below are those provided by the Working Method described in the Partnerships chapter of the Pact of Amsterdam (NP-CEU 2016), with some additional provisions.

Coordinator

The coordinator is the key actor to make the Urban Agenda for the EU operational. Coordinator is the main contact point for the Members of the Partnership and other interested urban authorities, European Commission and Member States. The Partnership may ask the European Commission to facilitate the process, among others concerning the coordination between Partnerships, and to provide assistance for technical Secretariat duties and for expertise at EU level.

The Partnership Coordinator has specific roles and responsibilities listed below. It has to:

1. Organize Partnership meetings: prepare the agenda, send the invitations, provide meeting rooms (in their Ministry, City Hall, etc.), invite (external) keynote speakers when appropriate, draft the minutes, etc.;
2. Chair Partnership meetings;
3. Organize the work between Partnership meetings (e.g. written consultation, ask for contributions, prepare documents, etc.);
4. Be the link between the Partnership and the urban authorities, the Commission and Member States. It will meet the UDG and DG, provide them with a draft and concise annual report. It will be also the interlink with a wider range of interested parties such as

Urban Authorities, Member States not involved in the specific partnership and other stakeholders (in particular inform on the progress and offer the possibility to contribute e.g. through consultations, e-mails, updates, conferences, etc.);

5. Cooperate with the other Partnerships, when deemed of added value;
6. Participate and contribute to other working groups/ networks;
7. Coordinate the drafting of the Action Plan;
8. Monitor and report on progress [through inter alia the website (see chapter III, paragraph 2 of the Working Programme)];
9. Coordinate the work (e.g. ensuring that the contributions are prepared on time and at a good quality, mediating if there are different positions with a view to arriving at an acceptable position, etc.);
10. Define rules for the Communication Strategy of the Partnership
11. Coordinate the communication on actions and results (visibility);
12. Define rules for the Stakeholder Engagement of the Partnership
13. Send results from the Partnership to the DG meeting.

Partners

The Partners play specific roles and responsibilities to:

1. Contribute to the implementation of different actions foreseen in every step of the Workplan to define and implement the Action Plan;
2. Participate in the technical work of the Climate Adaptation Partnership with own resources;
3. Contribute to the Climate Adaptation Partnership through their own individual expertise but also through the wider knowledge of the organization they represent;
4. Promote and facilitate the debate about the Climate Adaptation Partnership within their territory.

Annex B Detailed Partnership Workplan

stage 1						stage 2			
Step 1 - Stocktaking		Step 2 - Preparatory actions (Identifying bottlenecks and potentials		Step 3 - Define the objectives and deliverables		Step 4 - Implementation of the Action Plan		Step 5 - Evaluation of the Partnership	
N.	**ACTIVITIES**	**N.**	**ACTIVITIES**	**N.**	**ACTIVITIES**	**N.**	**ACTIVITIES**	**N.**	**ACTIVITIES**
1.0	**Orientation Paper**	2.1	Working group A would cross the identified topics to research, analyse and report the referred bottlenecks/potentials to baseline the Action Plan definition	3.1	Identification of a set of actions that would feed the Action Plan to match the three BETTER specific objectives	4.1	Implementation of the action to CA BETTER REGULATION, BETTER FUNDING, BETTER KNOWLEDGE EXCHANGE	5.1	DG meeting will coordinate the evaluation of the work of the Partnership
1.1	Identify the existing work carried out on the Priority Theme (strategies, actions and working groups/ networks covering these issues at EU level	2.2	Working group B would cross the identified topics to research, analyse and report the referred bottlenecks/potentials to baseline the Action Plan definition	3.2	Action Plan Definition (and roadmap) indicating deliverables, target dates and the Partner responsible	4.2	Ensure the contribution to the Implementation of the Action Plan through meetings and crossing contacts - *by Coordinator*		
1.2	Limit the scope of the Partnership - Scoping papers	2.3	Working group C would cross the identified topics to research, analyse and report the referred bottlenecks/potentials to baseline the Action Plan definition	3.3	Key indicators, targets identification and definition (optional, but suggested)	4.3	Close reference with the expert and EU Commission support to guarantee the objectives achievement - *by Coordinator*		
1.3	Identify the sources and strategies of funding (people, time, facilities)			**3.4**	**Action Plan - Approval**	4.4	Interlinked sessions among partner to avoid mismatching of the general and specific objectives - *by Coordinator*		
1.4	Check expertise which could be made available for the functioning of the Partnership								
1.5	Check and arrangements to organise active participation to existing strategies, actions and working groups/ networks								
	Deadline		**Deadline**		**Deadline**		**Deadline**		**Deadline**
	M01 - M04 - M07 01/07/2017 01/10/2017 31/01/2017		**M05-M10 01/11/2017 30/04/2018**		**M06 - M12 - M18 01/12/2017 30/06/2018 31/12/2018**		**M19 - M36 01/01/2019 30/06/2020**		**M36 30/06/2020**

Annex C Working Group themes, topics and elements

Theme A - Working Group Governance

Topic 1 - Coordination and Organisational Structure

References highlight the following elements and needs:

- to promote dedicated local structure to boost institutional interest and/or enhance involvement in urban climate adaptation, awareness and change empowering the city skills' staff;
- to establish horizontal (i.e. across sectoral departments) coordination mechanisms and vertical (i.e. across governance levels) mechanisms;
- to establish consultative and participatory mechanisms, fostering the multi-stakeholder engagement in the adaptation process;
- to facilitate the development of a framework for knowledge-exchange across experienced staff in different European Cities.

Topic 2 - Political Cycle - Mandate

Partnership highlight the following elements and needs:

- to rethink traditional approaches adding and/or integrating climate adaptation, land use management and local regulatory frameworks to urban planning;
- to use Strategic Integrated Planning as common methodology to manage Urban area/Urban centre to cope with Climate Change Impacts;
- to ensure continued support of the public administration across several election cycles to maintain commitment to long-term actions and policies.

Topic 3 - Decision making criteria

References highlight the following elements and needs:

- to develop toolkits and decision frameworks that can effectively inform and support local policies and strategies on climate adaptation with multilevel governance coordination;
- to select reliable short-term and long-term socio-economic indicators to support decision-making drawing evaluating and connecting their interdependency on climate adaptation variables.

Summary of theme, topics and elements

THEME	TOPIC	ELEMENTS
GOVERNANCE & PLANNING	COORDINATION AND ORGANISATIONAL STRUCTURE	LOCAL STRUCTURES
		HORIZONTAL AND VERTICAL COORDINATION
		CONSULTATIVE AND PARTICIPATORY MECHANISMS
		KNOWLEDGE EXCHANGE
	POLITICAL CYCLE - MANDATE	URBAN PLANNING INTEGRATE CLIMATE ADAPTATION
		INTEGRATED STRATEGIC PLANNING
		COMMITMENT CONTINUITY
		TOOLKIT & DECISION FRAMEWORKS

THEME	TOPIC	ELEMENTS
	DECISION MAKING CRITERIA	RELIABLE INDICATORS TO SUPPORT DECISION MAKING PROCESS

Theme B - Working Group Knowledge

Policies for Climate Adaptation and risk reduction should be sustained by the knowledge of the urban and natural environment, its related specific hazard characteristics, as well as the availability of reliable data on the vulnerability and exposure of population, infrastructures and assets. Work in this area will take stock of the many methodologies that already exist at European level to help cities plan their adaptation measures and evaluate risks and vulnerabilities, such as the Climate ADAPT platform, etc. and the monitoring and reporting framework of the Covenant of Mayors for Climate and Energy.

Topic 1 - Risk Assessment

References highlight the following elements and needs:

- to monitor, record and report damages associated to climate related extremes;
- to carry out local and sectoral risk assessments;
- to list, monitor, and evaluate adaptation actions at the local level;
- to adopt customized (Europe Region) UNISDR Scorecard Indicators - Sendai Framework for Disaster Risk Reduction in relationship with other climate adaptation tools to establish which are the thresholds of urban/local communities resilience.

Topic 2 - Hazards and Exposures

References highlight the following elements and needs:

- to identify expected impacts of all kind of hazards (because communities could be potentially affected by) in selected context (urban-rural, urban-urban and cross-border) to manage the risks and to contribute to Climate Adaptation Planning at medium-term and long-term periods.

Topic 3 - Vulnerability analysis

References highlight the following elements and needs:

- to analyse the vulnerabilities as pre-requirement that contribute to understand that climate-related events may become disaster occurrences;
- to define different vulnerability profiles which depend on economic, social, geographic, demographic, cultural, institutional, governance and environmental factors;
- to assess the role of stressful non-extreme events (e.g. drought, warm spells, etc.) on exposed populations and infrastructures vulnerability.

Topic 4 - Data

References highlight the following elements and needs:

- to gather standardized methodologies to compare data between different urban contexts;
- to compare, elaborate and represent data in a dynamic way, taking into account time as the main variable.

Topic 5 - Expertise

Partnership highlight the following elements and needs:

- to involve experts to present, according to their experience in the field, the best methodologies, tools and concrete experiences, solutions for information management and knowledge dissemination (e.g.: projects implemented in their countries);
- to promote debates on the impact of climate change and identify the most critical sectors.

Topic 6 - Methodologies and Tools

Partnership highlight the following elements and needs:

- to inventory tools and products to facilitate the preparation and implementation of strategies about climate change (e.g.: Presentation of Methodologic processes already carried out in the context of Climate Change);
- guidance for sustainable urban planning, climate change plans;
- guidance on use of data and models for planning, implementation and monitoring;
- to develop and present innovative tools and products that facilitate the awareness and the dissemination among citizens (e.g.: Communication materials - Brochures, websites, brands);
- to promote techniques to facilitate the active involvement of the different actors (in particular through the creation of local and national networks, the involvement of partners and key actors in the implementation of Climate Change Adaptation);
- to propose a methodology to account for the climate adaptation contribution of urban infrastructure investments, including both individual investments and multi-sectoral investments under a city's long-term capital expenditure programme, and identify suitable indicators to be monitored by the local authorities – this would be particularly important to justify intervention by climate/green financing instruments or EU / IFI targeted interventions.

Summary of theme, topics and elements

THEME	TOPIC	ELEMENTS
KNOWLEDGE	RISK ASSESSMENT	MONITORING, RECORD AND REPORT DAMAGES
		LOCAL RISK ASSESSMENT
		LOCAL LEVEL ADAPTATION ACTION EVALUATION
		UNISDR SCORECARD CUSTOMIZED INDICATORS
	HAZARD AND EXPOSURE	EXPECTED IMPACTS IN SELECTED CONTEXT
	VULNERABILITY ANALYSIS	CLIMATE-RELATED EVENTS/ DISASTER OCCURRENCES
		VULNERABILITY PROFILES DIFFERENCES
		STRESSFUL NON-EXTREME EVENTS ROLE
	DATA	STANDARD METHODOLOGIES
		TIME RESPONSIVENESS
	EXPERTISE	INVOLVEMENT ON CONCRETE SOLUTIONS
		CLIMATE CHANGE IMPACTS/SECTORS DEBATES PROMOTION
	METHODOLOGIES AND TOOLS	SUPPORT CLIMATE CHANGE STRATEGIES
		GUIDANCE URBAN PLANNING/CLIMATE ADAPTATION
		GUIDANCE ON USE AND DATA MODELS
		INCREASED AWARENESS
		PROMOTION TECHNIQUE OF PROACTIVE INVOLVEMENT

THEME	TOPIC	ELEMENTS
		CITY'S LONG-TERM CAPITAL EXPENDITURE PROGRAMME ON CLIMATE ADAPTATION

Theme C - Working Group Resources

The capacity of human and natural systems to adapt to climate change depends on their resources availability. Adaptation opportunities, constraints, and limits are connected to the context of social actors, which includes individuals, businesses, government agencies, or other informal social groups. Sometime, difficulty in allocating and assessing adaptation resources is related with the lack of specific indicators on costs and benefits analysis, resource depletion, environmental change, and distributional issues.

Topic 1 – Funding

Partnership highlight the following elements and needs:

- evidence of gap between adaptation needs and funds available for adaptation to achieve a better assessment of global adaptation costs, funding, and investment. Studies estimating the global cost of adaptation is characterised by shortcomings in data, methods, and coverage;
- different financial products for different types of interventions (e.g. grants, loans, guarantees, credit enhancement etc.) which may come from different sources (e.g. national budget, ESIF resources, loans from commercial banks and/or IFIs, investments by private sector companies, etc.);
- different financing sources and products to support studies (e.g. CR-Climate Resilience VA-Vulnerability Analysis), capacity building, and capital investment.

Topic 2 – People

Partnership highlight the following elements and needs:

- institutional capacity of cities (including smaller cities) to handle climate adaptation and potential support needs;
- human resources, for example staff training on economic adaptation issues.

Topic 3 –Value of adaptation - social, economic.

Partnership highlight the following elements and needs:

- to evaluate costs and benefits of adaptation options and interdependencies between adaptation policies and other policies;
- to extend cost-benefits analysis/cost effectiveness analysis;
- to evaluate non-monetary costs and benefits related to adaptation options;
- to recognize that soft measures (e.g. early warning systems, disaster preparedness plans, change in operations and management etc.) can generate significant results without necessarily requiring large infrastructure investments;
- to extend cost-benefit analysis to the no-acting respect to municipalities, citizens, businesses;
- information sources;
- monitoring costs;
- to assess co-benefits of adaptation options in terms of e.g. mitigation, health, wellbeing, property values.

Topic 4 – Monetizing Climate Adaptation

Partnership highlight the following elements and needs:

- to identify the types of climate adaptation interventions or actions that could generate revenues or savings/reduced losses. This could justify the use of repayable sources of finance (e.g. loans, financial instruments);
- to analyse the potential for private sector investment in climate adaptation if the benefits of such investments for businesses and economic activities are demonstrated;
- to assess the need for a dedicated blending facility encompassing technical assistance (e.g. for CRVAs - Climate Risk Vulnerability Analysis - feasibility studies, etc.) and potential financing from international financial institutions.

Summary of theme, topics and elements

THEME	TOPIC	ELEMENTS
RESOURCES	FUNDING	GAP - ADAPTATION NEEDS/FUNDS AVAILABILITY
		DIFFERENT FINANCIAL PRODUCTS FOR INTERVENTIONS
		DIFFERENT FINANCIAL SOURCES FOR STUDIES CRVA
	PEOPLE	CAPACITY OF CITIES
		HUMAN RESOURCES
	VALUE OF ADAPTATION	COSTS/BENEFITS OF ADAPTATION OPTIONS EVALUATION/INTERDEPENDENCES
	MONETIZING CLIMATE ADAPTATION	EXTENDED COST BENEFITS ANALYSIS
		NON-MONETARY COST OF ADAPTATION OPTIONS
		SOFT MEASURE GIVE RESULTS WITHOUT LARGE INVESTMENTS ON INFRASTRUCTURES
		COST/BENEFIT OF NO-ACTING
		INFORMATION SOURCES
		MONITORING COSTS
		ASSESS COST/BENEFIT ADAPTATION OPTIONS
		CLIMATE ADAPTATION OPTIONS/ACTIONS TO GENERATE REVENUE OR SAVING/REDUCING LOSSES
		ANALYSIS THE POTENTIAL FOR PRIVATE SECTORS INVESTMENTS IF BENEFITS ARE DEMONSTRATED
		DEDICATED BLENDING FACILITY/TECHNICAL ASSISTANCE FOR E.G. CRVA

Cross-cutting Issues

The horizontal factors/issues represent the comparative enabler to perform the cross analysis devoted to find concrete bottlenecks and potentials to be addressed by the definition of the Action Plan with specific actions. Each issue is defined by parameters and elements chosen by the Partnership as qualifying factors.

Monitoring Indicators

Confidence is a key aspect since policy-decision-makers hesitation is often caused by the uncertainty still existing on climate trends and indicators. In order to better evaluate the expected local impacts and to implement more effective and focused measures cities would have at their

disposal a flexible process, connected to a continuous monitoring of adaptation actions in order to be evaluated and revised on a constant basis.
The topics' themes will be analysed respect to the following parameters and elements:

1 – Models' Uncertainty

- best availability of climate data and information that describe scenarios of future radiative forcing and variables that describe climate impacts;
- uncertainty about the trends of societal, economic, and technological change at local scale when introducing climate change factors as added variables.

2 - High resolution and high-end climate scenarios

- data resolution limits on climate scenarios to increase the geophysical, biological, and socioeconomic downscaling necessary to implement climate adaptation actions at local scale;
- critical system functionalities that are valuable to stakeholders and society (i.e., what are the urban adaptation requirements to face high-end Climate Change that can ensure the functionality of all networks, e.g. telecommunications, water, gas, electricity or transportation).

3 – Local Level indicator - Use and Application

- human deaths and injuries;
- number of permanently or temporarily displaced people and that ones directly and indirectly affected by climate events;
- impacts on properties, infrastructures, services, lifelines, ecosystem services, crops and agricultural systems and human health;
- impacts on psychological well-being and safety perception;
- financial or economic loss (including insurance loss).

Summary of issue, parameters and elements

ISSUE	PARAMETER	ELEMENTS
MONITORING INDICATORS	MODELS UNCERTAINTY	DATA AVAILABILITY ON FUTURE CLIMATE SCENARIOS
		UNCERTAINTY ON TRENDS VS CLIMATE VARIABLES AT LOCAL SCALE
	HIGH RESOLUTION & HIGH-END CLIMATE SCENARIOS	DATA RESOLUTION LIMITS
		CRITICAL SYSTEM FUNCTIONALITIES
	LOCAL LEVEL INDICATORS	HUMAN DEATH & INJURIES
		DISPLACED PEOPLE
		IMPACTS ON PROPERTIES
		IMPACT ON SAFETY PERCEPTION
		FINANCIAL & ECONOMIC LOSSES

Communication

This issue is linked to the wider problem of a modest public awareness and knowledge of Climate Change and his current and future impacts. The parameters are relevant to analyse how the public-private synergies could change and renew relationships between institutions and stakeholders and

how to improve and increase the communication in order to find the dissemination tools and methods needed to be more effective and accessible to the general public.
The topics' themes will be analysed respect to the following parameters:

1 - R&I stakeholders' engagement

- sharing learning and co-creation of knowledge between climate services providers (Universities, Research, Private sectors, etc.) and Institutions, and between Local government and communities to enhance the role of stakeholders;
- sharing lessons learnt on existing case studies among all actors;
- stakeholders' role and engagement methodology to rethink and effectively transfer cross-knowledge about identifying adaptation options and related selection criteria, contribute to decision-making frameworks design and integration of adaptation topics in traditional planning, improve cost-efficient combinations of measures;
- governance support and appropriate implementation timing of climate adaptation actions.

2 - Dissemination and Public Education

- communication and dissemination strategies and education models on climate change;
- risk communication tailoring to private sector and the general public, including local communities and specific social groups;
- characters of uncertainty and complexity of climate change and adaptation explanation.

3 - Local Action Groups - Communities Involvement

- gathering local population knowledge, data, information and capacities on reducing their exposure and vulnerability.

Summary of issue, parameters and elements

ISSUE	PARAMETER	ELEMENTS
COMMUNICATION	R&I STAKEHOLDERS' ENGAGEMENT	INTERLINK AMONG CLIMATE SERVICE PROVIDERS-LOCAL GOVERNMENT-COMMUNITIES
		LESSON LEARNED ON EXISTING CASE STUDIES
		ENHANCE STAKEHOLDER ROLE AS SHARING KNOWLEDGE ACTOR
		GOVERNANCE SUPPORT
	DISSEMINATION AND PUBLIC EDUCATION	STRATEGIES AND MODELS ON CLIMATE CHANGE
		TAILORED COMMUNICATION TO PRIVATE SECTOR/GENERAL PUBLIC
		EXPLANATION OF UNCERTAINTY OF CLIMATE CHANGE
	LOCAL ACTION GROUPS - COMMUNITY INVOLVEMENT	LOCAL POPULATION KNOWLEDGE GATHERING

Sectorial Impacts

Climate change impacts are expected to exacerbate existing climate-related risks and to create new risks for the biosphere and anthropic systems. Some of these risks may affect a particular European region and/or a particular sector. At the same time, in the same contexts, climate change could have some potential benefits. The sectors listed below summarize the most relevant to Urban Areas to assess methodologically concrete adaptation actions.

The topics' themes will be analysed respect to the following sector/parameters:

1 - Main sectors related to the biosphere:

- freshwater resources (large fraction of species faces increased extinction risk, loss of biodiversity);
- terrestrial and freshwater ecosystems (habitat modification, over-exploitation, pollution, and invasive species. Irreversible regional-scale change in the composition, structure, and function of terrestrial and freshwater ecosystems, including wetlands);
- coastal systems and low-lying areas (submergence, coastal flooding, and coastal erosion);
- marine systems (marine-species redistribution, marine-biodiversity reduction, reduced fisheries productivity);

2 - Main sectors related to the anthropic systems:

- food security and food production systems (negative impact on productivity, although individual locations may benefit);
- urban areas (heat stress, extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, and water scarcity pose risks in urban areas for people, assets, economies, and ecosystems);
- rural areas (water availability and supply, food security, and agricultural incomes, shifts in production areas of food and non-food crops);
- key economic sectors and services (changes in population, age structure, income, technology, relative prices, lifestyle, regulation, and governance);
- human health (increases in ill-health morbidity in many regions);
- human security (displacement of people, indirectly increase risks of violent conflicts);
- livelihoods and poverty (reduced economic growth, make poverty reduction more difficult, further erode food security).

Summary of issue, parameters and elements

ISSUE	PARAMETER	ELEMENTS
SECTORIAL IMPACT	BIOSPHERE	FRESHWATER RESOURCES
		FRESHWATER AND TERRESTRIAL ECOSYSTEMS
		COASTAL SYSTEM
		MARINE SYSTEM
	ANTHROPIC SYSTEMS	FOOD SECURITY
		URBAN AREA
		RURAL AREA
		KEY ECONOMIC AREAS
		HUMAN HEALTH
		HUMAN SECURITY
		LIVELIHOODS AND POVERTY

Annex D Overview of urban adaptation gaps, barriers and needs surveys

EU cities adapt project survey	Mayors Adapt survey for Knowledge Base Strategy	Committee of Regions report survey	Master Adapt project survey	Covenant of Mayors needs survey	Climate Adaptation Partnership survey on key bottlenecks
2013	2015	2016	2017	2017	2018
196 respondents	85 respondents	10 respondents	21 respondents	593 respondents	65 respondents
(DG CLIMA 2013)	(Romanovska et al. 2015)	(CoR 2016)	(Master Adapt 2017)	(CoM 2017)	Technical Secretariat of the Climate Adaptation Partnership
Main gaps, barriers and needs identified for urban adaptation in Europe					
Implementing adaptation measures	Knowledge gaps related to economic costs of climate change	Lack of awareness and political commitment	Lack of financial and human resources	Cities need the most support on climate adaptation (45.1%) (as compared to mitigation and access to energy pillars of the Covenant of Mayors)	Climate change adaptation is only in the mandate of city environmental departments, lack of integration between departments
Involving the community	Knowledge gaps on social impacts of climate change	Financial constraints, lack of funding, in particular for co-finding EU projects	Uncertainty regarding climate predictions at regional and local level	Limited financial resources	Too many tools and templates exist on adaptation to climate change, making it difficult for cities to find their way (need for more coherence on way forward)
Assessing impacts	Knowledge on impacts of climate change on essential urban services	Lack of appropriate legislative and regulatory frameworks on national level	The complexity, vulnerability and risk of climate change	Lack of technical expertise	The different time horizons of political cycles and climate adaptation policies (political timeline hinders policies)

Prioritising risks	Know-how on developing, selecting and applying adaptation indicators and the appropriate monitoring system	Limited cooperation between government levels	Lack of clarity in responsibilities and insufficient administrative structures	Support needed for adaptation in sectors buildings, energy, water and waste, and land-use planning	Barriers to obtaining data, lack of data sharing (need for centralization)
Creating organisational support	Understanding the economic and social impacts as well as costs and effectiveness of adaptation measures	Limited capacity to participate in exchange between cities		Know-how on implementing adaptation options	The communication used to 'spread the word' about climate adaptation policies are not suited to their target audience.
Knowledge on climate impacts	Know-how on safeguarding against maladaptation			Know-how on designing and prioritising actions based on certain criteria	Conflicting budget priorities within local authorities.
Communicating climate change	Long-term institutional set-up for urban adaptation			Know-how on designing an integrated approach for mitigation and adaptation	Insufficient resources and time/scale to implement projects/policies
Understanding of climate change	Relevant information being presented in a too technical manner and not easily understandable			Language barriers to accessing information and training	Lack of awareness, capabilities and resources within Local Authorities to draft Social, Environmental and Climate Assessment Procedures (SECAPs)
	Lack of awareness of which tools are most appropriate to guide cities according to which stage they are at in the adaptation cycle.				Lack of citizen awareness on climate issues
	Lack of national support or a national framework to facilitate action at city level				
	Lack of understanding of where to go, who can help and how to access available (credible) knowledge				

Annex E Overview of existing EU activities and initiatives on urban adaptation

Regulation and governance

- EU strategy on adaptation to climate change (Action 3: Promoting adaptation action by cities)
- Urban Agenda for the EU
- Covenant of Mayors for Climate and Energy Political commitments
- Relevant global processes with European participation:
    - UNFCCC/Paris agreement
    - Sustainable Development Goals
    - The New Urban Agenda
- Relevant international initiatives on adaptation and resilience with European city participation
    - UNISDR Making cites resilient campaign / 10 essentials and resilience scorecard
    - 100 Resilient cites
    - C40 cities

EU Funding and financing

Funding sources

- Mainstreaming adaptation in EU funding programs
- European Regional Development Fund
- Cohesion Fund
- INTERREG - European Territorial Co-operation Programmes
- LIFE programme
- EIB loans and instruments
- Horizon 2020 research funding
- Climate-KIC innovation initiative
- Urban Innovative Actions initiative
- Joint Programming Initiative Urban Europe
- URBACT programme on sustainable integrated urban development
- ESPON Programme on territorial development and spatial planning
- EBRD loans
- European Economic Area grants

Information on EU funding and financing

- Covenant of Mayors for Climate and Energy Funding guide
- EEA report 'Financing urban adaptation to climate change'
- Climate-ADAPT cases on adaptation funding and financing
- Various national contact points and events by funding and financing providers

Knowledge

- Covenant of Mayors for Climate and Energy Capacity support
    - Urban Adaptation Support Tool
    - Twinnings

    - SECAP and monitoring templates and guides
    - Webinar series
- Climate-ADAPT portal – urban adaptation content
    - Relevant EU policies and funding sources
    - Urban vulnerability map-book
    - Comprehensive knowledge database for urban adaptation information, data, tools and guidance.
    - Urban adaptation case studies
    - Adaptation measures database
    - Urban-relevant national adaptation information
    - Urban Adaptation Support Tool
- European Environment Agency /European Topic Centre for Climate Change Adaptation
    - EEA report Urban adaptation to climate change in Europe 2016 — Transforming cities in a changing climate
    - EEA report Urban adaptation to climate change in Europe 2012
    - ETC/CCA report Social vulnerability to climate change in European cities – state of play in policy and practice
    - Open European Day events at Resilient cities conferences
- COPERNICUS data and services, Urban SIS
- ESPON outputs
- URBACT outputs
- LIFE project outputs
- Eurostat city statistics
- Horizon2020 project outputs
- JPI Urban Europe project outputs
- JRC reports

Annex F Identified bottlenecks

1. Cross-departmental collaboration on adaptation within cities

Climate change adaptation is increasingly considered to be a social rather than environmental issue. However, it remains the mandate of environmental departments, despite affecting various local authority activity areas e.g. public health, transport and public housing. Especially in smaller municipalities there may not be dedicated sustainability team in the local government structure that would have a broader, or more systemic overview of the issues. To effectively tackle issues related to impacts of climate change on vulnerable groups (e.g. older people living alone being in danger during heatwaves; private tenants likely not to have contents insurance and thus affected by flooding), various local authority departments should come together, but this happens rarely. In particular the social care/public health departments are rarely involved in adaptation planning.

2. Accessing guidance on adaptation planning

There are many decision support tools already in existence, and the H2020 research projects keep on producing new ones. For cities often the problem is not the absence of knowledge, but too much information to choose from, and effectively not being able to 'see the wood for the trees'. What is needed is the evaluation of the existing tools and decision frameworks, with the engagement of cities, and their prioritisation - what is the most useful? Which tools are the most appropriate to which types of cities?

3. The different timeframes of political cycles and climate adaptation policies.

The significantly different timeframes of the much shorter political cycles and the longer spanning climate adaptation policies. The relatively short duration of political cycles favours an immediacy of results in areas that can be more easily perceived by the general public, creating the conditions for the neglect of climate adaptation policies. The closer we are to an electoral moment, the more this bottleneck influences decision-making.

4. Insufficient support information to the decision-making process

Absence of information, lack of skills and training to analyse the available information and inadequacy of the scale of the available information. The decision-making process should be grounded on sufficient and reliable data in order to produce expedite results which correctly address the perceived problem.

5. Barriers to obtaining the required data.

Local Authorities face difficulties when trying to obtain existing data from regional / national level organisations (e.g., Environmental Agencies, High Water Management Agencies, etc.) and such data may exist in a format which isn't readily usable. Obtaining data on any particular problem or issue is both time and resource consuming. Therefore, whenever such data already exists, it should be publicly and clearly shared in order to ensure awareness to its existence and promote its compatibility with different platforms and tools. A culture of cooperation should be pursued, whereby proper and formal channels are established and communication is ensured.

6. National level authorities do not promote / communicate EU CA funding opportunities in the most efficient manner

The EU makes certain funding opportunities (e.g., H2020) available for municipalities to take advantage of. National authorities are, by nature, more aware of such funding opportunities but often fail to properly communicate and inform local authorities of their existence. Local authorities fail to take full advantage of potential funding opportunities because they are unaware of their existence. The lack of knowledge about potential funding sources may deter the implementation of CA policies or limit the scope of such policies.

7. The scale and / or timeframes of existing funding opportunities may not be sufficiently tailored to the local authorities' needs

Existing funding opportunities often carry constraints in relation to the scale of the projects they are tailored to finance and the timeframes in which those projects should be implemented. Local authorities, especially the ones governing small portions of territory or a reduced population, often struggle to find funding opportunities for projects of a scope in accordance to their scale.

8. The communication methodologies used to 'spread the word' about climate adaptation policies aren't suited to their target audience

Stakeholders are often a diverse and heterogeneous group. In order to fully engage with them, a common and adequate level of language should be achieved. A mistargeted communication on climate adaptation policies may increase the public's resistance towards a change in behaviour. The more diverse and heterogeneous the stakeholders group is, the better the language used to engage with them needs to be tailored.

9. Different types of knowledge, awareness and / or commitment to climate adaptation in multi-level organisations.

Within most organizations, at a local, regional or national level, there is neither the same level of knowledge, awareness nor commitment to climate change adaptation issues. There is a need to ensure the same level of knowledge and commitment in the organization to the implementation of options and measures to adapt to climate change. On the other hand, addressing the risks associated with climate change may require a review of the main activities and decision processes implemented at different levels. Diverse levels of knowledge, awareness and commitment to climate change adaptation issues within multi-level organisations.

10. The scale of data is not as needed and there’s a lack of skills and training to analyse data.

The holders of climate information (= the scientific community) and the persons responsible for urban policies do not talk and do not communicate enough, because they’re not asked to do so or because they’re note organized to do so. There is a potential for national level to ensure data collection in line with the needs of cities.

11. Conflicting budget priorities

The structure of municipal budget might be a problem. In many cases transferring money from maintenance to investment budget allocations can be difficult. For adaptation projects this can be a serious difficulty since many investments will have “benefits” into the maintenance allocation budget. This is a problem since it makes it more difficult to decide to take action since benefits are not easily foreseen for the one making the investment. This can be seen in many Authorities and depends on how the Authorities budget is managed.

12. Insufficient resources to finance large projects

In some cases, measures to be taken need a strong investment by the Local Authority. Local Authorities have a lot of responsibilities and, in many cases, they do not have enough resources to finance the project. Even in new projects and urbanizations including adaptation criteria might not involve big investments, the already built urban area might need changes and specific adaptation measures which can be, sometimes, very important. This bottleneck is especially important in medium sized cities.

13. Difficulties in combining resources coming from the budget of different entities/ departments in the local administration

This difficulty arises due to the fact that adaptation is a cross-sectoral issue. Some actions should be leaded by different departments or entities, and a strong coordination between them is needed. For instance, the use of water in green areas might affect different departments: green areas department, urban planning, water supply (which can be outsourced), and an integrated action needs their coordination.

14. Borrowing capacity might be limited

Local Authorities might have their borrowing capacity limited due to the existing rules. This is of course a great bottleneck for them to get funds to invest in adaptation measures, which are measures that must be planned with a mid and long-term vision. Another issue is what is counted as a debt and what is not for a Local Authority. For instance, a leasing or renting mechanism, is it a debt in the accounting of the municipal budget? Furthermore, this constraint also limits the implementation of new financing schemes which in some cases could be considered as debt.

15. Daily priorities take time and resources from actions derived from mid and long-term plans such as SECAPs

Local Authorities deal with citizens and territory directly. Therefore a part from their legal responsibilities, frequently they must act even in areas they are not directly responsible for. This direct contact with the citizens involves that daily tasks are always a priority, and often there is not enough time to stop to think in a mid-long term plan. In many cities human resources are overloaded of work, making it more difficult the implementation of mid-long term measures.

16. Even EU is promoting the CoM and SECAP drafting, there are no specific funds or aids for Local Authorities to draft them.

Even a SECAP plan could be, in relative terms, not especially expensive for a medium or big city, the daily priorities and sometimes the lack of knowledge and awareness towards climate change for some decision takers makes it difficult drafting adaptation plans (SECAP or others). Having an adaptation plan is important in order to have a list of actions well prioritized which can help decision takers and at the same time raise awareness of the impacts of climate change. In some countries there are laws which make it compulsory to have climate plans, but if it is not so, many cities and towns won't do that.

17. Conflicting priorities and strategic objectives between national/ regional and local level

This bottleneck will affect differently to different countries and at different periods. It is important that national, regional and local strategies are aligned. If a national government doesn't have the same priorities as the ones stated in the regional or the local governments, it will be difficult to implement any action. National and regional governments can prioritize specific funds or even

approve legislation favouring adaptation measures, if climate change is not a priority, it will be very difficult for the Local Authorities to act.

18. Significant administrative burden and complexity of the funding application process
Once the funds are there cities might have difficulties in accessing them. Sometimes complex administrative procedures are needed in order to access the funds. Or calls are not clear enough (i.e. are they paying for a drafting a project and its realization? How is that if they pay also for drafting the project afterwards they ask information which only can be known if the project is already drafted?).

19. Difficulties in combining resources coming from the budget of different entities
Adaptation is a cross-sectorial issue and as already explained this makes it more difficult to act. Actions can involve different departments within the Local Authority but also different areas or departments from the national or regional Authorities, not being clear enough who is responsible for it.

20. Delays in the launch for the calls for application and/ or in the decision awarding the funding
Administrative procedures are complex and slow, this means that once a Local Authority has asked for a fund till the time they know if they can have it or not many months have passed. If the fund is given, the Local Authority could have difficulties on beginning the action on time, especially if the fund is given at the end of the year, when the Local Authority accounting is being closed. This means an extra delay of the action.

21. Overlapping between the different available financing opportunities and lack of a single entry-point
There are many calls within different programs and sometimes it is difficult to have information on all of them, or even to know the main differences. Which of the calls suits best for a specific project? This can be difficult to answer. Even the EU is advancing towards the one stop shop for all their funds, it is still difficult to have knowledge of the different opportunities.

22. Difficulties in providing co-financing to match the EU/ supranational funding available
In certain cases, projects (especially large ones) might be difficult to implement even with co-financing. Many of the calls form the EU have the aim of increasing knowledge, capacity building, exchanging practices and developing new methodologies, this can be really interesting but many cities also need to act. There is availability of funding mostly for preparatory stages of the project and lack of financing for infrastructure investments; and funds to invest usually need a co-financing. Some projects, even with co-financing cannot be developed by the Local Authority due to their limited budget or their borrowing capacity.

23. Administrative complexity of the application process, language barriers
Many of the calls are complex and most of them in English, templates to be filled and project structure can be really different depending on the program and call. This makes it difficult for the Local Authority staff to ask for them directly. Therefore, usually, they must hire specialised consultants to guide them through the process, drafting a proposal and drafting all reports needed. So, the Local Authority must have some budget to do so and the knowledge gained is outsourced, it is difficult that it remains in the Public Administration.

24. Difficulties in reaching a sufficient project size

Project size needed to access to some funds might be too big for medium sized towns and cities. Projects can be “relatively” small but they might be difficult to finance by own resources and at the same time might not achieve the minimum size required for a project. Here the role of supra-municipal entities can be important trying to bundle projects, however it is usually more difficult to do than it might seem, since different projects might have a different degree of maturity, involve different areas (Local Authorities organize different each other), different budget situations of the Local Authorities involved, etc.

25. Difficult to standardise since climate change vulnerabilities are local by definition

Furthermore, the perception of the impacts of climate change may vary depending on the location. An effort needs to be made to develop methodological instruments for measuring these impacts. CoMO is working this issue. This lack of standardization, by the nature of adaptation issues, makes it difficult to create of specific funds and assess the feasibility of the projects.

26. Mainstreaming is difficult to implement

It needs capacity building towards adaptation to climate change among all sectors involved and all kind of technicians (from environment areas. Urban planning, social services, education, civil protection, risk prevention, etc): Adaptation can be included as part of other actions and ideally should be mainstreamed in non-climate projects starting from the design phase. In many Local Authorities there are different departments which are affected; therefore, new ways of coordination should be established to avoid overlapping or contradictory decisions.

27. Lack of awareness towards climate change and its impacts among decision takers

Raising awareness, information and communication are crucial to prioritize actions and to help all stakeholders on decision-taking. The threats of climate change are difficult to foresee in the mid-long term. It is seen as something distant in time. This is important since this lack of awareness brings that adaptation plans can be belittled or even not perceived as needed (see bottleneck 6).

28. In EU funds there is no specific Technical Assistance support for Adaptation projects

There are EU funds to support technical assistance for sustainable energy projects, but that is not the case for adaptation projects. Adaptation projects are quite complex due to the cross-sectorial nature of it and there is a big difficulty on perceiving the economic benefits of acting. There is a strong need to prepare and draft the projects so they can be implemented and, to identify appropriate financing. So technical assistance could be of especial importance.

29. Green bonds are under-used

Green bonds are quite new and they could be a good way to finance adaptation actions, however cities should have a good rating, otherwise they cannot use them.

30. Adaptation is not included as a specific condition for CEF, Fisheries, AERDF, ERDF

This is a bottleneck to mainstream adaptation. Projects including adaptation are not specially valued so this is a contradictory message from EU. In one side EU is preparing the new strategy on climate change, on the other side funds do not include adaptation as a condition.

31. There are difficulties to establish PPP to execute adaptation actions

One of the problems of adaptation is its economic analyses (see bottleneck 22). The mismatch between the entity investing and the ones perceiving the benefits makes it difficult the participation of private investors. Insurance sector is perceived as one of the main potential private sectors that can be interested in participating.

32. Economic analysis of adaptation projects is difficult for several reasons
There can be a mismatch between the entity that bears the cost of the investment and that perceiving the benefits. The cost of adaptation has to be born in the present while the benefits may occur over a longer period of time. The probability and magnitude of climate change impacts are difficult to foresee and the expectations may be significantly different from reality. The impacts of climate change have both direct and indirect consequences and there are difficulties in establishing boundaries when estimating them. Ecosystem services studies, downscaling them to local level, will also be essential in order to understand benefits of adaptation, and can become a first step to monetize some of the benefits.

33. The accuracy of available data as well as sufficiently disaggregated information to assess climate change baseline at city scale is missing.

34. There is **lack of a common effective methodology to assess climate adaptation strategies/scenarios** at city level.

35. Cities do not have competence over biosphere. Biosphere is considered an important sector but it's competence is on the regional and national level (unless cities have a responsibility in a protected area). The cities do not have the competence in this sector and the biosphere is not high on the agenda of cities. Only in those cases where cities are responsibilities on protected areas biosphere emerges in the agenda
.
36. Data on biosphere is not available

37. There is lack of local municipalities capacities to include climate in risk protection.

38. Paradigm of vulnerability analysis needs to be changed in order to **include biosphere components in risk assessment processes.**

39. **Climate adaptation needs long term strategy and this is not the main dimension of political will and decision making**. Small and medium cities potential to be committed on long term strategy is limited (due to lack of resources and different priorities in urban management). Lack of effective tools for communication concerning the connection between risk management climate adaptation planning. Lack of effective methodologies (shared by EU municipalities) for the definition of stakeholders' role and engagement in risk and climate adaptation field

Annex G References

- Climate-ADAPT, 2018. Country information (CA 2018) http://climate-adapt.eea.europa.eu/countries-regions/countries
- Committee of the Regions, 2016. Regional and Local Adaptation in the EU since the Adoption of the EU Adaptation Strategy in 2013 (COR 2016)
- Covenant of Mayors for Climate and Energy, 2018. Covenant community – signatories https://www.covenantofmayors.eu/about/covenant-community/signatories.html (CoM 2018)
- Directorate General for External Policies of the Union, 2012. Human Rights and Climate Change: EU Policy Options (DG EXPO 2012)
- E3G, 2014. Underfunded, Underprepared, Underwater? Cities at Risk (E3G 2014)
- EU Covenant of Mayors Office, 2017. Covenant community's needs for SE(C)AP design and implementation (CoM 2017)
- European Commission – Directorate General for Climate Action, 2013. EU cities adapt - Adaptation Strategies for European Cities: Final Report (DG CLIMA 2013).
- European Commission, 2012. Charter of Fundamental Rights of the European Union (COM 2012)
- European Commission, 2013. Commission Staff Working Document Climate change, environmental degradation, and migration (COM 2013a)
- European Commission, 2013. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: An EU Strategy on adaptation to climate change (COM 2013b)
- European Environment Agency, 2012. Urban adaptation to climate change in Europe - Challenges and opportunities for cities together with supportive national and European policies (EEA 2012)
- European Environment Agency, 2013. Adaptation in Europe - Addressing risks and opportunities from climate change in the context of socio-economic developments (EEA 2013)
- European Environment Agency, 2014. National adaptation policy processes in European countries — 2014 (EEA 2014)
- European Environment Agency, 2016. Urban adaptation to climate change in Europe 2016 - Transforming cities in a changing climate (EEA 2016)
- European Environment Agency, 2017. Climate Change impacts and vulnerability in Europe 2016 – An indicator-based report (EEA 2017a)
- European Environment Agency, 2017. Financing urban adaptation to climate change (EEA 2017b)
- European Parliamentary Research Service, 2018. The Juncker Commission's ten priorities. State of play in early 2018. In-depth analysis. (EPRS 2018)
- European Topic Centre on Climate Change Impacts, Vulnerability and Adaptation, 2017. Social vulnerability to climate change in European cities – state of play in policy and practice (ETC/CCA 2017)
- Institute for Urban Strategies, The Mori Memorial Foundation, 2017. Global Power City Index 2017 (IUS 2017) http://mori-m-foundation.or.jp/english/ius2/gpci2/index.shtml
- Intergovernmental Panel on Climate Change, 2012. Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - Special Report (IPCC 2012)

- Intergovernmental Panel on Climate Change, 2014. Fifth Assessment Report Climate Change 2014 Impacts, Adaptation, and Vulnerability - Part A: Global and Sectoral Aspects (IPCC 2014)
- Joint Research Centre, 2015. Resilience of large investments and critical infrastructures in Europe to climate change (JRC 2015)
- Juncker, J-C., 2014. A New Start for Europe: My Agenda for Jobs, Growth, Fairness and Democratic Change. Political Guidelines for the next European Commission (Juncker 2014)
- Master Adapt, 2017. Climate change adaptation practices across the EU mainstreaming adaptation policies at regional and local level (Master Adapt 2017)
- McKinsey Global Institute, 2011. Urban world: mapping the economic power of cities (MGI 2011)
- Netherlands Presidency of the Council of the European Union, 2016. Urban Agenda for the EU: Pact of Amsterdam (NP-CEU 2016)
- Reckien D, Salvia M, Heidrich O, Church JM, Pietrapertosa F, De Gregorio-Hurtado S, D'Alonzo V, Foley A, Simoes SG, Lorencová ElišKrkoš, Orru H, Orru K, Wejs A, Flacke J, Olazabal M, Geneletti D, Feliu Efré, Vasilie S, Nador C, Krook-Riekkola A, Matosović M, Fokaides PA, Ioannou BI, Flamos A, Spyridaki N-A, Balzan MV, Fülöp O, Paspaldzhiev I, Grafakos S, Dawson R, 2018. How are cities planning to respond to climate change? Assessment of local climate plans from 885 cities in the EU-28, Journal of Cleaner Production (Reckien et al. 2018)
- Romanovska, L., Dworak, T., Hendel Blackford, S., Forster, S., 2015. Mayors Adapt Knowledge Base Strategy: Urban adaptation knowledge gaps in Europe. Internal working document of the European Commission (confidential). (Romanovska et al. 2015)
- Sendai Framework for Disaster Risk Reduction 2015-2030 - United Nations Office for Disaster Risk Reduction (UNISDR 2015)
- United Nations Conference on Housing and Sustainable Urban Development, 2016. Habitat III - New Urban Agenda (UN GA 2016)
- United Nations Framework Convention on Climate Change, 2015. Paris Agreement (UNFCCC 2015)
- United Nations Framework Convention on Climate Change, 2018. NAZCA Tracking Climate Action (UNFCCC 2018) http://climateaction.unfccc.int/cities
- United Nations General Assembly, 2015. Transforming our world: the 2030 Agenda for Sustainable Development (UNGA 2015)
- World Bank, 2018. Urban population (% of total) https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS (WorldBank 2018)
- World Economic Forum, 2017. The Global Risks (WEF 2017)